Outline of Practical Affairs
February 4, 2012

Contents

Note: To look up references, see the Consciousness Bibliography, listing 10,000 books and articles, with full journal and author names, available in text and PDF file formats at http://www.outline-of-knowledge.info/Consciousness_Bibliography/index.html.

PRAC>Food

food
Food types {food} are appetizer, soup, salad, condiment, main course, meat, vegetable, starch, dessert, and drink.

viand
human food item {viand}.

victual
human food item {victual}.

food coloring
Water-soluble pigments {food coloring} have standard numbers.

pareve
fish, fruits, vegetables, and eggs {pareve}, not meat or dairy.

PRAC>Food>Meal Types

brunch
Combined breakfast and lunch {brunch} can be from 10 AM to 2 PM.

buffet
Food is on tables or in warmers {buffet, food}, from which people add to their plates.

dim sum
In Asian restaurants, dumplings, seafood, vegetables, and desserts can come to tables, and patrons select some, which servers record {dim sum}.

PRAC>Food>Fat

lard
solid, white, animal fat {lard, fat}.

margarine
solid, yellow, hydrogenated, vegetable oil {margarine}.

shortening
solid, white, hydrogenated, vegetable oil {shortening}.

suet
animal fat piece {suet}.

PRAC>Food>Flavoring

extract flavor
Flavors {extract, flavor} come from lemon, orange, almond, or vanilla.

butterscotch
butter, brown sugar {butterscotch}.

caramel
browned sugar {caramel} {caramelize}.

chocolate
Roasted brown cacao seeds {chocolate} can be sweet, semi-sweet, bitter or dark, or white.

vanilla
South-American tropical-orchid seed pods {vanilla} have flavor.

wintergreen flavor
Wintergreen bush has leaves {wintergreen flavor} and edible red berries.

PRAC>Food>Animal

food from animals
Food can be dairy, meat, or eggs {food from animals}.

PRAC>Food>Animal>Dairy

butter
churned cream {butter}.

whey
curdled-milk watery part {whey}.

yogurt
Milk {yogurt} treated with yeast can thicken and be sour.

PRAC>Food>Animal>Dairy>Cream

cream of milk
Fatty liquid {cream, milk} can separate from milk.

ice cream
Sweetened ice-cold cream {ice cream} can stir in air. Ice cream {Neapolitan ice cream} can have vanilla, strawberry, and chocolate layers.

sour cream
thick cream {sour cream}.

whipped cream
Whisking cold heavy cream {whipped cream} can put in air and thicken.

PRAC>Food>Animal>Dairy>Cheese

American cheese
orange, mild {American cheese}.

beerkaese
orange, aromatic, flavorful {beerkaese}.

bleu cheese
White flavorful cheese {bleu cheese} can have blue streaks.

Brie

white, mild, creamy {Brie}.

Camembert
white, mild, creamy {Camembert}.

cheddar
orange, sharp {cheddar}.

Cheshire
flavorful {Cheshire}.

cottage cheese
white, mild, curdled {cottage cheese}.

cream cheese
white, soft, mild {cream cheese}.

Edam
orange, medium-flavored {Edam}.

emmenthaler
yellow-white, dry, mild {emmenthâler}.

Gouda
orange, moist, mild {Gouda}.

Gruyere
white, mild, slightly creamy {Gruyere}.

havarti
yellow-white, moist, mild {havarti}.

Liederkranz
aromatic, flavorful {Liederkranz}.

Limburger
aromatic, flavorful {Limburger}.

Monterey jack
white, soft, mild {Monterey jack}.

mozzarella
white, soft, mild {mozzarella}.

Muenster
yellow-white, soft, mild {Muenster}.

neufchatel
yellow-white, dry, mild {neufchâtel, cheese}.

Parmesan
light orange, dry, mild {Parmesan}.

pot cheese
white, mild, curdled {pot cheese}.

process cheese
mild {process cheese}.

provolone
yellow-white, dry, mild {provolone}.

Romano cheese
light orange, dry, mild {Romano}.

Roquefort
White flavorful cheese {Roquefort} can have blue streaks.

sapsago
soured skimmed whole cow's milk {sapsago}.

Swiss cheese
yellow-white, dry, mild {Swiss cheese}.

PRAC>Food>Animal>Dairy>Milk

milk drink
Cow, goat, and sheep mammary glands produce fluid {milk, food} that is not as sweet as human milk.

buttermilk
Churning milk can make it part butter {buttermilk}.

condensed milk
Milk {condensed milk} can be sweet and thick.

dry milk
Cold and vacuum can dry milk {dry milk}.

evaporated milk
Evaporating milk {evaporated milk} can remove half of water.

homogenized milk
Homogenizing milk {homogenized milk} mixes cream and milk thoroughly.

pasteurized milk
High heat kills bacteria {pasteurized milk}.

skim milk
Unhomogenized milk {skim milk} can have top cream removed.

sour milk
Yeast can curdle milk {sour milk}.

PRAC>Food>Animal>Meat

frog's leg
white and chicken-like {frog's leg}.

game food
Wild meat {game, meat} can be grouse, mallard duck, partridge, pheasant, quail, rabbit, deer or venison, or woodcock.

lamb food
Cuts {lamb, meat} are chop, crown roast, shank, breast, cutlet, kidney, leg, and liver.

mutton
sheep {mutton}.

oxtail
ox tail meat {oxtail}.

snail as food
land mollusk {snail, food} {escargot, food}.

venison
deer meat {venison} {deer, food}.

PRAC>Food>Animal>Meat>Cut

cervelet
brain {cervelet}.

chop
shoulder, rib, or loin bone and meat {chop}.

cold cut
Cold cuts {cold cut} are bologna, liverwurst, salami, and cervelet.

cutlet
thin-sliced leg or rib meat {cutlet}.

heart food
Hearts {heart, food} can be from beef, calf, or lamb.

hock ankle
ankle {hock, ankle}.

kidney food
Kidneys {kidney, food} can be from beef or lamb.

liver food
Livers {calf liver} {beef liver} {liver, food} can be from beef or calf.

shank meat
leg meat {shank, leg meat}.

sparerib
beef or pork ribs {sparerib, meat}.

steak
beef cut across grain {steak}.

sweetbread
intestines {sweetbread}.

tongue food
beef {tongue, food}.

tripe
intestine {tripe, intestine}.

PRAC>Food>Animal>Meat>Sausage

bologna meat
smoked beef and pork sausage {bologna}.

bratwurst
pork and veal sausage {bratwurst}.

Braunschweiger
liver sausage {Braunschweiger}.

frankfurter
smoked beef and pork sausage {frankfurter}.

liverwurst
liver sausage {liverwurst}.

salami
spicy and salty sausage {salami}.

variety meat
pork and beef sausages {variety meat}.

Vienna sausage
marinated beef sausage {Vienna sausage}.

wiener
frankfurter {wiener}.

PRAC>Food>Animal>Meat>Beef

beef cut
Beef has cuts {beef cut}.
trunk
neck to ribs {chuck steak}. chest ribs and/or meat {brisket}. from lowest rib to hip {flank steak}. T-bone plus tenderloin piece {porterhouse}. ribs {rib, meat}. rib bone and meat {rib eye}. rib meat {rolled rib}. short-rib bones and meat {shortrib}. rib bones and lean meat {sparerib, beef}. rib bone and meat {standing rib}.
loin
upper loin {sirloin}. side and back from ribs to pelvis {loin, meat} {end loin} {short loin}. selected loin meat {filet mignon}. loin-end meat and bone {T-bone}. select loin meat {tenderloin}.
rump
rump to shank {round steak} {top round} {bottom round}. buttock {rump steak}. leg meat and bone {shank, meat}.
sizes
small steak {club steak} {strip steak} {New York strip}. large steak {plate steak}. other meat {London broil}.

chipped beef
thin-sliced dried beef {chipped beef}.

corned beef
ground beef and corn {corned beef}.

dried beef
thin-sliced dried beef {dried beef}.

hamburger
ground beef {hamburger}.

pastrami
spiced beef breast or shoulder {pastrami}.

veal
Calf meat {veal} can be breast, chops, loin chops, rib chops, cutlet, kidney, liver, loin, or shoulder from calf.

PRAC>Food>Animal>Meat>Poultry

poultry
domesticated chicken, duck, goose, or turkey {poultry}.

Cornish hen
small domesticated fowl {Cornish hen}.

duck food
medium size fatty wild or domesticated fowl {duck, food}.

egg
chicken, duck, goose, or quail {egg, food}.

giblet
Giblets {giblet} are heart, neck, liver, spleen, and gizzard from fowl.

goose food
large fatty domesticated fowl {goose, food}.

grouse food
gray or brown chicken-like wild fowl {grouse, food}.

guinea hen
black domesticated pheasant-shaped fowl {guinea hen, food} {guinea fowl}.

partridge
medium size plump wild fowl {partridge}.

pheasant
colorful medium size chicken-like wild fowl with long tail {pheasant}.

quail food
Small chicken-like wild fowls {quail, meat} have short tails.

squab
young domesticated pigeon {squab}.

turkey food
large domesticated fowl {turkey, food}.

woodcock food
Medium size wild fowls {woodcock, food} have short legs and long bills.

PRAC>Food>Animal>Meat>Poultry>Chicken

chicken
Domesticated fowls {chicken, food} have white and dark meat: breast, back, leg, thigh, wing, and liver.

broiler chicken
young small chicken {broiler chicken}.

capon
young unsexed male chicken {capon}.

poularde
hen {poularde, hen}.

poulet
young chicken {poulet, chicken}.

PRAC>Food>Animal>Meat>Pork

pork
Cuts {pork} are ham hocks, pork shoulder, roast, Boston butt, loin, chops, crown roast, shoulder butt, spareribs, or tenderloin. Pork can be cured pork, ham, sausage, scrapple, bacon, or Canadian bacon.

fresh pork
uncured pork {fresh pork}.

cured pork
bacon, frankfurter, or ham {cured pork}.

chitterling
pig intestines {chitterling}.

crown roast
pork loin {crown roast}.

fatback
pig upper side {fatback}, salt cured.

pig's knuckle
pig feet bones {pig's knuckle}.

scrapple
fried pork liver mush {scrapple}.

sowbelly
pig uterus {sowbelly}.

suckling pig
young pig {suckling pig}.

PRAC>Food>Animal>Meat>Pork>Bacon

bacon
smoked and salted pig back and sides {bacon}.

Canadian bacon
smoked and salted pig back and sides {Canadian bacon}.

rasher
thin sliced fried or broiled bacon {rasher}.

PRAC>Food>Animal>Meat>Pork>Ham

ham
Pig hind-leg thigh meat {ham, food} can be dry smoked {Virginia ham}, cured {Kentucky ham}, or cooked and marinated in salt water {canned ham}.

picnic ham
cured pork shoulder {picnic ham}.

PRAC>Food>Animal>Meat>Fish

bass food
ocean, lake or river {bass, food}.

bluefish
ocean {bluefish}.

carp fish
lake {carp, food}.

eel food
long, thin, ocean or lake or river {eel, food}.

lox
salmon smoked and thin sliced {lox}.

mackerel food
ocean {mackerel, food}.

perch food
lake and river {perch, food}.

pollock
large, white {pollock}.

red snapper
red, ocean {red snapper}.

salmon food
Large ocean and river fish {salmon, food} can have red or orange flesh.

shad
ocean and river {shad}.

smelt food
small, silver, ocean {smelt, food}.

swordfish food
Large ocean fish {swordfish, food} can have extended upper jaws.

trout food
River and lake fish {trout, food} can have white flesh.

whitefish food
lake and river, silver {whitefish, food}.

whiting
ocean {whiting}.

PRAC>Food>Animal>Meat>Fish>Cod

codfish
North Atlantic Ocean {codfish}, similar to haddock.

finnan haddie
haddock smoked {finnan haddie}.

haddock
North Atlantic Ocean, similar to cod {haddock, food}.

hake
North Atlantic Ocean, similar to cod {hake}.

scrod
immature cod or haddock {scrod}.

PRAC>Food>Animal>Meat>Fish>Egg

beluga caviar
Caspian-Sea sturgeon eggs {beluga caviar}.

caviar
sturgeon, pike, or whitefish eggs {caviar}.

roe
fish eggs {roe, food}.

PRAC>Food>Animal>Meat>Fish>Flatfish

butterfish
ocean, flatfish {butterfish}.

flounder food
ocean, bottom, flatfish {flounder, food}.

halibut food
large, North Pacific Ocean and Atlantic Ocean, flatfish {halibut, food}.

sole food
ocean flatfish {sole, food}.

PRAC>Food>Animal>Meat>Fish>Herring

herring food
Pacific Ocean and Atlantic Ocean {herring, food}.

kippered herring
herring salted and smoked {kippered herring}.

anchovy food
small, ocean, herring {anchovy, food}.

sardine
small, ocean, herring {sardine, food}.

PRAC>Food>Animal>Meat>Fish>Pike

pike food
Lake and river fish {pike, food} can have long noses and thin bodies.

pickerel food
lake and river, similar to pike {pickerel, food}.

PRAC>Food>Animal>Meat>Fish>Tuna

tuna
large, ocean {tuna}.

albacore food
large, ocean, tuna {albacore, food}.

pompano food
tropical, ocean, similar to tuna {pompano, food}.

PRAC>Food>Animal>Meat>Fish>Shellfish

shellfish
clam, crab, lobster, oyster, scallop, shrimp, mussel, and prawn {shellfish, food}.

clam food
ocean, bivalve {clam}.

crab food
Crabs {crab, food} can be hard-shell, soft-shell, or Alaskan king.

lobster food
ocean, crustacean {lobster, food}.

oyster food
ocean, bivalve {oyster, food}.

prawn food
large shrimp {prawn, food}.

scallop food
ocean, bivalve {scallop}.

shrimp food
small, ocean, crustacean {shrimp, food}.

PRAC>Food>Animal>Meat>Fish>Mollusk

octopus food
ocean, mollusk {octopus}.

sea snail
ocean {sea snail, food}.

squid food
ocean {squid}.

PRAC>Food>Vegetable

artichoke
Green thistles {artichoke, food} can be French, globe, or Jerusalem: artichoke-flower white soft base {artichoke heart}.

avocado
green or black outside, green inside, medium, soft, oily {avocado}.

caper
green, small, ball {caper}.

cauliflower food
white, large, round {cauliflower, food}.

kangkong
green, stems with medium leaves {kangkong} {kang kong} {tangkong} {swamp cabbage} {water spinach}.

okra
green, medium, tapered cone {okra}.

olive
green or black, small, oval {olive, food}.

produce
fresh vegetables {produce}.

tomato
red, medium, round {tomato, food}.

PRAC>Food>Vegetable>Green

greens
Greens {greens} can be beet, chervil, chicory, chive, collard, cress, dandelion, endive, escarole, kale, lettuce, mint, parsley, spinach, Swiss chard, turnip, or watercress leaves.

chervil
green, medium, aromatic leaves {chervil}.

chive
green, small, tube leaf {chive}.

collard
green, medium. leaves {collard}.

cress
green, medium, leaves {cress}.

dandelion green
green, medium, leaves {dandelion green}.

endive
green, medium, leaves {endive, food}.

escarole
green, medium, curly leaves {escarole, food}.

mint
green, small, leaf. Mint {mint, food} can be peppermint or spearmint.

parsley
green, medium, leaf {parsley}.

spinach
green, medium, leafy {spinach}.

Swiss chard
chard {Swiss chard}.

watercress
green, small, leafy {watercress}.

PRAC>Food>Vegetable>Green>Lettuce

lettuce
light green, medium, leafy. Lettuce {lettuce} can be Boston, iceberg, or Simpson.

Romaine lettuce
light green, medium, leafy {Romaine lettuce}.

PRAC>Food>Vegetable>Stalk

asparagus
green stalk {asparagus, food}.

celery
light green, medium, stalks {celery, food} {celery heart}.

fennel
seeds or stalks {fennel} {finochio}.

rhubarb food
red and green, medium, stalks {rhubarb, food}.

PRAC>Food>Vegetable>Root

arrowroot
American tropical-plant white root {arrowroot} can make starch.

carrot
orange, medium, long tapered cone {carrot, food}.

celeriac
white, root {celery root} {celeriac} {knob celery}.

parsnip

white, medium, round {parsnip}.

salsify
root, light flavor {salsify} {oyster plant}.

taro root
white, medium, oval {cassava, food} {taro root}.

tuckahoe
arum root {tuckahoe}.

PRAC>Food>Vegetable>Root>Beet

beet
red, medium, round root {beet}.

chard
beet, green, large, leaves {chard, food}.

sugar beet food
red, medium, round {sugar beet, food}.

PRAC>Food>Vegetable>Root>Potato

potato food
Potatoes {potato, food} can be new, Idaho, russet, or white and be brown, white, or red outside; white inside; medium; and oval.

sweet potato as food
yellow or orange, medium, oval {sweet potato, food}.

yam food
red, medium, oval {yam, food}.

PRAC>Food>Vegetable>Root>Radish

radish
red outside, white inside, small, round {radish} {watermelon radish}.

horseradish
white, medium {horseradish}.

PRAC>Food>Vegetable>Root>Turnip

turnip
medium, round {turnip, food}. Turnips can be white or yellow, with some purple.

kohlrabi
plant base {kohlrabi} {cabbage turnip}.

rutabaga
yellow turnip, medium, round {rutabaga, food}.

white turnip
white, medium, round {white turnip}.

yellow turnip
yellow, medium, round {yellow turnip}.

PRAC>Food>Vegetable>Seed

caraway seed
small, aromatic, from caraway plant {caraway seed}.

hemp seed
small, from hemp grass {hemp seed}.

mustard
yellow, small seed, from mustard plant {mustard, food}.

pumpkin seed
large, thick shell, from pumpkin vine {pumpkin seed}.

sesame seed
small, oily, from sesame plant {sesame seed}.

sunflower seed
large, oily, from sunflower plant {sunflower seed}.

PRAC>Food>Vegetable>Seed>Grain

cereal food
Cereals {cereal} can be barley, brown rice, buckwheat, corn, kamut, maize, millet, oats, rye, rice, sorghum, spelt, wheat, and wild rice.

buckwheat
small triangular seeds from buckwheat plant {buckwheat}.

hops
dried green cone-shaped flowers from hop vine {hops}.

millet food
white seeds from millet grass {millet, food}.

rice
Grains {rice, food} can be white, brown, long-grain, or wild rice.

sorghum grain
Near East grass {sorghum, food} can make syrup and be forage.

PRAC>Food>Vegetable>Seed>Grain>Barley

barley cereal
cereal grass {barley, food}.

malt barley
sprouted barley {malt} {malted barley} {barley malt}.

PRAC>Food>Vegetable>Seed>Grain>Corn

corn
yellow or white, medium, cylinder {corn, food}.

corn meal
ground yellow or white dried corn kernels {corn meal}.

field corn
white, purple, red, or yellow, medium, cylinder {field corn}.

grits
white corn kernels ground into small bits {grits}, not finely ground.

hominy
dried corn kernels {hominy}.

maize
corn {maize, food}.

popcorn
Hard kernel white corn {popcorn} {popped corn} has kernels that can explode open as water inside becomes steam when heated.

sweet corn
yellow or white, medium, cylinder {sweet corn}.

PRAC>Food>Vegetable>Seed>Grain>Oat

oats food
cereal grass {oats, food}.

oatmeal
rolled oat grains {oatmeal}.

PRAC>Food>Vegetable>Seed>Grain>Rye

rye food
cereal grass {rye, food}.

pumpernickel
Dark rye bread {pumpernickel} can have coarse ground rye.

PRAC>Food>Vegetable>Seed>Grain>Wheat

wheat grain
Cereal grass {wheat, food} can be hard {durum wheat}, soft {farina}, or hard {semolina}.

wheat germ
wheat-seed fatty part {wheat germ}.

PRAC>Food>Vegetable>Seed>Grain>Wheat>Flour

all-purpose flour
Finely ground and sifted huskless wheat flour {all-purpose flour} can have no baking powder, baking soda, or salt.

bread flour
Finely ground and sifted hard wheat flour {bread flour} can have no baking powder, baking soda, or salt.

cake flour

Finely ground and sifted soft wheat flour {cake flour} can have baking powder and salt.

flour
Ground wheat {flour} can be all-purpose, bread, buckwheat, cake, graham, rye, soy, whole wheat, or self-rising.

graham
branless whole-wheat flour {graham}.

self-rising flour
Finely ground and sifted wheat flour can have baking powder and salt {self-rising flour}.

PRAC>Food>Vegetable>Seed>Grain>Wheat>Cracker

cracker food
baked wheat, thin, crisp, flat {cracker, food}.

Graham cracker
graham wheat flour and sugar {Graham cracker}.

PRAC>Food>Vegetable>Seed>Grain>Wheat>Noodle

noodle
Flour, water, and sometimes eggs can be dried ribbons {noodle}.

egg noodle
wheat or rice flour mixed with egg and water and extruded {egg noodle}.

capellini
noodles in very thin strings {angel hair} {capellini}.

lasagna noodle
flat wide no-egg noodles {lasagna noodle}.

macaroni
tube no-egg noodles {macaroni}.

pasta
flour and water no-egg dough {pasta}.

rigatoni
Tubes {rigatoni} can have lengthwise ribs.

shell
Noodles {shell, food} can have shape like small shells.

spaghetti
noodles in long strings {spaghetti}.

vermicelli
noodles in long thin strings {vermicelli}.

PRAC>Food>Vegetable>Seed>Grain>Parts

bran
grain husks {bran}.

gluten
Cereal-grain proteins {gluten} can be like glue.

leavening
Flour mixed with yeast {leavening} can add carbon dioxide, to raise bread before baking. Baking evaporates alcohol.

pabulum as food
Soft food {pabulum, food} can be from finely ground rice or wheat and water or milk.

PRAC>Food>Vegetable>Seed>Nut

beechnut
beech-tree nut {beechnut}.

Brazil nut
Large nuts {Brazil nut} can have a hard shell.

cashew
cashew-tree crescent-shaped nut {cashew, food}.

chestnut food
Large chestnut-tree nuts {chestnut, food} can have a prickly cover.

hazelnut
Hazel-tree nuts {hazelnut} {filbert, food} can have a smooth shell in a husk.

hickory nut
Hickory-tree nuts {hickory nut} can have a hard shell.

macadamia nut
Hawaii medium soft nut {macadamia nut}.

peanut
Underground peanut-vine medium nuts {peanut, food} can have a thin brittle shell.

pecan
Pecan-tree large nuts {pecan} can have a hard shell.

pignoli
pine-tree small nut {pignoli} {pine nut, food}.

pistachio
Pistachio-tree medium green nuts {pistachio} can have a hard shell.

walnut food
Walnut-tree nuts {walnut, food} can have a hard shell.

water chestnut
Chinese sedge-grass corms {water chestnut} grow in wetlands.

PRAC>Food>Vegetable>Seed>Nut>Almond

almond
Nuts {almond, food} can be medium and oval and plain, blanched, or extract. Shell is light brown and light.

Jordan almond

candied almond {Jordan almond}.

PRAC>Food>Vegetable>Fruit

acai
Brazil berry {acai}.

apricot
yellow-orange, medium {apricot}.

cherry
red, small {cherry, food}.

currant food
red, tart, small {currant, food}.

date food
brown, small {date, food}.

fig
purple or brown, medium {fig, food}.

goji
Tibet berry {goji}.

kiwi fruit
from New Zealand, green or gold, medium {kiwi, food}.

mango
green outside, orange inside, large {mango}.

papaw
fleshy {papaw} {pawpaw, food}.

papaya
yellow, tropical, large {papaya}.

persimmon
orange, medium {persimmon, food}.

pineapple
yellow, large {pineapple}.

pomegranate
red, large {pomegranate}.

quince
red, small {quince}.

soursop
white flesh {soursop}.

PRAC>Food>Vegetable>Fruit>Apple

cooking apple
red or green {cooking apple}.

crabapple food
green-red {crabapple, food}.

delicious apple
red {delicious apple}.

Granny Smith
green {Granny Smith}.

green apple
green {green apple}.

jujube
green {jujube apple}.

Macintosh
red {Macintosh}.

red apple
red {red apple}.

red delicious apple
red {red delicious apple}.

Winesap
red {Winesap}.

PRAC>Food>Vegetable>Fruit>Banana

banana fruit
yellow outside, white inside, large {banana, food}.

plantain food
banana-like, for cooking {plantain, food}.

PRAC>Food>Vegetable>Fruit>Berry

berry food
Berries {berry, food} include blackberry, blueberry, boysenberry, cloudberry, huckleberry, lingonberry, loganberry, olalaberry, raspberry, and strawberry.

blackberry food
dark purple {blackberry, food}.

blueberry
blue {blueberry, food}.

boysenberry
dark purple {boysenberry}.

cloudberry
pale green {cloudberry}.

cranberry food
red, round, firm {cranberry, food}.

dewberry
Rubus caesius bramble bush has purple/black raspberry-shaped berries {dewberry}.

gooseberry
pale green {gooseberry}.

huckleberry
blueberry-like {huckleberry, food}.

lingonberry
red {lingonberry}.

loganberry
blackberry and raspberry hybrid {loganberry}.

olalaberry
boysenberry and raspberry hybrid {olalaberry} {olallieberry}.

raspberry food
red {raspberry, food}.

strawberry
red {strawberry}.

PRAC>Food>Vegetable>Fruit>Citrus Fruit

citrus
Fruits {citrus} can include grapefruit, orange, lemon, and lime.

calamansi
green outside, orange inside {calamansi} {Philippine orange}.

clementine orange
small seedless cross between Chinese mandarin orange and sweet orange {clementine}.

cocktail grapefruit
yellow, large {cocktail grapefruit} {Japanese grapefruit}.

grapefruit
yellow, large {grapefruit, food}.

kumquat
related to citrus, orange, small, edible skin {kumquat}.

lemon
yellow, medium {lemon}.

lime as fruit
green, small {lime, food}.

mandarin orange
green outside, orange inside, small, seedless {mandarin orange}.

minneola orange
cross between tangerine and grapefruit {minneola orange}.

navel orange
orange, medium, no seeds {navel orange}.

orange fruit
orange, medium {orange, food}.

oroblanco
mild grapefruit {oroblanco}.

satsuma
Japanese, tangerine-like {satsuma}.

tangelo
orange and medium cross between tangerine, orange, and grapefruit {tangelo} {ugli tangelo},.

tangerine
orange, medium {tangerine}.

Valencia orange
orange, medium, seeds {Valencia orange}.

PRAC>Food>Vegetable>Fruit>Grape

grape
Grapes {grape, fruit} can be Concord, white, scuppernong, or Tokay.

Concord grape
purple {Concord grape}.

cowart grape
purple muscadine {cowart grape}.

muscadine grape
white, sweet {muscadine grape}.

muscat grape
white, sweet, used for wine and raisins {muscat grape}.

scuppernong grape
green or bronze muscadine {scuppernong grape}.

Tokay grape
large, red, oval, seeds {Flame Tokay grape} {Tokay grape}.

white grape
white {white grape}.

PRAC>Food>Vegetable>Fruit>Melon

cantaloupe
orange, like muskmelon {cantaloupe}.

muskmelon
orange, like cantaloupe {muskmelon}.

Persian melon
green {Persian melon}.

watermelon
green outside, red inside {watermelon, food}.

PRAC>Food>Vegetable>Fruit>Melon>Inodorus

winter melon
casaba, crenshaw, honeydew {winter melon} {Inodorus Group}.

casaba melon
yellow outside, white inside {casaba melon}.

Crenshaw melon
large, oval, light orange outside, pink inside {Crenshaw melon}.

honeydew melon
green {honeydew melon}.

PRAC>Food>Vegetable>Fruit>Peach

peach
yellow-orange, medium {peach}.

nectarine
Peaches {nectarine} can be white or yellow-orange and have smooth skin with no fuzz.

PRAC>Food>Vegetable>Fruit>Pear

pear
brown or yellow, medium {pear}.

Bartlett pear
brown outside, white inside, large {Bartlett pear}.

PRAC>Food>Vegetable>Fruit>Plum

plum
Plums {plum, food} can be damson, red, or black.

black plum
dark purple {black plum}.

damson plum
dark purple {damson plum}.

red plum
red {red plum}.

PRAC>Food>Vegetable>Fruit>Prepared

maraschino cherry
Bitter cherry {maraschino cherry} can be in maraschino liqueur.

raisin

dried grape {raisin, fruit}.

PRAC>Food>Vegetable>Fruit>Prune

prune
purple, small {prune, fruit}.

Italian prune
purple, medium {Italian prune}.

PRAC>Food>Vegetable>Bean

bean
Beans {bean, food} can be navy, black, kidney, lima, string, wax, pinto, soy, or dried and are green, red, or white; small; and in pods.

bean curd
white fermented bean {bean curd}.

bean sprout
mung-bean white sprout {bean sprout}.

golden bean
yellow-orange, small, round {golden bean}.

green bean
green, small, round {green bean}.

kidney bean
red, small, round {kidney bean}.

lentil
brown, small, disc, bean {lentil}.

lima bean
green, small, round {lima bean}.

navy bean
dark red, small, round {navy bean}.

pinto bean
small, round {pinto bean}.

pole bean
green, medium {pole bean}.

soybean
Green, small, and round beans {soybean} can be bitter but debittering can make flour, grits, and flakes. Beans {soy, food} {edamame} can make soy sauce. Stalks are for forage.

string bean
Beans {string bean} {snap bean} can be green or wax.

wax bean
yellow or white, small {wax bean}.

PRAC>Food>Vegetable>Pea

pea food
Peas {pea, food} can be black-eyed, yellow eyed, or green and are green, small, round, and in pods.

black-eyed pea
small white pea with black spot, in pods {black-eyed pea}.

field pea
small green ball, in pods {field pea}.

split pea
green, small, round {split pea}.

PRAC>Food>Vegetable>Brassica

broccoli
green, medium, crowns {broccoli}.

Brussels sprout
green, medium, round {Brussels sprout, food}.

PRAC>Food>Vegetable>Brassica>Cabbage

cabbage food
green or red or purple, large, round {cabbage, food}.

bok choy
cabbage with cylinder shape {bok choy} {pak choy} {tot soi} {totsoi}.

Chinese cabbage
cabbage with cylinder shape {Chinese cabbage} {Napa cabbage} {su choy}.

green cabbage
green, medium, round {green cabbage}. similar to red cabbage.

kale food
cabbage with loose curly leaves {kale, food}.

red cabbage
red, medium, round {red cabbage}. similar to green cabbage.

sauerkraut
cabbage in vinegar and salt {sauerkraut}.

Savoy cabbage
green, loose crinkled leaves {Savoy cabbage}.

PRAC>Food>Vegetable>Coconut

coconut
brown outside, white inside, large, oval {coconut, food}.

copra
Dried coconut meaty inner-lining pieces {copra} store well.

PRAC>Food>Vegetable>Cucumber

cucumber
green outside, white inside, medium, cylinder {cucumber}.

gherkin
green outside, white inside, medium, cylinder {gherkin}.

pickle
Cucumbers in brine {pickle} can have dill or sugar.

sour pickle
cucumber in vinegar and salt {sour pickle}.

sweet pickle
cucumber in vinegar, salt, and sugar {sweet pickle}.

PRAC>Food>Vegetable>Onion

onion
Onions {onion} can be Bermuda, white, red, yellow, or green and are red, yellow, or white; medium; and round.

Bermuda onion
yellow-white, medium, round root {Bermuda onion}.

garlic
white, small, round {garlic}.

leek
white, large, stalk {leek}.

scallion
green onion, stalk {scallion}.

shallot
white, medium, round {shallot}.

PRAC>Food>Vegetable>Pepper

green pepper
green, medium, oval {green pepper}.

hot pepper
red or green, medium, oval {hot pepper}.

pimiento
roasted sweet red pepper {pimiento}.

cayenne pepper
red pepper {cayenne pepper} {red pepper}.

chili powder
dried red-pepper fruit {chili powder}.

paprika
powdered dried sweet red pepper {paprika}.

PRAC>Food>Vegetable>Pepper>Jalapeno

jalapeno
small hot chile pepper {jalapeño}.

chipotle
dried and smoked jalapeño chile {chipotle}.

PRAC>Food>Vegetable>Squash

squash
Yellow or orange, medium, round vegetables {squash, food} can be acorn, Hubbard, summer, winter, crookneck, or spaghetti.

acorn squash
green, medium, fleshy {acorn squash}.

hubbard squash
large, oval, gray-green, thick rind {hubbard squash} {winter squash}.

pumpkin food
orange, large, round {pumpkin, food}.

eggplant food
purple outside, white inside, medium, cylinder {eggplant, food}.

summer squash
yellow, medium, round {summer squash}.

zucchini
green, medium, cylinder {zucchini}.

PRAC>Food>Vegetable>Mushroom

mushroom as food
Mushrooms can be button, oyster, portabella, and wood ear, are white and small or medium, and have stalk and cap {mushroom, food}.

truffle food
fungus, medium {truffle, food}.

PRAC>Food>Vegetable>Spice

allspice
American tropical-tree berries {allspice}.

cinnamon
Asian tropical-tree bark {cinnamon}.

clove bud
evergreen-tree flower bud {clove}.

pepper
dried Asian tropical vine berry, or pepper-bush fruit {pepper, food} {black pepper}. Pepper bushes have dried fruits {corn, pepper} {peppercorn}.

saffron spice
dried yellow-orange crocus stigmas {saffron, spice}.

PRAC>Food>Vegetable>Spice>Root

ginger food
Asian plant root {ginger, food}.

turmeric
India dried yellow plant root {turmeric}.

PRAC>Food>Vegetable>Spice>Seed

cardamom
Asian-perennial fruit seed {cardamom} {cardamon} {cardamum}.

coriander
herb seeds {coriander}.

cumin
Annual Mediterranean parsley-family herb seed {cumin} (Cuminum cyminum).

PRAC>Food>Vegetable>Spice>Seed>Nutmeg

mace spice
nutmeg seed cover {mace, spice}.

nutmeg
tropical tree seeds {nutmeg}.

PRAC>Food>Vegetable>Spice>Leaf

basil
basil-plant leaves {basil}.

bay leaf
laurel-tree leaf {bay leaf}.

dill
herb leaves and seeds {dill}.

rosemary spice
evergreen-shrub leaves {rosemary, spice}.

sage spice
sage plant leaves {sage, spice}.

savory spice
herb leaves {savory, spice}.

tarragon
herb leaves {tarragon}.

thyme
thyme plant leaves {thyme, spice}.

PRAC>Food>Vegetable>Spice>Leaf>Marjoram

marjoram
marjoram plant leaves {marjoram}.

oregano
marjoram plant leaves {oregano}.

PRAC>Food>Vegetable>Spice>Prepared

Angostura bitters
vegetables, alcohol, bitters {Angostura bitters}.

bouquet garni
chervil, thyme, and other spices {bouquet garni, spice}.

curry powder
cumin and other spices {curry powder}.

fines herbes
chervil, parsley, chive, and tarragon {fines herbes}.

PRAC>Food>Vegetable>Sweet

gumdrop
sugar and gelatin or gum arabic {gumdrop}.

ice
Shaved ice {ice} can have sugar and flavoring.

licorice
licorice plant root {licorice}.

nougat
honey, or sugar and nut {nougat}.

rock candy
hard sugar candy {rock candy}.

PRAC>Food>Vegetable>Sweet>Jelly

jelly
pectin and unripe acid fruit {jelly}.

jam
boiled fruit and sugar {jam}.

marmalade jelly
citrus-fruit pulp and rind {marmalade}.

PRAC>Food>Vegetable>Sweet>Sugar

sugar food
sugar-cane or sugar-beet sugar {sugar, food}.

azucar morena sugar
Mexico unbleached cane sugar in fine crystals {azucar morena sugar}.

brown sugar
sugar containing molasses {brown sugar}.

chancaca sugar
Chile and Peru dark-brown cane sugar in flat round cake shape {chancaca sugar}.

demerara sugar
Mauritius unbleached cane sugar in large crystals {demerara sugar}.

gur sugar
India palm sap in paste {gur sugar}.

jaggery sugar
India cane sugar or palm sap in pyramid shape {jaggery sugar}.

maltose sugar
honey-like sugar from malted barley and millet {maltose sugar}.

muscovado sugar
Mauritius dark-brown cane sugar {muscovado sugar}.

palm sugar
sugar from palmyra or coconut palms in oily paste or as discs {palm sugar} {coconut sugar}.

panela sugar
Mexico dark-brown cane sugar in flat round cake shape {panela sugar}.

piloncillo sugar
Mexico dark-brown cane sugar in cone shape {piloncillo sugar}.

sugar cane food
East-Indies tall stout grass stem {sugar cane, food}.

yellow lump sugar
China colored cane sugar in large chunks {yellow lump sugar}.

PRAC>Food>Vegetable>Sweet>Sugar>Crystals

castor sugar
fine-grained white sugar {castor sugar}.

confectioner's sugar
fine ground sugar with 3% cornstarch {confectioner's sugar}.

granulated sugar
ground sugar {granulated sugar}.

powdered sugar
less finely ground confectioner's sugar {powdered sugar}.

rock sugar
clear cane sugar in large chunks from China {rock sugar}.

PRAC>Food>Vegetable>Sweet>Syrup

corn syrup
clear or golden thick corn-sugar solution {corn syrup}.

grenadine syrup
pomegranate or red currant syrup {grenadine syrup}.

maple syrup
concentrated sugar-maple sap {maple syrup}.

molasses
Removing thick syrup {molasses} from sugar cane leaves white sugar. Molasses contains sulfur, which processing removes.

treacle
light syrup {treacle}.

PRAC>Food>Vegetable>Thickener

cornstarch
starch from corn {cornstarch}.

gelatin
boiled skin, bone, and connective-tissue protein {gelatin} {gelatine}.

pectin for food
ripe-fruit protein {pectin, food}.

rennet
Calf-stomach enzymes {rennet} {rennin} {chymosin} can curdle milk, for cheese and junket.

PRAC>Food>Drink

chicory drink
Roasted and ground chicory plant roots {chicory, food} can mix with ground coffee.

cocoa
powdered cacao seeds {cocoa}.

congener
Methanol and other non-ethanol organic molecules {congener} can be in alcoholic beverages.

toast
Cheers! is in England and USA {toast}. Per Cent'anni! (for a hundred years) is in Italy. Le'chaim! (to life) is in Israel. Santé! (to health) is in France. Prost! (to health) is in Germany and Netherlands. Sláinte! (to health) is in Ireland. Salute! (to health) is in Italy. Salud! (to health) is in Spain. Vashe zdorovie! (to health) is in Russia. Iechyd da! (to health) is in Wales. Ganbei (dry your cup) is in China. Kanpai (dry your cup) is in Japan.

PRAC>Food>Drink>Alcoholic

applejack
brandy distilled from fermented apple cider {applejack}.

arrack
distilled from fermented coconut palm sap {arrack}.

hard cider
fermented apple cider {hard cider}.

kvass
beer from fermented rye or barley {kvass}.

mead
fermented honey water {mead}.

rye drink
fermented rye water {rye, drink}.

vodka
distilled fermented wheat, rye, corn, or potato water {vodka}.

wassail
alcoholic drink {wassail}, for toasting.

PRAC>Food>Drink>Alcoholic>Gin

gin
grain alcohol with juniper-berry flavor {gin}.

sloe gin
Gin {sloe gin} can be from blackthorn tree fruit, similar to plum.

PRAC>Food>Drink>Alcoholic>Rum

grog
diluted rum {grog}.

rum
fermented molasses or sugar-cane water {rum}.

PRAC>Food>Drink>Alcoholic>Whiskey

bourbon
American whiskey {bourbon}.

scotch whisky
whisky with smoky flavor {scotch, drink}.

whiskey liquor
fermented wheat, rye, or corn water {whiskey}.

PRAC>Food>Drink>Alcoholic>Names

fifth of liquor
0.2 gallon {fifth}.

highball
mixed alcoholic drink in a tall glass {highball}.

hooch
alcoholic beverage {hooch}.

on the rocks
poured over ice cubes {on the rocks}.

nightcap
alcoholic drink before bedtime {nightcap}.

PRAC>Food>Drink>Alcoholic>Beer

beer
fermented malted barley and hops water {beer}.

ale
bitter fermented malted barley and hops water {ale}.

bock
dark spring beer {bock}.

double bock
extra dark spring beer {double bock} {doppelbock}.

extra stout
very dark strong beer with sediment {extra stout}.

hefe-weisse
German wheat beer {hefe-weisse}.

india ale
English ale {india ale}.

lager
Beer {lager} can age up to six months to allow sedimentation.

malt lager
Beer {malt lager} can have higher alcohol content.

marzen
Sweet malty beer {marzen} can be from Bavaria.

pilsner
Beer {pilsner} can have more hops, be pale gold, and be bottom-fermented [1842].

porter
Brown ale {porter} can use roasted malts.

stout
Dark strong beer {stout} can have sediment.

wheat beer
Beer {wheat beer} can come from wheat.

PRAC>Food>Drink>Alcoholic>Wine

wine
Wine {wine} can be white, rose, or red. Wines have brilliance, aroma, bouquet, and body. Body can be light, medium, or full. Wines can be fruity or clean. Store bottles at 55 F on their sides in dark and damp places.

Beaujolais
France, fresh, red, autumn {Beaujolais}.

Bordeaux wine
France, red, dated, medium flavored {Bordeaux, wine}.

Burgundy wine
France, red, dated, full flavored {Burgundy, wine}.

Cabernet Sauvignon
California, red, dated, medium flavored {Cabernet Sauvignon}.

Chablis
France, white {Chablis}.

Chianti
Italian, red, full flavored {Chianti}.

claret
light red, dry {claret}.

liebfraumilch
Germany, white {liebfraumilch}.

Marsala
Sicily {Marsala}.

Moselle wine
Germany, white {Moselle}.

muscatel
America, white, sweet, full flavored {muscatel}.

retsina
Greece, red, strong {retsina}.

Rhine wine
Germany, white {Rhine wine}.

Rhone wine
Germany, white {Rhone wine}.

Riesling
Germany, white {Riesling}.

rose wine
light red {rosé, wine}.

Sauterne
France, white {Sauterne}.

Scuppernong
America, red, sweet {Scuppernong}.

Tokay wine

red {Tokay}.

vermouth
white wine with aromatic herbs {vermouth}.

zinfandel
America, red, medium flavored {zinfandel}.

PRAC>Food>Drink>Alcoholic>Wine>Sparkling

sparkling wine
Bubbly wine {sparkling wine} comes from France {champagne, sparkling wine}, Spain {cava}, South Africa {cap classique}, and Germany {sekt}. Italy has sweet {asti spumanti} and dry {prosecco} sparkling wine. Serve in a narrow glass {flute, glass} at 45 F.

champagne wine
White or pink wine can have natural or artificial carbon dioxide {champagne, wine}, such as fermented in the bottle {methode champagnoise}. Champagne can be dry and light-flavored {blanc de blancs}, sweet and full-flavored {blanc de noirs}, driest and medium-flavored {brut, champagne}, next driest {extra-dry champagne}, sweet {sec}, and sweeter {demi sec}. Uncork by removing foil, loosening wire with six twists, holding cork and wire in towel, and turning bottle back and forth.

PRAC>Food>Drink>Alcoholic>Wine>Distilled

distilled wine
Brandy, port, and sherry {distilled wine} are distilled wines.

PRAC>Food>Drink>Alcoholic>Wine>Distilled>Port

Madeira wine
port from Spain {Madeira}.

port
red, sweet {port}.

PRAC>Food>Drink>Alcoholic>Wine>Distilled>Sherry

sherry
amber, sweet to dry {sherry}.

Amontillado sherry
sherry from Spain {Amontillado sherry}.

sack
sherry {sack, drink}.

PRAC>Food>Drink>Alcoholic>Wine>Distilled>Brandy

brandy
distilled wine or fermented fruit juice {brandy}.

armagnac
Wine brandy {armagnac} can be from Armagnac in southwest France.

cognac
Wine brandy {cognac} can be from Cognac in southwest France.

PRAC>Food>Drink>Alcoholic>Liqueur

absinthe
wormwood {absinthe}.

anisette
anise {anisette}.

aquavit
caraway seed {aquavit}.

Benedictine liqueur
green-yellow, from brandy [1500 to 1600] {Benedictine}.

calvados
apple {calvados, liqueur}.

Campari
bitters {Campari}.

Cointreau
orange {Cointreau}.

creme de cacao
cocoa {creme de cacao}.

creme de menthe
mint {creme de menthe}.

curacao
sour orange peel {curaçao}.

Drambuie
sweetened Scotch whisky {Drambuie}.

Galliano
banana {Galliano}.

Grand Marnier
orange {Grand Marnier}.

Kahlua
coffee {Kahlua}.

kirsch
cherry {kirsch, liqueur}.

ouzo
anise {ouzo}.

sake
distilled rice wine {sake}.

sangria
wine with fruit flavor {sangria}.

schnapps
high-alcohol liqueur {schnapps}.

tequila
Agave tequilana sap {tequila}.

triple sec
very dry high-alcohol curaçao liqueur {triple sec}.

PRAC>Food>Drink>Alcoholic>Mixed

Americano
Campari, sweet vermouth, soda water, ice, served as highball {Americano}.

black velvet
beer, champagne {black velvet}.

bloody mary
vodka, tomato juice {bloody mary}.

brandy alexander
brandy, coffee {brandy alexander}.

cafe brulot
cognac, triple sec, coffee, lemon, orange, clove, cinnamon, sugar {cafe brulot}.

daiquiri
rum, lemon or lime juice, sugar {daiquiri}.

eggnog
creamy milk, egg, sugar, brandy {eggnog}.

Gibson drink
vermouth, gin, cocktail onion {Gibson}.

gimlet
lime juice, sugar, vodka or tequila {gimlet}.

gin rickey
gin, soda, lime juice, sugar {gin rickey}.

Harvey Wallbanger
Galliano, vodka, orange juice {Harvey Wallbanger}.

Irish coffee
coffee, whiskey {Irish coffee}.

Manhattan drink
whiskey, vermouth {Manhattan, drink}.

margarita
tequila, lemon or lime juice {margarita}.

martini
gin or vodka, dry vermouth {martini}.

mimosa drink
champagne, orange juice {mimosa, drink}.

mint julep
bourbon, squeezed mint leaves, sugar, ice {mint julep}.

mulled wine
heated and spiced wine {mulled wine}.

old fashioned
bourbon, sugar, orange splash or Angostura bitters, club soda {old fashioned}.

pink lady
gin, grenadine syrup, light cream, egg {pink lady}.

planter's punch
rum, fruit juice {planter's punch}.

punch
wine or liquor, fruit juice {punch, drink}.

rickey
gin, soda, lime juice, sugar {rickey}.

rock and rye
whisky ice {rock and rye}.

Scarlett O'Hara
Southern Comfort(R) peach liqueur, cranberry juice, lime {Scarlett O'Hara}.

screwdriver as drink
vodka orange juice {screwdriver, drink}.

stinger
brandy or cognac, white creme de menthe, ice {stinger}.

syllabub
wine, sugar, spices, milk or cream {syllabub}.

toddy
hot alcohol, sugar, spices {toddy}.

Tom and Jerry
rum, brandy, egg, powdered sugar, cinnamon, water, nutmeg, vanilla {Tom and Jerry}.

Tom Collins
gin, lemon juice, club soda, ice {Tom Collins}.

whiskey sour
whiskey, lemon or lime juice {whiskey sour}.

white Russian
vodka, coffee liqueur, light cream {white Russian} {black Russian}.

PRAC>Food>Drink>Coffee

cappuccino
steamed dark roast with steamed milk {cappuccino}.

espresso
steamed dark roast with no sugar or milk {espresso}.

latte
steamed coffee with half milk {latté}.

macchiato
espresso with half milk {macchiato}.

mocha
chocolate and coffee {mocha}.

Turkish coffee
finely ground dark roast coffee boiled with water and drunk without filtering {Turkish coffee}.

PRAC>Food>Drink>Coffee>Roast

French roast
dark roasted {French roast}.

Vienna roast
very dark roasted {Vienna roast}.

PRAC>Food>Drink>Coffee>Bean

Arabica
Semitropical aromatic low-caffeine coffee bean {Arabica} was first cultivated bean, in Ethiopia. Coffee beans from Colombia, Guatemala, El Salvador, Tanzania, and Kenya are only Arabica.

Colombia Marogagipe
Arabica from Colombia {Colombia Marogagipe}.

Colombia Plantation
Arabica from Colombia {Colombia Plantation}.

Harrar
Arabica from Ethiopia {Harrar}.

Jamaica blue mountain
Arabica mild bean from Jamaica {Jamaica blue mountain}.

Java coffee
Arabica from Java, or cup of coffee {Java, coffee}.

Kalossi Celebes
Arabica mild and aromatic bean from Celebes {Kalossi Celebes}.

Mandheling
Arabica mild bean from Sumatra {Mandheling}.

robusta

Coffee bean used in espresso for body, grown only in Africa {robusta}.

PRAC>Food>Drink>Soda

cherry cola
cola with cherry flavor {cherry cola}.

cola
kola nut flavor {cola}.

cream soda
vanilla flavor {cream soda}.

ginger ale
mild ginger flavor {ginger ale}.

ginger beer
strong ginger flavor {ginger beer}.

grapefruit soda
grapefruit flavor {grapefruit soda}.

lemon-lime
lemon and lime flavor {lemon-lime}.

orange soda
orange flavor {orange soda}.

root beer
sassafras root flavor {root beer}.

sarsaparilla
sarsaparilla root flavor {sarsaparilla}.

seltzer water
soda water {seltzer water}.

soda water
water with carbon dioxide added {soda water}.

tonic water
quinine flavor {tonic water}.

PRAC>Food>Drink>Tea

black tea
ripened tea {black tea}.

China tea
tea from China {China tea}.

Darjeeling tea
flavorful tea from India {Darjeeling tea}.

Earl Grey tea
tea with oil of bergamot {Earl Grey tea}.

English breakfast tea
black tea {English breakfast tea}.

green tea
unripened tea {green tea}.

Irish breakfast tea
black tea {Irish breakfast tea}.

oolong tea
flavorful tea from China {oolong tea}.

orange pekoe tea
black tea with orange rind {orange pekoe tea}.

pekoe tea
black tea {pekoe tea}.

souchong tea
tea from China {souchong tea}.

PRAC>Food>Drink>Tea>Herbal

artichoke tea
artichoke-plant bract-leaved flower {artichoke tea}.

chamomile tea
chamomile-plant white flowers {chamomile tea}.

ginseng tea
ginseng plant root {ginseng tea}.

mate leaves
mate tree leaves, drunk in Paraguay, Uruguay, and Argentina {maté} {yerba maté}.

sassafras tea
sassafras root or bark {sassafras tea}.

PRAC>Food>Drink>Water

mineral water
Spring water {mineral water} can have high particulates.

quinine water
cinchona-tree-bark colorless bitter chemical {cinchona} {quinine water}.

Vichy water
mineral water from France {Vichy water}.

PRAC>Food>Cooking

cooking food
Preparing food {cooking} can use utensils.

PRAC>Food>Cooking>Food Preparation

baste
Brush sauce on while baking {baste}.

blanch almonds
Bleach {blanch almonds}.

braise
Brown and then simmer in little water {braise}.

breaded
Coat with scrambled egg and breadcrumbs {breaded}.

broil
Bake under flames or coils {broil}.

brown as fry
Fry until carmelized {brown, cooking}.

chipped
Thin slice {chipped}.

coddled
Cook just below boiling {coddled}.

cream as mash
Make into paste {cream, mash}.

dice food
Chop into small squares {dice food}.

fillet meat
Take out bones {fillet, meat}.

flambee
At table, a server can light liqueur in a serving dish {flambée, food}.

fricassee
Stew chopped meat or chicken in gravy {fricassee}.

glaze on food
Bake on an egg coating to make a shiny surface {glaze, food}.

grated
shredded {grated}.

jellied
Gel with pectin or gelatin {jellied}.

julienne
Cut in thin strips {julienne, cut}.

knead
Massage bread dough {knead}.

marinate
Soak in sauce {marinate}.

mince chop
Chop into small pieces {mince, food}.

parboil
Boil for a short time {parboil}.

pare
Peel {pare}.

percolate coffee
Recycle boiled water through ground coffee {percolate coffee}.

pickled
Soak in salt water and/or vinegar {pickled}.

planked
Bake and serve meat or fish on a board {planked}.

poach
Simmer {poach}.

pressed
Press from cookie press or pastry bag {pressed}.

pureed
Strain to make particles {pureed}.

riced
Push through a sieve {riced}.

saute food
Fry quickly in oil or fat {sauté food}.

scald
Put in boiling water or steam {scald}.

scalloped
Bake with milk and breadcrumbs {scalloped}.

score as cut
Cut lines into {score, groove}.

scramble
Break up eggs by stirring with a fork or whisk {scramble}.

sear
Burn {sear}.

shirred
baked eggs {shirred}.

simmer
Cook below boiling {simmer}.

smoke
Keep meat in smoke a long time {smoke, meat}, to preserve.

steep
Soak in boiling water to extract aromatic flavor {steep}.

PRAC>Food>Cooking>Food Preparation>Baked

casserole
baked food in baking dish {casserole, bake}.

ramekin
small ceramic or thick glass bowl for baking {ramekin}.

souffle
egg yolks and beaten egg whites {soufflé, food}.

PRAC>Food>Cooking>Food Preparation>Baking

baking powder
Sodium tartrate {baking powder} is fast. Sodium phosphate is slow.

baking soda
Sodium bicarbonate {baking soda} is for baking using sour liquid.

cream of tartar
Potassium bitartrate or potassium hydrogen tartrate {cream of tartar, cooking} stabilizes beaten egg whites and is an emetic.

yeast for baking
leavening {yeast, food}.

PRAC>Food>Cooking>Prepared Food

chow food
served food {chow, food}.

sour mash
fermented corn and rye or wheat {sour mash}.

garnish food
Garnishes {garnish, food} are paprika, dill, celery, popcorn, mushroom, olive, cheese, lemon slice, avocado, radish, salted whipped cream, parsley, chive, and hard egg.

relish food
pickles and other vegetables {relish, food}.

vinegar
Apple cider, wine, or distilled alcohol can make 5% acetic acid {vinegar}. Balsamic vinegar is from grapes.

PRAC>Food>Cooking>Prepared Food>Appetizer

canape
Appetizers {canapé, appetizer} can have toppings on crackers or small toasts.

hors d'oeuvres
appetizers {hors d'oeuvres}.

pinwheel
A flat bread or tortilla rolled around cream cheese can spread to look like pinwheel vanes {pinwheel}.

PRAC>Food>Cooking>Prepared Food>Bread

bagel
bread cooked in boiling water {bagel}.

biscuit
baked wheat flour and baking powder or baking soda {biscuit, bread}.

blintz
thin pancake rolled around cottage cheese or sour cream {blintz}.

brown bread
whole-wheat bread {brown bread}.

camp biscuit
flour and water {camp biscuit}.

crepe food
thin pancake served with fruit {crepe, food}.

croissant
crescent butter roll {croissant}.

croustade
large, round, crusty bread roll for soup or stew {croustade}.

crouton
small toast piece {crouton}.

dumpling
dough ball in soup or stew or baked dough filled with fruit {dumpling}.

English muffin
Round flat muffins {English muffin}, with side slits, can have flour, yeast, and oil.

French toast
Toast {French toast} can soak in scrambled egg and fry on griddle.

fritter
Fried wheat flour can have vegetables or fish {fritter}.

griddlecake
pancake {griddlecake}.

matzo
thin crisp unleavened bread {matzo}.

Melba toast
thin crisp toast {Melba toast}.

pancake
wheat flour, milk, egg, fried on griddle {pancake}.

Parker House roll
Folded oval bread rolls {Parker House roll} can have flour, yeast, milk, and butter.

pastry
wheat flour, oil or butter, water, sugar {pastry}.

pizza
thin bread crust topped with tomato sauce, cheese, and other toppings and baked {pizza}.

popover
Muffins {popover} can have wheat flour, egg, and milk.

quick bread
wheat flour, baking powder or baking soda, water {quick bread}.

roll bread
small cubic bread {roll, bread}.

rusk
baked dried sweet bread {rusk}.

shortbread
bread with much shortening {shortbread}.

shortcake
cake with much shortening {shortcake}.

soda biscuit
Biscuits {soda biscuit} {soda cracker} can rise with baking soda.

sourdough
Wheat flour with yeast in sour milk {sourdough} can be starter for bread rising.

turnover food
pastry with folded crust {turnover, food}.

waffle food
wheat flour, milk, egg, sugar baked in waffle iron {waffle}.

PRAC>Food>Cooking>Prepared Food>Bread>Corn

corn pone
corn mush {corn pone}.

hasty pudding
oatmeal porridge or cornmeal mush {hasty pudding}.

hoe-cake
Fried cake {hoe-cake} can have cornmeal, baking soda, and water.

Indian pudding
corn pudding {Indian pudding}.

mush
cornmeal boiled until thick {mush}.

pone
cornmeal {pone}.

spoon bread
cornmeal, egg, milk, butter {spoon bread}, cooked soft.

tortilla
thin unleavened cornmeal and calcium pancake {tortilla}.

PRAC>Food>Cooking>Prepared Food>Dairy

au lait
with milk {au lait}.

curd
curdled-milk thick part {curd}, not whey.

duff food
steamed pudding {duff, food}.

junket as food
rennet custard {junket, food}.

mousse
whipped cream, gelatin, flavor {mousse, whipped}.

Yorkshire pudding
flour, egg, milk, beef dripping {Yorkshire pudding}.

PRAC>Food>Cooking>Prepared Food>Dairy>Cheese

au gratin
with Parmesan cheese {au gratin, cheese}.

rarebit
melted cheese poured on toast {rarebit}.

Welsh rarebit
melted cheese baked on toast {Welsh rarebit}.

PRAC>Food>Cooking>Prepared Food>Egg

eggs Benedict
egg, ham, English muffin, butter and lemon cream sauce {eggs Benedict}.

eggs goldenrod
toast, cream sauce with hard-boiled egg whites, grated hard-boiled egg yolk {eggs goldenrod}.

omelet
scrambled egg pancake filled with cheese and vegetables or meat {omelet}.

PRAC>Food>Cooking>Prepared Food>Meat

arroz con pollo
rice, chicken {arroz con pollo}.

chop suey
meat or chicken, bean sprouts, water chestnuts, other vegetables, sauce on rice {chop suey}.

chow mein
meat or chicken, bean sprouts, water chestnuts, other vegetables, sauce on fried noodles {chow mein}.

crackling
fried skin {crackling}.

gefilte fish
fish, onion, carrot, egg, matzo, seasoning {gefilte fish}.

hash
chopped browned meat, potatoes {hash}.

meat loaf
baked ground beef and tomato sauce, or mixed beef and bread or potatoes with salt and spices {meat loaf}.

New England boiled dinner
boiled ham or corned beef, pepper, cloves, bay leaf, beets, turnips, new potatoes, baby carrots, small onions {New England boiled dinner}.

Olivier food
potatoes, chicken, pickle, green pea, carrot, mayonnaise {Olivier} {Russian salad}.

papillote
fish, white sauce, vegetables, in parchment paper for baking {papillote, paper} {en papillote, paper}.

pate as food
liver paste from goose or duck {paté}.

pemmican
dry meat pounded with fat {pemmican}|.

ravioli
pasta squares filled with chopped meat or cheese {ravioli}.

Salisbury steak
ground meat, egg, salt, pepper {Salisbury steak}.

salmi
bacon, butter, onion, carrot, parsley {salmi}, for game.

sauerbraten
beef marinated in vinegar and then pot roasted {sauerbraten}.

schnitzel Holstein
Breaded veal cutlet {schnitzel Holstein} can have fried egg on top.

schnitzel meat
breaded meat {schnitzel}.

shepherd's pie

Beef or lamb cubes in gravy can be in a casserole with mashed potatoes on top {shepherd's pie}.

sukiyaki
fried sliced meat and vegetables {sukiyaki}.

Swiss steak
round steak, tomato, onion, celery, herbs {Swiss steak}.

Weiner schnitzel
breaded veal cutlet {Weiner schnitzel}.

PRAC>Food>Cooking>Prepared Food>Meat>Kebab

shaslik
shish kebab {shaslik}.

shish kebab
Meat, onion, green pepper, and tomato pieces can be on skewers and roasted {shish kebab}.

PRAC>Food>Cooking>Prepared Food>Meat>Sandwich

sandwich
bread slices with meat and/or vegetable filling {sandwich}.

club sandwich
Sandwiches {club sandwich} can have three bread slices with meat, tomato, lettuce, and salad dressing.

hero sandwich
large sandwich roll with meat, cheese, lettuce, tomato, onion {hero sandwich}.

PRAC>Food>Cooking>Prepared Food>Meat>Sausage

sausage
chopped meat in cellulose casing {sausage}.

pig in blanket
hot dogs in buns {pig in blanket}.

wurst
sausage {wurst}.

PRAC>Food>Cooking>Prepared Food>Meat>Stew

blanquette de veau
veal, onion, cream, stew {blanquette de veau}.

bourguignon
beef, red wine, bacon, mushroom, onion, stew {bourguignon}.

jambalaya
shrimp or meat or sausage, rice, spices, tomato {jambalaya}.

pot roast
beef browned and then baked in a covered pot, or a cheaper beef cut baked in oven a long time {pot roast}.

PRAC>Food>Cooking>Prepared Food>Salad

antipasto
meat and cheese platter {antipasto}.

Bermuda salad
cauliflower, green bean {Bermuda salad}.

caesar salad
romaine lettuce, coddled egg, anchovy rub, parmesan cheese, croutons, garlic vinaigrette dressing {caesar salad}.

chef's salad
raw vegetables, hard boiled eggs, cheese, meat {chef's salad}.

Cobb salad
chopped chicken or turkey, bacon, hard-boiled eggs, tomato, avocado, cheddar cheese, lettuce {Cobb salad}.

coleslaw
raw shredded cabbage, mayonnaise {coleslaw}.

harlequin slaw
red cabbage, cabbage, pea, beet {harlequin slaw}.

ravigote salad
veloute sauce, herbs, shallots, capers {ravigote salad}.

slaw
cole slaw {slaw}.

spring salad
mixed greens, tomatoes {spring salad}.

Waldorf salad
apple, celery, lemon juice, walnuts, mayonnaise {Waldorf salad}.

PRAC>Food>Cooking>Prepared Food>Sauce

bearnaise sauce
tarragon, chervil, shallot {béarnaise sauce}.

chutney
fruit, herb, and spice relish {chutney}.

condiment
ketchup, mustard, vinegar, soy sauce, relish {condiment}.

curry
cumin with other spices {curry}.

dashi
dried-kelp {kombu} broth {dashi}.

madrilene
mayonnaise, sour cream, curry {madrilène}.

Marguery

white wine, fish stock, egg yolk, butter {Marguery}.

mayonnaise
oil, egg yolks, lemon juice or vinegar, salt {mayonnaise}.

mother sauce
five basic sauces {mother sauce}.

piccalilli
green tomatoes, horseradish, bell pepper, spices {piccalilli}.

red pepper sauce
Sauces can have red hot peppers {red pepper sauce}, like Tabasco(TM) or Uncle Pete's.

soy sauce
fermented soy, salt {soy sauce}.

sweet and sour
pineapple, vinegar, soy sauce {sweet and sour}.

tartar sauce
mayonnaise, onion, pickle {tartar sauce}.

teriyaki
soy sauce, cornstarch, sugar, garlic {teriyaki}.

Worcestershire sauce
soy, vinegar, spice {Worcestershire sauce}.

PRAC>Food>Cooking>Prepared Food>Sauce>Milk

a la king
cream sauce, green pepper or pimiento, mushroom {a la king}.

a la Newburg
with Madeira, egg yolk, cream, or with cream sauce, cheese, nutmeg, sherry {a la Newburg}.

bechamel sauce
milk, butter, flour, salt, cayenne pepper, nutmeg {béchamel sauce}.

bisque
cream sauce for meat, fish, or shellfish {bisque}.

bordelaise sauce
oil or butter, shallot or garlic, thyme, bay leaf, pepper {bordelaise sauce}.

brown gravy
gravy with meat juices {brown gravy}.

drawn butter
boil butter to sediment milk solids {drawn butter}.

fondue
melted cheese and wine {fondue, cheese}.

gravy

milk, cornstarch, meat juice {gravy}.

hollandaise sauce
butter, egg yolks, lemon juice or vinegar {hollandaise sauce}.

louis sauce
sour cream, chili {louis}.

lyonnaise
onion, butter, parsley {lyonnaise, sauce}.

mornay sauce
béchamel sauce with shredded or grated cheese {mornay, sauce}.

Newburg
milk, flour, egg, paprika {Newburg}.

Roma food
tomatoes, cream {Roma}.

stroganoff
sour cream, brown gravy, mushroom, green onion {stroganoff}.

thermidor
Newburg sauce {thermidor, sauce}.

veloute sauce
white sauce with chicken or veal stock, or fumet thickened with white roux {veloute sauce}.

white sauce
milk, flour, butter {white sauce}.

yellow sauce
milk, egg, sugar, flour, butter {yellow sauce}.

PRAC>Food>Cooking>Prepared Food>Sauce>Salad Dressing

dressing
mayonnaise, salad dressing, oil and vinegar, and the like {dressing}.

French dressing
oil, garlic, lemon juice or vinegar {French dressing}.

green goddess
mayonnaise, anchovy, tarragon vinegar, parsley, scallion, garlic {green goddess}.

Italian dressing
mayonnaise, vinegar {Italian dressing}.

Lorenzo sauce
Italian salad dressing, butter, lemon juice {Lorenzo}.

oil and vinegar
oil, vinegar {oil and vinegar}.

Russian dressing

mayonnaise, pimiento, chives, ketchup, spices {Russian dressing}.

Thousand Island
mayonnaise, chili sauce, olive, bell pepper, pickle, onion {Thousand Island}.

vinaigrette
oil, vinegar, salt, pepper {vinaigrette, dressing}.

PRAC>Food>Cooking>Prepared Food>Sauce>Tomato

barbecue
tomato, brown sugar, vinegar {barbecue}.

catsup
tomato, vinegar, brown sugar {catsup}.

chili con carne
meat in tomato, onion, and pepper sauce {chili con carne}.

chili sauce
tomato, brown sugar, vinegar, chili pepper {chili sauce}.

cocktail sauce
chili sauce or ketchup, horseradish, Worcestershire sauce {cocktail sauce}.

Creole sauce
sauce with tomato, okra, and peas {Creole, sauce}.

Nicoise
garlic, tomato, anchovy, black olive, capers, lemon juice {Nicoise}.

scaloppini
tomato, garlic, mushroom {scaloppini}, for veal or shrimp.

PRAC>Food>Cooking>Prepared Food>Soup

soup
meat and/or vegetables boiled in water {soup}.

borscht
hot or cold beet soup {borscht}.

bouillabaisse
spicy fish stew {bouillabaisse, soup}.

chowder
milk and potato soup with fish or clams {chowder}.

consomme
light soup {consommé, soup}.

fumet
reduced fish broth {fumet, soup}.

gazpacho
tomato, onion, green pepper, herb soup {gazpacho}.

gruel
thin soup {gruel}.

minestrone
soup with pasta, beans, and vegetables {minestrone}.

mongole
split pea and tomato soup {mongole}.

porridge
boiled oats or other grain, served with milk {porridge}.

pot-au-feu
fire pot {pot-au-feu, soup}.

pottage
Vegetable stews {pottage} can have meat.

vichyssoise
cold potato, leek or onion soup {vichyssoise, soup}.

PRAC>Food>Cooking>Prepared Food>Soup>Bouillon

bouillon cube
Bouillon cubes {bouillon cube} can have beef, chicken, or fish broth/stock.

court bouillon
fish stock {court bouillon}.

PRAC>Food>Cooking>Prepared Food>Stew

stew
thick soup {stew}.

goulash
meat, vegetable, and paprika stew {goulash}.

gumbo
stew with okra {gumbo}.

hasenpfeffer
spicy rabbit stew {hasenpfeffer}.

mulligan stew
meat, tomatoes, potatoes, onions {mulligan stew}.

mulligatawny
tamarind concentrate, lemon juice, coconut milk, red lentils {mulligatawny}.

pepperpot
stew with pepper {pepperpot}.

potpie
stew in a pastry shell {potpie}.

ragout
meat and vegetable stew {ragout}.

PRAC>Food>Cooking>Prepared Food>Vegetable

Boston baked beans
beans cooked in brown sugar and ketchup {Boston baked beans}.

hashed browns
browned shredded potato cakes {hashed browns}.

panzanella
bread, tomato, green pepper, cucumber, onion, garlic, capers, black olive, anchovy {panzanella}.

poi
cooked taro root paste {poi}, sometimes fermented.

risotto
short-grain or Arborio Italian rice, butter or olive oil, broth {risotto, rice}.

succotash
corn kernels, lima beans {succotash}.

PRAC>Food>Cooking>Prepared Food>Specific Ingredient

a la Casino
breadcrumbs, bacon {a la Casino}.

almandine as almond
almond {almandine, almond}.

aspic
agar gelatin {aspic}.

croquette
minced food inside bread fried in deep fat {croquette, food}.

deviled
butter, onion, celery, green pepper, parsley {deviled}.

drippings
meat juices from roasting {drippings}.

duchess food
anise liqueur, vermouth {duchess, food}.

Franconia
eggs, flour {Franconia}.

French-fried
fried in deep fat {French-fried}.

Harvard
beets, vinegar, sugar, cornstarch, salt {Harvard}.

Hungarian food

paprika {Hungarian}.

mincemeat
minced apple, spice, and sometimes meat {mincemeat}.

pilaf
steamed rice plus meat or fish and vegetables {pilaf, rice}.

polonaise as topping
bread crumb and butter topping {polonaise, food}.

Rockefeller oyster
Baked chopped-spinach, onion, celery, parsley, and aniseed-liqueur topping can be on oysters {Rockefeller oyster}.

roux
heated and stirred bacon grease and flour {roux, food}.

Russian food
beets {Russian, beets}.

southern fried
coated and fried {southern fried}.

Spanish food
tomato, cheese {Spanish}.

tempura
deep fried rice-flour-coated vegetables and/or fish {tempura}.

PRAC>Food>Cooking>Prepared Food>Dessert

confection
sweet prepared food {confection}.

fondant
Icing {fondant, icing} can have condensed milk, butter, salt, confectioner's sugar, vanilla.

frosting
sugar and butter glaze {frosting}.

hard sauce
butter, sugar, vanilla, rum or brandy {hard sauce}.

marshmallow
corn syrup, sugar, gelatin, starch, covered with powdered sugar {marshmallow}.

meringue
baked egg whites and sugar {meringue}.

russe
double cream, sugar {russe, dessert}.

PRAC>Food>Cooking>Prepared Food>Dessert>Bread

brioche
wheat, yeast, butter, egg {brioche, bread}.

doughnut
wheat flour, yeast, sugar, fried in deep fat {doughnut}.

hot cross bun
flour, sugar, cinnamon, yeast, currants {hot cross bun}, marked with cross and served on Good Friday.

king's ring
sweet bread baked in crown shape {king's ring}.

tortoni
almond biscuit {tortoni}.

zwieback
sliced and toasted sweet baked bread {zwieback}.

PRAC>Food>Cooking>Prepared Food>Dessert>Cake

angel cake
white sponge cake {angel cake}.

baba au rhum
rum cake {baba au rhum, cake}.

baked Alaska
Baked white cake can have ice cream and meringue {baked Alaska}.

brown betty
apple, bread crumbs, butter, cinnamon {brown betty}.

brownie
dense chocolate cake {brownie}.

cheesecake
baked cream or cottage cheese, egg, milk, sugar {cheesecake}.

chiffon cake
sponge cake {chiffon cake}.

coffeecake
wheat flour, yeast, nuts or raisins or brown sugar {coffeecake}.

crepe Suzette
thin pancake with fruit {crepe Suzette}.

cruller
twisted wheat flour, sugar, fried in deep fat {cruller}.

crumpet
muffin fried on a griddle {crumpet}.

cupcake
small cake in a paper cup {cupcake}.

devil's cake
chocolate cake {devil's cake} {devil's food cake}.

fruitcake
Cake {fruitcake} can have raisins, dried fruits, and nuts.

gingerbread
Cakes {gingerbread} can have wheat flour, baking powder, molasses, ginger, and sugar.

gold cake
yellow cake {gold cake}.

johnnycake
thin cornmeal bread fried on a griddle {johnnycake}.

kuchen
Cakes {kuchen} can have flour, yeast, butter, and cinnamon.

Lady Baltimore cake
white cake, frosting, figs, candied fruits, chopped pecans {Lady Baltimore cake}.

ladyfinger
small sponge cake {ladyfinger}.

madeleine
sponge cake cookie in a rounded oval {madeleine, cookie}.

marbling
chocolate and vanilla swirled in cake {marbling}.

muffin
small flat round bread {muffin}.

petite four
small frosted butter cake {petite four}.

pound cake
butter cake {pound cake}.

roly-poly
flour, baking powder, butter, jam, with syrup {roly-poly}.

sponge cake
Cake {sponge cake} can have no shortening or oil.

springerle
flour, baking powder, egg, sugar, anise oil {springerle}.

stollen
flour, yeast, raisins, candied fruit, almonds, rum, sugar, salt, butter, orange zest, nutmeg, cardamom {stollen}, for Christmas.

strudel
baked rolled thin cake with filling {strudel}.

torte
Cakes {torte} can have ground nuts or breadcrumbs.

trifle
cake and cream layers {trifle}.

upside-down cake
Cakes {upside-down cake} can have fruit or filling on bottom.

PRAC>Food>Cooking>Prepared Food>Dessert>Candy

bonbon
creamy center with chocolate coating {bonbon, candy}.

candy
thickened sugar {candy}.

cotton candy
sugar syrup spun into thin strings around a stick {cotton candy}.

fudge candy
Soft candy {fudge, food} can have sugar, butter, and flavor.

taffy
molasses or brown-sugar candy {taffy}.

toffee
brown-sugar and butter candy {toffee}.

Turkish delight
Candy {Turkish delight} can have sugar, cornstarch, and water.

PRAC>Food>Cooking>Prepared Food>Dessert>Cookie

cookie
Cookies {cookie} can be roll cookie, cutout cookie, drop cookie, refrigerator cookie, or sheet cookie.

gingersnap
Cookies {gingersnap} can have wheat flour, baking powder, molasses, ginger, and sugar.

hermit
Cookies {hermit} can have raisins, nuts, and spices.

macaroon
almond paste or coconut, egg white, sugar {macaroon}.

PRAC>Food>Cooking>Prepared Food>Dessert>Fruit

ambrosia food
orange, coconut {ambrosia, food}.

compote
stewed fruit in syrup {compote, fruit}.

conserve
two or more stewed fruits in syrup {conserve}.

preserves
fruit boiled in sugar {preserves}.

sweetmeat
candy or candied fruit {sweetmeat}.

tutti-frutti
chopped candied fruits {tutti-frutti}.

PRAC>Food>Cooking>Prepared Food>Dessert>Ice

bombe
ice cream and ice layers in a mold {bombe, ice cream}.

frappe
shaved ice fruit drink or milkshake {frappe}.

parfait
Ice cream, fruit, sauce, and whipped-cream can be in layers, or frozen whipped cream, egg, sugar, and flavor can mix {parfait, ice cream}.

sherbet
water, milk, egg whites or gelatin, sugar {sherbet}.

snow as shaved ice
shaved ice {snow, food}.

spumoni
Ice-cream layers {spumone} {spumoni} can have nuts and candied fruits.

PRAC>Food>Cooking>Prepared Food>Dessert>Nut

baklava
honey, nuts {baklava}.

divinity
sugar, egg white, water {divinity}.

marzipan
powdered almonds, egg whites, sugar {marzipan}.

peanut brittle
corn syrup, sugar, peanuts, margarine, vanilla {peanut brittle}.

penuche
pecan, brown sugar, vanilla, butter, optional candied cherry {penuche}.

praline
nuts boiled in syrup {praline, nuts}.

PRAC>Food>Cooking>Prepared Food>Dessert>Pastry

cream puff pastry
pastry with cream filling {cream puff, food}.

Danish pastry
pastry with fruit filling {Danish pastry}.

eclair
pastry with custard or whipped cream {éclair}.

French pastry
pastry with no filling {French pastry}.

Napoleon pastry
fluffy pastry with whipped cream inside {Napoleon}.

puff pastry
pastry with air inside {puff pastry}.

scone
soft round pastry {scone}.

PRAC>Food>Cooking>Prepared Food>Dessert>Pie

banbury tart
tart shell, chopped fig, citron peel, brown sugar, egg, raisin, nuts {banbury tart}.

Boston cream pie
chocolate and vanilla pudding with whipped cream {Boston cream pie}.

cobbler pie
thick fruit pie with thick top and bottom crusts {cobbler, food}.

pie
pastry shell filled with meat or fruit {pie}.

piecrust
pastry shell {piecrust}.

tart pie
small pie with sweet filling {tart, food}.

Washington cream pie
cake, whipped cream, raspberry jam, in layers {Washington cream pie}.

PRAC>Food>Cooking>Prepared Food>Dessert>Pudding

blancmange
pudding with milk, sugar, and cornstarch {blancmange}.

Charlotte russe
pudding with flour, egg, double cream, and sugar {Charlotte russe}.

Christmas pudding
flour, butter, bread crumbs, dried fruit, candied peel, brown sugar {Christmas pudding}.

custard
milk, egg, sugar {custard}.

Nesselrode
pudding, rum, lemon rind, sugar, whipped egg whites, candied fruit {Nesselrode}.

pudding

boiled milk, egg or cornstarch, and sugar {pudding}.

Spanish cream
custard with milk, gelatine, egg white, and egg yolk {Spanish cream}.

tapioca pudding
dried tapioca, milk, sugar, egg {tapioca pudding}.

zabaglione
warm custard with Marsala wine {zabaglione, food}.

PRAC>Food>Cooking>Prepared Food>Mexico

Mexican food
Food {Mexican food} can feature chili peppers.

arroz
rice dish {arroz}.

burrito
soft taco with filling {burrito}.

caldo
soup {caldo}.

carne
meat {carne}.

ceviche
seafood dish {ceviche}.

chile relleno
chile wrapped in egg and fried {chile relleno}.

chorizo
sausage {chorizo}.

enchilada
meat or cheese filled rolled tortilla and chili sauce {enchilada}.

empanada
stuffed pastry {empanada}.

frijoles
refried pinto beans {frijoles}.

gorditas
small thick tortilla {gorditas}.

guacamole
mashed avocado {guacamole}.

huevos
eggs {huevos}.

menudo

stew {menudo}.

mole
sauce {mole, sauce}.

nachos
tortilla chips with melted cheese {nachos}.

picadillo
ground beef filling {picadillo}.

pico de gallo
Salsa can have tomato, onion, and chiles {pico de gallo}.

pollo food
chicken {pollo, food}.

quesadilla
tortilla with melted cheese {quesadilla}.

rajas food
sliced pepper {rajas, food}.

salsa food
tomato, onion, and chiles {salsa, food}.

sopa
pasta in broth {sopa}.

taco
folded tortilla with filling {taco}.

tamale
masa, peppers, and filling wrapped and steamed in plantain or cornhusk {tamale}.

tapas food
dried meat cured with salt and vinegar {tapas, food}.

torta
sandwich {torta}.

tostada
toasted or fried tortilla {tostada}.

PRAC>Food>Cooking>Utensils

bell jar
Glass cylinders {bell jar} can have width half of height, with open side down to cover something.

brochette
metal skewer {brochette, skewer}.

china porcelain
porcelain dish, plate, cup, or bowl {china}.

chopsticks

wood or plastic stick pairs {chopsticks}.

coaster
wood or plastic disc {coaster}, to put under glass.

crockery
baked clay cooking or serving pot {crockery} {crock}.

delft china
china from Delft, Holland {delft}.

earthenware
unbaked clay pots, dishes, or cups {earthenware}.

silver plate
silver-plated serving dish, spoon, knife, or fork {silver plate}.

spatula
Metal, wood, or plastic flat rectangular pieces {spatula} can have handles for scraping surfaces.

stoneware
sandstone baking flat {stoneware}.

swizzle stick
Thin 10-centimeter-long plastic sticks {swizzle stick} can stir alcoholic drinks.

wood block
flat wood board {wood block}.

PRAC>Food>Cooking>Utensils>Container

beaker
Glass cylinders {beaker} can have width and height almost the same, with open side up, to hold fluid.

canister
Metal or plastic cylinders {canister} can have a lid for holding solids.

cruet
Glass bottles {cruet} can have a narrow neck and small opening with lid, for oil or vinegar.

decanter
pitcher {decanter}.

ewer
Large pitchers {ewer} can have a large opening.

fingerbowl
small water bowl {fingerbowl}, in which to dip fingers after eating greasy or sticky food.

flagon
Large containers {flagon} can have a spout and handle, to hold liquids.

humidor
wood box {humidor}, in which to put cigars.

Mason jar

Glass cylinders {Mason jar}, with width half of height, have screw-on lids with rubber seals.

stein
Large glazed baked clay cups {stein}, for beer or ale, can have a handle.

tureen
Large metal bowls {tureen} can be for soup.

urn
Small vase-shaped vessels {urn} can hold solids.

volumetric
Glass or plastic cylinders {volumetric} can have rulings, with volume in milliliters.

PRAC>Food>Cooking>Utensils>Container>Cooking

caldron
large thick iron pot {caldron}, for boiling.

chafing dish
Metal pans {chafing dish} can be for cooking food on dining tables.

double boiler
Bottom metal pot holds boiling water, and top metal pot {double boiler} holds chocolate or other food, to prevent scalding.

vat cooking
Large metal containers {vat} can hold liquids.

wok
large metal convex pan {wok}.

PRAC>Food>Cooking>Utensils>Container>Flask

flask
Glass containers {flask} can hold liquids, with a round opening at top.

Dewar flask
Insulated containers {Dewar flask} can hold cold liquefied gases.

Erlenmeyer flask
Pyramidal glass containers {Erlenmeyer flask} can have a round opening at top.

PRAC>Food>Cooking>Utensils>Cutlery

cutlery
knives {cutlery}.

cleaver
heavy metal chopping knife with rectangular blade {cleaver}.

PRAC>Food>Cooking>Utensils>Glass

chalice
Metal cups {chalice} can have a stem and base.

demitasse
Small cups {demitasse, cup} can be for coffee.

goblet
Glasses {goblet} can have a stem and base.

grail
Metal cups {grail} can have a stem and base.

loving cup
large decorated cup {loving cup}, used as award.

snifter
Oval glasses {snifter} can have a short stem and base and a wide opening, used for brandy.

stemware
Glasses {stemware} can have a stem and base.

tankard
Large metal cups {tankard}, for beer or ale, can have a handle.

tumbler
Medium-size glasses {tumbler} can have width and height almost same, with no stem.

PRAC>Food>Cooking>Utensils>Oven

Dutch oven
Heavy pots {Dutch oven}, with a lid, can cook at low heat for long times.

hibachi
Small braziers {hibachi} can have charcoal fuel.

rotisserie
Ovens {rotisserie} can have rotating spits for roasting meat.

PRAC>Game

game as play
Games {game, play} include athletic, card, puzzle, and board games.

circus
In an arena or under a tent {big top}, clowns, animal handlers, aerialists, acrobats, and a ringmaster present a show {circus}|, in one or three rings.

family activities
Families can do things together {activities, family} {family, activities}.
reading and writing
Read and swap books. Go to libraries. Read newspapers or magazines. Keep diaries or journals. Write letters to relatives, friends, or pen pals. Check cash register receipts and add them. Compute gas mileage and travel distances. Read weather maps.
chores
Wash, dry, and iron clothes. Sweep. Clean. Organize. Polish shoes. Sew.
activity
Make object collections and put them in categories. Organize photographs. Make scrapbooks. Recycle. Plan and have parties for guests, with invitations, food, and activities. Have yard sales. Set up juice stands. Volunteer. Start or tend gardens or window boxes. Camp out in yards or campgrounds. Have picnics.

visit
Visit parks. Visit museums. Visit historical sites. Visit institutions. Visit cemeteries.
discussion
Discuss family history. Discuss and prepare for holidays.

magic trick
Tricks {magic} {magic trick} can use sleight-of-hand or misdirection.
types
To fool people {misdirection}, magicians can tell people to look somewhere or can do something to make them look {overt misdirection}, or they can use low attention or minimal change {covert misdirection}. Hands and hand motions can be quick or deceptive {sleight-of-hand}, such as palming coins or eggs.
Changing dresses uses two different-color dresses, two different-color lights, and a mechanical device to pull off top dress. Shaking a spoon makes it appear to bend at neck.
mirror
Magic tricks can use mirrors, such as "saw the lady in half".
afterimage
Removing an object leaves it visible for 100 milliseconds, by neural after-discharge.
illusion
Repeatedly tossing a ball up and catching it, followed by a pretend throw appears to be a ball going up and disappearing {vanishing-ball illusion}. Spinning disks can have expanding and contracting regions. Looking at stationary objects makes them appear to contract and expand.

playoff
One game {playoff}, or a short series, can determine which team or person advances and is the most-exciting contest. Perhaps, all sports can have only playoffs, with no regular season. Players receive money based on playoff success, as in golf and tennis tournaments.

PRAC>Game>Athletic

archery
Sport {archery}| can use curved flexible wood {bow, archery} with a string tied at ends. Bows can have a cradle in which to draw string. Bows shoot projectiles {arrow} with a straight stick {shaft}, a point at one end, and feather fins {fletching} and a notch {nock} at other end. Targets are circles.

boxing
Sport {boxing}| can have three-minute rounds for 3 to 15 rounds, in a roped square {ring, boxing}. Boxers use gloves. Boxers can knock {punch, boxing} opponent unconscious {knockout, boxing} (KO) or unable to return to ring {technical knockout} (TKO). Boxers can win on points from judges. Hitting below the belt {low blow} is illegal. Hitting kidneys is illegal.

bullfight
Sport {bullfight}| can have a bullfighter {matador, bullfight} to face the bull and an assistant {picador} to place spikes in the bull to madden it, in a bullring.

falconry
Trained falcons can catch game or fly, on command {falconry}|. Falconers wear a glove, on which falcons can land. Falcons wear hoods when not performing.

fencing
Sport {fencing}| can use foil, saber, or dueling sword {epée}. Fencer starts {on guard} and then can move forward {lunge}, block opponent's weapon {parry, fencing}, or move backward {retreat, fencing}.

field event
Track and field has events {field event}|. Use a pole to jump over a bar {pole vault}. Jump over bar {high jump}. Run and jump {long jump}. Hop, skip, and jump {triple jump}. Throw a 16-pound ball {shot put}. Throw a heavy disk

{discus}. Throw a weight on a chain {hammer throw}. Throw a spear {javelin throw}. Decathlon has 10, heptathlon has 7, and pentathlon has 5 field and track events.

gymnastics
Sport {gymnastics}| can use vaulting horse or long horse, parallel horse or side horse, parallel bars or uneven parallel bars, horizontal bar, stationary rings, balance beam, floor exercise, and calisthenics.

hunting
Sport {hunting}| can stalk and shoot game in fields, with rifles or bows.

roller-skating
Sport {roller-skating}| can use shoes with wheels.

shooting
Sport {shooting}| can include skeet, trap, target, small-bore rifle, large-bore rifle, and pistol shooting.

skydiving
Sport {skydiving}| can be a free fall and then parachuting.

trampoline
Sport {trampoline}| can use a canvas, on which people can bounce, attached to a frame by elastic ropes.

weight lifting
Sport {weight lifting}| can lift overhand from ground to chest {clean and press}, lift overhand from ground to over head {clean and jerk}, lift underhand from ground to chest {snatch}, and push from holder up and bring back while lying on back {bench press}.

wrestling
Sport {wrestling}| can be free style, Greco-Roman, or sumo. Fall, pin, headlock, hammerlock, toehold, body slam, arm lock, leg lock, chin lock, full nelson, half nelson, scissors, and body press score points.

PRAC>Game>Athletic>Athletics

calisthenics
Sport {calisthenics}| can include jumping jacks, pull-ups, push-ups, knee bends, duck waddles, sit-ups, chin-ups, toe touching, medicine ball throwing, and isometric exercises.

conditioning in athletics
Exercising {conditioning, athletics}| can have 10-minute warm-up, 10-minute high level, and 10-minute cool down, at least three times a week. High-level exercise is jogging, cycling, rope skipping, running, swimming, walking, and straddle hopping.

Intensity is 75% of maximum oxygen intake capacity or 75% of maximum heart rate. Use the following heart rates for high-level exercise. Age 25 to 29 is 135 to 164. Age 30 to 34 is 132 to 161. Age 35 to 39 is 129 to 157. Age 40 to 44 is 126 to 153. Age 45 to 49 is 124 to 150. Age 50 to 54 is 122 to 148. Age 55 to 59 is 119 to 144. Age 60 to 64 is 117 to 142. Age 65 to 69 is 114 to 138.

exercise activity
People should twist, stretch, and compress body muscles {exercise, activity}|, so joints move in all possible ways. Exercise makes heartbeat fast and breathing hard. Exercise can be fast and short or slow and long.

workout
Exercise {workout}| 20 minutes, every day. Easy workouts involve the following twists, stretches, and compressions, while standing. Twist, stretch, or compress as far as possible and as fast as possible, and repeat as much as possible.

legs

For legs, do half-squats, lift knees, lift lower leg backward, stand on toes, twist and shake thighs, walk straight forward and straight backward, walk forward and backward at 45-degree angles, and turn clockwise and counterclockwise.

trunk

For trunk, bend over backward to center, left, and right; bend over forward from waist to center, left, and right; bend over forward from hips to center, left, and right; turn to right and left; turn to right and left while turning shoulders to right and left to twist; lean over to left and right; hold tummy in; hold pubic area in; thrust hips forward to center, left, and right; and thrust hips backward to center, left, and right.

arms

For arms, lift shoulders together and separately, push shoulders forward, push shoulders backward, rotate shoulders vertically clockwise and counterclockwise, reach out in front with both arms and with each arm separately, reach arms around body in front and back, hold arms straight out from side and rotate clockwise and counterclockwise, reach arms straight up and to left and right, stretch arms forward and backward, pronate and supinate forearms, and make fists and then stretch palms flat.

PRAC>Game>Athletic>Ball

baseball

Nine-person teams {baseball}| can have pitcher, catcher, first baseman, second baseman, shortstop, and third baseman, who deploy around the diamond, and right fielder, center fielder, and left fielder, who deploy in the outfield. Pitchers can throw a hard medium-size ball over home plate above knee and below shoulders {strike, baseball} or miss {ball, baseball}. Three strikes retires batter {out, baseball}. Four balls is a pass to first base {walk, baseball}. Batter uses a bat to try to hit ball into the field {hit, baseball} or to right or left {foul ball}. Foul balls are strikes, unless batter has two strikes already. Batters try to get to first base by hit or walk and advance around second and third bases, back to home plate to score a run. Hits can be a single to first base, double to second base, triple to third base, or home run to home plate.

basketball

Five-person teams {basketball}| can have center, two forwards, and two guards. Large ball advances by pass or dribble. Players dribble, pass, or shoot.

shot

Players try to put the ball in the opponent's basket, for two points if inside three-point line or three points if outside three-point line.

fouls

Players cannot impede shots by contact. After a foul, fouled player shoots free throws or team receives ball out of bounds.

shot: free throw

Fouled players shoot freely from free-throw line {free throw}, one or two times, to score one point each.

turnovers

Players with the ball cannot stop and resume dribbling {double dribble} or move without dribbling {traveling}. After turnovers, other team receives the ball out of bounds.

shot theory

Shots can have distance, speed, and angle errors. Shooting closer to basket has higher percentage. Hands over the head are closer to basket, so overhead shots have higher percentage. Hands are closer to basket when at jump top, so jump shots have higher percentage.

Shots using only fingers and hand have higher percentage, because large muscles are less accurate. Shorter shots can use less arm and leg muscles. Overhead shots can use less leg muscle, because they are shorter. Jump shots use less leg muscle.

Shots off backboard are longer, use angles that are hard to calculate, and have different targets each time. However, hitting high-speed shots off backboard can slow shots. Underhand shots off backboard hit backboard going up and can be shorter. Shots off backboard are slower.

Make ball enter rim at 45-degree angle, to maximize distance and speed error range that can make successful shots. If hand is below rim, shoot with angle more than 45 degrees, so ball enters rim at 45-degree angle.

Aim to go through rim center, and look at that point. Net shape helps determine that point.

bowling

Sport {bowling}| can use a heavy plastic ball to strike ten pins standing in a triangle at the end of a lane. Bowling is in a building {bowling alley}. All ten pins can fall on first ball {strike, bowling} or on two balls {spare, bowling}. Other bowling games are candlepin bowling and ninepins.

cricket match

Sport {cricket match}| can have an oval field {pitch, field} with two posts {wicket, cricket} and an edge. From behind his wicket, pitcher throws a hard small ball to the ground to try to bounce it onto other wicket. Batsman uses a flat bat to protect the wicket and hit the ball. After hitting, batter can stay near wicket or can run to second wicket to score a run. If hit is far, batter can try to return to first wicket to score another run. If hit rolls to boundary, it is four runs. If hit lands past boundary, it is six runs. Players can catch a fly ball or tag batter while he runs between wickets, to score {out, cricket}. Ten outs retires batting team. Pitched balls count {over, cricket} and games can have limited overs.

field hockey

Sport {field hockey}| can use sticks to roll a medium-size ball into a net on a field.

football

On offense, eleven-person teams {football}| can have center, two guards, two tackles, two ends, quarterback, halfback, fullback, and slotback or wide receiver. On defense, eleven-person teams can have three or four linemen, three or four linebackers, two safeties, and two cornerbacks.

play

After plays, ball is on scrimmage line for four downs, in which offense tries to move forward ten yards {first down}.

scoring

Moving ball into opponent's end zone scores seven points {touchdown}. Kicking ball through opponent's goal posts scores three points {field goal}. Kicking ball through opponent's goal posts after a touchdown scores one point {point after}. Moving ball into opponent's end zone after a touchdown scores two points {points after}. Downing opponent in its end zone scores two points {safety, football}.

kicking

After receiving ball, offensive team can elect to kick ball to opponent {free kick}. Offensive team can elect to kick ball to opponent on fourth down {punt, football}.

ball movement

Players can carry ball forward {rush, football}. Players can throw ball downfield {pass, football}. Players can throw ball sideways {lateral, football}.

blocking

Offense tries to block players from downing ball carrier {blocking, football}.

tackling

Defense tries to down ball carrier {tackling}.

penalties

Teams cannot move across scrimmage line before ball moves from line {offside, football}. Teams cannot move forward before ball moves from line {illegal motion}. Teams cannot hit the passer after ball release {roughing the passer}. Teams cannot hit the kicker after ball release {roughing the kicker}. Teams cannot hit interfere with pass receiving or defending five yards beyond scrimmage line {pass interference}. Teams cannot block or tackle illegally {personal foul}. Penalties award other team five, ten, or fifteen yards or a down.

golf

Golf bags have 14 clubs: driver, woods 1 through 3, irons 2 through 9, wedge or sand wedge, and putter {golf}|. On each of 18 or 9 holes, players strike the ball from tee through fairway to green and then putt into a four-inch hole. Score is number of strokes.

strokes

Holes have stroke standards {par, golf}: 3, 4, or 5. Eighteen holes have par 70, 71, or 72. Players can take one more stroke {bogey}, two more strokes {double bogey}, three more strokes {triple bogey}, one less stroke {birdie, golf}, two less strokes {eagle, golf}, three less strokes {double eagle}, or one stroke {hole-in-one}.

Basic Swinging

To simplify right-handed swing, concentrate on trapezius back muscle where inside middle of right shoulder blade meets upper middle spine.

To start right-handed backswing, turn around that muscle to rotate right shoulder around spine. Rotate around right ankle and rotate right thigh. Rotate hips and twist their outer muscles. Keep left arm straight, and keep right arm straight as long as possible.

After body finishes rotating, keep arms extended and continue to pull arms around body until just before you start to lose balance and/or lose sight of ball. Rotate waist muscles.

To start right-handed swing, rotate around right inside middle trapezius muscle again to go down and through ball toward target.

Basic Putting

To putt smoothly, place eye directly over ball. Using the basic swing, but gently, draw club straight back same distance as intended finish distance, then slide through the ball. Put straight topspin on ball.

hand golf

Golf {hand golf} can use only hands and ball. Players throw the ball from tee toward hole. Players pick up the ball and throw it toward the hole. On the green, players roll the ball into cup like bowling. Because there are no clubs, expense is lower, and you do not need golf carts. You never lose balls.

handball

Players use hands to throw a ball against a wall {handball}|.

hurling

Sport {hurling}| can be similar to field hockey.

jai alai

Sport {jai alai}| can use wicker rackets to catch a hard medium-size ball and throw it against a wall.

lacrosse

Sport {lacrosse}| can use webbed sticks {crosse} to carry a ball and throw it into a net on a field.

rugby

Sport {rugby}| can use a large football. Official places ball at tackle spot, and play starts {scrum}. Players advance by running or lateraling, until another player tackles ball carrier. Team scores when a player carries ball into opponent's end zone {try, rugby} or kicks ball through opponent's goal posts on a free kick or drop kick. After a penalty, team can take a free kick.

soccer

Eleven-person teams {soccer}| can have goalie, four defenders, three midfielders, two forwards, and striker. Players kick or head the medium-size ball toward a large net on a 100-meter field, without using arms. In the goal area, goalies can use arms and hands to defend net. Passes can go only to a player with at least one defender still ahead {offside, soccer}. World Cup is the most-famous soccer championship.

softball

Sport {softball}| can be like baseball and use a large ball with underhand pitching. Softball can be slow pitch or fast pitch.

volleyball

Teams {volleyball}| have six players on one court side, three next to net and three in backcourt. Players can slam ball to opponent's side {spike, volleyball}, set up spike, or hit a low ball {dig, volleyball}. Sides have three hits to return ball to other side. Players cannot hold ball. Each point begins with a serve from behind court baseline. The team that won previous point serves. Teams can score points only while serving. 15 points wins game.

PRAC>Game>Athletic>Martial Art

judo

Sport {judo}| can modify jujitsu for competition and emphasize throws.

jujitsu

Sport {jujitsu}| can involve throwing and pinning opponent.

karate
Sport {karate}| can involve punching, thrusting, clawing, and kicking.

kung fu
Sport {kung fu}| can be similar to karate.

PRAC>Game>Athletic>Racket

badminton
Sport {badminton}| can be like tennis and use a shuttlecock {birdie, badminton} and light rackets.

paddle tennis
Sport {paddle tennis}| can use short rackets to hit a ball against a wall.

squash rackets
Sport {squash rackets}| like can use small string rackets to hit a ball against a wall.

table tennis
Sport {Ping-Pong} {table tennis}| can use paddles to hit a small hollow ball over a net on a table.

tennis
Sport {tennis}| can use rackets and a medium-size felt-covered ball, on a court with a waist-high net. For a game, one player serves into alternating right and left service courts, to win or lose points. Player score can be no points {love, tennis}, 15 for first point, 30 for second point, 40 for third point, or one point ahead in tiebreaker {advantage, tennis}. If both players have 40, score is a tie {deuce, tennis}. To win game, player must win at least 4 points and be 2 points ahead. To win set {set, tennis}, player must win at least six games and be two games ahead. Alternatively, if both players have won six games, they can play a tiebreaker. To win match {match, tennis}, player must win two sets out of three or three sets out of five.

PRAC>Game>Athletic>Riding

automobile racing
Sport {automobile racing} can include Formula 1, Formula V, prototype, group 7, sports car, stock car, and Indianapolis races, on dirt or paved tracks, for different distances.

equitation
Sport {equitation}| {horsemanship} can include show jumping, cross country, and dressage or controlled riding. Horses can run, trot, canter, gallop, or pace. Saddles can be English saddle or western saddle.

horse racing
Sport {horse racing}| can include thoroughbred, steeplechase, and harness racing. Horses break from start, round first turn, go down backstretch, round turn, and come down homestretch, to finish line, for one to one-and-one-half miles. One furlong equals 1/8 mile.

polo sport
Horse-riding sport {polo}| can use a long mallet to hit a medium-size ball into a net on a large field.

rodeo
Sport {rodeo}| can include saddle bronc, calf roping, bulldogging cattle, bareback riding, and Brahma bull riding.

PRAC>Game>Athletic>Running

cross-country
Races {cross-country}| can be 2 to 5 miles on paths or roads in towns or countryside.

marathon run
26-mile run on paths or roads in towns or countryside {marathon}|.

running sport
Runs {running, sport} on tracks can be 100 m, 200 m, 400 m, 800 m, 1500 m, 5000 m, 10000 m, 400-m relay, 1500-m relay, 110-m hurdles, 400-m hurdles, and 3000-m steeplechase. Runs on roads can be 20-km walk and 30-km walk.

PRAC>Game>Athletic>Water

diving sport
Sport {diving}| can include gainer or reverse, inward or cutaway, swan dive, twist, layout with body straight, tuck, pike or jackknife, handstand, and half gainer.

fishing sport
Sport {fishing}| can include rod and reel, fly-casting, spinning, bait casting, and trolling.

rowing
Sport {rowing}| can involve a coxswain setting the pace for oarsmen and steering a long narrow boat {shell, rowing sport}. Sculling uses a one-person boat {scull}. Kayaking uses a one-person enclosed canoe {kayak, sport}.

sailing
Wind can power boats with sails {sailing}|.

boat types
Sailing ships are catboat, sloop, schooner, cutter, ketch, yawl, catamaran, and trimaran.

parts
Sails use a vertical mast, horizontal bar {boom, sailboat}, diagonal spars, and rigging ropes. Under sailboats is a weighted thin wedge {keel, sailboat} to resist sideways motion and tipping, as wind strikes sail. A board in back {rudder, boat} turns right to steer left, and left to steer right, as moving water pushes rudder sideways. A straight board {tiller} or steering wheel {helm} can connect to rudder.

parts: sails
Sails can be back from mast and along boom {main sail}, in front of mast {jib}, and in front of jib to catch a downwind {spinnaker}.

course
Competitions use a course with six legs: into wind {windward leg}, across wind {reach}, downwind, and repeat. America's Cup is the most-famous sailing-race series.

tacking
To move upwind, sailboats must move at 45-degree angles, half to left and then turning {coming about} to half to right {tacking}. Performing many tacks or just one depends on possible wind force and direction changes. Going upwind tends to push boat front {prow} up, so sailors move to front, to balance weight.

reaching
Going across wind {reaching} tends to tilt the boat over, so sailors move to upwind side.

running
Going downwind {running, sailing} tends to push boat front down into water, so sailors move to back.

sail
Sail trailing edge resists wind. Pulling sails tighter {trimming} reduces drag force. People can pull a sail tight to wind {reefing} or lower a sail {furling}.

skin diving
Sport {skin diving}| can use aqualung, snorkel, surface diving, dry suit, wet suit, or SCUBA. SCUBA outfit has an air tank, with regulator, weights, and an air vest.

surfing
Sport {surfing}| can use boards {surfboard} on waves. People can place ten toes over board front {hang ten}.

swimming
Sport {swimming}| can include breaststroke, crawl or freestyle, backstroke, sidestroke, and butterfly.

water polo
Sport {water polo}| can try to put a medium-size ball into a net in a pool.

water skiing
Sport {water skiing}| can use skis behind a ski boat, which travels at 35 mph or more.

PRAC>Game>Athletic>Winter

curling
Sport {curling}| can slide polished stones over ice with brooms.

figure skating
Sport {figure skating}| can include spirals, spins, glides, steps, flips, axels, toe loops, and other leaps.

ice hockey
Six-person teams {ice hockey}| can have goalie, two defensemen, two wingers, and center. Team passes puck around ice. Passes cannot go to a player with no defender in front {offside, hockey} or send puck over two lines without touching anyone {icing}. After infractions, referee drops puck in a nearby circle {faceoff}.

luge
Sport {luge}| can use sleds on ice chutes.

skiing
Alpine skiing {skiing}| includes downhill, slalom, and giant slalom. Nordic skiing includes cross-country skiing and ski jumping.

speed skating
Sport {speed skating}| can use long skates.

toboggan
Sport {toboggan}| can use flat-bottom sleds on icy runs.

PRAC>Game>Board

backgammon
Two dice determine number of points that selected pieces can move around a special two-sided board with points {backgammon}.

bingo
On boards with arrays of numbers, players mark squares whose number is called, until one player announces completion of a column, row, or diagonal {bingo}.

brax
Games {brax} can be similar to checkers.

cats and dogs game
Games {cats and dogs} can be similar to checkers.

checkers
Twelve identical pieces for each side are on same color of a checkerboard {checkers} {draughts} and can move forward on diagonals. Players try to jump opponent's pieces, to try to capture all of them. Moving a piece to opponent's first row makes piece able to move in all directions {king, checkers}.

Dalmatian pirates
Games {Dalmatian pirates and Volga Bulgars} can be similar to fox and geese.

fandango board game
Games {fanorona} {fandango, board game} can be similar to checkers.

fox and geese
On a checkerboard {fox and geese}, a single checker starts at first row and is the fox, which can move forward and backward. Four checkers fill other first row and are the geese, which can move only forward. Pieces move along diagonals, one square per move, with no capturing. Geese try to trap fox, who tries to reach last row.

Game of Squares
Board games {Game of Squares} can be about making squares.
Number of Players
Game has two players or two teams.
Board
Board is any-size square grid. Squares less than 19 x 19 are good. Use any square part of a Go board or checkerboard.
Pieces
If grid is 19 x 19, use 191 each of two colors. If grid is 7 x 7, use 25 of each color.
Play
Either player can move first. Players alternate turns. Turns place one piece on an empty board position. Game has no capturing. Pieces already on board cannot move. Players cannot pass turns.
Object of Game
Object is to make as many four-cornered square patterns of player pieces as possible.
End of Game
Players mutually agree to end game, or pieces occupy all possible positions.
Variants of Game
Board can be rectangle, diamond, or other shape. Pattern counted can be any shape, for example, diamond or rectangle, rather than square. Count can include only smallest squares, with four pieces, or any-size four-cornered patterns. Different shapes and sizes can count different values. Players can remove one opponent piece per turn. Players can pass turn. Players can play more than one piece per turn. Players can cooperate to make fun patterns.

go game
On a 19 x 19 board, players put black or white markers to encircle territory or opponent markers {go}. Encircling markers captures opponent's markers. Players cannot remove their own markers. Black moves first. Players alternate turns. Black can start with one to nine markers already on board, as a handicap.

Go Free
A Go variation {Go Free} can allow players to move any of their own pieces, whether played already or not, to open spots, or to remove them from board. This variation requires no special rules for special situations, so Go Free has fewest restrictions.

hasami shogi
Two players move pieces along board lines as far as they can and capture by sandwiching {hasami shogi}.

Hex
Players can put hexagons on a rhombus-shaped board {Hex}.

hoppers
In a one-person game {hoppers}, pegs jump over each other to reach end.

mah jong
Board games {mah jong}| can use special tiles.

mancala
Seeds can go into depressions {mancala}.

nine men morris
Players add markers to a board with three concentric squares and capture other player's markers {merrelles} {mühle} {mill, game} {nine men's morris}.

ouija
Boards {ouija}| can have a special layout.

parcheesi
Dice can determine number of spaces to move on a special board with four parts {parcheesi}.

roundabouts
A round-board game {roundabouts} uses dice to move pieces.

Scrabble
Scrabble(TM) {Scrabble}| uses a special board and letter tiles, to make words. Letters have values, and score is sum of values.

chess
Checkerboard games {chess} can have one king, one queen, two bishops, two knights, two rooks or castles, and eight pawns for each side. Pieces capture by displacing opponent's piece. King can move one square in any direction. Queen can move any number of squares in any direction, with no jumping. Rook can move any number of squares on row or column, with no jumping. Bishop can move any number of squares on a diagonal, with no jumping. Knight can jump two squares on a row or column plus one square on a column or row. Pawns can move one square forward, with no jumping, and capture diagonally. Pawns can move two squares forward first time. Object is to capture king.

notation
Notation can use B = Black, W = White, K = King, Q = Queen, B = Bishop, N = kNight, R = Rook, and P = Pawn. Row 1 is on white's side, and row 8 is on black's side. For example, K-KR1 means move king to kingside rook column and first row.

chess problem 1
Pieces start at the following positions. BK-QR8, BN-KB8, BR-KN8, BP-QR7, BP-QN7, WB-Q7, BB-QR6, BP-QB6, WN-Q6, BB-KB6, WP-KN6, BQ-Q5, WP-KB5, WQ-QN4, BN-Q4, WP-QB3, WP-Q3, BP-KR3, WP-QN2, WB-KR2, WR-QR1, WK-QN1, and WR-K1. Moves are 1. ..., BxP +; 2. K-QB1, B-KN5 +; 3. K-Q1, B-QB2 ++.

chess problem 2
Pieces start at the following positions. BK-QR8, BP-QR7, BP-QN7, BB-Q7, BP-KN7, BR-QR6, WN-Q6, BP-KN6, BB-QN5, BQ-Q5, WR-QR4, WQ-QN4, BN-Q4, WP-K4, WN-QB3, WP-Q3, WP-QN2, WP-KN2, WP-KR2, WK-QN1, WB-QB1, and WR-KB1. Moves are 1. ..., BxP +; 2. K-QR1, N-QB2 +; 3. K-QN1, NxQ +; 4. K-QR1, RxR +; 5. NxR, Q-KR2 ++.

chess problem 3
Pieces start at the following positions. BR-K8, BB-KB8, BB-QN7, BP-KN7, BP-KR7, WB-Q6, BN-K6, BP-KB6, BK-KN6, BP-QR5, BP-Q5, BQ-KB5, WP-QB4, WP-KN4, WQ-KR4, WN-QN3, WP-Q3, WK-K3, WN-KR3, WP-QR2, BR-QN1, WP-KR2, WR-Q1, WB-KB1, and WR-KN1. Moves are 1. ..., Q-B6 +; 2. KxQ, P-Q4 +; 3. K-KN3, BxB +; 4. N-KB4, BxN +; 5. K-KR3, RxP ++.

chess problem 4
Pieces start at the following positions. BR-QR8, WN-QN7, BB-QB7, BP-KN7, BP-KR7, BB-QB6, WB-Q6, BP-KB6, BK-KN6, BP-QR5, BP-Q5, BQ-KB5, WN-KN5, WP-QB4, WP-KN4, WQ-KR4, WB-QN3, WK-K3, WP-KR3, WP-QR2, WP-QN1, BR-KN2, WR-QR1, and WR-K1. Moves are 1. ..., P-Q4 +; 2. KxP, R-Q2 +; 3. K-K3, Q-Q3 +; 4. K-B4, QxB +; 5. K-K3, Q-Q4 ++, or 5. R-K5, QxR ++.

chess problem 5
Pieces start at the following positions: K-K2, Q-QR3, B-K4, B-K5, N-QN6, N-QB7, R-KN8, and R-KR7. This makes maximum attack on all 64 squares.

chess problem 6
Pieces start at the following positions: K-QB2, Q-QN1, R-QB1, R-QN2, B-QR1, B-QR2, N-Q1, and N-QN3. This makes minimum attack on 16 squares.

variation
Chess variation is to move king to farthest row, or a particular square on farthest row, first.

PRAC>Game>Card

baccarat
A game similar to blackjack {baccarat} can use two tables {baccarat banque} and can use a bank {punto banco} {North American baccarat}.

blackjack card game
Starting with two cards, people try to obtain 21 or less and be higher than other players, by optionally drawing cards {blackjack, cards} {twenty-one}.

bridge card game
In bridge-like games {bridge, card game}, such as contract bridge, players try to win rounds of played cards {trick}, with highest card or with a card from a designated suit {trump}. Bridge had an earlier form {whist} in 1900's.

canasta
Rummy {canasta} can use two card decks.

chemin de fer
baccarat {chemin de fer}.

cribbage
Boards {cribbage} can have peg holes, filled according to cards, for keeping score.

deck of cards
Card decks {deck} have 52 cards: 13 black clubs, 13 red diamonds, 13 red hearts, and 13 black spades {suit, cards}. 13-card suits have 2, 3, 4, 5, 6, 7, 8, 9, 10, jack J, queen Q, king K, and ace A, from lowest to highest. Jack, queen, and king {face card} show persons. Jack of spades and jack of hearts are one-eyed. A deck can have two cards with a joker image.

euchre
Rummy {euchre} can use deck highest 32 cards.

faro
Players can take cards from a box and bet {faro}.

hearts card game
Rummy {hearts} can use hearts suit as trumps.

pinochle
Rummy {pinochle} can have 2 to 4 people and use 48 cards.

poker card game
Strength, from lowest to highest, is highest card, two of kind, three of kind, four of kind, five of kind including wild card, five cards in sequence {straight, poker}, five cards in same suit {flush, poker}, five cards of same suit in sequence {straight flush}, and straight flush with ace high {royal flush} {poker}. Poker {draw poker} can deal substitute cards from deck. Poker {stud poker} can show some cards and conceal others, dealt in front of players.

rummy
In rummy-type games {rummy}, such as gin rummy, players try to acquire three same-value cards or three same-suit sequential cards {meld}, by drawing from a card pile {talon, cards}.

solitaire card game
People can play card-sequence games {solitaire} {patience} by themselves.

PRAC>Game>Card>Names

deuce card
two card {deuce, card}.

trey card
three card {trey}.

PRAC>Game>Children

blindman's bluff
A child can wear a blindfold and try to catch people {blindman's bluff}|.

cat's cradle
Hand games {cat's cradle}| can use a string loop around fingers.

marbles
Spherical balls {marbles}| can be thumb shooters to knock other marbles from a ring.

pin the tail on the donkey
A blindfolded child can hold a paper tail and try to stick it on a donkey picture {pin the tail on the donkey}|.

pinata
A child can use a stick to try to break a papier-mâché candy-filled figure {piñata}|.

pogo stick
Spring-loaded posts {pogo stick}| can be for bouncing.

tiddlywinks
People can try to flip small plastic disks into a cup {tiddlywinks}|.

yo-yo
A roller {yo-yo}| can have wound string, and string rewinds by inertia after fully unwinding.

PRAC>Game>Dice

dice cubes
Dice cubes have six sides, with one to six dots {dice, game}. Two dice can add to two {snake-eyes} up to twelve {boxcars}.

craps
A person {fader} can roll two dice {craps}. 7 or 11 {natural, craps} wins. 2 or 3 or 12 {crap out} loses bet and dice.

PRAC>Game>Puzzle

rebus game
Games {rebus, game}| can be puzzles with pictures for words or sounds.

Rubik cube
People can try to rotate pieces of a three-dimensional cube {Rubik's cube} {Rubik cube}, to align numbers.

Sudoku
People can try to fill cells, in a 9 x 9 square array with 3 x 3 subarrays, with scattered numbers, without repeating any entry in any row, column, or subarray {Sudoku}|. Arrays have only one solution. Game derives from order-9 Latin-square arrays.

PRAC>Game>Recreational

basket game
Games {basket game} for two people or teams can use an empty clean wastebasket and a ping-pong ball. Basket is like half-court basketball, with no dribbling. Put basket on floor near wall middle, with no nearby window. Players can put ball in basket by bounce, off wall, or through air, but they cannot put hand in cylinder of air above basket rim or touch basket. Handicap can require taller or more skilled players to stay farther way from basket. Perhaps, players cannot stay too close to basket for more than few seconds. For fouls, use free throws or just award basket. Alternate games are basket-making contests, like "HORSE".

billiards
Players can use pool cues to strike a cue ball to hit both red balls on a pool table with no pockets {billiards}|.

croquet
Mallets can strike medium-size wooden balls to put them through a wicket sequence {croquet}|.

dominoes game
Two players, starting with 14 dominoes each, can match dots on domino ends, to try to use all dominoes first {dominoes}|.

horseshoes
People can throw modified horseshoes {horseshoes}| to try to touch or encircle a post.

pool game
Players can use a pool cue to strike a cue ball to knock medium-size plastic balls into pockets on a table with six pockets {pool}|. Players subtract a ball if cue ball goes into a pocket. Player turn ends if no ball goes into a pocket. Pool games include snooker, eight ball, and straight pool.

roulette game
Players can bet on the number into which a small metal ball falls on a spinning roulette wheel {roulette game}|: odd, even, red, black, 0, 00 in USA, either half, any third, and/or any fourth.

shuffleboard
Players can use a crook to slide disks onto a marked triangle, for points {shuffleboard}|.

PRAC>Financial Affairs

class action suit
Wronged people can sue companies and share litigation costs {class action suit}|.

moving household
Going from one house to another {moving, household} has stages.
do-it-yourself
Get smallest truck or trailer that holds everything in one load. Practice driving. Load it with proper weight balance, front-rear and right-left. Put heavy items on floor and light ones on top.
contract
Moving contracts list estimated packing costs. Contracts include prices for boxes and containers, extra charges for carrying goods over long distances or heights to and from home, extra insurance costs, gasoline surtaxes, extra costs for big city labor use, and total price of taking estimated weight from old to new home.
estimate
If using a moving company, contact at least two, several months in advance. An estimator comes to estimate total weight. Get at least two estimates. Point out what stays and what goes. Most movers are similar but use a recommended one. Company selected sends a contract and a book about moving. Moving contracts allow a three-day period for the move. Movers will probably come on last day.
insurance
Moving contracts have insurance options. The free option pays a fixed amount per pound for pounds lost or damaged. The other option costs little and pays more.
loading

If you have already packed a household, movers can load a moving truck in a day. If movers pack, it can take a week to load. Large moving trucks can hold 4 to 7 houses. Never allow goods on tailgates or tied to truck. Movers can pack truck inside as they like.

move

Truck driver is in charge of the move. Driver has weighed truck before packing. Driver writes condition and number of items. You must sign sheets listing boxes, furniture, and so on. Driver weighs truck again. Call to find out actual weight, to know total cost. You have no control over how long truck takes to get to new house. Ask expected arrival date and be ready to add two days.

move preparation

One month before moving, find a new home. Transfer insurance to that home. Send change-of-address cards, available from post office, to all creditors, debtors, magazines, clubs, newspapers, and friends. Notify telephone companies, utility companies, and other businesses that bill monthly, stating when to stop services at old address and start at new address. Open a checking account in new area. Throw away unwanted things.

moving week

One week before moving, clean everything, get packing materials, and select items needed during transition period.

packing

Put all items into boxes, not wrapped or loose. Get boxes from grocery stores. Break down items to fit them into boxes. Wrap breakables in newspaper, clothes, and towels. Do not use excelsior, plastic puffs, or special wraps. Pack plates on edge. Nest saucers, bowls, and cups. Pack books flat, not on edge. Make small boxes for books and heavy items. Use towels, sheets, and clothes to fill boxes completely, so nothing can shift. Wrap mirrors and easily marred surfaces with cardboard. Protect TV face carefully with cardboard and blankets. Have pianos moved separately. Mark boxes with contents and room names and seal shut with strong plastic tape.

unloading

When truck arrives, pay driver. After unloading everything, sign sheets again. Write down everything you do not like. Decide what to do about it later. Mover puts boxes in marked rooms. Mover unpacks boxes, if it is in contract.

PRAC>Financial Affairs>Documents

credit report

Credit bureaus record {credit report} debts and payments, and late or missed payments, for mortgages, credit cards, auto loans, and other loans. People have the right to receive a credit record copy, except for medical information, from credit bureaus, according to the Fair Credit Reporting Act. Credit reports typically contain items that need clarification or correction.

list of valuables

inventory {list, valuables} {valuables list}.

pension benefit

Statements {pension benefit} can indicate pension deposits and payments.

social security statement

Statements {social security statement} can indicate retirement and disability deposits and payments.

social security card

Cards {social security card} can have identification numbers.

veterans information

Documents {veterans information} can indicate armed forces service places and dates.

PRAC>Financial Affairs>Banking

money order

Post offices or money-transfer agencies can receive cash and issue documents {money order} authorizing all post offices or money-transfer agencies to pay bearer.

safe-deposit box

Boxes {safety deposit box} {safe-deposit box}| in bank vaults can hold valuable documents.

contents

Bonds, stocks, property records, mortgages, securities, titles, deeds, birth certificates, marriage certificates, death certificates, jewelry, mementos, military records, church records, valid passports, citizenship papers, important contracts, titles to boats and cars and trailers, insurance policies, possession inventory, copy of will, and valuable papers and documents are in box.

cost

Safety deposit boxes cost a nominal amount per year, depending on size.

insurance

Contracts for boxes seldom include insurance on contents.

access

Safety deposit boxes have two keys, one for bank and one for customer. Opening box requires both.

access: death

On person's death, bank seals box for inventory for state tax and inheritance laws. Later, estate executor distributes contents. In case of joint ownership, depending on state, survivor can have complete ownership and access, death of any owner can seal box, or survivor has limited access to look for will, burial instructions, or insurance policies.

savings account

People can deposit money in bank, savings-and-loan, or credit-union accounts {savings account}|, with promise by bank to pay person all money back on demand. Bank is debtor. Depositor is creditor. Bank has legal title to the money.

insurance

Federal Deposit Insurance Corporation insures bank savings accounts, up to $250,000. Federal Savings and Loan Insurance Corporation insures savings-and-loan-company savings accounts, up to $250,000.

interest

Interest is typically 2% to 5%. Interest rate can depend on how long the money must remain with bank before withdrawal and how much is in account. Savings and loans typically pay 0.5% more than regular banks. Credit unions typically pay 0.5% more than savings and loans.

deposit

Savings accounts can require minimum deposits.

income

A reasonable saving rate is 5% of income.

PRAC>Financial Affairs>Banking>Checking

checking account

People can deposit money in accounts {checking account}| at banks, savings and loans, or credit unions receive money, which depositor can withdraw by writing personal checks. Checking accounts are demand deposits for writing checks. Bank promises to pay any person holding check drawn on that account. Bank is debtor. Person is creditor. Bank has legal title to money.

types

Checking accounts {joint account} can have more than one person that can write checks. If one person dies, others still can use account. Checking accounts can pay interest.

fee

Checking accounts typically cost money {service charge}, paid by month or per check. Banks can waive service charges, if a minimum amount is in checking account.

check-writer death

Death of check writer does not void a check. Banks can honor any check up to ten days after death notification.

check error

Banks are not liable for alterations to checks or wrongful endorsements, unless banking standards are negligent. Negligence of check owner typically causes alterations and wrongful endorsements: for example, someone uses a company-endorsement stamp or leaves blank or signed checks available to others.

bill-of-exchange

Signed orders {bill-of-exchange}| {draft from bank} to banks or other parties can agree to pay bearer the amount, on demand or at a fixed time.

types

Bills of exchange {personal check} can be signed orders to banks to pay bearers immediately from checking accounts. Checks {certified check} can carry guarantee of validity of check writer's signature, as determined by bank. Bank immediately withdraws the money from his or her account and assumes liability for check. Checks {cashier's check} can be on bank's account, purchased from bank by individual to provide acceptable payment to a creditor who will not accept personal checks.

endorsement

Check payees can sign name on back left side {blank endorsement} {endorsement}|, making check payable to any bearer. Payees can write "pay to X" and signature on back {special endorsement}, making X the only person that can cash check. Payees can write "for deposit only" and signature on back {restrictive endorsement}, making check non-negotiable. Payee can write "without recourse" and signature on back {qualified endorsement}, thus limiting liability. Third parties should not accept commercial paper with qualified endorsements.

overdraft

Checks can be for more than depositor has in checking account {overdraft}|.

stale check

Banks can reject checks {stale check} dated more than six months before presentation for payment.

stop payment order

Depositors can command banks to refuse to pay a check holder {stop payment order}|, when check comes to bank for collection. Stop-payment orders can cancel lost or stolen checks, cancel checks if payee failed to provide service or goods, or cancel checks if long time elapsed since check date. Written stop-payment orders are binding on banks for six months, and you can renew them. Oral stop-payment orders are binding for two weeks.

wrongful dishonor

If a bank refuses to pay a check, because it believes account does not exist or has insufficient funds, bank is liable for damages {wrongful dishonor}|, even if act was not intentional.

PRAC>Financial Affairs>Buying

automobile buying

Buying cars {automobile buying} has many steps.

size

Buy smallest car that driver and family can fit into comfortably, which can differ if driving is mostly in city or is mostly long distance.

features

Car should have high and comfortable driving position. It should have good visibility. It should have good rear-view mirrors. It should have easy-to-read instruments. It should have easy-to-use and smooth operating controls. It should have adequate acceleration. It should have good braking distance under repeated braking. It should shift easily. It should have easy and precise steering. It should have fuel economy. It should have air bags. It should have three-point seat belts, not connected to door or seat.

safety

It should prevent brake lock when braking hard {anti-lock brakes}. It should prevent wheel spinning by differential {traction control}. It should prevent skidding and rollover {electronic stability control}. It can have advanced features {emergency brake assist} {blind-spot detection} {lane-departure warning} {lane-departure prevention} {forward-collision warning}.

future

Future cars may have {backover detection} {traffic-sign recognition} {automatic braking} {automatic pedestrian recognition}.

used car

For used cars, get cars with good repair records, as judged by testing agencies. Have mechanics check used cars. Check wheel alignment, driving feel, smoothness, proper fluid-level adjustment, moving-part wear, and finish for accidents. Do not worry about resale value unless planning to resell car in less than five years.

clothing buying

Look for smooth seams, true pattern matching, and good zippers {clothing, buying}. Clothing has standards, except for sizing and fit. Width from shoulder to shoulder should match person's shoulder width. Sleeve length should match length from shoulder top to wrist bone. Neck size should be one centimeter more than neck circumference. Waist length should be same length as waistline, just above hips. Pant inseam should match length from crotch to ankle.

grounded appliance

Appliances and electrical tools should have insulation and have grounded plugs {grounding, appliance} {grounded appliance}, with three prongs or with a ground-sided two-prong plug.

shoe buying

Welt construction is best {shoe, buying}. Never use x-ray machines {fluoroscope}. Leave 3/4 inch at toes while standing on both feet. Have snug fit around heel. Have snug fit at foot and shoe widest part. Shoe flex line and widest part should coincide with foot widest part. No rough edges or heavy stitching should be on shoe insides.

PRAC>Financial Affairs>Selling

debt collection

To collect debts {debt collection}, companies and people can send letters purporting to be from credit bureaus or legal collection agencies. They can send legal-looking forms giving appearances of lawsuits. They can demand extra late charges. They can try to intimidate, using threats of legal action or fake letters from courts or government agencies.

door-to-door salesperson

Salespersons {door-to-door salesperson} can pretend customers are part of a select group, claim they are doing marketing surveys, claim they are earning their way through college, or claim they work for charity. Door-to-door salespersons can collect subscriptions and then switch terms later. Companies with mainly door-to-door salespersons must allow consumers three days to change their minds after salesperson has left, provide cancellation forms, and not transfer debt instruments until five days after sale date.

trade-up

Selling higher-priced goods is legal and ethical if cheaper goods are available and seller does not disparage cheaper goods {trade-up}| {selling up}. Businesses can try to obtain agreement to buy something and then try to sell extra items or more-expensive models. This technique is typically for items that have options, such as cars and computers.

PRAC>Financial Affairs>Selling>Guarantee

guarantee

Products typically include a written policy {guarantee} {warranty} from company stating that you can return them for free service or replacement if defective. Small-item warranties are good for 90 days or one year. Warranties on durable goods, such as mattresses, appliances, and furnaces are 3 to 15 years.

automobile warranty

Car warranties {automobile warranty} cover only normal defects and do not cover abuse defects. Warranties are typically transferable.

PRAC>Financial Affairs>Selling>Deception

deceptive selling

Businesses can sell using illegal methods {deceptive selling}|. Deceptive selling practices can violate law, and you can report them to Better Business Bureau, Chamber of Commerce, Federal Trade Commission, other state or federal agencies, news media, district attorney, or attorney general. When sellers violate state or federal rules, only state or federal agencies can prosecute.

Federal Trade Commission (FTC) limits unfair competition methods and tries to stop unfair and deceptive practices, but only if they are ordinary business activities, not individual cases. FTC can issue an order {cease and desist order} to such companies. If companies persist, FTC can sue for each violation.

bait and switch

Deceptive selling practices {bait and switch}| can offer a product at low price and then attempt to sell a higher-priced item when consumer gets to store or salesperson comes to home. Sellers can disparage lower-priced goods, have few cheaper items, or refuse to sell lower-priced goods.

false advertising

Deceptive selling practices {false advertising} can advertise falsely. Advertisements can say present price is less than normal price {deceptive pricing}. Advertisements can use fictitious former prices, which are either unreasonable or non-existent. Advertisements can claim price is wholesale price, though it is actually higher than normal wholesale. Advertisements can suggest that manufacturer's suggested retail price is normal selling price, though actually it is not.

misrepresentation

Deceptive selling practices {misrepresentation} can claim product has features it does not have.

unsolicited merchandise

Deceptive selling practices {unsolicited merchandise}| can mail unordered goods to consumers and try to force them to pay for the goods or return the goods at their expense. Federal law allows consumers to dispose of these goods and prohibits senders from sending invoices to consumers. This law does not apply to agreements that regularly mail books, records, and so on, to subscribers. This law allows free samples. This law allows charitable organizations to send giveaways to solicit donations.

PRAC>Financial Affairs>Insurance

disability insurance

Insurance {disability insurance}| can pay monthly when sickness or injury prevents working.

fire insurance

Insurance {fire insurance} against fire is lower for brick houses. Brick needs no paint. Brick is not good in earthquake zones.

homeowner's insurance

Insurance {homeowner's insurance}| {renter's insurance} {home insurance} can insure repayment by insurance company if theft, fire, other natural disasters, or vandalism causes property loss. It pays victims of accidents on one's premises.

PRAC>Financial Affairs>Insurance>Life

life insurance

Insurance {life insurance}| can pay money to a named beneficiary after death of insured person. Payment can be one lump sum or monthly payments.

disability

Life insurance policies can pay for arm, leg, or eye loss {permanent disability}.

types

For most people, decreasing term insurance is the best buy in life insurance, because premiums are lower in early life, when paying is most difficult. Benefits decrease as need for benefits decreases.

amount

Amount needed is difference between total expenses family will have through working life, taking into account inflation and expenses attendant on death, and total income that they have with no insurance.

participating whole life insurance

Life insurance {participating whole life insurance} can be like whole life insurance, but it also pays dividends to insured person, depending on insurance-company investments. Dividends can give cash to insured person, reduce future premiums, buy more insurance, or reinvest.

term insurance

Life insurance {term life insurance} {term insurance}| can be for 5, 10, 15, 20, or 30 years. In ordinary-term life insurance, insurance premiums increase each year, as chance of death or disability increases. In long-term life

insurance, premiums stay constant, at level between ordinary-term lowest and highest premiums, because payments average. In decreasing-term life insurance, premiums stay constant at low level, but payment to beneficiary decreases over the years.

variable whole life insurance
Life insurance {variable whole life insurance} can be like whole life insurance, but it conditions payments to beneficiaries on insurance-company investment performance.

whole life insurance
Life insurance {whole life insurance} {straight life insurance} can keep premiums constant at high level and insurance amount constant. Policy cash value builds as payments accrue. Cash value is total extra money paid to insurance company, plus interest. Cash value can be security for loans, income at retirement, or trade-in for another life insurance type. Premium owed is statistically expected cost of insurance coverage over statistically expected lifetime, divided by number of payment years. In first years, payments are more than true cost of protection at that time, while later they are less.

PRAC>Financial Affairs>Insurance>Automobile

automobile insurance
States require car insurance {automobile insurance}. Most people should have {coverage, insurance} liability, uninsured motorist, and medical payments insurance. Liability and comprehensive insurance cost depends on principal driver's driving record, age, sex, and marital status. However, insurance insures car, so insurance covers anyone driving that car with owner's permission.

financial responsibility law
All states have laws {financial responsibility law}, requiring car owners to show that they can pay for damages if in automobile accidents. If owners cannot pay damages, state revokes license and registration. Drivers should have $100,000 insurance for one injured person, $300,000 for all injured people, and $50,000 for all damaged property, in one accident.

liability insurance
Automobile insurance {liability insurance, car} can pay for damages to people or property in accidents that are driver's fault. Most states require that people have minimum liability insurance for damage to one person, all people, and property.

medical payment
Insurance {medical payment} can pay up to a limit for minor-injury treatment received in accidents.

no-fault insurance
Drivers can have insurance company pay for injuries to self or passengers and for damages to car or property, without need to determine responsibility {no-fault insurance}. It allows faster claim settlement and reduced legal costs to insurance companies. Variations on no-fault insurance allow companies to determine fault. One pays for everything. Another allows premium increase after driver is in an accident. People can file lawsuits for additional damages.

theft insurance
Insurance {theft insurance} {damage insurance} can reimburse for theft, vandalism, flood, and windstorm property loss or damage.

uninsured motorist
Insurance can pay expenses up to a limit in accidents caused by drivers {uninsured motorist} who have no insurance and cannot otherwise pay.

PRAC>Financial Affairs>Investing

investment by person
People can invest in real estate, stocks, bonds, and commodities {investment, personal}.

commodity

Investment in minerals, animals, and grains {commodity}| is risky. Investment costs are moderate to buy and sell. Invested money can be unavailable in down markets. Commodity trading uses securities brokers.

money market

Investment in money {money market}| has little risk. Investment costs little to buy and sell. Invested money is typically readily available. Money markets use securities brokers.

mutual fund

People can buy investment-company stocks {mutual fund}|. Investment companies buy and sell stocks on stock markets and bonds in bond markets, for profit.

types

Mutual funds can have different investment goals, such as high return rate per share {dividend, share}, high growth rate in stock value {equity, stock}, or moderate rates for both.

risk

Mutual funds invest in a greater variety of stocks and so lessen risk. Emphasis on growth is more risky. Investments in growth should use extra, not essential, money. Investment costs are moderate to buy and sell. Invested money can be unavailable in down markets.

commission

Mutual funds can charge a commission {load, commission} for buying or selling shares. Mutual funds can charge no commission {no-load mutual fund}.

open

Mutual funds {open-ended mutual fund} can keep issuing new shares to public. Mutual funds {closed-end fund} can have a fixed number of traded shares.

portfolio of investments

People have stocks, bonds, and commodities holdings {portfolio, investment}.

prospectus

Corporations or investment companies prepare proposed investments {prospectus}|, to market offerings to investors.

real estate investment

Investment in property {real estate investment} has little long-term risk. Investment costs are high to buy and sell. Invested money is very unavailable. Investing uses real estate agents or brokers.

PRAC>Financial Affairs>Investing>Bond

bond as investment

Investments {bond, investment}| can be company or government promises to pay a fixed interest rate after a date or up to a date, when investors can get principal back. Commercial-paper certificates can state that debtor agrees to pay amount on date. Bonds typically have higher interest rates than savings accounts.

government

USA government bonds are E, H, savings, treasury, and municipal bonds.

process

Bonds are sold for different amounts, and company pays back principal and interest to holder over time, typically quarterly.

tax

Income from bonds from cities {municipal bond} is free from federal and state tax. Income from bonds from states is free from federal tax.

market

People buy and sell bonds in a market {bond market}. Bonds vary in value compared to other investments, depending on interest rates in other investments, money value, and time to maturity. Investment in securities has little risk. Investment costs little to buy and sell. Invested money is typically readily available. People can buy into bond mutual funds.

debenture
Corporations can issue unsecured long-term bonds {debenture}|.

maturity of bond
Bonds pay off at different times {maturity}|, such as 3, 6, or 9 months, or 1, 2, 5, 10, 20, 30, or 40 years.

premium payment
regular insurance payment or regular bond payout {premium}|.

savings bond
United States government sells bonds through banks {savings bond}| {U.S. Savings Bond}. Savings bonds sell at a percentage of face value and have a fixed period during which they can earn interest. For example, savings bond sold for $750 are worth $1000 in 30 years. If bond sells to someone else before 30 years, market determines interest. If you redeem bond after 30 years, value is $1000. Savings bonds typically have higher interest rates than savings accounts.

PRAC>Financial Affairs>Investing>Deposit

certificate of deposit
Banks can agree to pay deposited amount, plus interest at fixed rate, on a fixed date, if depositor leaves money in account until that date {deposit certificate} {certificate of deposit}| (CD).

time deposit
Money can be in securities {time deposit} that you cannot liquidate until after a period.

PRAC>Financial Affairs>Investing>Stock

stock as investment
People can buy shares {common stock, investment} {stock, investment} in corporations.

markets
Dealers can belong to markets {stock exchange} that list stocks for buying and selling. Brokers can buy and sell stocks that are not on stock exchanges {over-the-counter}.

dividend
Common stocks can pay yearly or quarterly dividends from corporation profits. Dividend amount and rate vary greatly.

price
Common-stock value depends on dividend paid or expected compared to stock price, stock price compared to company assets, expected profits or losses, and overall market state. Growth stocks can pay no dividend but have value, because people expect them to quickly rise in price.

preferred
Preferred stock can be ownership shares that have first claim to corporation assets.

stop order
People can order brokers to buy or sell stock when stock reaches a price level {stop order}|.

PRAC>Financial Affairs>Investing>Value

face value
Securities can have a written value {face value}|, as opposed to market value.

no-par
Securities can have no face value {no-par}|, so you cannot redeem it, only sell it on the market.

PRAC>Financial Affairs>Investing>Commercial Paper

commercial paper

Tradable legal documents {commercial paper}| include checks, promissory notes, bank drafts, deposit certificates, and most corporate bonds. Commercial paper can be non-transferable {non-negotiable}. In this case, debtor owes money to party. Commercial paper can be transferable {negotiable}. Debtor pays parties to whom paper transfers. Transfer can be by endorsement, the same as checks. Transfer can be by writing "pay to the bearer", as for corporate bonds. Transfer can be by delivery.

holder in due course
Legal negotiable-paper possessors {holder in due course} are not accountable for previous instrument-holder actions and have legal title to paper value. Finance companies that buy negotiable paper from merchants can get the money from consumers, even if merchants used deceit or other wrongful actions in original sales. Protection against negotiable paper is to have a restrictive clause in credit agreements to prevent commercial-paper transfer.

negotiable instrument
Commercial paper {negotiable instrument}| can be transferable. To be negotiable, maker or drawer must sign commercial paper, which must have an unconditional promise to pay, be payable at a certain time or on bearer demand, and be payable to bearer or to order. Negotiable commercial paper is stocks, bonds, over-the-counter stocks, stock exchange transactions, and bank and finance company transfers. If it has conditions, it is a contract.

PRAC>Financial Affairs>Loan

credit
People can sell property in return for a promise of future payments {credit}. Loans have an interest rate and a cost above purchase price. Loans can have charges for paper work. Loans can have interest charges, monthly charges, service fees, loan fees, investigation or credit report fees, carrying charges, administrative handling charges, and time-price differentials.

annual percentage rate
Loans have a true annual interest rate, which includes interest and other charges {annual percentage rate}| (APR). Loans have a total finance charge, which is total amount that people must pay back minus selling price. Lender must state loan annual percentage rate and total finance charge, according to Truth-in-Lending Act.

truth-in-lending
Consumer Credit Protection Act or Truth in Lending Law {truth-in-lending}| applies to all consumer credit arrangements, but not business or commercial accounts. This law allows individuals to sue creditors, within one year, for twice the finance charge, plus court costs and attorney's fees, if creditors intentionally do not disclose finance charges or annual percentage rates. This law prohibits companies from issuing credit cards unless people request one. This law limits credit-card holder liability for lost or stolen cards. This law gives people right to cancel credit deals that give creditors liens on homes, to prevent home foreclosure or seizure to pay debt.

PRAC>Financial Affairs>Loan>Collateral

collateral
For loans, people can have to assign liens on homes or other assets {collateral}|. If people do not pay off loans according to agreements, lienholders can sell homes or assets to recover loans.

surety
Individuals or companies can pay bonds {surety}| to customers if they do not perform contracts.

PRAC>Financial Affairs>Loan>Type

installment loan
People can pay back loans {installment loan}| in fixed or changing monthly amounts {conditional sale} {installment sale}.
revolving

Installment loans can require people to repay loan monthly in amount above a minimum amount. Lender charges interest on unpaid total {revolving charge account}. Annual percentage rate for revolving charge accounts varies from 12% to 20%.

types

Store accounts, bank credit cards, gasoline company credit cards, and nationwide credit-agency accounts, like Diner's Club, Carte Blanche, and American Express, are revolving charge accounts.

finance charge

Getting loans can require fees. Customers {debtor} can agree to pay companies or banks {creditor} a percentage of finance charges each month.

auto loan

Buyer possesses and uses vehicle, but creditor retains ownership until buyer makes all required payments. Buyer cannot resell car without creditor's consent. If no payment causes loan default, creditor can take back car {repossession}.

interest charge

Truth in Lending Law requires exact credit cost and interest charge to be in bills, advertising, and sales. Credit cost is finance charge and annual percentage rate. Loan documents list cash price, subtract trade-in allowance and/or down payment, and state finance charge, annual percentage rate, and total cost, including deferred payment charges.

promissory note

Home or car loan agreements are loans {promissory note}|, with house or car as security.

PRAC>Financial Affairs>Loan>Plan

installment plan

Stores can allow monthly payments for a number of years {installment plan}. Interest rate is high.

layaway plan

Stores can set aside items that customer has agreed to buy later {layaway plan}|. Interest rate is high.

PRAC>Financial Affairs>Loan>Interest

simple interest

Total interest {simple interest} can be a fixed percentage of loan. Monthly payments are a percentage of principal plus same percentage of total interest.

compound interest

Loans {compound interest} can have period, rate, and factor. Multiply principal by factor to find total payments due. Subtract principle from that to find total finance charge. Divide total payments by months in period to find monthly payment.

examples

1 year, 12 months, at 1% = 1.0100. 1 year at 5% = 1.0500. 1 year at 8% = 1.0800. 2 years, 24 months, at 1% = 1.0201. 2 years at 5% = 1.1025. 2 years at 8% = 1.1664. 3 years, 36 months, at 1% = 1.0303. 3 years at 5% = 1.1249. 3 years at 8% = 1.2597. 5 years, 60 months, at 1% = 1.0510. 5 years at 5% = 1.2763. 5 years at 8% = 1.4693. 10 years, 120 months, at 1% = 1.1046. 10 years at 5% = 1.6289. 10 years at 8% = 2.1589. 15 years, 180 months, at 1% = 1.1610. 15 years at 5% = 2.0789. 15 years at 8% = 3.1722. 20 years, 240 months, at 1% = 1.2202. 20 years at 5% = 2.6533. 20 years at 8% = 4.6610. 30 years, 360 months, at 1% = 1.3478. 30 years at 5% = 4.3219. 30 years at 8% = 10.0627.

PRAC>Financial Affairs>Loan>Lien

lien

People can claim real property {lien}| to insure debt payment.

attachment lien

Real-property liens {attachment lien} can prevent property from transfer during lawsuits. Plaintiff files an attachment writ with county official, and it becomes a judgment lien if property owner loses suit.

judgment lien
People who have won court judgments in lawsuits against property owners can obtain real-property liens {judgment lien} by filing judgment in county where property is, to insure payment of judgment, which is debt. Property is not transferable until satisfying judgment.

mechanic's lien
States can place liens {mechanic's lien} on real property to insure pay for contractors and construction workers. Most states require mechanic's liens for construction.

PRAC>Financial Affairs>Tax

audit of taxes
Tax returns can be subject to review {audit, tax}. Audits question statements on tax returns.
process
An Internal Revenue Service (IRS) letter asks for records supporting tax-return statements. You must send requested records and a statement defending tax return or request an appointment with an IRS agent to deliver them.
If IRS rejects answers, you can appeal for review with IRS agent at IRS District Director office. However, burden of proof is on you. If review goes against you, you can appeal to Audit Division, then District Director, then Appellate Division of Office of Regional Commissioner, and then tax court.
field audit
Auditors can come to home or business in cases of complicated returns.
probability
Tax returns are more likely to have an audit if you have income greater than $60,000, large deductions, many deductions, cash income, casualty claims, conflict between reported and W-2 income, or conflict between 1099 and reported interest or dividends. Auditing is by random selection or in response to an informer who thinks people broke tax law.
time
If people did not file a tax return, IRS has unlimited time. IRS must question tax returns within three years of due date, unless it suspects fraud or gross income misstatement. If IRS claims fraud or gross misstatement, limit is six years for criminal charges. In case of fraud, IRS has unlimited time to attempt to recover due tax, plus penalties and interest.

tax penalty
IRS Special Agents investigate crime. Penalties {tax penalty} exist for willfully failing to file returns, evading taxes, and filing intentionally false returns. Civil penalties can be up to 50% of tax.

PRAC>Financial Affairs>Tax>Kinds

business tax
Private businesses must pay tax {business tax} on profits. Private businesses can be corporations {corporate tax}. Businesses take tax deductions for depreciation, inventory changes, and investment credits.

customs tax
People must pay tax {customs tax}| on property value brought into country directly from another country, unless bought in duty-free zones and so marked.

gift tax
People must pay income tax {gift tax}| on gifts received, because gifts represent income. Gifts up to $10,000 from relatives are exempt.

income tax
People can pay tax {income tax}| on wages, salaries, interest, capital gains, gifts, bequests, tips, and other income.
withholding
Employers typically send part of paychecks to government {withholding, income}.
date
USA income tax is due on April 15, for preceding fiscal year.
form

USA national income tax form {Form 1040} {1040 Form} has various lettered supplements, used for calculating deductions and taxes on businesses, rentals, royalties, interest, dividends, capital gains, child care, and moving.

statements

In January, USA W2 form shows wages or salaries paid and deductions taken by employer. This form must accompany the 1040 tax form. Statements of income from banks, mutual funds, and companies {form 1099} {1099 form} do not need to accompany tax form.

rate

Income tax rate varies from 0% to 36% for federal government and from 0% to 12% for state government.

surtax

Taxes {surtax} can be percentages of original tax.

PRAC>Financial Affairs>Tax>Kinds>Property

property tax

City and/or county tax offices collect tax {property tax} on properties owned, based on current market value, not purchase price. Property has assessment each year.

types

Property types subject to taxation include houses, land, trailers, boats, and cars.

tax

Taxes are typically due in the fall. Taxes are a percentage of market value, typically 100%. Property taxes range from 1% to 3% of market value.

lien

Counties or states can place liens {tax lien} to pay taxes on real property. Counties or states usually wait for tax, sometimes paid by new purchaser, rather than foreclosing.

assessment

City or county officials {assessor} can determine property values {assessment}.

PRAC>Financial Affairs>Travel

first class travel

best accommodations and dining {first class travel}.

cabin class travel

second-best accommodations {cabin class travel}.

second class travel

second-best accommodations {second class travel}.

third class travel

third-best accommodations {third class travel}.

steerage

worst accommodations {steerage}.

PRAC>Financial Affairs>Trust Fund

trust fund

Trusts {trust fund}| are less expensive, more flexible, and less hard to manage than guardianship that state most likely creates for estate after death, until children reach majority. Legal title to property can transfer to another person {trustee, fund} or institution {trust company}, which holds, invests, and administers property for beneficiary named by original owner. States limit time that estates can be in trust. At designated times, trusts distribute property.

living trust

People can create trusts {inter vivos trust} {living trust} while they live. Trusts can be revocable or irrevocable. Only agreement of all parties can amend or revoke it. Irrevocable living trusts are not parts of estates. Neither living trust type goes through probate.

reversionary trust
Irrevocable trusts {reversionary trust} can be in effect more than ten years or until beneficiary's death, after which property returns to original owner. If trust creator dies, it is like an irrevocable trust. This trust type can save income tax, if beneficiary is in a lower tax bracket.

testamentary trust
People can create trusts {testamentary trust} in wills, to begin at testator's death. This trust is part of estate and is subject to estate tax.

cestui qui trust
trust beneficiary {cestui qui trust}.

PRAC>Financial Affairs>Estate

estate
Tax advantages and will simplification can cause giving away belongings {estate} before death, rather than using wills. Estates allow giving individual gifts more easily and lessen burden on survivors after death.

estate planning
People can plan how to dispose of estates {estate planning}.

PRAC>Financial Affairs>Bankruptcy

bankruptcy personal
People can be unable to pay their debts {bankruptcy, person}|.
possessions
Bankrupt people can keep only personal effects and tools of trade. Court sells other possessions, or creditors repossess them.
loans
Loan cosigners assume loans.
involuntary bankruptcy
Creditors can force a debtor into bankruptcy {involuntary bankruptcy}, to prevent him or her from hiding or using assets. This action cannot be against farmers or wage earners.
voluntary bankruptcy
People can declare that they are unable to pay debts {voluntary bankruptcy} and ask court to find a solution. Sane people that have debts can declare voluntary bankruptcy. People must file a petition, creditor names, property list, asset list, income statement, financial history, and monetary-affairs state in USA District Court. If court grants bankruptcy, court official {referee, bankruptcy} leads a creditor meeting. Creditors elect a person {trustee, bankruptcy}, who gathers assets, questions bankrupt and witnesses, and checks for irregularities or fraud. Assets then go to creditors under legal formulas. For no law violations, bankrupt receives a document {discharge, bankruptcy}, which releases person from all debts except taxes, alimony, support payments for dependents, and deceit-caused liabilities. People cannot use Federal Bankruptcy Act again for six years.
types
Bankruptcy can be Chapter 7 or Chapter 11 bankruptcy.

Chapter 13 bankruptcy
Federal Bankruptcy Act allows debtors to have a majority of creditors approve a petition to repay debts from future wages, by paying regular fixed payments to a trustee, who then pays creditors {Chapter 13 bankruptcy}.

PRAC>Financial Affairs>Mail

philately

stamp collecting {philately}.

postal union
National postal agencies connect {postal union}.

stamp tax
Licenses or customs approval can require a tax {stamp tax} and stamp.

star route
Mail routes {star route} can have service by contractors.

PRAC>Financial Affairs>Mail>Kinds

parcel post
ground package delivery {parcel post}.

registered mail
Mail {registered mail} can have registration numbers, for tracking.

rural free delivery
no extra charge for out-of-town addresses {rural free delivery} (RFD).

PRAC>Financial Affairs>Mail>Kinds>Class

first class mail
regular airmail {first class mail}.

second class mail
low priority mail {second class mail}.

third class mail
lowest priority mail {third class mail}, for circulars.

PRAC>Financial Affairs>Currency

baht
Thailand {baht}.

bezant
gold coin {bezant}.

bullion
Gold, silver, platinum, or palladium bars or ingots {bullion} are not coins or jewelry.

Canadian dollar
Canada {Canadian dollar}.

drachma
Greece {drachma}.

lira
Italy {lira}.

mina as money
Sumerian, Babylonian, Greek, and Hebrew talents equaled 60 mina units {mina}. One mina equaled 60 shekels.

peso
Mexico and other Latin American countries {peso}.

piastre
Egypt, Lebanon, Sudan, and Syria fractional unit {piastre}. Spain and Rome used piastres.

real as money
Brazil {real, money}. Eight Spain reales equaled one piece of eight, until 1859.

renminbi
China {renminbi}.

ruble
Russia {ruble}.

rupee
India {rupee}.

rupiah
Indonesia {rupiah}.

shekel
Israel {shekel}.

talent as money
Middle East silver weight {talent} was approximately 30 kilograms. An Attic talent equaled 6000 drachmas. Sumerian, Babylonian, Greek, and Hebrew talents equaled 60 mina.

yen
Japan {yen}.

PRAC>Financial Affairs>Currency>Germany

mark
Germany/Switzerland {mark, money}. One German mark equaled 100 pfennig, until 2002.

pfennig
Germany {pfennig}. One mark equaled 100 pfennig, until 2002.

PRAC>Financial Affairs>Currency>Spain

doubloon
Spain and Spanish America gold coin {doubloon}. One doubloon equaled two escudos or 32 reales, until 1859.

piece of eight
Spanish coins {piece of eight} {peso de a ocho} {Spanish dollar} were worth eight reales, until 1859.

peseta
Spain {peseta}. Spain used peseta from 1869 until 2002.

PRAC>Financial Affairs>Currency>England

farthing
England {farthing}. One farthing equaled one-quarter pence, until 1960.

ha'penny

England {ha'penny} {halfpenny}. One halfpenny equaled one-half pence, until 1969.

pence
England {pence}. Twelve pence equaled one shilling, until 1971.

shilling
England {shilling, money}. Twenty shillings equaled one pound, until 1971. One shilling equaled twelve pence.

crown as money
England {crown, money}. One crown equaled five shillings, until 1965.

pound as money
England {pound, money} {pound sterling} {quid}. One pound note [1816] equaled twenty shillings, until 1971, and now equals 100 pence.

sovereign coin
England {sovereign, coin}. One sovereign is a 22-carat gold coin with nominal value of one pound, first minted in 1489 for Henry VII but put into circulation in 1817.

guinea as money
England {guinea, money}. One guinea equaled one pound and one shilling, from 1813 until 1971. From 1683 to 1813, English gold guinea coins were equal one pound sterling.

PRAC>Financial Affairs>Currency>France

franc
France {franc}. One franc equals 100 centimes.

sou
France small coin {sou} {sol, coin} {solidus, coin} equaled five centimes.

PRAC>Financial Affairs>Currency>USA

two bits
one quarter USA {two bits}.

simolean
one dollar USA {simolean}.

sawbuck
10 dollars USA {sawbuck}.

shinplaster
private paper money {shinplaster}.

PRAC>Financial Affairs>Money Names

ingot
metal bar or brick {ingot}.

jack as money
money {jack, money}.

kitty as money
readily available money {kitty}.

legal tender
accepted money {legal tender}.

long green
USA bills {long green}.

lucre
money {lucre}.

mite as money
small money amount {mite, money}.

pin money
money for related expenses {pin money}.

pittance
small money amount {pittance}.

pocket money
money in pocket or purse {pocket money}.

scrip
USA bills {scrip}.

token as coin
specific coin {token, coin} for specific machine.

wampum
money beads {wampum}.

PRAC>Legal Affairs

legal affairs
Law {legal affairs} is about housing, documents, death, marriage, divorce, and courts.

lawyer fee
Banks can suggest four or five good lawyers. Lawyer associations {bar association} can refer you to specialists. Courts can appoint a public defender lawyer to give free legal counsel in criminal cases.

Lawyers cost hundreds of dollars per hour and can charge extra for actual costs. Discuss lawyer's fee before getting legal advice. Fees depend on time spent, labor done, skill needed, money involved, possible client award, various customary charges for routine work, number of times that client uses lawyer, and office overhead. Office costs are typically 40% of gross income. In negligence suits, lawyers get nothing if they lose but a percentage if they win.

birth certificate
State or county documents {birth certificate} can state birth name, place, and date.

legal aid
Nonprofit services {legal aid} can provide free legal advice and handle cases free.

unreasonable search
People have the right to stop unreasonable searches and seizures {unreasonable search}. Police and other authorities need a search warrant, except when search accompanies arrest. People can waive these rights and allow searches {consent search}.

PRAC>Legal Affairs>Property

real property

Land and anything permanent or immovable on land is special property {real property} {real estate, property}. Real property includes houses, buildings, swimming pools, and trees. Other property is movable or personal {personal property, not real}.

power of appointment
People can have right {appointment power} {power of appointment}| to choose someone to receive property.

PRAC>Legal Affairs>Property>Housing

housing
People can live in apartments, condominiums, townhouses, and single-family houses {housing}. Buy or rent minimum-size house needed. Single persons may need one bedroom, one bathroom, one-car garage, and small kitchen. Families may need three bedrooms, two bathrooms, two-car garage, and kitchen with storage. Preferences can include floor plan, lot size, schools, supermarkets, businesses, highways, distance from work, maintenance required, town part, children age and number, neighborhood, and utilities. Think about noise level, pollution, traffic patterns, property value trends, tax trends, zoning laws, construction plans, and street plan changes.

buying or renting
People can buy or rent. If planning to stay in house for at least five years, it is better to buy than to rent.

deposit on house
To hold for buying or renting, people typically pay a small percentage of price or monthly rent {deposit}.

home maintenance
Maintaining homes {maintenance, house} {home maintenance} can check electrical, plumbing, and fastening problem areas.

checks
Check for corrosion, moisture, and mildew. Check roof, flashing, and other locations for cracks, loose pieces, and wear. Check all vents. Check basements, crawl spaces, foundation walls and floors, and concrete and masonry for cracks, heaving, and wear. Check overhang and beam ends {fascia, house}. Check under overhangs and beams {soffit, home}. Check chimneys for loose mortar. Check windows for loose sealants {caulking}. Check cement, sand, and water filler {grout}. Check putty {glazing}. Check fasteners. Check tile, window glass, and screens. Check weather-stripping. Check electrical wires and appliances for bad insulation, exposed wires, and wear.

clean
Keep plant growth away from surfaces. Clear all gutters and downspouts. Clean septic tank every two years. Change furnace filter every three months.

test
Check well water every year. Have professional heater inspection every year. Test circuit breakers and bathroom ground-fault-interrupter switches every six months. Test smoke alarms every six months.

painting
Check paint for wear and cracks. Paint peeling or blistering indicates poor insulation. Paint chalking is good. Homes need paint every three to seven years.

liability of owner
Property defects that were property owner's duty to repair can cause property owner to be liable {liability, home} for injuries to tenants or guests. Such defects depend on property type and lease terms. If owner did not know defects, property owner is not liable. States can require property owners to keep property in compliance with local building codes. Property owners are responsible for public areas, but leases can exclude liability for injuries in public areas.

terminable interest
Property ownership or possession can have a time limit {terminable interest}.

PRAC>Legal Affairs>Property>Housing>Inspection

home inspection
Buyers can insist on professional inspections {inspection, house} {house inspection} {home inspection} for damage and termites. Home inspection includes checking all functional and structural components.

structure type
Homes have structure types such as condominium or single-family home, level number such as two stories, lot type such as flat or sloping, age, and view such as on street or on common area.
exterior
Exteriors can have asphalt or concrete driveways and sidewalks, wood or metal fences and gates, fiberboard or aluminum wall coverings {siding, house}, wood trim, wood or metal window frames, waterproof electrical outlets and lights, metal or plastic troughs for water {gutter} {downspout}, sprinklers, faucets with threads for screwing on hoses {hose bib}, bells or chimes, skylights, chimneys, drainage slope, gas meter, water meter, electric meter, and foundation.
roof
House tops {roof} can have composition shingle, brick shingle, or metal. Roofs can be flat or sloped. Deflectors {flashing, roof} are around vents and pipes.
attic
The space under roof and above highest ceiling has wood or steel structure {framing} {truss, roof structure} to hold roof, boards across frame {sheathing, frame} such as oriented-strand boards or skip sheathing, loose or fixed fiberglass insulation, vents in gables or eaves, electrical wiring, and ducts.
patio
Balcony or patio can have roof, waterproof electrical outlets and lights, wood decking or concrete slab, and railings.
garage
Carport or garage can attach to house or not and can have metal or wood roof, walls, asphalt or concrete slab, windows, doors, waterproof electrical outlets and lights, and storage areas.
heating
Heating uses gas or oil furnaces or electricity {strip heater} {blower}. Gas heaters can have an electronic ignition system. Heaters can have a thermostat. Heat can be convection or forced air with vents and ducts. Furnaces have reusable or throwaway filters.
plumbing
Plumbing includes copper or plastic inlet pipes, iron or plastic outlet pipes, shutoff valve, faucets, sinks, disposals, fiberglass or ceramic bathtubs, shower curtains or doors, toilets, clothes washers, and dishwashers. Water heaters can be gas or electric and have a temperature relief valve, discharge line, cold-water shutoff valve, safety strap, and vent. Mineral deposits make popping sound when water is heating.
electrical
Electrical supply is 50 to 100 amperes at 110 or 220 volts. A main panel can have circuit breakers or fuses and a shutoff switch. Wiring can be copper or aluminum. Wiring has ground. Stove, oven, microwave oven, trash compactor, and vent fans can be electric.
smoke
Smoke detectors test for ions and particles. A sprinkler system can run through ceiling.
interior
Interior features are vinyl, wood, or carpeted floors, plaster or wood ceilings, plaster or wood or tile walls, single-pane or double-pane windows, and wood or metal doors. Interiors can have cabinets, shelves, laminated or stone countertops, hoods, and electrical outlets and lights.

ground fault interrupter
Bathroom electrical outlets have protection {ground fault interrupter} (GFI) from shorting.

PRAC>Legal Affairs>Property>Housing>Renting

lease
Rented-property owners {landlord} and renters can make written agreements {lease}. Leases state rent amount, occupation dates {tenancy}, rules governing property use, and rules governing tenant and property-owner actions. Leases are not necessary when renting for less than one year. After lease period, leases automatically renew month to month. Landlords can evict tenants without leases {tenant at sufferance} with short notice. Leases usually require a termination notice one month before lease end.
lease termination
If property owner does not perform lease or follow laws, tenant can terminate lease {lease termination}, with lawyer advice.
repair
Tenants can be able to deduct needed repairs from rent.

eviction

Property owners can evict tenants {eviction}|, for failure to pay rent or for lease violations, by going to court and asking to dispossess tenant. If tenant is not at court, property owner wins by default. Otherwise, property owner must show good cause. Property owners have right not to renew periodic leases and only have to give proper notice. Property owners cannot refuse to renew leases if tenants report housing violations to authorities.

PRAC>Legal Affairs>Property>Housing>Buying

buying housing

Buying houses {buying house} {house buying} has many steps.

checklist

Before buying a house, check smells, sidewalks, roads, and traffic at rush hour and at other hours. Check noise inside and outside at rush hour and at other hours. Check natural light in rooms. Check heating and cooling type. Check stove and other appliance type. Check drawer, closet, and storage-room number. Check rug quality and cleanness. Check faucet noise and flow. Check leaks in pipes and faucets. Check toilets for seating comfort, drips, and noises. Check refrigerator size and type. Check handles and lights. Check doors and locks for fit and opening ease. Check doors for dead bolts. Check neighbor lifestyles, travel patterns, and nearness. Check termite or insect damage. Check inside walls for damage. Check brick cavity wall. Check insulation. Check roof for damage. Check upstairs and downstairs. Check stairs for creaks and damage. Check parking space location and size.

costs

Before buying, decide how much to pay for down payment, deposit, and monthly payment, including utilities, insurance, and taxes. Monthly payments for principal, interest, utilities, insurance, and taxes should not be more than 33% of family monthly income. Principal and interest monthly payment should not be more than 25% of family monthly income. Yearly home maintenance costs are typically 1% to 2% of home price. House price should not be more than two times family yearly income. Do not buy a house priced higher than average house in neighborhood. Check with banks, savings and loans, credit unions, mortgage brokers, and real estate agents.

search

Obtain financing. Then look for a house that has required features, using Internet, newspaper, real-estate agents, friends, and relatives. Most important is neighborhood, followed by school quality, average neighbor income, utilities, house appearance, crime rate, earthquake zone, and flood zone. Take time. List homes liked, with owner's name, price, utilities and other costs, location, and features. Try to buy in fall and winter. Try to buy a house that is among the cheaper houses in the best affordable neighborhood. Try to get a warranty, for new or old homes (ERA).

move-in costs

People typically spend 10% of house price to furnish it and fix it up {move-in cost}.

real estate broker

Owners can sell, using a purchase contract and following contract law, or agents {real estate broker} {real estate agent} specializing in selling real estate can try to find buyers.

listing house

Agent and owner define price and conditions, under which agent gets a commission {listing}.

types

Owners can offer a commission to any agent that sells house {open listing}. Only one agent can have right to sell a house {exclusive listing}. Owners can keep right to sell house, and then agent gets nothing {exclusive agency}. Agents can have guaranteed commission if house sells {exclusive right to sell}. Agents can ask other agents to find buyers {multiple listing}. Then both agents split commission.

period

Listing period is typically 60 or 90 days. Listing contracts automatically extend, unless you notify agent in writing.

appraisal of house

To qualify for a mortgage, a qualified appraiser must estimate house value {appraisal}.

sales contract for house

Written standard contracts {sales contract, house} can state house condition, conditions for selling or buying, guarantees, and payment method. Contract lists all items accompanying house. It has street address, lot number, section

number, land legal description copied from official records, and official-record reference. It lists full names, date, price, and payment terms. It can have contingency clauses. It requires seller to give buyer guarantee that title is valid {general warranty deed}. It specifies that all actions will finish by a date {closing date} {settlement date} or in 30 or 60 days. It states who must pay transfer fees, state revenue stamps, prorated tax, water service fee, sewer service fee, heating, oil, insurance, and other costs {closing costs, contract} until closing date.

financing

It requires a deposit. Buyer must find financing, or contract is void and seller returns deposit.

down payment

Mortgages typically do not cover entire property cost, so buyer pays 5% to 20% {down payment} of price. Deposit counts toward down payment. Buyer pays down payment to escrow.

escrow on house

Parties give legal documents and money to a third party {escrow, house}, such as a title company,, who gathers all approvals, money, and documents for closing.

closing sale

Buying a house has a final step {closing house sale}.

process

Lender's representative {closer} records deed and mortgage at county courthouse, gets title insurance in new owner's name, and mails document to buyer. Seller gets last payment from closer after recording deed and finishing financing arrangements. By closing or settlement date, financing, title search, title insurance, and deed are ready for execution and delivery to new owner.

After meeting all requirements, third party gives escrow documents and moneys to parties. At closing, parties correct defects in title. A statement {closing statement} lists transaction costs and determines income-tax deductions, rented-property depreciation, and capital gains.

Finally, sellers sign deed {execute deed} and deliver it to buyers, along with keys and copies of services and public utilities. Closing takes one hour. House sells when seller receives money and title transfers to buyer. Moneys {closing costs, housing loan} include down payment, loan amount, document fees, loan broker fees, title insurance, tax settlements, and other adjustments.

fees

Fees can be for loans, prorated taxes, credit reports, title reports, and title searches.

commission for service

If an authorized agent finds a person that is ready, willing, and able to buy a house, seller must pay a fee or percentage {commission}.

PRAC>Legal Affairs>Property>Housing>Buying>Mortgage

mortgage

House liens {mortgage} can be security for loans to buy houses. House buyers {mortgagor} pay moneylenders {mortgagee}. Mortgages have an indebtedness note and a property lien for debt security. Not making payments {default} cancels mortgage. Lenders have right to dispose of property by foreclosure, under court supervision, to recover lent money. Foreclosure proceedings have statutes.

types

Liens can have primacy {first mortgage}. Mortgages {open-end mortgage} can allow borrowing money in future without rewriting mortgage. Mortgages {packaged mortgage} can include household appliances, furniture, carpeting, and finance charges. Mortgages {construction mortgage} {home improvement mortgage} can require lender to pay costs to builder as construction stages complete. Mortgages {purchase money mortgage} {vendor's lien} can require purchaser to pay seller directly over a number of years.

title

States can give mortgagee title to property, but title cannot transfer until mortgagor completes payments and gains title {common law title theory of mortgage}. Most states give mortgagor title. For defaults, mortgagee has a property lien and right of foreclosure {lien theory}.

time

Loan length is typically 15 or 30 years.

insurance
Lender can require private mortgage insurance (PMI), to repay loan in case of job loss or other problem. Federal Housing Authority (FHA) and Veterans Administration (VA) can guarantee mortgages.
taxes
Mortgage interest payments are deductible from federal and state income tax.

amortization
Fixed or increasing monthly or semi-monthly payments reduce principal owed {amortization}|. If payments are constant, people pay off principal slowly at first, because payment is mostly interest.

equity in house
Houses have value {equity, house}| above remaining principal owed on loan.

escrow account
Lenders can pay real-estate taxes from accounts {escrow account}|. Lenders can pay monthly insurance fees {private mortgage insurance} (PMI), to insure loan payments, from escrow accounts. Monthly payments to lenders include these extra fees.

foreclosure in housing
Lenders have right to dispose of property {foreclosure, house}|, under court supervision, to get back lent money. Foreclosure proceedings have statute laws.

point on mortgage
Mortgages typically have a fee {point, mortgage}| to lender, which can be 1% or more, for originating mortgage and paper work, charged at closing.

prepayment clause
Mortgages can allow paying off mortgage early {prepayment clause}.

second mortgage
Buyers can obtain second loans {second mortgage} on real property. Second mortgages are risky to lender, because first-mortgage mortgagee has first right to money. People can obtain second mortgages if borrower's credit is excellent or real-property value is more than both mortgages together. Second mortgages have higher interest rates.

PRAC>Legal Affairs>Property>Housing>Buying>Title

title to house
County governments record that house and property real estate belong to someone {title} {deed to property}. Loan companies hold deeds until people pay off loans. Land ownership means having marketable certificate of ownership to land. Marketable title has value, which can have a guarantee {title insurance} that title has no legal defects and that requires company to go to court to defend title against unfounded claims. Real-estate transfers require title insurance. Title has a clear succession of landowners.

title search
Before title transfer, people check official land records {title search} to find previous title owners, transactions involving the land, and unpaid taxes, to establish marketable title and to obtain needed releases. Independent abstract companies make title searches and write abstracts or digests of property histories. Title searches state opinion on title marketability, with releases and other legal proceedings.

release of property
Previous or apparent real property owners can relinquish all interest in property {release of property} {property release}.

abstract of title
Recording property history {abstract, title} {title abstract} ensures property ownership, location, and nature.

clear title
Title searches check past property ownership, to ensure that seller has full title {clear title} to land and house.

fee simple
full ownership {fee simple}|.

PRAC>Legal Affairs>Property>Housing>Buying>Title>Deed

quitclaim deed
Seller or owner can abandon rights to real property {quitclaim deed}.

trust deed
States can give title {trust deed} {deed of trust} to trustee, who has no interest in the land or in either party. Trustee holds title for lender's benefit and forecloses if default.

warranty deed
Deeds {warranty deed} can say seller will defend title against other claims.

PRAC>Legal Affairs>Property>Housing>Emergency

faucet leak
Turn off faucet water valve {faucet leak} {leaky faucet}. Replace rubber seal.

faucet steam
Open all hot-water faucets {faucet steam} {steamy faucet}. Turn off water heater. Run hot-water faucets until cool. Have professionals fix water-heater problems.

fire in house
Walk fast out of house {fire, house}. Use ABC fire extinguisher {fire extinguisher} on small fires.

fire in kitchen
Cover pan fires {fire, kitchen} {kitchen fire}. For fires in ovens, keep oven door closed.

gas leak or smell
Do not use matches or electrical things {gas leak} {gas smell}. Turn off gas shutoff valve. Have professionals fix gas appliances or gas lines.

leak of water
Turn off closest water valve for dishwasher, clothes washer, toilet, and sink or turn off house water-shutoff valve {leak, house}.

power outage
If neighborhood has power, but your house does not, check fuses and circuit breakers {power outage} {power failure}. Check for electrical short circuits.

shutoff valve
Know shutoff-valve {shutoff, home} {gas shutoff valve} {water shutoff valve} and switch {electric shutoff switch} locations and how to shut them off.

sink stoppage
For sink stoppage or overflow {sink stoppage} {overflow, sink}, turn off sink and dishwasher water valves. Use auger or funnel-cup plunger to unclog sink. Use chemicals only for slowly draining sinks.

sparks or smoke
Do not touch {sparks, house} {smoke, house}. Unplug appliance or turn off circuit breaker. Check for electrical short circuits. Check electrical plug and outlet for damage. Have professionals repair or replace.

toilet stoppage
For toilet stoppage or overflow {toilet stoppage} {overflow, toilet}, turn off toilet water valve. Use closet auger or funnel-cup plunger {plumber's friend} to unclog toilet.

PRAC>Legal Affairs>Property>Housing>Hazard

household hazard
Household hazards {hazard, housing} {household hazard} are asbestos, earthquakes, flooding, formaldehyde, lead, mold, radon, and wastes.

asbestos hazard
Natural fibrous minerals {asbestos, housing} do not burn, do not react chemically, and are good insulators. Asbestos was in plaster, sprays, roof materials, vinyl for floors, and insulation for walls, ceilings, boilers, ducts, and pipes. Asbestos can become powder, and friable asbestos fibers go into lungs.

earthquake hazard
Houses need protection from earthquakes {earthquake hazard} {seismic hazard}.
foundation
Houses with concrete slab foundations have no cripple walls or posts and typically already have anchors. Foundations can have anchors and anchor bolts or steel plates can attach sill plate to foundation. Foundation wood studs {cripple wall} can raise bottom floor higher above ground and create crawl space. Cripple walls can have plywood or diagonal wood strengthening. Concrete blocks with wood posts {pier-and-post foundation} can raise bottom floor higher above ground and create crawl space. Posts can have plywood or diagonal wood studs for bracing. Concrete blocks, stones, or bricks can be foundations. Brick and concrete-block masonry can have steel reinforcing bars in the grout.
other
Masonry walls have bricks, clay tiles, stones, concrete blocks, and adobe and need reinforcement with steel bars. Rooms over garages need bracing around garage door {garage door}. Water heaters {water heater} need a bracing strap attached to wall studs, to prevent tipping. Chimneys {chimney} need bracing.
soil
Earthquake shaking can cause soil liquefaction. Sloping soils can have landslides.

flooding hazard
Houses should be above nearby lake and river water level {flooding, house}. Houses should not be in possible water-flow paths {flood zone}, such as below river or ocean levels or in channels.

formaldehyde hazard
Colorless water-soluble, organic-soluble organic-smelling gas {formaldehyde, housing} is in urea-formaldehyde and phenol-formaldehyde resins in plywood, particleboard, and oriented-strand board. Formaldehyde can be in paint, plastics, wrinkle-resistant-cloth resins, fiberboard, urea-formaldehyde foam insulation (UFFI), and photography chemicals. It is high in manufactured homes, mostly from composite wood.

friable hazard
powder or easy to powder {friable}|.

lead hazard
A heavy metal {lead, housing} was in gasoline and paint and is still in car batteries. Lead poisoning can result from lead in paint dust, exposed by sanding, scraping, peeling, chipping, chalking, and cracking. Lead can be in lead crystal, ceramic clays, bullets, and fishing weights. Traditional medicines can have high lead. Houses built before 1988 can have lead solder in water pipes.

mold hazard
Houses can have fungi {mold, housing} that break down organic materials. Molds can grow on wood, paper, and leaves. Molds look green, gray, brown, black, or white and smell musty and earthy. High mold-spore levels can damage roofs, beams, and floors. Flooding, leaky roofs, sprinkler spray, leaky plumbing, sink or sewer overflow, basements,

crawl spaces, showers, cooking steam, humidifiers, and indoor clothes-dryer exhaust make moist places where molds grow. Mold spores can get in lungs and cause hay fever and allergies. Molds can produce poisons {mycotoxin}.

radon hazard
Natural odorless colorless radioactive gas {radon} comes from radioactive decay of uranium and radium in granite and shale. Radon then travels to soil and ground water. Homes can be on soil with high radon levels. Wells can access ground water with high radon levels. Radon causes cancer.

waste hazard
Wastes {waste, housing} can be poisonous, corrosive, flammable, explosive, or otherwise reactive.
poison
Poisonous chemicals {toxic chemical} are bleach, drain cleaner, insect killer, rat poison, rug cleaner, and weed killer.
corrosive
Corrosive or reactive chemicals {caustic chemical} are ammonia, batteries, bleach, drain cleaner, and oven cleaner.
flammable
Chemicals that can explode or catch fire {flammable chemical} {ignitable chemical} are petrochemicals.
cleaners
Hazardous household cleaners are ammonia, bleaches, drain cleaners, metal polishes, oven cleaners, and rug cleaners.
garden
Hazardous outdoor and garden chemicals are charcoal lighters, fertilizers, gasoline, insect killers, kerosene, rat poison, and weed killers.
car
Hazardous automotive chemicals are antifreeze, batteries, brake fluid, gasoline, oil, and transmission fluid.
household
Hazardous paint and household chemicals are glues, paint, paint removers, varnish, and waxes.
other
Oil, gas, petrochemicals, metals, dry cleaning fluids, printing chemicals are hazardous, and such wastes have special landfills. Wastes can contaminate soil and water wells. Houses can be close to leaking fuel and chemical storage tanks or sanitary landfills.

PRAC>Legal Affairs>Property>Housing>Hazard>Garbage

dregs
lees or sediment {dregs}.

effluvium
wastewater {effluvium}.

swill
garbage or animal mush {swill}.

PRAC>Legal Affairs>Agency

agency in law
People {principal, law} can grant other people {agent, law} power to act on their behalf {agency, law}|.
types
Authorized agents {general agent} can perform various activities, such as make contracts. Authorized agents {special agent} can perform one activity. Agents can employ helpers {subagent}. Supposed agents {apparent agent} {agent with apparent authority} can cause a third person to believe supposed agent has authority to act for principal. Third party can know agent and principal {disclosed principal} or not know {undisclosed principal}. Third party can know agent and not know principal {partially disclosed principal}.
termination
Agency terminates at principal's death, object destruction, rearranged agreement, or mutual consent.
responsibilities

Agents must be careful in doing duties, inform principal about transactions, act only in principal's interests and with authority, and make fully state actions. Agents are not liable for contract terms.

power of attorney
Formal executed legal documents can grant agents power to act, either generally or specifically {power of attorney}|. Power of attorney ends upon principal's death, on document's stated termination date, or on revocation.

PRAC>Legal Affairs>Death

death in law
Dying {death, law} causes burial in a cemetery, cremation at crematorium, donation of body for use by medical students, donation of cornea to eye bank, or donation of organs for transplantation. Later, courts carry out will or distribute estates by law.

death notice
Administrator makes sure, with attorney, that newspapers publish death notice, giving a day, six to nine months later, by which creditors must file their claims. A newspaper must publish this notice approximately once a week for three weeks.

death certificate
Documents {death certificate} can state death name, place, and date.

cadaver
body {cadaver}|.

causa mortis
Actions can be in contemplation of death {causa mortis}.

funeral
People who want funerals {funeral} can plan arrangements before death. Funeral director arranges for flowers, prepares body to lie in state, and arranges for memorial services.

PRAC>Legal Affairs>Death>Body Disposal

burial general
Interment {burial} in a cemetery requires cadaver transportation to funeral parlor, a body container, a cemetery space, and body transportation to cemetery. Funeral directors transport body and supply a casket. You can buy or rent cemetery space in a private cemetery or memorial park. Burials are expensive.

interment
burial {interment}|.

cremation general
Burning {cremation}| involves body transport to crematorium, a body container, and ash disposition. Funeral directors transport body and supply container. After body burns, ashes go into an urn. People can take urn home, scatter ashes, or place urn in a memorial niche in special facility built to hold urns. Cremations are cheaper than funerals.

donation of body
To donate body parts {donation} contact eye bank, medical school, or hospital. Institution makes you, or next of kin, complete a consent form. If you decide to donate, you carry a card with instructions about what to do at death. At death, state notifies institution. Institution transports body, uses it, and discards it after use.

body parts donation
Documents can grant permission to use bodies or body parts for medical research or transplantation {body parts donation}.

PRAC>Legal Affairs>Death>Crime

coroner
County officials {coroner}| can investigate suspicious deaths.

corpus delecti
Bodies can show evidence of crime {corpus delecti}| (body speaks).

inquest
Court inquiries {inquest}| can be about death cause.

PRAC>Legal Affairs>Death>Will

will in law
Written documents {will, deceased} can state how testator disposes of {bequeath} property. Wills can save estate taxes and avoid state property disposition. People over 18 years old should make wills and keep them current.
parts
Wills can appoint an executor to carry out will's provisions and dispose of estate. They can designate a guardian for minors. They can designate a trustee to manage estate trust funds while children are minors. Wills list beneficiaries, such as wife, husband, and children, and property or cash that they are to receive.
witnesses
Wills must have two witnesses, and a notary public must notarize it. Complicated wills typically need a lawyer.
legality
Wills become legal only at testator death. Before that time, testator can cancel {revoke}, amend, or destroy a will.

escheat
When no will exists, and no wife, children, parents, siblings, grandparents, grandchildren, or other relatives exist, an estate can be forfeit to state government {escheat}|.

intestate
People can die without leaving wills {intestate}|. Court legal proceedings dispose of possessions, using distribution plans defined by state law. States distribute real property according to law of place where property is, and personal property according to law of place where deceased resided.
distribution
State laws typically give first to children, then spouse, and then other relatives. States can give equal-relation relatives equal shares {per capita rule} {rule of per capita}. States can give family branches equal shares to divide {per stirpes rule} {rule of per stirpes}.

PRAC>Legal Affairs>Death>Will>Probate

probate
Legal proceedings {probate}| determine if will is valid and supervise estate distribution. After death, no one can dispose of property until after judge states will is genuine and authentic and reads the will. If someone disputes will, court or a third party holds property in escrow until parties settle dispute.

escrow on will
If someone disputes will, court or a third party holds property {escrow, will}| until parties settle dispute.

bequest
Personal property {bequest} {legacy} can be left to legatees.

priority of claims
Laws specify creditors claim priority {priority of claims} {claim priority} against estate. Administrator decides if claims are valid. Questionable claims go to court for determination.

patrimony

Children receive their father's estate {patrimony}|.

primogeniture
Giving all property to oldest child {primogeniture, estate}| was rarely practiced in America.

survivorship
right of partner or joint owner to entire ownership after death {survivorship}|.

PRAC>Legal Affairs>Death>Will>Finance

federal estate tax return
Tax {estate tax} returns {federal estate tax return} can report estate income after death. Administrator must file Fiduciary Income Tax Return on Form 1041 for estate from day of death to day of estate distribution. It uses an identification number like that used by businesses for tax purposes, obtained by application on Form 554 to IRS.

Administrator can have estate tax imposed on estate value at death or six months after death. Administrator must file Form 706 within six months of death, including copy of will. Administrator is liable for false returns. Administrator does not have to do inheritance-tax work.

Estate administrator or executor pays tax on property value left by deceased, usually excluding life insurance and social security, if estate value exceeds a large amount. Administrator must file federal estate tax return if estate has high-enough value.

will
Wills can reduce estate taxes and estate administration costs.

gifts
Gifts can reduce estate tax, because gift tax averages 3/4 of estate tax. People can avoid gift taxes up to yearly and lifetime limits. Bequeathing to charity reduces adjusted gross estate by full bequest value. Gross estate includes gifts given within three years of death, because gift was in contemplation of death, unless executor can show deceased did not expect to die that soon.

joint ownership
Government presumes jointly owned property to be part of deceased's estate. If survivors can show what property part they contributed, that part does not belong to estate.

state inheritance tax
States can require estate tax {inheritance tax} returns {state inheritance tax return}.

PRAC>Legal Affairs>Death>Will>People

executor of will
In wills, testator specifies a person {executor}| to carry out will. People must agree to serve.

qualification
The court qualifies executor and issues a notice {letters testamentary}, stating that executor can administer estate.

administrator
If there is no will, court appoints a qualified person {administrator, estate} to administer estate. States have a relative sequence to appoint as administrator, typically spouse, children, grandchildren, father, mother, brothers, sisters, and next of kin. Administrator receives authorization {letters of administration} {administration letters}.

If executor has died or does not qualify under state law, court names an administrator {administrator cum testamento annexo}, who executes will just like executor. Court can appoint an administrator {administrator de bonis non cum testamento annexo} to complete duties of an incapacitated executor.

actions
Administrator is legal estate representative and is under oath to perform duties well. If will does not reject need for bond, administrator must post bond, often personal-property amount plus two years rent on real property, to protect estate creditors from mistakes. Administrator can pay debts and minor expenses, make charitable contributions, prescribe fund management for minor children, and allow trustee not to have to annually account for fund's principal and interest, as state usually requires. Administrator makes estate inventory, obtains current beneficiary or heirs-at-law addresses, and finds minors. Administrator gathers papers not in safety deposit box, including several copies of death certificate from Department of Health and Vital Statistics or County Clerk. Administrator attaches these to notices sent

to life-insurance companies. Both administrator and attorney get fees, by percentages of estate value. Court must approve fees.

estate inventory

Most states require administrator to file inventory appraisals within 60 to 90 days of appointment. Executor inventories stocks, bonds, and cash, along with other property, usually with witnesses present. He consults broker for deceased's account contents, especially for stocks and bonds in accounts {street account} owned by individual but registered in brokerage-house names.

insurance proceeds

Wills can exclude proceeds {insurance proceeds} from personal and group life insurance from probate, if policy names a beneficiary, unless beneficiary is testator's estate. Such beneficiary can get benefits right away. Proceeds are still part of taxable estate if deceased retained rights to change beneficiaries, to borrow against policy, to assign or regain policy ownership, to change from term insurance to permanent, or to select from policy options {ownership incidents} {incidents of ownership}. If person gave these incidents to another person, estate excludes these proceeds. Wills can exclude group policies only if group policy and state law allow not claiming all ownership incidents, and if policy assignment to another person is irrevocable.

vehicles

Executor has vehicles appraised and checks insurance, to see that it covers surviving drivers. Administrator should sell or transfer all vehicles, unless transfer requires court approval, estate cannot pay debts, estate is insolvent, or someone contests estate.

estate assets

Administrator draws up asset-distribution schedule for court approval, in accordance with will and state law. He then distributes estate itself and obtains signed receipts, with two witnesses present. Then he gives full report {final accounting} to the court, which approves report and discharges administrator.

estate debt

Administrator files claims for debts owed to estate, going to court if necessary.

estate finances

Administrator has to pay debts, collect credits, and distribute estate to heirs. Estate management to asset distribution requires good business records. Administrator opens checking account in estate name immediately, to pay debts and hold incoming money from savings, real estate, bonds, and debts. Administrator files income tax return, which can be joint return, for year up until day of death. Administrator gives allowance to spouse and minor children from checking account, under state laws, which typically set maximum and minimum, with court authorizing sum after petition. Administrator operates businesses, under court supervision, if decedent was sole owner. If business was partnership, partnership dissolves. Administrator supervises stock shares, handles investments, and handles real-estate transactions.

safety deposit box

Administrator inventories box, by strict legal procedure, with state tax agents or others present, to attest to contents. If box has joint ownership, opening box requires survivor's consent.

beneficiary

Insurance policies name a person {beneficiary}| to receive funds. Federal marital deduction permits deduction of up to half of adjusted gross estate, if it goes to spouse. This deduction only applies to estate part that is not community property. Only property at full spouse disposal qualifies. This law equalizes other states with states that have community property.

guardian

Wills can designate a person {guardian}| to care for children, if they meet standards of state law for guardians.

legatee

Bequests can be left to people {legatee}.

notary public

People {notary public}| can have authorization to witness and seal documents for state.

surrogate in law

Court judges {surrogate, law}| can administer estates.

testator

Will makers {testator}| must be 18 years old and of sound mind. Wills must be in writing. Testators must sign wills. Two or three disinterested witnesses must see signing, sign will themselves, and attest to seeing it signed.

PRAC>Legal Affairs>Death>Will>Kinds

holographic will
Testators can write wills by hand {holographic will}|, but holographic wills are invalid {null and void} in most states.

nuncative will
Testators can state their wills orally to an authorized person {nuncative will}, but nuncative wills are invalid in many states or have restricted uses.

joint will
People can join to make a will {joint will}, which is irrevocable and is not amendable after one person dies, unless will has such a provision.

mutual will
Two wills {mutual will}, usually husband and wife, can leave everything to the other, with other provisions the same.

conditional will
Wills {conditional will} can require a condition, but conditional wills can face legal problems.

PRAC>Legal Affairs>Death>Will>Parts

codicil
Additions {codicil}| to wills follow same rules as wills.

final wishes for funeral
Wills can have statements {final wishes} about funeral arrangements.

instruction letter
Testators can leave instruction letters {instruction letters} {letters of instruction}, which are not legally binding, to executors.

PRAC>Legal Affairs>Death>Will>Revocation

revocation
Testators can cancel wills {revocation}|. States can revoke wills that do not reflect testator's wishes, as evidenced by his or her present circumstances {revocation by circumstances}, and then testator dies intestate. Testator can partially revoke a will, if part revoked is clear. Testators can revoke wills by destroying, executing another will, or formally revoking a will.

ademption
Legacy cancellation {ademption} can happen if testator's action is an intentional revocation.

PRAC>Legal Affairs>Marriage

marriage
Two people can contract to share life {marriage}.
state
Marriage is a contract that people cannot terminate at will. Only states or death can end marriage contracts. All states recognize marriage in other states, if it was legal in state where it happened.
purposes
Marriage is for family, sex, and security.

process to marry

First, go to county or city courthouse to get necessary documents. You may have to take a form to a doctor for a blood test for sexually transmitted disease and return several days later to get form. Take documents and two witnesses to justice of the peace, judge, or minister, who will perform the ceremony in five minutes and issue a marriage license. Documents are sent to county or state records office. For church weddings, a minister performs ceremony using church ritual and sends documents.

personal property

In most states, property acquired by spouse remains his or hers. In some states, spouses share community property, but spouses can acquire separate property by gift or inheritance. Property owned before marriage remains separately owned, as is all income derived from that property. Either before or after marriage, people can agree {marriage settlement} about property rights over previously owned or acquired property.

rights

In the past, husband and wife were legally one person, and wife had no property rights. Now, wife can own property, make contracts, sue, and conduct her own business. Husband owns household goods, except those suited for use only by wife.

Husband chooses residence location. Husband and wife {tenants by the entirety} {joint tenant} both own the whole of real estate, not each half the property. Both must consent to transfers of interest in real property. If one dies, the other then owns whole real property. Creditors that use joint real property as security for debts of husband or wife have no claim to joint real property if person dies.

households

Under common law, husband leads household {head of household} and has a duty to support wife and children. Husband duties include providing life necessities.

This leads to a rule {doctrine of necessaries} {necessaries doctrine}. Wives can purchase and charge to husband necessities, without his consent or knowledge. Many states include medical care, dental care, household furniture, supplies, and legal services under necessities. For luxuries, wife needs apparent or actual authorization by husband.

Wife must render free service to husband. If wife wishes to separate, husband does not have to support wife. Husband can sue for loss of his wife's services if another person injures her.

bigamy

Having more than one spouse {bigamy}| is a felony.

community property

In some states, spouses share property {community property}| acquired by work of either. Community-property states are California, Texas, Arizona, Idaho, Nevada, Louisiana, New Mexico, and Washington.

coverture

married-woman common-law status {coverture}.

et ux

and wife {et ux}.

marriage certificate

Documents {marriage certificate} can state marriage place and date.

parental support

Most states have laws requiring parents to support {parental support} children who are unable to physically or financially care for themselves. States can require payment even if parent is in a state institution.

PRAC>Legal Affairs>Marriage>Divorce

divorce

Many states allow divorce {divorce} if only one person claims irreconcilable differences {no-fault divorce}. Other states require long procedures, with a waiting period. Documents are for divorce, property disposal, custody agreement, and court appearance. In states with community property, each party receives property part, sometimes attaching husband's part to insure alimony or child-support payments.

a vinculo
divorce {a vinculo}.

annulment
Irregularities at marriage can cause courts to decree that marriages were never valid {annulment}|.

dissolution of marriage
Marriage can end by complete end to matrimony {dissolved marriage} {dissolution, marriage}.

PRAC>Legal Affairs>Marriage>Divorce>Separation

separation in law
Marriage can end by limited divorce or marriage suspension {separation, legal}| {legal separation} {judicial separation}, in which husband must still provide for wife, but otherwise both are legally separate by agreement. Both spouses can agree to live apart {voluntary separation}, with support for wife and children and child custody. If either person fails to perform separation-agreement terms, it is like contract breach.

a mensa et thoro
legal separation {a mensa et thoro}.

PRAC>Legal Affairs>Marriage>Divorce>Agreements

alimony
Courts can require payments {alimony}| by husband for separate maintenance of wife, after court grants divorce or separation, after voluntary separation, or after court order to support wife. Courts usually order temporary alimony while hearing divorce cases. Failure to pay makes husband in contempt of court and can lead to imprisonment.
amount
Alimony can be a percentage of husband's income or a lump sum to pay once or in installments.
termination
Alimony payments end if wife dies or remarries.

marital separation agreement
Rather than using lawyers or courts, to get a divorce, you can write a settlement document {marital separation agreement}|. It includes child custody, child support, and amount to pay to spouse {spousal support}. It includes standard paragraphs about disputes.

property settlement
property list and who gets what {property settlement}|.

PRAC>Legal Affairs>Marriage>Divorce>Agreements>Children

child support
Parents must support their children after divorce {child support}, to maintain child's standard of living. Courts have power to award custody and control during and after divorce, separation, or annulment proceedings. The father got custody under common law, but now the mother typically receives custody, unless she is unfit or both agree on joint custody. Many courts award children to the innocent party, in cases involving wrongdoing.

custody of children
Children stay with each parent at times {custody, children}| {child custody}.

PRAC>Personal Affairs

personal affairs
Personal things include clothing, jewelry, hair, skin, and teeth {personal affairs}. Key, purse, wallet, watch, and other items {personal effects} can be solely for use by person who carries them.

incense
Wood or resin {incense, smell} can burn to make odor.

notion for sewing
needles, buttons, and thread {notion}.

PRAC>Personal Affairs>Health

health
People need hygiene, dentist checkup, medical exam, medical supplies, immunization, first aid, and safety {health}.

dentistry
Dentists {dentistry}| clean teeth, check jaw, check gums, and check teeth every six months and take x-rays once a year. Good dentists know dental history, minimize pain, communicate results, itemize bills, see one patient at a time, require as few visits as possible, and emphasize dental hygiene. Most people need a comprehensive prepaid dental-care plan covering routine, emergency, and major dental problems, including children's orthodontics.

doctor
Most people need a regular family doctor {doctor}. A group practice or HMO can monitor doctor work and provide backup services. Most people need a comprehensive prepaid medical-care plan covering routine, emergency, and major medical problems, including vision, such as Kaiser Foundation and other health maintenance organizations (HMO) or Blue Cross and Blue Shield and other major-medical insurance companies.

emergency
Be ready for emergencies {emergency}. Place the following telephone numbers near telephone: doctor, poison-control center, pharmacist, police, fire department, and 24-hour ambulance service.

hygiene
For personal cleanliness {hygiene}, use soft rounded-bristle toothbrush, fluoride toothpaste, hairbrush or comb, soap, and towels.

immunization
People need vaccinations {immunization}|, at specific ages.
baby
Combined vaccination for diphtheria, tetanus, and pertussis (DTP) is at 2 months, 3 1/2 months, 5 months, 15 months, and 3 years. Vaccination for polio is at 2 months, 3 1/2 months, 5 months, 15 months, and 6 years. Vaccination for measles, mumps, and rubella is at one year.
child
Combined vaccination for tetanus and diphtheria (TD) is at 6 years, 12 years, and then every 10 years. By age 6, people need vaccinations against chickenpox, diphtheria, flu or Streptococcus pneumoniae {pneumococcus}, hepatitis A and B, measles, meningitis or Hemophilus influenzae b (Hib), mumps, pneumonia (PCV), polio, rotovirus, rubella, tetanus, and whooping cough.
adult
Vaccination for mumps is at 12 years. By age 18, women need vaccinations against cervical cancer {human papillomavirus}. By age 18, people need vaccinations against meningitis {meningococcus}.
other
People can have vaccinations against plague, rabies, and anthrax. Travelers can have vaccination against cholera. Smallpox no longer requires vaccination.

massage
Swedish massage {massage}| rubs toward heart, using long pushes. Shiatsu uses finger pressure.

medical supplies
Have the following medical things {medical supplies}.
drugs

Aspirin or acetaminophen is for aches and fever. Sodium bicarbonate is for stomachache. Nose drops are for nasal congestion. Milk of magnesia is a laxative. Kaopectate is for diarrhea. Calamine lotion is for itching. Rubbing alcohol 70% is skin antiseptic for cleaning.

bandages

Plain or plastic-coated gauze bandages, with no medication, are for cuts. Elastic bandages are for joint support and sprains.

packs

Ice pack is for joint and muscle pain and for bleeding. Hot water bottle or heating pad is for muscle aches.

devices

Rectal thermometer or oral thermometer tests for fever. Vaporizer is for nose and sinus congestion. Tweezers with fine points are for splinter removal. Adhesive tape is for bandaging. Big scissors are for bandaging and opening.

manual

First-aid manual is for emergency procedures.

PRAC>Personal Affairs>Health>Teeth

bridgework

Other teeth can anchor artificial teeth {bridgework} {bridge, teeth}.

floss

String {floss} can scrape teeth and gums between teeth.

implant

Artificial tooth can insert into bone {implant}.

PRAC>Personal Affairs>Health>First Aid

first aid

Maintaining calm control, first check for stopped breathing and then for bleeding {first aid}|. Keep person lying down. Keep person warm. Call doctor as soon as possible. Do not move person. To move person out of danger, slide person onto cloth and pull cloth headfirst.

first-aid kit

Kits {first-aid kit}| can have bandages, elastic wrap, scissors, tweezers, ice pack, heat pad, thermometer, enema, vaporizer, and first aid manual. Telephone list has numbers for doctor, dentist, pharmacist, police, fire, and poison control center. Pharmaceuticals are aspirin or acetaminophen, milk of magnesia, kaopectate, calamine lotion, rubbing alcohol, and nose drops.

animal bite

Wash animal or insect bites {animal bite} with water. Relieve itching with Epsom salts, calamine lotion, or baking soda solution. For allergic reactions, keep person still, use fingers or bandage to stop blood flow above sting, and loosen hold every 10 minutes, for one minute. Remove stingers by scraping skin with fingernail, away from bite.

artificial respiration

If breathing stops {breathing problem}, put person on his or her back. Remove gum, false teeth, or other objects from mouth and throat. Loosen collar, shirt, and belt. Tilt head back, pull jaw up, and pinch nostrils shut. Put thumb in mouth to hold teeth apart.

Put mouth on person's mouth and blow in {artificial respiration}|. Remove mouth to see if air comes back out. Take breath and then put mouth on person's mouth and blow again. For adults, blow twelve times per minute. For children, blow twenty times per minute. If breathing does not start within five minutes, turn person on side and hit back between shoulder blades several times with heel of hand. Blow again for five minutes and then hit back again, if needed. Continue this procedure until doctor arrives or person begins breathing. Do not stop, because people can live with blown air. Treat for shock after person begins breathing.

burn on skin

Burns {burn} can only redden skin {first-degree burn}. Burns can make blisters {second-degree burn}. Burns can affect skin below epidermis {third-degree burn}.

treatment

Wash minor burns in cool water and put on gauze soaked in 2-tablespoons-in-1-quart baking soda solution or in cool water. For severe burns, cover burn with layers of dry cloth to keep air out. If severely burned person is conscious and does not have nausea, feed solution of 0.5 teaspoon salt and 0.5 teaspoon baking soda in liter of water, every 15 minutes. For severe burns, do not open blisters, do not pull off clothing, and do not put liquids or cotton balls on burns.

choking

If an object in throat blocks breathing {choking}, make person cough. If choking persists, make person lie down on stomach with head below throat, then make fist and strike between shoulder blades. If choking persists, use Heimlich maneuver.

cramp

For heat cramps or muscle cramps {cramp}, give salt tablets or salt-water solution. Relieve pain by applying warm wet towels and firm pressure.

electric shock

Locate voltage source {electric shock}. Using electrical-insulator material, remove contact between source and victim. Treat as for shock after injury.

eye problem

If a chemical is in eye {eye problem}, flood eye with water immediately and continue rinsing for 30 minutes. If pain persists, rinse longer. If something gets in eye, pull upper eyelid out and then down, over lower eyelid, until tears wash object away. If object is in lower eyelid, pull lower eyelid back and down, and touch particle out with water, cotton swab, or wet cloth tip. If necessary, rinse open eye with lukewarm water.

fainting

If low blood flow or low blood pressure in head {fainting}| causes unconscious, lie person on back and raise feet. To prevent fainting, immediately lie down, or sit down and put head between knees, for three minutes to recover fully.

fracture of bone

Check for broken bones {fracture} after checking for stopped breathing and bleeding.

types

Fractures can break through skin {compound fracture} {open fracture} or not {closed fracture} {simple fracture}. Bone can have several breaks {comminated fracture}.

symptoms

Swelling, deformity, pain, or tenderness indicate fracture. Skull fractures can have dizziness, unconsciousness, limb paralysis, and/or bleeding from nose, ears, or mouth. Neck or spine fractures can have unconsciousness, little hand or feet sensation, and/or sharp back or neck pain. Hip or thigh fractures can have turned-in foot and/or inability to lift leg. Pelvic fractures can have pain in pelvic area and blood in urine. Rib fractures can have pain in chest.

treatment

Keep person lying down. Loosen collar. Prevent body, head, and back movement. Hold jaw fracture shut with bandage under chin and over head. For collarbone fracture, use arm sling and bandage around chest and upper arm. For rib fracture, use chest bandage around chest. For limb fracture, use thin board, stick, or newspaper {splint} and cloth around limb and splint. For lower leg fracture, elevate leg. For upper arm fracture, use cloth {sling} wrapped from over elbow to wrist and tied around neck. Bandages should not stop blood flow.

fumes poison

If people inhale poison {fumes}, take person to fresh air and then keep person still and warm.

Heimlich maneuver

If choking persists, put arms around person from behind and push upward into diaphragm, just above navel and below rib cage, with both fists {Heimlich maneuver}|.

nosebleed

If nose bleeds {nosebleed}, sit down with head leaning back, or lie down with head and shoulders raised. Use fingers to compress nose, typically for 10 minutes. If bleeding continues, put gauze in nostrils and compress for five minutes. Children often have minor nosebleeds. High altitude can cause nosebleed.

overheating

The most common over-reaction to high heat {overheating}| is headache, fatigue, and nausea. Worse cases {heat exhaustion, first aid} have heavy perspiration and pale cold skin. Lie person down in a cool place and give one-teaspoon salt in a glass of water, every 30 minutes. The worst condition {heat stroke} {sunstroke} has high body temperature, dizziness, dry skin, headache, rapid pulse, and nausea. Put person in a cool place, remove clothes, sponge with water, or put person in a cold-water tub. If person is conscious, give one-teaspoon salt in a glass of water, every 30 minutes.

poisoning

If people swallow poisons {poisoning, first aid}, follow directions on container. If person is unconscious and/or has swallowed acid, alkali, kerosene, gasoline, lighter fluid, iodine, or strychnine, give milk as antidote immediately and do not cause vomiting. If you do not know the poison, induce vomiting. Touch throat back with finger, or swallow glass of warm water containing two tablespoons salt. After vomiting, give one or two glasses of milk. Then give universal antidote.

shock after injury

Serious-injury victims can feel weak, have cold skin, be thirsty, be unconscious or faint, have rapid weak pulse, have irregular and shallow breathing, and/or perspire on forehead, palms, and armpits {shock after injury}|. Face is pale, skin is cold, and peripheral pulse is feeble.

causes

Shock can result from blood loss {hypovolemic shock} or heart failure {cardiogenic shock}. High infection level {sepsis, shock} can cause inflammation {septic shock}. Bleeding or internal bleeding {hemorrhaging}, possibly starting after an accident, can cause shock. Sudden vein and artery enlargement after accidents can cause shock.

Capillary permeability increases and blood volume decreases in response to injury. After accident or surgery, blood shunts from skin to organs more essential for survival.

purpose

Shock reduces activity and responsiveness and protects organism from further stimulation.

treatment

People not in shock after injury are likely to go into shock. After injuries, treat shock. Keep person lying down. Raise feet, except for head injury or chest injury. Keep person warm, with one cover under and one cover over, but do not use a heating pad. Loosen clothing. Offer drink of warm water, unless person is unconscious or nauseous.

snakebite

Non-poisonous snakebites {snakebite} are puncture wounds. Poisonous snakebites have two fang marks. Keep person still. Tie cloth above bite tightly. Lower that body part. Put that part in cold water or ice. If hospital is more than one hour away, cut skin 0.5 inch deep at fang marks and wash out, or suck out and spit out, poison until doctor comes. Swelling and pain indicate poison is still in wound.

sprain

Ankle, wrist, or finger sprains {sprain} can cause swelling, pain, tenderness, and/or skin discoloration. Elevate joint. Put on cold wet cloths. Hold still. Use a bandage in case of fracture.

unconsciousness first aid

If people fall unconscious {unconsciousness, first aid}, check mouth and throat. Remove gum, false teeth, or other objects. Pull tongue straight if it has curved back. Loosen collar and belt. Do not give fluids.

universal antidote

After vomiting, give a glass of milk. Then give one part tea, one part milk of magnesia, and two parts toast {universal antidote}|.

wound

After checking for stopped breathing, check for bleeding {wound}.

types
Bleeding from arteries is bright red and spurting. Bleeding from veins is darker and constant.
stopping
Stop bleeding using hand or clean cloth to put direct pressure on wound. It requires several minutes. Do not remove cloth, even after bleeding stops. Raise wound above rest of body to slow bleeding.
If bleeding does not slow, press inside upper arm with thumb or press front inner thigh near groin with heel of hand to shut off artery there. If bleeding still does not slow, apply tourniquet bandage: loosen hold every 10 minutes, for one minute.
cleaning
Clean wounds with water. For puncture wounds, encourage bleeding. For scrapes {abrasion, wound}, cuts {incision}, or deep cuts {laceration}, apply hydrogen peroxide solution, if possible, before cleaning wound. Bandage wounds, with no ointment. If no adhesive sterile bandage is available, split cloth ends and tie them.

PRAC>Personal Affairs>Health>Safety

safety
People can be careful and prepared {safety}.
automobile
Park in lighted public areas. Have escort to car. Check back seat. Lock when leaving and while inside. Roll up windows. Do not stop for hitchhikers. Always tell someone else itinerary and locations. Keep car in working order. Never leave packages visible.
home
Use dead bolt locks at all entrances. Undress away from windows. Use peephole in doors to outside. Ask for identification from visitors. Use initials, not name, on mailbox, door, and telephone book. Use light timers. Do not talk to unknown people on telephones. Use screws to prevent door lifting and blocks to prevent door sliding. Lock garage-door left and right sides. Light house exteriors. Keep inside light on at night. Use double-hung windows, with inserted pin to prevent opening. Keep entrances open to public view. Never leave notes about leaving or returning. Do not hide keys. Engrave valuables. Have alarm systems for fire, fumes, and intruders. Have mail and newspapers picked up while on vacation. Keep shrubbery trimmed.
street
Avoid dark areas. Avoid high-crime areas. Do not enter suspicious places. Wait only in public and lighted areas. Never hitchhike. Be cautious of strangers. Carry purse under arm not over shoulder. Never display valuables. Go to a store or house if anyone bothers you. Scream. Do not confront criminals.
neighborhood
Know normal neighborhood routine and observe neighborhood for unusual activity. Report suspicious activity to police with address, suspect description, action, and vehicle license number.
products
USA Consumer Product Safety Commission sets standards for, or bans, some consumer products. USA District Courts try rule violations that result in injury.

dead bolt lock
Use locks with a sliding metal piece {dead bolt lock}| at all entrances.

self-defense on attack
Hit attacker {self-defense against attack} in eyes or ears, on windpipe, on fingertips, in stomach center, on hand back, in groin, on shin, in knee, on foot top, or in ribs.

PRAC>Personal Affairs>Clothing

fitting of clothes
trying on clothes {fitting}.

gage
glove {gage}.

PRAC>Personal Affairs>Clothing>Goods

dry goods
clothing and fabric {dry goods}.

white goods
white cotton or linen sheets and curtains {white goods}.

yard goods
cloth {yard goods}.

PRAC>Personal Affairs>Clothing>Clothes

jumpers
children's overalls {jumpers}.

livery
man's servant uniform {livery}.

mufti
civilian clothes {mufti}.

raiment
clothing {raiment}.

swaddling clothes
baby's cotton or linen wrap {swaddling clothes}.

togs
clothes {togs}.

trappings
clothes {trappings}.

trousseau
bride's wardrobe {trousseau}.

PRAC>Personal Affairs>Clothing>Swimsuit

bikini
two-piece bathing suit {bikini}.

maillot
One-piece bathing suits {maillot} can have no straps.

PRAC>Personal Affairs>Clothing>Burial

shroud
burial cloth {shroud}.

winding-sheet
burial cloth {winding-sheet}.

PRAC>Personal Affairs>Clothing>Underclothes

athletic supporter

Waist straps {athletic supporter} can have an elastic genital holder.

bloomers
women's loose underpants down to knees {bloomers}.

corset
Waist wraps {corset}, typically with stays, can pull tight.

diaper
baby-bottom covering cloth or wrap {diaper}.

lingerie
women's sleeping and underwear {lingerie}.

loincloth
loin covering {loincloth}.

negligee
thin loose dressing gown {negligee}.

peignoir
loose dressing gown {peignoir}.

petticoat
slip or underskirt {petticoat}.

slip as dress
light nylon underdress {slip}.

unmentionable
underwear {unmentionable}.

PRAC>Personal Affairs>Clothing>Hat

astrakhan
curly wool from Astrakhan lambs {astrakhan}.

balmoral hat
Scottish wool flat-top caps {balmoral, hat} can have no brim.

beanie
Round cloth caps {beanie} can have top button.

bearskin
tall black fur hat {bearskin}.

beaver hat
beaver-fur top hat {beaver hat}.

beret
round cloth cap {beret}.

bonnet
light soft brim hat {bonnet}.

bowler hat

Derby or domed hats {bowler} can have a brim.

busby
British military tall fur hat {busby}.

chapeau
hat {chapeau, hat}.

cockade
hat ribbon or rosette {cockade}.

cowl
monk's hood {cowl}.

derby
Domed felt hats {derby} can have a small brim.

diadem
crown or headband {diadem}.

fedora
Soft creased felt hats {fedora} can have a brim.

fez
East-Mediterranean red felt hats {fez} can have a black tassel, flat top, and no brim.

havelock
shoulder-length hat cover {havelock}.

homburg
Domed dented felt hats {homburg} can have a curled brim.

kepi
French military hats {kepi} can have a brim and flat top.

miter hat
bishop's two-pointed hat {miter}.

mortarboard
Academic flat square hats {mortarboard} can have fitted cloth and top tassel.

opera hat
tall silk or beaver hat {opera hat}.

Panama hat
plaited American tropical-plant leaf floppy hat {Panama hat}.

plume as feather
hat feather {plume, feather}.

porkpie hat
low flat hat with snap-brim {porkpie hat}.

shovel hat
English clergyman's stiff hat {shovel hat} can have a broad brim turned up at sides and projected in front.

skullcap
light small dome {skullcap}.

slouch hat
wide brimmed soft hat {slouch hat}.

snood
A knitted net {snood} can be over back hair.

southwester
Rubber or plastic hats {sou'wester} {southwester} can have a brim down back.

stovepipe hat
tall silk hat {stovepipe hat}.

sunbonnet
soft very wide brim hat {sunbonnet}.

tarboosh
fez {tarboosh}.

top hat
Tall hats {top hat} can have a small brim.

topper
top hat {topper}.

toque
Small women's hats {toque} can have no brim.

turban
Asian scarves {turban, hat} can wind around head.

visor
helmet brim {visor}.

yarmulke
Jewish skullcap {yarmulke}.

PRAC>Personal Affairs>Clothing>Wig

periwig
man's wig [1600 to 1800] {periwig}.

peruke
periwig {peruke}.

PRAC>Personal Affairs>Clothing>Face

veil cloth
Thin cloth {veil} can cover face.

vizard
mask {vizard}.

PRAC>Personal Affairs>Clothing>Collar

clerical collar
white neckband {clerical collar}.

Eton collar
large stiff collar [1800 to 1900] {Eton collar}.

Peter Pan collar
girls' rounded shirt collar {Peter Pan collar}.

Roman collar
Roman Catholic clerical collar {Roman collar}.

turtleneck
high tight collar {turtleneck}, sometimes turned down.

PRAC>Personal Affairs>Clothing>Scarf

babushka
Scarf {babushka} over head can tie under chin.

bandanna
small colorful headscarf or headband {bandanna}.

rebozo
Latin-America long wool or linen scarf {rebozo} can be for head and shoulders or for baby.

scarf
Square or triangular cloth {scarf} can be for head, neck, or shoulders.

PRAC>Personal Affairs>Clothing>Tie

ascot tie
Necktie ends {ascot} can have flat overlapping.

black tie
black bow tie {black tie}.

boa as scarf
long fur or feather scarf {boa}.

bow tie
Ties {bow tie} can have a bow in front.

cravat
tie {cravat}.

four-in-hand
Ties {four-in-hand} can be in slipknot with overlapping ends.

white tie
very formal {white tie}.

Windsor knot
slipknot, wide, triangular {Windsor knot}, for four-in-hand necktie.

Windsor tie
loose bow tie {Windsor tie}.

PRAC>Personal Affairs>Clothing>Shoulder

afghan clothing
knit or crochet shoulder cover {afghan, wrap}.

cape as clothing
shoulder and back cover {cape, clothing}.

fichu
Large triangular scarf {fichu}, over back and shoulders, can fasten in front.

mantle as clothing
loose sleeveless covering {mantle, clothing}.

poncho
pullover shoulder covering {poncho}.

serape
wool poncho {serape}.

stole as clothing
wide shoulder scarf {stole}.

PRAC>Personal Affairs>Clothing>Top

blouse
loose shirt {blouse}.

bodice
upper dress part {bodice}.

cardigan
Sweaters {cardigan} can have buttons and no collar.

dickey
Shirts {dickey} {dicky} can be under jacket or sweater.

halter
Bodices {halter} can tie behind back and neck.

jersey as shirt
knitted cloth top {jersey, top}.

polo shirt
knitted pullover shirt {polo shirt}.

shirtwaist
man's shirt with high collar and cuffs, or woman's tailored blouse or bodice {shirtdress} {shirtwaist}.

skivvies
undershirt, underpants, or underwear {skivvies}.

sport shirt
t-shirt {sport shirt}.

sweat shirt
pullover loose heavy cotton shirt {sweat shirt}.

vest
Sleeveless jackets {vest}, under suit or coat, can have buttons.

waistcoat
vest {waistcoat}.

PRAC>Personal Affairs>Clothing>Cloak

cloak
loose shoulder, for back, front clasp {cloak}.

burnoose
Arabian long cloak {burnoose}.

caftan
Near Eastern tunics {caftan} can have long sleeves.

capuchin cloak
hooded cloak {capuchin}.

duster
smock {duster}.

frock
monk's robe, smock, or dress {frock}.

soutane
Priest's long cassocks {soutane} can have front buttons.

surplice
Priest's loose white covering {surplice} can be over cassock.

toga
Roman loose cloth {toga} can drape over and wrap around body.

tunic as cloak
long blouse, or Greek or Roman loose long shirt {tunic, clothing}.

vestment
priest's robe {vestment}.

PRAC>Personal Affairs>Clothing>Coat

blazer
sports jacket {blazer}.

cassock
monk's long jacket {cassock}.

chesterfield coat

velvet-collared long coat {chesterfield}.

dinner jacket
tuxedo {dinner jacket}.

doublet jacket
old-style man's tight-fitting jacket {doublet, clothing}.

greatcoat
heavy coat {greatcoat}.

housecoat
housework smock {housecoat}.

jerkin
sleeveless short jacket {jerkin}.

mackinaw
heavy wool plaid short coat {mackinaw}.

parka
fur or cloth hooded jacket {parka}.

pea jacket
short heavy wool double-breasted jacket {pea jacket}.

sack coat
loose short coat or dress {sack coat}.

smoking jacket
Soft long jackets {smoking jacket} can have a tie belt.

straitjacket
Shirts {straitjacket} can have long sleeves and wrap around and tie at back.

topcoat
light coat {topcoat}.

tuxedo
Formal jackets {tuxedo} can have no tail.

windbreaker
zipped nylon jacket {windbreaker}.

zoot suit
long coat [1940 to 1950] {zoot suit}.

PRAC>Personal Affairs>Clothing>Coat>Rain

mackintosh
British raincoat {mackintosh}.

slicker
loose shiny raincoat {slicker}.

trench coat

Loose belted raincoats {trench coat} can have pockets.

ulster coat
long loose raincoat {ulster}.

PRAC>Personal Affairs>Clothing>Dress

chemise
Dresses {chemise, dress} can have straight sides.

jumper
sleeveless dress or loose dress {jumper}.

kimono
Japanese large sleeve robes {kimono} can have a sash.

pinafore
sleeveless elaborate apron {pinafore}.

sari
India and Pakistan light wrap {sari}.

sarong
Malaysian or Indonesian long cloth {sarong} can wrap around body or waist.

sheath dress
tight dress {sheath dress}.

shift dress
straight dress, slip, or chemise {shift}.

smock
light outer cover {smock}.

PRAC>Personal Affairs>Clothing>Belt

cummerbund
wide waist sash {cummerbund}.

obi
kimono sash {obi}.

PRAC>Personal Affairs>Clothing>Pants

Bermuda shorts
Shorts {Bermuda shorts} can have length to knee top.

breeches
pants {breeches}.

chaps
cowboy leather leg coverings {chaps}.

chino pants
loosely woven cotton twill pants {chino, pants}.

culottes
women's skirt-like pants {culottes}.

hoopskirt
long skirt and hoop frame {hoopskirt}.

jeans
thick cotton pants {jeans}.

kilt
Scottish man's tartan skirts {kilt} can have pleats to knees.

knickers
Loose pants {knickers} {knickerbockers} can tie below knee.

lederhosen
German short leather pants {lederhosen}.

legging
leg covering {legging}.

pantaloons
trousers {pantaloons}.

pedal pusher
Tight women's trousers {pedal pusher} can extend to calves.

plus fours
knickerbockers, but four inches longer {plus fours}.

puttee
lower leg cloth or leather {puttee}.

sweat pants
Loose heavy cotton pants {sweat pants} can have a tie string.

PRAC>Personal Affairs>Clothing>Pants>Tights

leotard
tight fitting body covering {leotard}, for dancers.

nylons
nylon hosiery {nylons}.

tights
tight fitting lower-body covering {tights}.

PRAC>Personal Affairs>Clothing>Shoe

balmoral shoe
Scottish heavy shoes {balmoral, shoe} can have laces.

buskin
Low boots {buskin} can have laces.

chukka

Ankle boots {chukka} can have four eyelets.

cleat
Spikes {cleat} can be on shoe bottoms.

clodhoppers
large heavy shoes {clodhoppers}.

clog
Shoes {clog, shoe} can have a thick sole.

hobnail
Large-head short nails {hobnail} can be in boot or shoe soles.

insole
inside shoe bottom {insole}.

jackboot
military boot {jackboot}.

moccasin
leather shoe with no sole {moccasin}.

mukluk
Eskimo reindeer or sealskin boots {mukluk} can have no sole.

mule as shoe
Slippers {mule, clothing} can have no heel.

oxford shoe
Low shoes {oxford} can lace at instep.

pump as shoe
Low shoes {pump, shoe} can have with no fasteners.

saddle shoe
Shoes {saddle shoe} can have different color across middle.

snowshoe for walking
Wood or plastic frames {snowshoe} can have cross strips.

spike heel
tall narrow heel {spike heel}.

spur of boot
heel spike {spur, boot}.

thong
sandal with one band {thong}.

welt of shoe
Leather strips {welt, shoe} can be between sole and upper.

wingtip shoe
perforated cover over toe {wingtip shoe}.

PRAC>Personal Affairs>Clothing>Sock

bobby socks
Socks {bobby socks} can stop at ankle.

gaiter
lower leg covering, middle shoe covering, or stretchable or cloth ankle shoes {gaiter}.

spats
upper shoe and ankle covering {spats}.

PRAC>Personal Affairs>Clothing>Parts

applique
Cloth pieces {appliqué} can sew onto cloth.

corsage
small shoulder bouquet {corsage}.

double-breasted
One front side has double row of buttons and overlaps other side, which has one buttonhole row {double-breasted}.

eyelet
hole or metal ring {eyelet}.

falsie
breast pad {falsie}.

furbelow
ruffle or decoration {furbelow}.

garter
hosiery suspender {garter}.

inseam
sewed line from crotch to inside ankle {inseam}.

placket
slit {placket}.

train of gown
gown part {train, dress} that falls behind skirt.

PRAC>Personal Affairs>Clothing>Parts>Decoration

sequin
Small shiny discs {sequin} can have a center hole.

spangle
sequin {spangle}.

PRAC>Personal Affairs>Clothing>Parts>Crotch

codpiece
leather round genital covering {codpiece}.

gusset
crotch cloth {gusset}.

PRAC>Personal Affairs>Clothing>Parts>Frame

bustle
Frames {bustle} can be under skirt backs.

farthingdale
skirt hoop [1500 to 1700] {farthingdale}.

stay
whalebone or metal corset stiffener {stay}.

PRAC>Personal Affairs>Clothing>Parts>Shoulder

epaulet
uniform external shoulder pad {epaulet} {epaulette}.

shoulder board
flat piece {shoulder board} inside uniform shoulder.

shoulder knot
Detachable braided cord {shoulder knot} can be around shoulder on commissioned-officer uniforms.

PRAC>Personal Affairs>Clothing>Parts>Sleeve

dolman sleeve
wide at shoulder and narrow at wrist {dolman sleeve}.

sleevelet
short sleeve {sleevelet}.

PRAC>Personal Affairs>Clothing>Parts>Tuck

dart in sewing
tapering tuck {dart}.

pleat
doubled over fold {pleat}.

tuck as fold
flattened pleat or fold {tuck}.

PRAC>Personal Affairs>Clothing>Parts>Stitch

backstitch
After stitch, needle can go back half stitch {backstitch}, to make overlapping stitches.

basting
temporary long stitches {basting}.

knit stitch
stitch opposite to purl stitch {knit stitch}.

lockstitch

Top thread can interlock with bobbin thread {lockstitch}.

purl stitch
stitch opposite to knit stitch {purl stitch}.

slipstitch
Running stitches {slipstitch} at hems and facings do not penetrate fabric.

tent stitch
Short diagonal needlepoint stitch {petit point} {tent stitch} can make parallel rows to fill space.

PRAC>Personal Affairs>Fabric

crinoline
stiff lining {crinoline}.

plisse
Shrunk cloth {plisse} {plissé} can have crinkles or pleats.

selvage
woven edge {selvage}.

sizing
starch {sizing}.

tailored
curved sides {tailored}.

webbing
Woven fabric strips {webbing} can be in seat belts and upholstery.

PRAC>Personal Affairs>Fabric>Amount

bolt of cloth
cloth roll {bolt, cloth}.

skein
loose thread or yarn coil {skein}.

snippet
small piece {snippet}.

swatch
cloth strip {swatch}.

PRAC>Personal Affairs>Fabric>Coloring

batik
cloth colored by waxing area, then dyeing, and then removing wax {batik}.

caparison
highly decorated cloth {caparison}, typically over harness or saddle.

damascene fabric
damask {damascene}.

damask
highly patterned cotton, linen, or silk cloth {damask}.

paisley
pointed oval shapes {paisley}.

PRAC>Personal Affairs>Fabric>Knit

argyle
Knitting can have diamond shapes on dark background color {argyle}.

jersey fabric
soft knitted cloth {jersey, cloth}.

pill on cloth
Loose fibers can form small clumps {pill, cloth} on knit cloth surface.

tricolette
knitted silk or rayon cloth {tricolette}.

tricot
knitted cloth {tricot}.

PRAC>Personal Affairs>Fabric>Material

mail as cloth
Cloth {mail} can have metal loops, rings, or scales.

PRAC>Personal Affairs>Fabric>Material>Down

eiderdown
northern sea duck down {eiderdown}.

swansdown
swan down, or soft cotton or wool cloth {swansdown}.

PRAC>Personal Affairs>Fabric>Material>Fiber

jute
Asian plant stalk {jute}.

kapok
tropical-tree-fruit silk-like fiber {kapok}.

linen cloth
flax cloth {linen}.

polyester
ester polymer {polyester}.

tapa
South-Pacific-island paper-mulberry inner-bark cloth {tapa}.

PRAC>Personal Affairs>Fabric>Material>Fiber>Cotton

buckram

loosely woven cotton cloth infused with glue {buckram}.

chino cloth
loosely woven cotton twill {chino, fabric}.

chintz
colored cotton cloth {chintz}.

corduroy
ribbed cotton cloth {corduroy}.

denim
loosely woven heavy cotton cloth {denim}.

dimity
thin stiff cotton cloth {dimity}.

gingham
checked light cotton cloth {gingham}.

lisle
tight cotton thread {lisle}.

madras cloth
tightly woven patterned cotton cloth {madras}.

moleskin
Loosely woven heavy cotton twill cloth {moleskin} can have sheared suede-like nap.

nankeen
thick light yellow cotton cloth {nankeen}.

percale
tightly woven cotton cloth {percale}.

pima cotton
long soft cotton {pima cotton}.

sateen
satin-like cotton cloth {sateen}.

tarlatan
loosely woven stiff starched cotton muslin cloth {tarlatan}.

terry cloth
Thick cotton cloth {terry cloth} can have cotton loops.

velveteen
velvet-like cotton cloth {velveteen}.

PRAC>Personal Affairs>Fabric>Material>Fiber>Silk

silk
silkworm cocoon fiber {silk}.

messaline

soft satiny lightweight silk cloth {messaline}.

moire
Silk cloth {moiré} can have watermarks or waves.

satin
tightly woven glossy cloth {satin}.

shantung cloth
heavy bumpy silk cloth {shantung}.

PRAC>Personal Affairs>Fabric>Material>Fiber>Wool

wool
sheep hair {wool}.

felt
matted wool cloth {felt}.

flannel
soft wool cloth {flannel}.

prunella cloth
heavy worsted twill cloth {prunelle cloth} {prunella cloth}.

serge
worsted wool twill cloth {serge}.

velvet cloth
Wool cloth {velvet} can have smooth side and cut-pile side.

virgin wool
never before used wool {virgin wool}.

zibeline
Soft shiny thick wool cloth {zibeline} {zibelline} can have nap or sable skin.

PRAC>Personal Affairs>Fabric>Material>Fiber>Wool>Kinds

alpaca wool
South-American llama-like mammal wool {alpaca wool}.

angora
Angora goat or rabbit hair {angora}.

cashmere
Asian goat wool {cashmere}.

merino
special-sheep soft light wool {merino}.

mohair
Angora-goat soft hair {mohair}.

Shetland wool
Shetland Island sheep wool {Shetland wool}.

vicuna fabric
goat and camel hair {vicuna}.

vicuna wool
South American llama-like mammal wool {vicuna wool}.

PRAC>Personal Affairs>Fabric>Material>Fiber>Wool>Loose

crewel
Loose worsted wool yarn {crewel} can be for embroidery.

tweed fabric
Loosely woven wool cloth {tweed} can typically have more than one color.

PRAC>Personal Affairs>Fabric>Material>Fiber>Wool>Tight

melton
tightly woven, heavy, wool cloth {melton}.

worsted
tightly twisted long wool fibers {worsted}.

PRAC>Personal Affairs>Fabric>Material>Leather

buckskin
deer leather {buckskin}.

chamois
European mountain-goat leather {chamois}.

cordovan
soft leather {cordovan}.

morocco leather
goat leather {morocco}.

patent leather
shiny hard leather {patent leather}.

pigskin
pig leather {pigskin}.

rawhide
raw cow skin {rawhide}.

sharkskin
shark leather {sharkskin}.

suede
Leather {suede} can have nap.

PRAC>Personal Affairs>Fabric>Needlework

crewelwork
embroidery {crewelwork}.

crochet
Needlework can have thread loops using hooks {crochet}.

embroidery
needlework {embroidery}.

needlepoint
yarn hooked into canvas {needlepoint}.

needlework
embroidery {needlework}.

sampler
embroidered cloth {sampler}.

PRAC>Personal Affairs>Fabric>Waterproof

oilcloth
cloth infused with clay and oil {oilcloth}.

oilskin
cloth infused with oil {oilskin}.

tarpaulin fabric
waterproofed canvas {tarpaulin, fabric}.

PRAC>Personal Affairs>Fabric>Weave

basket weave
double threads interlace in checked pattern {basket weave}.

bunting cloth
Light cloth {bunting, cloth} can be for flags, or cloth strips can be for decoration.

burlap
jute, flax, or hemp cloth {burlap}.

cambric
finely woven linen or cotton cloth {cambric}.

chenille
Cotton, worsted wool, or silk string {chenille} can have tufts.

gabardine
cotton, worsted wool, or rayon twill {gabardine}.

gunny
burlap {gunny}.

houndstooth check
small broken or jagged checks {houndstooth check}.

lame
cloth with metal threads {lamé}.

macrame
twisted and knotted cords {macramé}.

moreen
wool, wool and cotton, or cotton cloth with glossy or moiré finish {moreen}.

nap of cloth
cloth or leather surface fuzz {nap}.

organdy
stiff light cotton or silk cloth {organdy}.

pile on cloth
Carpet or towel surface loops {pile, fabric} can be cut or uncut.

pinstripe
Dark cloth can have thin white vertical stripes {pinstripe}.

plaid
tartan or checked pattern {plaid}.

poplin
ribbed cloth {poplin}.

scrim
Tightly woven small thread translucent cloth or mesh {scrim} can soften harsh light.

seme
random small stars, crosses, and the like {powdered} {seme}.

sennit
Flat braided cords {sennit} can be on ships.

shag
coarse nap cloth or carpet {shag}.

sponge cloth
soft porous cloth {honeycomb weave} {sponge cloth}.

taffeta
shiny light silk, rayon, or nylon cloth {taffeta}.

tartan
Horizontal and vertical stripes can be on background color {tartan}.

tattersall
Centimeter-size checks can cross colored lines on background {tattersall}.

PRAC>Personal Affairs>Fabric>Weave>Lace

lace
thin open weave pattern {lace}.

tatting
Lace {tatting} can be hand-made from one thick thread.

Valenciennes lace
floral bobbin lace {Valenciennes lace}.

PRAC>Personal Affairs>Fabric>Weave>Loose

calico
Loosely woven cloth {calico} can have many-colored designs.

canvas
loosely woven heavy cotton, hemp, or flax cloth {canvas}.

sack cloth
loosely woven hard cloth {sack cloth}.

PRAC>Personal Affairs>Fabric>Weave>Thick

brocade
Thick fabric {brocade} can have raised design.

cretonne
Thick curtain cotton or linen cloth {cretonne} can have no glaze.

fustian
loosely woven thick cloth {fustian}.

herringbone
thick heavy zigzag pattern {herringbone}.

muslin
thick medium woven cloth {muslin}.

oxford cloth
soft thick heavier cotton cloth {oxford cloth}.

plush
thick deep pile {plush}.

ratine
Loosely woven thick cloth {ratiné} can be from twisted thick and thin yarn {ratiné yarn}.

woven twill
thick heavy twill {woven twill} {twill, woven}. Woven twill is heavier than pinpoint or broadcloth (same as oxford) with some pattern.

velour
Velvet-like cloth {velour} can have nap.

PRAC>Personal Affairs>Fabric>Weave>Thin

batiste
thin cotton or linen cloth {batiste}.

broadcloth
lightweight (same as pinpoint and lighter than oxford), smooth (smoother than pinpoint) cloth with no pattern {broadcloth}.

chiffon fabric
thin silk or rayon cloth {chiffon}.

crepe cloth
thin silk, cotton, or wool cloth {crepe, cloth}.

pinpoint oxford
lighter, smoother, finer oxford {pinpoint oxford} {pinpoint}.

seersucker
thin crinkled cloth with vertical stripes {seersucker}.

tiffany
thin transparent silk or cotton muslin {tiffany}.

toile
thin linen or cotton twill cloth {toile}.

tulle
thin starched silk, rayon, or nylon netting {tulle}.

twill cloth
lightweight (lighter than oxford, pinpoint, or broadcloth), smooth cloth {twill, regular}.

voile
thin cotton, rayon, wool, or silk cloth {voile}.

PRAC>Personal Affairs>Glasses

monocle
Lens {monocle}, on chain, can be for one eye socket.

lorgnette
eyeglasses with handle {lorgnette}.

opera glass
small binoculars {opera glass}.

pince-nez
eyeglasses squeezed onto nosebridge {pince-nez}.

PRAC>Personal Affairs>Hair

bangs
hair combed down forehead and cut straight across {bangs}.

bouffant
hair teased and puffed {bouffant}.

bun of hair
hair curled and held on head top {bun}.

chignon
back hair knot {chignon}.

coif

coiffure {coif}.

coiffure
styled hair {coiffure}.

crew cut
hair cut short {crew cut}.

flat top
short hair on top held straight up and cut flat {flat top}.

page boy
hair cut at same height around head {page boy}.

permanent wave
Hair can hold together by inner glue. Hair has outside layer {epicuticle}, which has no glue. Thioglycolate solution softens glue, to allow hair reshaping by wrapping hair around rollers held by pins {perm} {permanent wave}|. Chemicals {neutralizer} re-harden glue. After drying, you remove rollers. Bleached and dyed hair loses some epicuticle and is easier to perm. Children's hair and thin hair do not have enough inside hair material to set hair well.
Hair grows straight if it has circular cross-section but curls if it has oval cross-section. Hair grows 15 to 30 centimeters each year.

pompadour hair
hair brushed back from forehead {pompadour}.

tonsure
monks' shaved head {tonsure}.

toupee
hairpiece {toupee}.

widow's peak
hair in a point at forehead center {widow's peak}.

PRAC>Personal Affairs>Hair>Braid

braid
intertwined hair strands {braid}.

pigtail
Tightly braided hair strands {pigtail} can have a bow or ribbon at tip.

plait
braid {plait}.

PRAC>Personal Affairs>Hair>Face

goatee
pointed hair down from chin {goatee}.

mustache
upper-lip hair {mustache}.

muttonchop
Triangular whiskers {muttonchop} can have apex at temple and base along cheek.

Vandyke
Short beards {Vandyke} can have sides sloping to a point.

PRAC>Personal Affairs>Jewelry

amulet
charm against injury {amulet}.

cameo jewelry
Small stone can have a relief in different color {cameo, jewelry}.

fob
watch chain or ribbon {fob}.

heirloom
valuable object inherited from ancestors {heirloom}.

scarab jewel
Stones can look like black beetles {scarab}.

sunburst
metal central circle and rays {sunburst}.

PRAC>Personal Affairs>Jewelry>Crown

coronet
small crown or metal headband {coronet}.

tiara crown
small jeweled crown {tiara}.

PRAC>Personal Affairs>Jewelry>Gem

baguette
gem in thin rectangle shape {baguette, gem}.

birthstone
gemstone for birth month {birthstone}.

paste as gem
shiny glass {paste}.

PRAC>Personal Affairs>Jewelry>Pin

barrette
hair clamp {barrette}.

bobby pin
Wire bent in middle until ends meet {bobby pin} can slide over hair.

brooch
pin or clasp {brooch}.

PRAC>Personal Affairs>Jewelry>Bracelet

anklet

ankle bracelet {anklet}.

bangle
bracelet, anklet, or hanging earring {bangle}.

PRAC>Personal Affairs>Jewelry>Necklace

choker
Necklaces {choker} can fit tightly around neck.

lavaliere
necklace pendant {lavaliere}.

lei
Hawaiian flower necklace {lei}.

locket
small necklace case {locket}.

pendant
Objects {pendant, jewelry} can hang from necklaces.

PRAC>Personal Affairs>Skin

witch-hazel extract
witch-hazel bark alcohol extract {witch-hazel, solution}.

PRAC>Personal Affairs>Skin>Mark

beauty spot
mole {beauty spot}.

cleft in chin
chin depression {cleft}.

PRAC>Personal Affairs>Skin>Coloring

mascara
eyelash color {mascara}.

rouge
red powder {rouge, makeup}.

PRAC>Personal Affairs>Skin>Nails

manicure
clipping and polishing fingernails {manicure}.

pedicure
clipping and polishing toenails {pedicure}.

PRAC>Personal Affairs>Skin>Toiletry

toiletry
cosmetic or grooming item {toiletry}.

douche
water poured over body part {douche}.

pomade
hair ointment {pomade}, typically with perfume.

pomander ball
Aromatic balls or flowered round balls {pomander ball} can have a ribbon.

toilet powder
perfumed powder {toilet powder}.

toilet soap
perfumed soap {toilet soap}.

PRAC>Personal Affairs>Skin>Cream

cold cream
Mixed oil and water {cold cream} can be for skin cleaning and softening.

greasepaint
actor makeup {greasepaint}.

mustard plaster
Black mustard and plaster {mustard plaster} can soothe or rub.

ointment
thick oil {ointment}.

petroleum jelly
mineral oil and wax from petroleum {petroleum jelly}.

vanishing cream
Cream {vanishing cream} can cover blemishes.

Vaseline
petroleum jelly {Vaseline}.

zinc ointment
Thick oil can contain zinc {zinc ointment}.

PRAC>Personal Affairs>Skin>Perfume

bay rum
laurel leaf in alcohol {bay rum}.

cologne perfume
perfume oil, alcohol, water {cologne, perfume}.

musk as perfume
Asian deer excretions {musk, perfume} can be in perfume.

myrrh
Asian or African tree gum {myrrh}.

patchouli

small southeast-Asian mint shrub leaf aromatic oil {patchouli} (Pogostemon cablin).

rose water
rose-petal water extract {rose water}.

toilet water
cologne {toilet water}.

PRAC>Personal Affairs>Smoking

plug of tobacco
chewing tobacco {plug, tobacco}.

reefer
marijuana cigarette {reefer}.

snuff
powdered tobacco {snuff}, for sniffing.

twist of tobacco
chewing tobacco {twist, tobacco}.

PRAC>Personal Affairs>Smoking>Cigar

cheroot
cylinder with flat ends {cheroot}.

cohiba
long thin cigar {cohiba}.

corona cigar
straight-side cigar {corona}.

figurado
irregularly shaped cigar {figurado}.

panatela
Parejo cigar {panatela}, longer and thinner than Corona, can include cohibas.

pareja
straight-side cigar {pareja}.

perfecto
Cigars {perfecto} can be narrow at ends and wide in middle.

stogie
used cigar {stogie}.

PRAC>Personal Affairs>Smoking>Pipe

calumet
long ceremonial pipe {calumet}.

pipe cleaner
Wires {pipe cleaner} can have fuzz, to ream pipe stem and wipe pipe bowl.

PRAC>Personal Affairs>Trinket

trinket
small object {trinket}.

bauble
trinket {bauble}.

bibelot
trinket {bibelot}.

bijou
small highly decorated or worked trinket {bijou}.

bric-a-brac
small objects {bric-a-brac}.

curio
art object {curio}.

death's head
human skull {death's head}.

filigree
twisted gold or silver wire {filigree}.

prayer beads
rosary {prayer beads}.

rosary
165 dried rolled petals are prayer beads {rosary}.

scepter
short royal staff {scepter}.

whatnot
Open shelves {whatnot shelf} can be for small objects.

wreath of leaves
holly or leaf circle {wreath, leaves}.

Yule log
large wood fireplace log {Yule log}.

PRAC>Personal Affairs>Umbrella

umbrella
openable cover against rain {umbrella}.

parasol
light small umbrella against sunlight {parasol}.

PRAC>Holiday

holiday
Solar-year days {holiday} can be special.

month and flower

Months have flowers. January is snowdrop. February is primrose. March is violet. April is daisy. May is hawthorn. June is honeysuckle. July is water lily. August is poppy. September is morning glory. October is hops. November is chrysanthemum. December is holly.

month and gem

Months have gems. January is garnet. February is amethyst. March is aquamarine. April is diamond. May is emerald. June is pearl. July is ruby or moonstone. August is onyx or ruby. September is sapphire. October is opal. November is topaz. December is turquoise.

calendar days

Why do January, March, May, July, August, October, and December have 31 days {calendar, western}. Why do April, June, September, and November have 30 days? Why does February have 28 or 29 days? The current calendar keeps solar year and months synchronized and puts leap-year day in winter.

orbit

In Northern Hemisphere, Earth orbit makes summer longer than winter, so days of months make summer longer and keep equinoxes at approximately same date.

From December 21 to March 21 are 90 or 91 days. From March 21 to June 21 are 92 days. From June 21 to September 21 are 92 days. From September 21 to December 21 are 91 days. Therefore, in Northern Hemisphere, fall and winter have 181 or 182 days, and spring and summer have 184 days.

Leap-year day must be in winter because summer is less than exactly three days longer than winter.

different calendar

January, March, May, July, September, November, and December can have 30 days, and February, April, June, August, and October can have 31 days, to make 365-day year. To make 366-day year, December has 31 days.

However, then fall and winter have 91 + 91 = 182 days, which is too much. January, February, March, September, October, November, and December can have 30 days, and April, May, June, July, and August can have 31 days, to make 365-day year. To make 366-day year, December has 31 days. Then, fall and winter have 90 + 90 = 180 days, which is too few.

anniversary

Wedding anniversaries {anniversary}| can relate to articles. 1 is paper. 2 is cotton or straw. 3 is leather. 4 is fruit and flowers or silk. 5 is wood. 6 is sugar, candy, garnet, or iron. 7 is copper or wool. 8 is bronze or pottery. 9 is willow or pottery or topaz. 10 is tin or aluminum. 11 is steel. 12 is silk or linen. 13 is lace. 14 is ivory. 15 is crystal. 20 is china. 25 is silver. 30 is pearl. 35 is coral or jade. 40 is ruby. 45 is sapphire. 50 is gold. 55 is emerald. 60 is platinum or diamond. 75 is diamond.

Australia holidays

Australia Day is 1/26 {holidays, Australia} {Australia holidays}. Anzac Day is 4/25. Boxing Day is 12/26.

Brazil holidays

Carnival is middle February {holidays, Brazil} {Brazil holidays}. Independence Hero Tiradentes is 4/21. Independence Day is 9/7. Proclamation of the Republic is 11/15.

Buddhist holidays

In Southeast Asia, Buddha's Birthday is late April to late May {holidays, Buddhist} {Buddhist holidays}. Buddha Purnima is 5/27.

Canada holidays

Flag Day is 2/15 {holidays, Canada} {Canada holidays}. St. David's Day is 3/1. Easter Monday is day after Easter. Victoria Day is fourth Monday in May. Canada Day is 6/1. St. John the Baptist Day is 6/24 in Quebec. Civic Holiday is first Monday in August. Labour Day is first Monday in September. Thanksgiving Day is second Monday in October. Remembrance Day is 11/11. St. Andrew's Day is 11/30. Boxing Day is 12/26.

Chile holidays

National Unity Day is 9/2 {holidays, Chile} {Chile holidays}. Independence Day is 9/18.

China holidays

Chinese New Year or Lunar New Year is late January or early February {holidays, China} {China holidays}. Confucius' Day is late September to early October. Mid-Autumn Festival or Harvest Moon Festival is early October.

Christian holidays

Name Day is birthday of saint that has one's name {holidays, Christian} {Christian holidays}. 12th Day of Christmas is 1/6. Epiphany is 1/6. St. Valentine's Day is 2/14. Shrove Tuesday or Mardi Gras is 40 days before Easter. Ash Wednesday is 39 days before Easter. St. Patrick's Day is 3/17. St. Joseph's Day is 3/19. Palm Sunday is Sunday before Easter. Good Friday is Friday before Easter. Easter is late March to early April. San Isidro's Day is 5/15. Corpus Christi or Ascension Day is 39 days after Easter. Whitmonday is early June. St. Anthony's Day is 6/13. Feast of the Ascension is 40 days after Easter. Feast of Corpus Christi is early to mid June. Saints Peter and Paul is 6/29. Feast of the Assumption is mid August. Walpurgis Night is 10/31. All Saints Day is 11/1 to 11/4. First Day of Advent is 11/30. Feast of the Immaculate Conception is 12/8. Christmas is 12/25. St. Stephen's Day is 12/26.

Denmark holidays

Constitution Day is 6/5 {holidays, Denmark} {Denmark holidays}.

Europe holidays

In north Europe, Boxing Day is 12/26 {holidays, Europe} {Europe holidays}.

France holidays

Bastille Day is 7/14 {holidays, France} {France holidays}.

Germany holidays

National Day is 10/3 {holidays, Germany} {Germany holidays}.

Ghana holidays

Independence Day is 3/6 {holidays, Ghana} {Ghana holidays}. Anniversary of 1979 Coup is 6/4. Republic Day is 7/1.

India holidays

Republic Day is 1/26 {holidays, India} {India holidays}. Babasaheb Ambedkar's Birthday is 4/14. Maha-ashtra Day is 5/1. Buddha Purnima is 5/27. Independence Day is 8/15. Gandhi Jayanthi or Birthday of Gandhi is 12/2. Diwali or Laxmipujan is 11/5. Children's Day or Birthday of Nehru is 11/14.

International holidays

International Women's Day is 3/8. United Nations Day is 8/24 {holidays, International} {International holidays}.

Israel holidays

Independence Day is 4/17 {holidays, Israel} {Israel holidays}.

Italy holidays

Liberation Day is 4/25 {holidays, Italy} {Italy holidays}.

Japan holidays

Coming of Age Day is 1/14 {holidays, Japan} {Japan holidays}. National Foundation Day is 2/11. Greenery Day is 4/29. Constitution Day is 5/3. National Holiday is 5/4. Children's Day is 5/6. Ocean Day is 7/20. Respect for Aged Day is 9/16. Health and Sports Day is 10/14. Culture Day is 11/4. Labor Thanksgiving Day is 11/23. Emperor's Birthday is 12/23.

Jewish holidays

Purim is mid-March {holidays, Jewish} {Jewish holidays}. Pesach or Passover is late March to early April. Shavuot is mid to late May. Ninth of Av is mid July. Rosh Hashanah or Jewish New Year is mid to late September and begins Days of Awe. High Holy Days, Days of Awe, or Ten Days of Repentance is mid to late September. Yom Kippur is late September and ends Days of Awe. Sukkot is late September. Shemini Atzewret is late September to early October. Hanukkah is middle December.

Kenya holidays
Madaraka Day is 6/1 {holidays, Kenya} {Kenya holidays}. Moi Day is 10/10. Kenyatta Day is 10/21. Jamhuri Day is 12/12.

Korea holidays
Independence Movement Day is 3/1 {holidays, Korea} {Korea holidays}. Children's Day is 5/5. Memorial Day is 6/6. Constitution Day is 7/17. Liberation Day is 8/15. National Foundation Day is 10/3.

Malaysia holidays
Federal Territory Day is 2/1 {holidays, Malaysia} {Malaysia holidays}. Hari Raya Haji is late February to early March. Wesak is early to late May. Yang DiPertuan Agong's Birthday is early June. National Day is 8/31. Deepavali is early to mid November. Hari Raya Puasa is early to mid December.

Mexico holidays
Constitution Day is 2/5 {holidays, Mexico} {Mexico holidays}. Juarez's Birthday is 3/21. Battle of Puebla or Cinco de Mayo is 5/5. Government's Report is 9/1. Independence Day or Fiestas Patrias is 9/16, when people yell for independence {grito, yell for independence} {el grito}. Revolution Day is 11/20. Feast of Our Lady of Guadelupe is 12/12.

New Zealand holidays
Waitangi Day is 2/6 {holidays, New Zealand} {New Zealand holidays}. Anzac Day is 4/25. Boxing Day is 12/26.

Portugal holidays
Liberty Day is 4/25 {holidays, Portugal} {Portugal holidays}. Portugal Day is 6/10. Republic Day is 10/5. Independence Day is 12/1. Boxing Day is 12/26.

saturnalia festival
Roman winter solstice festival {saturnalia}| typically had anarchy.

Singapore holidays
Hari Raya Haji is late February to early March {holidays, Singapore} {Singapore holidays}. Wesak is early to late May. Yang DiPertuan Agong's Birthday is early June. National Day is 8/31. Deepavali is early to mid November. Hari Raya Puasa is early to mid December.

South Africa holidays
Human Rights Day is 3/21 {holidays, South Africa} {South Africa holidays}. Family Day is 4/1. Freedom Day is 4/27. Youth Day is 6/17. National Women's Day is 8/9. Heritage Day is 9/24. Day of Reconciliation is 12/16. Day of Good will is 12/26.

South America holidays
Bolivar's Birthday is 7/24 {holidays, South America} {South America holidays}.

Spain holidays
Independence Day is 5/2 {holidays, Spain} {Spain holidays}.. Hispanity Day is 10/12. Constitution Day is 12/6.

Switzerland holidays
Berchtoldstag is 1/2. National Day is 8/1 {holidays, Switzerland} {Switzerland holidays}.

United Kingdom holidays
Mothering Sunday is last Sunday in March {holidays, United Kingdom} {United Kingdom holidays}.

USA holidays
New Years Day is 1/1 {holidays, USA} {USA holidays}. Martin Luther King Jr.'s Birthday is third Monday in January. Inauguration Day is 1/20. Groundhog Day is 2/2. Lincoln's Birthday is 2/12. St. Valentine's Day is 2/14. Presidents Day is third Monday in February. Washington's Birthday is 2/22. Ides of March is 3/15. St. Patrick's Day is 3/17. April Fools Day or All Fool's Day is 4/1. Earth Day is 4/22. Arbor Day is 4/25.

summer
May Day is 5/1. Mother's Day is second Sunday in May. Armed Forces Day is third Saturday in May. Memorial Day is 5/30, now on nearest Monday. Flag Day is 6/14. Father's Day is third Sunday in June. Midsummer Day is 6/21. Independence Day is 7/4. Labor Day is first Monday in September.
fall
Grandparents Day is first Sunday in September. Columbus Day is 10/12. Halloween is 10/31. Election Day is first Tuesday in November. Veterans Day and Armistice Day is 11/11. Thanksgiving Day is fourth Thursday in November. United Nations Day is 12/24. Kwanzaa begins is 12/26. New Years Eve is 12/31.

Venezuela holidays
Battle of Carabobo is 6/24 {holidays, Venezuela} {Venezuela holidays}. Independence Day is 7/5. Bolivar's Birthday is 7/24.

Vietnam holidays
Western New Year is 1/1 {holidays, Vietnam} {Vietnam holidays}. Lunar New Year is 1/25 to 2/9. Valentine's Day is 2/14. Women's Day is 3/8. Independence Day is 5/1. National Day is 9/2. Vietnam Women's Day is 10/20. Christmas is 12/25.

PRAC>Machine

machine
Machines {machine, noun} are tools and appliances and have parts and materials.

touch system
People can use typewriters without looking at keyboard {touch system}|.

tolerance
Machined parts have allowable distance ranges {tolerance, machine}|.

PRAC>Machine>Engineering

aerodynamics
People study airflow around objects {aerodynamics}|.

aeronautics
People study flight and airplanes {aeronautics}|.

electronics
People study amplifying, rectifying, and logic circuits {electronics}|.

engineering
People study useful materials and processes using physical science and mathematics {engineering}|.

horology
People study timekeeping {horology}|.

hydrostatics
People study still water under pressure {hydrostatics}|.

kinematics
People study motions without forces {kinematics}|.

mechanical drawing
Drawing {mechanical drawing}| can use utensils.

mechanics

People study motions and forces {mechanics}|.

PRAC>Machine>Industrial Materials

abrasive material
hard rough surface {abrasive, material}, for smoothing.

ammonia
strong fuming base {ammonia}.

aqua regia
sulfuric acid and nitric acid {aqua regia}.

bluing
blue laundry agent {bluing}.

brimstone
sulfur {brimstone}.

brine
salt water {brine}.

carborundum
silicon carbide {carborundum}.

electrocaloric material
Electric fields can align molecules {electrocaloric material}, to change temperature.

TAML activator
Tetra-amido macrocyclic ligand {TAML activator} activators, similar to peroxidases, are catalysts that, with hydrogen peroxide, can break down pollutant chemicals.

caustic soda
sodium hydroxide {caustic soda}.

dry ice
frozen carbon dioxide {dry ice}.

flocking
Machines can spray fibers {flocking}| onto surfaces covered with glue.

flux material
Materials {flux, material} can increase flow and reduce oxidation.

gunpowder material
saltpeter, carbon, sulfur {gunpowder}.

hydride
Metal or organic hydrides {hydride}| can hold hydrogen. Metallic hydrides, rare earths, nickel, and cobalt can release hydrogen gas at room temperature.

limewater
weak calcium hydroxide solution {limewater}.

litmus
Blue powder {litmus} from lichen turns red in acid.

lye
Sodium hydroxide or potassium hydroxide {lye} can come from leaching wood ash.

niter
potassium nitrate or sodium nitrate {niter}.

peroxide
hydrogen peroxide H2O2 [2 is subscript] {peroxide}.

pitchblende
uranium ore {pitchblende}.

potash
potassium carbonate or potassium hydroxide {potash}.

quaternary ammonium
Nitrogen can attach to four organic groups {quaternary ammonium compound}.

ruck
puckered {ruck}.

sal soda
sodium carbonate {sal soda}.

saltpeter
potassium nitrate or sodium nitrate {saltpeter}.

shear thickening fluid
Non-evaporative fluids {polyethylene glycol}, with nanometer sand or silica particles, become stiff if a solid goes through them {shear thickening fluid}|.

slag
smelting-ore floating shiny residue {slag}.

slurry
Prospectors look in washed sand {slurry} for minerals.

soda ash
sodium carbonate {soda ash}.

tannin
tannic acid {tannin}, for tanning.

vat dye
Dye {vat dye} can be soluble in water in alkaline solution as enol, when dying fibers, but insoluble in water as keto, after washing, drying, and oxidation.

verdigris
green copper sulfate or copper chloride {verdigris}.

wetting agent
Chemicals {wetting agent} can reduce surface tension and make water attach to surfaces.

PRAC>Machine>Industrial Materials>Rubber

rubber
Guayule plant sap contains parthenium. Parthenium becomes rubber {rubber}| by heating with sulfur. Rubber becomes brittle by oxidation, especially in ozone.

vulcanization
Rubber can harden with sulfur compounds {vulcanization}|.

PRAC>Machine>Industrial Materials>Clay

adobe
sun-dried clay {adobe}.

bone china
25% china stone, 25% china clay, 50% calcined cow bones [1820] {bone china}.

brick
baked clay {brick}.

cement
powdered rock and clay in water {cement}.

ceramic
fired clay {ceramic}.

concrete material
stones in cement {concrete, material}.

lime as mineral
calcium oxide {lime, mineral}.

meerschaum
clay {meerschaum}.

mortar material
clay, concrete, or cement {mortar, material}.

mud brick
sun-dried rectangular clay and straw blocks {mud brick}.

plaster of Paris
gypsum cement, calcium sulfate hydrate CaSO4 . 0.5 H2O [4 and 2 are subscripts] {plaster of Paris}.

reinforced concrete
concrete poured over steel-bar lattice {reinforced concrete}.

sienna
Clays {sienna} can have iron and manganese oxides.

sticking plaster
Adhesive tape can have plaster {sticking plaster}, for wounds.

stucco
wall plaster {stucco}.

terra cotta
baked red clay {terra cotta}.

tile
flat baked clay {tile}.

PRAC>Machine>Industrial Materials>Gas

carbon dioxide
CO2 [2 is subscript] {carbon dioxide}.

carbon monoxide
CO {carbon monoxide}.

Freon
Hydrocarbon chains can replace hydrogen atoms with fluorine, chlorine, or bromine {Freon}.

mustard gas
(ClCH2CH2)2S [2 is subscript] blisterer {mustard gas}.

ozone
O3 [3 is subscript] {ozone}.

phosgene
COCl2 [2 is subscript] poison gas {phosgene}.

tear gas
eye-irritant gas {tear gas}.

PRAC>Machine>Industrial Materials>Glass

bulletproof glass
Glass {bulletproof glass}| can have several vinyl and glass layers and be four centimeters thick.

crown glass
Glass {crown glass} can be for lenses with high refractive index.

cut glass
ground, engraved, or cut glass {cut glass}.

fiberglass
glass fibers pressed together {fiberglass}.

glass wool
glass fibers {glass wool}.

plate glass
rolled polished glass {plate glass}.

Pyrex
break-resistant glass {Pyrex}.

safety glass
Glass {safety glass}| can have a vinyl layer between two glass plates.

spun glass
fiberglass {spun glass}.

stained glass
painted glass {stained glass}.

tempered glass
Glass {tempered glass}| can have cooled rapidly in flowing air and be eight times stronger than regular glass. Tempered glass breaks into small chunks, without sharp edges.

wired glass
Glass {wired glass}| can have wire net inside.

PRAC>Machine>Industrial Materials>Metal

alnico
aluminum, nickel, and cobalt magnet {alnico}.

chrome
chromium {chrome}.

electrotype
electroplated counterfeit coin {electrotype}|.

gum metal
Compressing titanium, tantalum, niobium, zirconium, oxygen, and sometimes vanadium at high pressure and heat, and then cold pressing, makes metal {gum metal}. It has high elasticity and plasticity from -200 C to 300 C. Bond strength, outer-electron electrical forces, and number of bonds to neighbors are optimum.

quicksilver
mercury {quicksilver}.

shape-memory alloy
Nickel-titanium {shape-memory alloy} has high elasticity.

sterling
pure silver {sterling}.

tinplate
metal coated with tin {tinplate}.

tinsel
shiny metal or plastic strips {tinsel}.

PRAC>Machine>Industrial Materials>Metal>Copper

Babbitt metal
copper, antimony, tin, lead {Babbitt metal}.

bell metal
hard bronze {bell metal}.

brass metal
copper and zinc {brass, metal}.

bronze
copper and tin {bronze}.

pewter material

tin, antimony, copper, lead {pewter}.

PRAC>Machine>Industrial Materials>Metal>Gold

electrum
Natural gold and silver alloy {electrum} made coins in Lydia.

white gold
gold and nickel {white gold}, sometimes palladium and zinc.

PRAC>Machine>Industrial Materials>Metal>Iron

barbed wire
wire fencing with barbs {barbed wire}.

cable
intertwined metal strings {cable}.

cast iron
molten iron put in molds {cast iron}.

lodestone
magnetite {lodestone}.

pig iron
impure iron blocks {pig iron}.

stainless steel
chrome steel {stainless steel}.

steel
iron and carbon {steel}.

steel wool
shredded steel or iron fibers {steel wool}.

structural steel
steel beams {structural steel}.

wrought iron
hammered iron {wrought iron}.

PRAC>Machine>Industrial Materials>Organic Chemical

antifreeze
ethylene glycol {antifreeze}.

ash
residue from burning {ash, material}.

azo dye
Aniline converts, using sodium nitrite, to diazonium chloride, which then reacts with aromatic amine, phenol, or sulphonic acid {azo dye}.

bone meal
powdered bones {bone meal}.

buff leather
soft, thick, not-dyed, buffalo or ox leather {buff leather}.

camphor
C10H16O [10 and 16 are subscripts] insect repellant and nose clearer {camphor}.

carbamate
roach killer and neurotoxin {carbamate}.

carbon tetrachloride
CCl4 [4 is subscript] {carbon tetrachloride}.

caulk compound
oakum or tar {caulk, compound}.

cheesecloth
coarsely woven cloth {cheesecloth}.

DDT
C14H9Cl5 [14, 9, and 15 are subscripts] insecticide {dichlorodiphenyltrichloroethane} {DDT}.

ebonite
black hard rubber {ebonite}.

India ink
carbon black ink {India ink}, from lampblack.

ivory
elephant tusk {ivory}.

japan lacquer
glossy black enamel or lacquer {japan}.

menthol
CH3C6H9(C3H7)OH [3, 6, 9, and 7 are subscripts] perfume and flavoring {menthol}.

napalm
aluminum, soap, and gasoline jelly {napalm}.

neutral spirit
190-proof or higher alcohol {neutral spirit}.

night soil
feces {night soil}.

nitroglycerin
C3N3H5O9 [3, 5, and 9 are subscripts] {nitroglycerin} is in dynamite.

organophosphate
Parathion {organophosphate} has phosphate and is an insecticide and neural poison.

paint
Fine metal-oxide powder pigment mixes in linseed oil, natural resin, or synthetic resin, plus some turpentine {paint}|{oil paint}. Paint sets when turpentine evaporates. Paint dries when oil oxidizes and polymerizes. Paint surfaces {finish, paint} can be non-reflective {flat finish} or reflective {high-gloss finish} {glossy finish}. High gloss, brilliant

color paint {enamel paint} can have less turpentine and finer solid particles. Resin-based enamel can harden by heat {baked enamel}.

parathion
organophosphate insecticide and neural poison {parathion}.

perfluorooctanoic acid
fluorosurfactant breakdown product {perfluorooctanoic acid} (PFOA).

putty material
linseed oil and whiting {putty, material}.

sludge
sewage sediment {sludge}.

smokeless powder
Nitrocellulose powder {smokeless powder} makes little smoke when exploded.

sponge rubber
soft airy rubber {sponge rubber}.

starch material
C6H10O5 [6, 10, and 5 are subscripts] white powder {starch, clothes}.

tallow
animal fats {tallow}.

tarpaulin material
tar-treated canvas {tarpaulin, material}.

tetraethyl lead
gasoline additive {tetraethyl lead}.

TNT
C7H9N3O6 [7, 9, 3, and 6 are subscripts] trinitroyltoluene yellow explosive {TNT}.

wood alcohol
methyl alcohol {wood alcohol}.

PRAC>Machine>Industrial Materials>Organic Chemical>Coal

activated carbon
Fine non-crystalline carbon particles {activated carbon} {activated charcoal}, from charcoal, adsorb impurities from water or remove ozone from air.

anthracite coal
hard coal {anthracite coal}.

bituminous coal
soft coal {bituminous coal}.

charcoal
heated wood {charcoal}.

coal
carbon and other minerals {coal}.

coal gas
heated bituminous-coal gas {coal gas}.

coal tar
heated bituminous-coal thick liquid {coal tar}.

coke
Heat can remove volatiles from coal {coke}.

creosote
Coal-tar liquids {creosote} can be wood preservatives.

lignite
brown coal {lignite}.

peat
carbon-containing decayed moss and leaves {peat}.

PRAC>Machine>Industrial Materials>Organic Chemical>Fiber

asbestos mineral
fibrous mineral {asbestos, mineral}.

catgut
dried-intestine strings {catgut}.

cordage
ship ropes {cordage}.

lint
cloth fluff {lint}.

manila hemp
abaca fiber {manila hemp}.

oakum
hemp or jute fibers in tar {oakum}.

punk
dry decayed wood tinder {punk}.

raffia
African palm-leaf fiber {raffia} can be for mats and baskets.

rattan
Asian tropical palm-stem fiber {rattan}.

textile as cloth
cloth {textile, cloth}.

thatch
plant stalks and leaves {thatch}.

thistledown
thistle-seed down {thistledown}.

tinder
Dry fluff {tinder} can catch fire easily.

wicker
willow shoot {wicker}.

PRAC>Machine>Industrial Materials>Organic Chemical>Oil

attar
flower-petal oil {attar}.

citronella
Tropical grass oil {citronella} can be for perfume and insect repellant.

linseed oil
Yellow oil {linseed oil} can be from flax seed.

tung oil
Chinese tung-tree seed oil {tung oil} can be for finishing wood.

turpentine
pine-tree wood or sap light oil {turpentine}, C10H16 [10 and 16 are subscripts].

varnish
Turpentine can add linseed oil, natural resin, or synthetic resin {varnish}|, with no solid pigments. Varnish dries to clear gloss. Varnish can use resin secreted by insect that lives in acacia trees, which dissolves in alcohol {shellac}. Varnish can use cellulose compound in solvent {lacquer}. Varnish can use tree sap in solvent {Oriental lacquer}, which hardens only in high humidity in the dark. Many coats give lustrous, hard finish.

PRAC>Machine>Industrial Materials>Organic Chemical>Paper

paper
Thin sheets {paper} can be for written records.
material
Paper has cotton, flax, or tree cellulose fibers. Cotton and flax amount {rag content} determines paper quality.
process
Shred wood pulp, cotton, or flax. Added chemicals can make paper water resistant, colorful, or white. Added clay or chalk makes smoother surface, with less porosity.
Wash with chemicals to remove impurities. Bleach. Cook bleached mixture with lime or caustic soda in vat.
Long thin slit on vat bottom edge empties onto wire-mesh belt to make a thin layer of wet paper. Water drips through mesh as belt travels. The thin mat squeezes through hard rubber rollers to remove water.
Final roller can apply watermark. Paper {crepe paper} can wrinkle when still wet. Mat passes through oven and steel rollers to dry completely.

beaverboard
thick compressed wood fibers {beaverboard}.

Bristol board
thick dense cotton-fiber and glue paper {Bristol board}.

cardboard
paper pulp board {cardboard}.

fiberboard
fibers pressed into solid {fiberboard}.

glassine paper
thin glazed paper {glassine paper}.

manila paper
thick paper {manila}.

Masonite
hard fiberboard {Masonite}.

onionskin
thin translucent paper {onionskin}.

palimpsest
parchment used more than once {palimpsest}|.

pasteboard
pasted paper sheets {pasteboard}.

plasterboard
paper or cardboard sheets bonded by plaster {plasterboard}.

printout
printed computer output {printout}.

rice paper
powdered-rice sheets {rice paper}.

scroll roll
parchment or papyrus roll {scroll}.

sheepskin
diploma paper {sheepskin}.

tarpaper
heavy paper soaked in tar {tarpaper}.

waxed paper
paper soaked in wax {waxed paper}.

PRAC>Machine>Industrial Materials>Organic Chemical>Paper>Parchment

parchment
scraped, washed, pared, dusted with chalk, and rubbed with pumice stone sheepskin or goatskin {parchment}.

vellum
Parchment {vellum} can use real or imitation calfskin.

PRAC>Machine>Industrial Materials>Organic Chemical>Paper>Sizes

crown of paper
Paper sheets {crown, paper}| can be 15 inches by 20 inches.

demy
Paper sheets {demy}| can be 17.5 inches by 22.5 inches.

foolscap
Paper sheets {foolscap}| can be 13.5 inches by 17 inches.

PRAC>Machine>Industrial Materials>Organic Chemical>Petrochemical

antiknock
xylenes {antiknock}.

bottled gas
butane gas liquefied under pressure {bottled gas}.

distillate of petroleum
Liquids {distillate, petroleum} {petroleum, distillate} can be from cracking petroleum.

macadam
small stones in asphalt or tar {macadam}.

marsh gas
methane {marsh gas}.

mineral oil
Oil {mineral oil} from petroleum can be a laxative.

natural gas
methane {natural gas}.

paraffin
colorless wax {paraffin}.

petrochemical
chemical from petroleum {petrochemical}.

tar material
wood, coal, or peat thick black oil {tar, material}.

tarmac
tar and broken stone mixture {tarmac} {tarmacadam}.

PRAC>Machine>Industrial Materials>Organic Chemical>Polymer

alkyd resin
strong synthetic resin {alkyd resin}.

celluloid
colorless nitrocellulose and camphor {celluloid}.

cellulose acetate
C6H10O5 [6, 10, and 5 are subscripts] plus acetic acid {cellulose acetate}.

cellulose nitrate
C6H10O5 [6, 10, and 5 are subscripts] plus nitric acid {cellulose nitrate}.

copolymer
Two different plastics {copolymer} have bonds between them.

Dacron

Polyesters {Dacron} do not wrinkle.

diblock copolymer
Two different plastics {diblock copolymer} have bonds between them but are two separate phases.

electroactive polymer
Elastomer plastics {electroactive polymer}| (EPA) can move by applying electric or magnetic fields.

ionic
Ionic polymer gels, ionomeric polymer-metal complexes, conductive polymers, and carbon nanotubes use low voltage and keep expanding or contracting at any voltage.

electronic
Ferroelectric polymers {perovskite}, electrets, dielectric silicone or acrylic elastomers, and electrostatic graft elastomers use high voltage.

insulator
Insulators contract in electric-field direction and so expand perpendicular to field {Maxwell stress}. Ferroelectric random-access memory (FRAM) uses dipoles as bits. Dipoles can be left or right spirals.

Formica
laminated plastic {Formica}.

linoleum
Plastic sheets {linoleum} can be floor coverings.

oligothiophene
Semiconductor polymers {oligothiophene} can have molybdenum or tungsten doping, which allows phosphorescence and fluorescence.

Orlon plastic
lightweight acrylic polymer {Orlon}.

polyethylene
ethylene polymer resin {polyethylene}.

rattail
rayon {rattail}.

saran
thermoplastic resin {saran}.

shape-memory polymer
Shrink-wrap {shape-memory polymer} (SMP) can hold shape. Other compounds, such as SMP polyurethane, change back to original shape at temperature. Cross-links determine shape. SMPs can be thermosetting or thermoplastic. Linear block copolymers have cross-link sections and shape-memory change segments.

silicone
Clear, flexible, thermally stable, inert, and water-repellent material {silicone} is R2SiO [2 is subscript] units, where R is any organic group. Elastic sealants {silicone rubber} can be for interior and exterior movable joints.

synthetic fiber
Plastics can be fibers {synthetic fiber}|.

Acrylonitrile and starch digested by lye [1884] make nitrocellulose {rayon fiber}. Rayon is absorbent, is soft, does not pill, and is not electric.

Synthetic fiber {polyester fiber} can be strong but electric.

Synthetic fiber {acetate fiber} can be lustrous and soft, such as Dacron.

Synthetic fiber {triacetate fiber} can be like acetate.

Acrylic synthetic fiber {acrylic fiber} can be wool-like and be for imitation fur. Synthetic fiber {modacrylic fiber} can be fur-like and flame resistant.

Nylon is strong. Synthetic fibers {Kevlar} can be strong and bulletproof.

thermoplastic

Plastics {thermoplastic}| can melt at 120 C and easily mold. Vinyl, food wrap, furniture covers, and screens are thermoplastics.

thermosetting plastic

Two chemicals can react when heated and then cool and stiffen in molds {thermosetting plastic}|. Thermosetting plastics melt only at high temperatures.

types

Thermosetting plastics include acrylonitrile, polyethylene, polypropylene, polyvinyl chloride, polyvinyl alcohol, PET, and Teflon. Strong thermosetting plastics are lexan {polycarbonate} and Zytel-ST nylon. Thermosetting plastics can be insulators {phenolic} {Bakelite} [1909], dishes {melamine}, and cups {polystyrene} {Styrofoam}. Clear products {acrylic plastic} are Plexiglas {polymethyl-methacrylate} (PMMA), Orlon, and Acrilan. Polyamide {nylon} can be in stockings and toothbrushes. Dynel is part vinyl and acrylic. Thermosetting plastic can be from urea {urea derivative}.

vinyl polymer

vinyl polymer {vinyl}.

PRAC>Machine>Industrial Materials>Organic Chemical>Resin

balata

tropical balata hardwood-tree dried gum {balata}.

chicle

Milky sap from American tropical tree coagulates into gum {chicle}.

frankincense

gum resin {frankincense}.

isinglass

sturgeon air-bladder gelatin {isinglass}.

pine tar

heated pine-wood viscous brown/black liquid {pine tar}, for roofing.

resin material

rosin or amber {resin, sap}.

rosin

pine sap {rosin}.

PRAC>Machine>Industrial Materials>Organic Chemical>Wax

ambergris as wax

sperm-whale wax {ambergris, wax}.

carnauba wax

Brazilian palm-tree-leaf wax {carnauba wax}.

sealing wax

Resins {sealing wax} can soften when warm and harden at room temperature, for making letter seals.

PRAC>Machine>Industrial Materials>Organic Chemical>Wood

clapboard
Boards {clapboard}, with bevels on sides, can fit into next boards, to make walls.

compost
decayed leaves and wood {compost}.

ebony
Asian tropical-tree dark wood {ebony}.

excelsior
Wood shavings {excelsior, material} can be for packing.

lampblack
soot {lampblack}.

matchboard
Boards {matchboard}, with groove on one long side and matching tongue on other long side, can mesh together to make floors or walls.

plywood
glued wood layers {plywood}.

punchboard
Boards {punchboard} can have small-hole arrays.

wallboard
gypsum plaster inside paper coating {wallboard}.

wood pulp
Ground and/or chemically digested wood {wood pulp} can be for making paper or fiberboard.

PRAC>Machine>Industrial Materials>Stone

cobblestone
round medium-sized stone {cobblestone}.

flagstone
Flat stone {flagstone} can be for paving.

tesserae
House decoration can have colored stone pieces or colored glass cubes {tesserae}.

whetstone
harder-than-steel stone {whetstone}.

PRAC>Machine>Parts

ball bearing
Ball bearings {ball bearing}| use several or many spheres rotating in oil in an annular sleeve.

clapper
bell striker, or hanging part {clapper}.

dowel

cylindrical rod {dowel}.

gasket
Soft materials {gasket}| can squeeze between two hard pieces, to prevent fluid leaks.

grommet
Metal or plastic eyelets {grommet}| can be in cloth or leather.

halyard
Flagpole hooks {halyard}| can hold flag eyelets.

kingbolt
Vertical supports {kingbolt}| can be in centers of roof trusses.

peen
hammer wedge-shaped or round side {peen}.

plat
plaited straw strip {plat, strip}.

plowshare
plow blade {plowshare, blade}.

polish
Silver, copper, or brass can oxidize {tarnish} in air. Oxidizing is faster if food acid or moisture is present.
Chemicals {polish}| {silver polish} {brass polish} {copper polish} can clean tarnish. Furniture polish or plastic spray prevents tarnish.
Chemical or abrasive can remove tarnish. Abrasives include clay, diatomaceous earth, or chalk, which mix in water or another solvent. Polishing cloths can use powdered iron oxide {jeweler's rouge} as abrasive.
Brass and copper tarnish can rub off with acetone. Dip cleaners use chemicals to remove oxides but can dull the finish.
Aluminum pot filled with hot water and detergent can clean objects {electrolytic cleaning}. Tarnish transfers to pot.

sleeve
surrounding cylinder {sleeve}|.

tappet
Roller or flat pieces {tappet} pushed by camshafts can transfer motion to valves.

PRAC>Machine>Parts>String

packthread
three-ply twine {packthread}|.

twine
String {twine}| can have more than one thread.

PRAC>Machine>Parts>Edge

bevel edge
sharp edge {bevel, edge}|.

bezel
Slanted edge {bezel} can be for cutting.

PRAC>Machine>Parts>Pin

cotter pin
To hold piece to another piece, a pin {cotter pin}|, split at end, goes through aligned holes, and then a tool bends ends outward.

hasp
Metal fasteners {hasp} can be over staples.

linchpin
Pins {linchpin}| through axle-outside holes can prevent wheels from sliding off.

mandrel
Spindles or axles {mandrel} {mandril} can hold metal to machine.

rivet
Small cylinders {rivet}, with flange on one side, can go through aligned holes of two metal sheets, and pulling one side and hammering the other holds the sheets together.

wrist pin
Pins {wrist pin}| can join piston and connecting rod.

PRAC>Machine>Parts>Bearing

bushing
Suspension bearings {bushing}| allow small rotations.

journal bearing
In bearings {journal bearing}|, shafts can turn in oil-filled sleeves, like axles in sockets.

roller bearing
Wheels can turn around axles using chambers with small lubricated spheres between them {roller bearing}|.

PRAC>Machine>Parts>Gear

gear
Rotating rollers {gear}| with notches {teeth, gear} can mesh with other gears.

cog
gear tooth {cog}|.

cogwheel
Driven toothed wheels {cogwheel}| can change speed or direction of second toothed wheels.

rack of gear
Pinions can engage larger gears {rack}|.

synchromesh
Gears can first rotate at same speed as another gear already turning {synchromesh}|, to allow optimum meshing.

PRAC>Machine>Parts>Gear>Kinds

bevel gear
Slanted gears {bevel gear}| can change rotation direction, using straight, spiral, or hypoid teeth.

pinion gear

Smaller gears {pinion}| can engage racks.

planetary gear
Spherical outer gears can engage a central gear in epicyclic gears {planetary}|, as in transmissions.

rack and pinion gear
Gears {rack and pinion gear} can have two cylinders that meet at right angles.

recirculating ball gear
Gears {recirculating ball gear} can be spheres.

spur gear
Gears {spur gear}| can attach to differentials to mediate axle gears.

wheel gear
Gears can be wheels {wheel gear}.

worm wheel
Gears can have a helix around a cylinder {worm, gear} that turns a wheel {worm wheel} that engages a groove.

PRAC>Machine>Parts>Rope

rope and knots
Ropes can have knots {rope, knot}.

PRAC>Machine>Parts>Rope>Knot

knot
Deformations cannot make circles from loops {knot, rope}| {Alexander polynomial} {HOMFLY polynomial} {Jones polynomial} {Kauffman polynomial}.

love knot
Knots {love knot} can be like ribbon bows.

PRAC>Machine>Parts>Rope>Knot>Ring

Borromean rings
Three rings {Borromean rings} can overlap, so that no pair of rings has a link but just overlaps, but the three rings cannot separate because each third ring passes through overlapped region of the other two.

link in ring
A ring can pass through another ring so the rings cannot separate {link}.

trefoil knot
Twist one ring to make loop and pass ring through loop {trefoil knot}.

Whitehead link
Twist one ring to make two loops and pass other ring through the loops so the rings cannot separate {Whitehead link}. The rings have no net linking.

PRAC>Machine>Parts>Rope>Knot>Kinds

bend knot
Knots {bend} can join two ropes at their ends.

bight knot

Rope part {bight}| can have knot.

cinch knot
To connect two loops or a loop and ring, put loop through ring or loop and then put other loop end, with object, through loop and pull {cinch knot} {clinch knot} {blood knot}.

clove hitch
To attach object to post, loop rope around post, pass under rope, and loop higher than rope {clove hitch}.

granny knot
To join ends of two ropes so they untie easily, place right-rope end over left rope and pass around and up, pass left-rope end over right rope above place where first loop is, and pass around and out to left {granny knot}.

half hitch
To link rope and post or loop, pass rope around post or loop, come back to original side, pass around rope, put rope inside loop, and pull {half hitch}.

sheepshank knot
To shorten rope, tie loop in the bight {sheepshank}.

sheet bend knot
Knots {sheet bend} can join ropes to middles of other ropes.

slipknot
To slide loop along rope, make loop, put end around rope, pass to loop inside, pass over small loop, and pass through to make knot {slipknot}.

splice knot
To permanently join ends of two similar ropes, unravel rope threads and intertwine them {splice}.

square knot
To join ends of two similar-size ropes, place right-rope end over left rope and pass around and up, pass that end over left rope above place where first loop is, and pass around and out to right {square knot}.

PRAC>Machine>Kinds

abacus calculator
Mechanical calculators {abacus, calculator}| can have columns of moveable beads on vertical rods, which go up or down for adding, subtracting, multiplying, and dividing [-3000].

compass instrument
Magnets {compass, magnetic}| on pivots can point to north magnetic pole in north Canada.

die mold
metal mold, or cube whose sides have 1 to 6 dots {die, mold}|.

dildo
wood or plastic penis-like object {dildo}.

dipstick
Rods {dipstick}| can indicate fluid levels in containers.

potter's wheel
Rotating platforms {potter's wheel} can shape clay into round objects, like pots.

salver

tray {salver}.

torpedo
Above 50 meters per second in water, water pressure is low enough to allow water vapor to make vapor cavity around object {supercavitation, torpedo}, allowing high speed {torpedo}|.

transducer
Devices {transducer}| can convert energy from one form to another, such as from electrical energy to mechanical energy. Transducers include piezoelectric crystal, microphone, photoelectric cell, and read/write head.

PRAC>Machine>Kinds>Container

can
Cans {can, tin} {tin can} can be steel with tin coating on inside. Machines seal side edge and tops by folding edges and squeezing them flat. They can make 300 cans per minute.

casket
rectangular coffin, or small jewel case {casket}.

coffin
diamond-shaped box with flat ends {coffin}, to hold dead body.

hamper
Basket {hamper, container} can keep clothes.

hod
V-shaped shoulder troughs {hod} can carry bricks or mortar.

mold as container
Hollow shape {mold, tool} can receive poured liquid plastic or metal to harden.

pannier
People can carry wicker baskets {pannier} on back.

pot
Cooking utensils {pot, cooking}| {pan, cooking} have bottoms that stay flat, have smooth finishes, and have round corners. Sides are vertical, except for omelet and crepe pans. Handles are lightweight wood or plastic.
material
Aluminum is light and heats evenly and quickly but must be thick. Steel is hard but heats slowly and unevenly. Cast iron is heavy, heats evenly but slowly, and can season. Copper is soft and heats evenly and quickly. Copper can be only on pot bottoms. Enamelware has enamel baked onto steel. Enamelware cleans easily but can chip. Earthenware can have glaze, heats slowly, and cleans easily but chips and cracks. Glassware heats slowly and cleans easily but can chip and crack. Glass {pyroceram} does not crack even under severe temperature changes.

terrarium
Closed glass containers {terrarium} can hold plants.

tinderbox
kindling box {tinderbox}.

vessel as container
cup or bowl {vessel, container}.

PRAC>Machine>Kinds>Container>Money

coffer

money box {coffer}.

till
money drawer {till}.

PRAC>Machine>Kinds>Container>Baby

bassinet
Oval infant beds {bassinet} can have legs.

layette
clothing and supplies {layette} for newborn.

PRAC>Machine>Kinds>Container>Bag

attache case
hinged-top briefcase {attaché case}.

bandbox
round box {bandbox}, for small clothing items.

ditty bag
small bag {ditty bag}.

duffel bag
large cloth bag {duffel bag}.

footlocker
small trunk {footlocker}, or metal or plastic case with hinged lid.

haversack
large shoulder bag {haversack}.

knapsack
back pack {knapsack}.

portfolio of art
painting or drawing case {portfolio, case}.

portmanteau case
Leather suitcases {portmanteau} can have a middle partition and two hinged sides.

steamer trunk
large trunk {steamer trunk}.

valise
small suitcase {valise}.

PRAC>Machine>Kinds>Container>Holder

caddie holder
holder {caddie, container}.

carboy
Large bottle in a casing {carboy} can hold reactive liquid.

PRAC>Machine>Kinds>Container>Liquid

aquarium
Fish can be in a salt or fresh water container {aquarium}.

carafe
Glass serving bottle {carafe, container} can be for wine or water.

cask
barrel {cask}.

samovar
Water boilers with spigots {samovar} can make tea. Top holds concentrated tea in a small teapot.

steam table
Tables with hot water pans {steam table} can keep food dishes warm.

PRAC>Machine>Kinds>Container>Liquid>Sewage

cesspool
covered sewage pit {cesspool}.

chamber pot
Bowls {chamber pot} in bedrooms allow people not to have to leave bed to urinate or defecate.

cuspidor
spittoon {cuspidor}.

spittoon
Metal cans {spittoon} can receive spit.

PRAC>Machine>Kinds>Container>Liquid>Laboratory

burette
Ruled glass tubes {burette} {buret} have bottom taps, for titration. Burets measure volume. One buret drop equals 0.05 milliliter.

pipette
Tubes {pipette} can have pointed end to stick in fluid and opening at other end from which to suck, for transferring small liquid amounts. Pipettes measure volume. TC pipette lets fluid run out. TD pipette is for blowing out. Transfer pipettes and volumetric pipettes force aliquot out. Pipettes include measuring pipettes, Ostwald pipettes, micropipet, and lambda pipet. One lambda equals one microliter.

retort
Rounded glass containers {retort} can heat chemicals.

PRAC>Machine>Kinds>Container>Mortar

mortar container
Concave stone {mortar, container} holds something to crush with a pestle.

pestle
Oval stones {pestle} can crush something in mortars.

PRAC>Machine>Kinds>Electric

brownout
Electricity can have lower than normal voltage {brownout}|.

filament
Incandescent bulb has wire {filament}| that resists electric current.

PRAC>Machine>Kinds>Electric>Fuse

fuse
Metal strips {fuse}| that have low melting points melt if electric current gets too high. Short circuit or device that uses too much current {overload} causes high current.

circuit breaker
If voltage becomes high enough, a spring {circuit breaker}| can open circuit.

PRAC>Machine>Kinds>Electric>Heat

electric heat
Heaters {electric heat}| can use Nichrome wire to resist electric current flow and make heat.

electric blanket
Blankets {electric blanket}| can have thin insulated-wire networks. Wires are Nichrome.

toaster
Bread browners {toaster}| have Nichrome wire on sides, sometimes wound around thin mica sheets. Lowering toast starts electric current. Timer or thermostat holds toast down, until reaching time or temperature. Spring pops toast.

waffle iron
Nichrome heating elements have iron base and iron top, to toast both waffle sides {waffle iron}|.

PRAC>Machine>Kinds>Electric>Heat>Oven

electric oven
Ovens {electric oven}| {oven, cooking} can have heating coils, or high-resistance conductors surrounded by insulators surrounded by metal, on bottom and at top {broiler, oven}. Electric-range burners use high-resistance conductor, surrounded by insulator, surrounded by metal, in a flat spiral.

kiln
drying, firing, or hardening oven {kiln}.

PRAC>Machine>Kinds>Electric>Heat>Iron

steam iron
Irons {iron, steam} {steam iron}| can have a water tank with small holes. Water drips onto soleplate top to make steam, which comes out soleplate holes to wet and then dry clothes, so they appear smooth.

soleplate
Irons have a heated flat bottom {soleplate}|.

PRAC>Machine>Kinds>Electric>Microwave

magnetron
Radar and microwave ovens have a vacuum tube {magnetron} in a magnetic field. Magnetic field rotates electron flow from hot cathode to anode. Rotation makes electron spokes that alternate on and off, at 2.45 gigahertz for microwave ovens, and resonate with an antenna that radiates microwaves.

microwave oven
Ovens {microwave oven}| can use very-high-frequency radio waves {radar wave}, from a magnetron, which heat food as water absorbs radiation. Radar waves reflect from metal, so oven stays cool. Paper and glass do not absorb radar waves much, so they stay cool. Food cooks evenly.

PRAC>Machine>Kinds>Electric>Resistor

memristor
Variable resistors {memory resistor} {memristor}| can change electrical resistance when current changes (Leon Chua) [1971], so next time it has different resistance. For example, sending high current can set resistance high and sending low current can set resistance low. Later, moderate current encounters high or low resistance, like an ON-OFF switch and so like binary 1 or 0.

varistor
variable resistor {varistor}|.

PRAC>Machine>Kinds>Electric>Switch

switch
Devices {switch, machine}| can turn current or voltage off or on.
types
Metal blade can slide into metal holder {knife switch}. Spring can make switch {snap action switch} stay in one position or the other. Snap switches can use a metal disc, which snaps from concave to convex. Half-filled tube of mercury liquid {mercury switch} can move from horizontal and closed to vertical and open. Switches can control one circuit {two-pole switch} or several circuits {multipole switch}.
circuit
Switches on stairs use a parallel circuit, and two different electrical paths can make switch be on.
safety
Perhaps, switches can be safe even when immersed. Such switches can be good in most appliances. Bakelite or other heat and current resistant, moldable material seals switch metal contacts. Wires to and from switch have watertight holders. Magnetism closes and opens switch, by moving throw inside Bakelite.
Switches can have locks to prevent young children from moving them.

relay
Switches {relay}| can use a solenoid to open and close.

toggle switch
Switches {toggle switch}| can have levers.

PRAC>Machine>Kinds>Electromechanical

doorbell
Pushing a button can send current into an electromagnet to magnetize an iron core and attract an iron clapper {doorbell}|. Clapper movement breaks electric circuit, attraction ceases, and spring pulls clapper back to resting position. For continuous button press, circuit completes again. Clapper goes back and forth, striking bells. For doorbell chimes, iron core attaches to spring. Clapper hits one metal tube when pressing doorbell button and springs back to hit other tube upon releasing button.

electric razor
Electric razors {electric razor}| have a thin perforated plate over rotating or oscillating blades, to scissor off hair that enters plate [1910].

elevator machine
Platforms {elevator, lift}| can raise and lower. Elevator cars ride in vertical guide rails.
hydraulic

Hydraulic elevators have small cages or closets at piston top, resting in cylinders filled with oil. Pump applies pressure to fluid to raise elevator and reduces pressure to lower elevator. Hydraulic elevators have speed of one floor per second.

electric

Electric elevators [1887] use an electric induction motor at top to pull cables through a pulley {sheave}. Elevator car hangs on one pulley side, and a large counterweight hangs from other side. Elevators have a brake. Switches just before floors tell electric motor to slow. Switches at floors tell motor to stop. Electric elevators allowed skyscrapers.

escalator

In moving stairs {escalator}|, separate stairs ride on two bottom wheels in a track and two top wheels in another track. The parallel tracks slope to keep stair level. At ends, a comb scoops out anything on stairs. Electric motor at stair tops connects by chain to chairs. Rubber belts loop over handrails.

garage opener

Garage opening {garage opener}| can use a radio transmitter. Garage door has a radio receiver and an electric motor.

garbage disposal

Holders {garbage disposal}|, with sharp-edged slats around lower edge, can use an impeller to crush garbage against slats. Garbage bits drain away in running cold water. Paper does not crush well. Do not grind paper, metal, and glass.

magneplane

Iron trains can ride on magnetic fields on iron tracks, using repulsion from below or attraction from above {magneplane}|.

sewing machine

Machines {sewing machine}| can sew.

needle and thread

Sewing-machine needles have an eye three millimeters from point. Thread comes from spool, through tension control knob, through needle eye. Second thread comes from different spool {bobbin}, underneath needle and material.

process

Needle enters material and goes through to bobbin. Hook snags thread and loops thread around bobbin, to make lock stitch. As needle rises, lever {thread take-up lever} pulls thread tight. The lever also pulls a length of thread from spool. After needle leaves material, a rough plate rises from below, squeezes material between plate and needle guide plate above, and pushes material forward one stitch length.

plotter

On printing devices {plotter}|, paper can scroll past a pen vibrating from electric-current waves. Time axis is along scrolling direction, and amplitude axis is across paper.

thermostat

Two metal strips, usually copper and chromium, can align side-by-side {thermostat}|. Temperature increase expands metals at different rates, and strip curls, moving a dial.

ticker tape

Telegraph systems {ticker}| can punch tape, or make similar electronic displays, to indicate stock prices and trades.

turntable

Devices {changer} {turntable}| {record player} can play one record at a time or automatically play a stack of records.

speeds

Records can turn at 16 2/3, 33 1/3, 45, or 78 revolutions per minute (rpm), to match speed at which master disc was cut.

needle

Needle holder {cartridge, record} is at one arm end, and needle rests in record groove. Pivot is on other arm {tonearm} end, for balance. Needles can be steel, sapphire, or diamond. Needle vibrates in groove and generates an electric signal.

Crystal or ceramic cartridges make electric signals by piezoelectric effect. Magnetic cartridges make electric signals by a magnet moving in a wire coil.

amplification

Wires carry signal to a device {preamplifier}, which reconverts signal to proper high and low frequency strength {equalization}, not needed for ceramic cartridges. Preamplifier has knobs to control loudness {volume control}, high frequencies {treble control}, low frequencies {bass control}, and loudness between two stereo speakers {balance, speaker}.

speaker

Amplifiers increase signal power and send signals to a solenoid connected to a paper cone {speaker, audio} {loudspeaker}. Speakers are typically the least-accurate music-system part, so they are the most-important part.

sound

Electrical-signal shape can change {sound, distortion}. High fidelity limits total distortion to less than 15%.

Sound-frequency range has a loudness range {frequency response}. Loudness is in decibels. A three-decibel difference doubles loudness. Humans can detect a one- decibel difference.

PRAC>Machine>Kinds>Electromechanical>Calculator

adding machine

Adding machines {adding machine}| can be for adding, subtracting, multiplying, dividing, and other algorithms. Adding machines have gears, which engage in sequences depending on selected numbers and functions.

differential analyzer

Old calculating devices used mechanical gears and shafts to solve differential equations {differential analyzer}| [1830].

PRAC>Machine>Kinds>Electromechanical>Spark

spark coil

induction coil {spark coil}|.

spark gap

Spark traverses air or dielectric {spark gap}| between two conductors.

magneto

To spark sparkplugs {magneto}|, a rotating magnet generates voltage.

PRAC>Machine>Kinds>Electromechanical>Centrifuge

centrifuge

Spinning cylinders {centrifuge}| can hold tubes with fluid, so denser parts sink to tube bottom.

ultracentrifuge

Centrifuges {ultracentrifuge}| can spin at 100,000 rpm.

PRAC>Machine>Kinds>Electromechanical>Washer

dishwasher

Dish washing machines {dishwasher}| can use spinning hot-water jets to splash dish racks.

washing machine

Machines {washing machine}| can have a tub within a tub. Water enters outer tub until timer switches water off, or float-control rises enough, to close inlet valve. Motor attaches to finned central piece {agitator, washer}. Agitator turns back and forth, using a linkage. Electric timer controls wash-rinse-spin cycle, which uses a camshaft and cams to depress switches. A pump drains water from tub.

PRAC>Machine>Kinds>Electromechanical>Fan

fan
Fans {propeller-type fan} can cut air at an angle and push a spiral air wedge straight in front of fan blade. Propeller fans {fan} can move back and forth, using a crank linked to motor. Fans {centrifugal fan} can use a paddle wheel {impeller} in a casing, pull air in at center, and push air out straight.

compressor
To compress {compressor, air}| {air compressor}, a pump fans air into a sealed tank, thus building pressure. Sealing pump and fan prevents leaking air.

dryer
To dry clothes {dryer}|, a large drum turns on side using an electric motor, while a fan blows heat from gas flame or electric coils through drum holes. Air goes out exhaust flue, through filter to catch lint. For exhaust that must stay inside building, cold water pipes receive exhaust, and water and lint condense on pipes and drain away together.

hair dryer
To dry hair {hair dryer}|, an electric motor runs a fan that blows air over heater-coil Nichrome wire.

vacuum cleaner
To sweep {vacuum cleaner}|, a fan causes vacuum, which sucks up dust into a filter.

PRAC>Machine>Kinds>Electromechanical>Mixer

blender
Small propellers can suck liquid down, drawing air and food into turning blades {blender}|. Sealed propeller shaft prevents leaking.

mixer machine
Household machines {mixer, machine}| {electric mixer} can use two beaters turned by an electric motor. Beaters cross each other's path, without touching, and suck air into turning liquid.

PRAC>Machine>Kinds>Electromechanical>Generator

alternator
Machines {alternator}|, opposite of generators, can create direct current.

dynamo
generator {dynamo}|.

slip ring
Metal rings {slip ring}| can have alternating conducting and insulating regions and transfer electricity to or from rotor in alternators and motors.

van de Graaf generator
Moving-belt friction can create static electricity of more than one hundred thousand volts {van de Graaf generator}|.

PRAC>Machine>Kinds>Electromechanical>Cooling

air conditioner
In cooling devices {air conditioner}|, a pump {compressor, air conditioner} compresses hot Freon or other easily liquefied gas. As fan blows air from outside, or water, goes, over small tubes, gas cools, and so liquefies. Then liquid goes through a tiny opening {constriction}, causing gas to expand and thus cool. Cool gas passes through tubing coils, through which fan blows room air. Room air heat passes to cool gas, which then compresses to start cycle again. Air conditioners have ratings, in British Thermal Units (BTU), of how much heat they can remove from air.

freezer
Refrigerators {freezer}| can be colder.

refrigerator
Cooling devices {refrigerator}| can remove heat from inside a box. Refrigerators use a gas, such as Freon, which easily liquefies with pressure. The liquefied gas in tubes inside box absorbs heat and expands. Machines {compressor, refrigerator} can compress hot gas back to liquid and send liquid through tubes outside box. A blower blows air over tubes to remove heat.

PRAC>Machine>Kinds>Electronic

guidance system
Inertia of freely mounted gyroscopes {guidance system}| preserves space orientation and so moving-object coordinates. Computers can use the reference coordinates to control object position and motion in space.

pacemaker device
Machines {pacemaker device}| can be implants near heart and provide regular signals to heart muscles, helping ensure regular heartbeats.

resonator
In particle accelerators, chambers {resonator}| have oscillating electromagnetic fields to accelerate particles.

switchboard
At automatic telephone exchanges {switchboard}|, dial signals activate switches that create a circuit between dialing and dialed telephones. At manual telephone exchanges, operator operates switches.

teletype
Machines {teletype}| can receive electronic signals and type automatically, and can send electronic signals after people type.

PRAC>Machine>Kinds>Electronic>Amplifier

amplifier
Electronic devices {amplifier}| {vacuum tube} {electron tube} can increase electric current.
tube
Vacuum tubes have a cathode emitter, anode collector, and zero to three positively charged screens. As it heats, cathode emits electrons {thermionic emission, amplifier}. Anode attracts electrons. Electric current flows from cathode to anode. Positive-charge electrodes {grid, vacuum tube} between cathode and anode attract electrons, to increase signal strength. Electric-signal wave frequencies do not change. Only amplitude increases.
solid state
Solid state transistor amplifiers have negative electrode transmitter and positive cathode collector, with positive electrode base between them. Current flows from transmitter to collector, as base attracts electrons, amplifying current.

regenerative receiver
The same vacuum tube or transistor {regenerative receiver}| can amplify an electric signal many times.

PRAC>Machine>Kinds>Electronic>Light

ionizer
When ultraviolet light strikes a metal plate {ionizer}|, electrons leave and can ionize other molecules. Alps Mountains and radioactive spas naturally have negative ions. People suppose that negative ions promote health, and positive ions result in fatigue, headache, dizziness, and respiratory problems.

solar cell
Cells {solar cell}| can have materials that transform light into electricity directly, with ten percent efficiency. Solar cells cannot store energy.

PRAC>Machine>Kinds>Electronic>Light>Ray

burglar alarm
Alarms {burglar alarm} can use ultraviolet light, which reflects from windows and doors. If reflectors move, light-path interruption sounds alarm.

electric eye
Door sensors {electric eye}| can use a collimated light source on one side and a vacuum tube {phototube} on other side. Tube has a half-cylinder plate {cathode, electric eye} that emits electrons when light hits. Electrons travel to other electrode {anode, electric eye}. Breaking light path signals a relay to open door.

maser
Lasers {maser}| can use microwaves.

PRAC>Machine>Kinds>Electronic>Light>Wave

kinescope
cathode-ray tube, or filmed TV program {kinescope}.

orthicon
In an old process {orthicon}|, light hits a surface to emit electrons, electrons focus on a target, and target emits electrons that carry image signal from camera to television set.

radar
Machines {radar}| can use a magnetron to emit radio waves and then receive wave reflections, to determine speed and position by Doppler effect.

radio frequency identification tags
Antennas {radio frequency identification tags}| (RFID) attached to circuits can activate by magnetism or radio waves. RFID are in tollbooth signalers and security systems, to identify. In low-frequency systems activated by magnetism, circuit resistance becomes high or low by turning transistor on and off, generating a magnetic field in tag {load modulation}. In high-frequency systems activated by radio waves, turning transistor on and off causes tag dipole antenna to reflect or absorb radio waves {backscatter modulation}.

radio machine
Receivers {radio, machine}| can convert electromagnetic radio waves with frequency range near 10^-6 Hz to electric current. Radio waves carry sound information in frequency modulation (FM) or amplitude modulation (AM). An adjustable LC circuit {tuner} selects radio-station frequency. A circuit {filter, electronic} removes radio-station carrier frequency and leaves sound vibrations that ride on carrier wave {demodulation}. A tube or transistor amplifier increases amplitude. Speakers change electric current into sound, by vibrating an inductance coil attached to a paper cone.

television
Devices {television}| can display pictures and sound.
parts
A glass vacuum cathode-ray tube has an electron emitter {electron gun} at pointed end and a flat front surface coated by chemicals {phosphor} that glow after being struck by electrons.
scanning
Electromagnets outside tube direct electron paths horizontally and vertically. A single electron beam moves row by row across screen and covers whole screen once every 1/30th second.
brightness
A positive electrode controls electron stream from electron gun. Beam can be more or less to make picture lighter or darker {brightness control}. Another positive electrode {contrast control} controls difference between light and dark areas.
controls

Side electromagnets can shift picture horizontally {horizontal control} or vertically {vertical control}.

synchronization

TV signals contain synchronizing signals, so TV cameras and home TVs sweep scene at same rate. TV sound is broadcast separately from picture on FM radio.

frequency

TV has higher frequencies than radio: very high frequency (VHF) or ultra high frequency (UHF).

touch screen

Elograph (George Samuel Hurst) had electrically sensing coordinates on a computer screen {touch screen}| [1971]. Screens later had a transparent surface [1974]. Today, screens use five-wire resistive [1977], surface acoustic wave, or capacitive technology.

vidicon

To make images {vidicon}|, an electron beam can scan an image to find point intensities.

PRAC>Machine>Kinds>Electronic>Sound

earphone

Small speakers {earphone, speaker}| have electric-current waves that vibrate a thin plastic disc using piezoelectricity.

microphone

Receivers {microphone}| can change sound to electric current. In some microphones {ceramic microphone}, sound pressure makes voltage in a crystal {piezoelectric effect}. In some microphones {dynamic microphone}, sound pressure moves a magnet unidirectionally or omnidirectionally in a magnetic field.

nickelodeon

Dropping a nickel into a machine {nickelodeon}| can select a record, put it on a record player, and start the record player.

records

To make sound-system media {records}, microphones can detect sound and make voltage changes that cause a pointed needle to vibrate sideways and cut a plastic disc {recording music}. Plastic discs are soft wax-like material and turn like a record as needle vibrates. Signals can make larger groove widths for high frequencies and smaller groove widths for low frequencies. Machine uses plastic disc to make a metal mold {master}. A press pushes soft vinyl into mold to make a disc.

remote control

TV remote controls {remote control}| use ultrasound tuning forks at 40,000 Hz. TVs have a microphone to convert sound waves to electric-current waves.

sonar machine

Machines {sonar, detector}| can emit sound waves and receive wave reflections, to determine speed and position by Doppler effect.

speaker

Electric voltage and current waves can go to a solenoid connected to a paper cone {speaker, electronics}|. Waves vibrate solenoid, and vibrations vibrate paper cone to generate sound. Speakers {bass reflex speaker} can have compartments, with a hole to outside. Speakers {air suspension speaker} can be airtight. Speakers {reflecting speaker} can send sound straight in front and reflect sound off walls. Speakers can be for bass {woofer}, middle {mid-range}, and high {tweeter} frequencies.

squawk box

Telephone speakers {squawk box}| can be on trading floors to alert brokers.

stereo system

To record sound {stereo system}| with spatial effects, two microphones, two meters apart, record on two tracks. Two speakers, two meters apart, play back sounds recorded by microphones. Input signal can come from record-player vibrating needle, laser light reflecting from CD, or changing magnetic field from tape-recorder tape head.

tape recorder

Cellulose acetate or Mylar ribbon {videotape} {audiotape} has an iron-oxide or cobalt-oxide coating. Ribbon passes over an electromagnet {magnetic head} {head, tape recorder}, of size 10^-3 square inches, at 1 7/8, 3 3/4, 7 1/2, or 15 inches per second. Recording head uses magnetic field to change coating magnetism pattern on tape {tape recorder}|. Tape magnetism pattern induces a magnetic field in receiving head, which makes an electric current. Demagnetizing heads use a random magnetic field to erase tape.

PRAC>Machine>Kinds>Electronic>Sound>Telephone

telephone

Devices {telephone}| can receive and transmit human speech sounds. After two telephones are on a circuit, direct current from telephone-central-office batteries flows through circuit.

microphone

Microphones {mouthpiece, telephone} can be a round box filled with powdered carbon, covered by a flexible diaphragm. Sound compresses diaphragm and carbon, to change carbon electrical resistance and make waves in electric direct current.

speaker

Speakers {earphone, telephone} can have an electromagnet and metal diaphragm, which current waves vibrate.

wire

Telephones use three wires: one to electrical ground, one for telephone line, and one for ringing line.

dialing

Dialing telephones activates relay switches that select correct wire pair to connect to dialing telephone. Dialing then activates ringing circuit. When other telephone answers, telephone-line circuit is complete. If other telephone line is already in use, the dialing process sends a busy signal.

receiver of telephone

People talk and listen at a telephone combined microphone and speaker {receiver, telephone}.

vocoder

Compression algorithms {vocoder}| {voder} can make voice sounds into coded signals.

PRAC>Machine>Kinds>Electronic>Calculator

calculator

Calculators {calculator}| {electronic calculator} can be for adding, subtracting, multiplying, dividing, and other algorithms. Electronic calculators store binary numbers in diodes in electric circuits. Arithmetic operations select different circuits to process signals.

Calculators use a metal-oxide semiconductor chip with 28 terminals, four for keyboard, eight for display, eleven for scan lines, one for clock, and three for power.

A timing mechanism at 250,000 cycles per second synchronizes input from display and keyboard, using scan lines. Diodes and keyboard functions can only activate if scan line is on.

computer

Programs can control switching devices {computer}|. Computers are general symbol manipulator.

parts

Computers have a clock, display or printer, registers, adder-subtractor, controller, and program reader. Registers are for display, operand, accumulator, flag, address, and instructions.

functions

Computers have memory, workspace for results {accumulator}, workspace for instructions {instruction register}, arithmetic functions, functions for moving data to and from memory, and logical functions. Computers {von Neumann machine} can perform serial operations using functions, instructions, and accumulator. Serial von Neumann machines can simulate parallel operations, and vice versa.

Machines can duplicate critical functions, have self-repairing abilities, use distributed processing, have independent modules with limited interactions, and use a hierarchy from low-level functions to one high-level function.

error

Computers can have failures {glitch} with unknown causes, usually in flip-flop circuits. Computers can fail to work {down, computer}.

process

Computers can receive physical stimuli and code, store, retrieve, and transform information {computation} {information processing}. Storing and transferring algorithms have timed steps in sequence, typically with logical branches. Algorithms typically have "IF A, THEN B" statements. Computer determines if A is true and then performs B. Algorithms typically have loops: FOR i FROM m TO n, DO x. If value of i is between m and n, computer performs x. That operation changes i. Then computer checks value of i again. Algorithms perform reasoning, mathematical operations, and language processing. They can output information as scripts, images, lists, or tables.

coding

Digital computers typically store and transfer information as positions that can have one of two states {binary coding}.

digital computer

Computers {digital computer}| can use electronic circuits to perform algorithms on numbers, using electrical binary codes to represent numbers and logical operations. ENIAC was first digital computer [1946].

hybrid technology multithreaded

Computers can perform more than one process simultaneously {hybrid technology multithreaded}| (HTMT).

quantum computing

Entangling many particle states allows solving factoring and other iterative problems {quantum computing}|. Light or particle wave superposition and interference can extract features, as in holograms and database queries.

topology

Topological quantum computing involves topological qubits. Paired excitations in a two-dimensional electron gas {anyon} have world lines that can braid to change topological properties. Knot invariants and quantum two-dimensional surface evolution over time are equivalent. In three dimensions, particles must be fermions, whose wave functions invert when fermion pairs interchange, or bosons, whose wave functions do not change when boson pairs interchange. In two dimensions, particle wave functions can show complex phases when particle pairs interchange. Spin interchanges can be clockwise or counterclockwise. If interchange results in same state, change is Abelian. Topological quantum computing must be non-Abelian to make distinct braids.

Thermal effects can create extra anyons, so temperature must be near 0 K. Larger computers can keep anyon pairs farther apart and at longer distances, to reduce spurious interactions.

quantum dot

Nanometer-size semiconductor crystals {quantum dot}| can change size or properties.

read-only memory

Memories {read-only memory}| (ROM) can stay constant and be only for input.

totalizer

timer {totalizer}|.

PRAC>Machine>Kinds>Electronic>Effects

broadband

Code in cables can be in a large frequency range {broadband}|.

cross talk

Two nearby wires can exchange signals {cross talk}|.

degaussing

Demagnetizing {degaussing}| randomly aligns magnetic fields.

gain amplification
Amplifiers can increase current or voltage {gain}|.

high fidelity
Sound systems can have less than 15% distortion {high fidelity}| {hi fi}.

Schottky barrier
Interfaces between metal and semiconductor have resistance {Schottky barrier}|, when voltage forces electrons into semiconductor from wire.

wideband
Code can be in a large frequency range {wideband}|. Systems {wideband code-division multiple-access} (WCDMA) can divide code into streams and send directional signals.

wi-fi
Wireless transmission {wi-fi}| can be digital.

wireless broadband
Broadband information channels {wireless broadband}| can carry megabytes of information per second. Wireless uses 802.11 technology.

PRAC>Machine>Kinds>Electronic>Effects>Multiplexing

multiplexing
Signal channels can have different-wavelength signals {multiplexing, electronics}.

heterodyne
Two radio signals at different frequencies can mix to make a beat frequency {heterodyne}|, for amplitude modulation.

superheterodyne
Edwin Armstrong [1918] invented a Supersonic Heterodyne Receiver to convert a selected radio frequency, for amplification and filtering {superheterodyne}| {superhet}.

wave division multiplexing
Optical channels can have different-wavelength signals {wave division multiplexing}| (WDM).

PRAC>Machine>Kinds>Electronic>Parts

field-effect liquid crystal
Electronic number displays {field-effect liquid crystal}| can use crystals that are transparent or opaque if unpolarized or polarized by applied electric field.

interferometric modulator
Electronic number displays {interferometric modulator}| (IMOD) can use two mirrors that can vary separation and so cause constructive interference at one color.

nanowire
Microscopic wires {nanowire}| can be erbium silicide or titanium. A right-left wire layer can be over an up-down wire layer {cross bar memory}. At intersections is a rotaxane monolayer, which changes resistance at high positive or negative voltage, used to write memory, and maintains resistance at intermediate voltages, used to read memory. Nanowires can make field-effect transistors. Silver-sulfide ions can act as switches. Ferroelectric thin films can move defects. Molecules can make transistors for single electrons. Nanowires can oxidize and reduce.

waveguide

Wires guide electric waves, and optical fibers {waveguide}| can guide light waves.

PRAC>Machine>Kinds>Electronic>Parts>Chip

integrated circuit
Small silicon wafers {chip} {integrated circuit}| can have etched circuits of semiconductor transistors, resisters, capacitors, and diodes. Number of transistors doubles every one and a half to two years {Moore's Law}.

application-specific integrated circuit
Integrated circuits {application-specific integrated circuit}| (ASIC) can have fixed logic blocks programmed in one configuration.

digital light processing
Light processing {digital light processing}| (DLP) can use a chip with thousands of micromirrors, to deflect colored light from a spinning color wheel.

field-programmable gate
Integrated circuits {field-programmable gate array}| (FPGA) can have programmable logic blocks.

microelectromechanical system
Machines {microelectromechanical system} (MEMS) can have small mechanical and electronic parts. Silicon cells can move surfaces electrically.

nanofluidic transistor
Transistors {nanofluidic transistor}| can control ion flow in microscopic silica tubes.

printed circuit
Boards {printed circuit}| can have copper conducting pathways on one side and holes into which to solder circuit elements to conductor on other side. Film emulsion can cover board, negative of desired pattern goes on, camera photographs board, and negative develops. Silver is on conductor pathways. Electroplating puts copper on board.
Board can have a copper layer and a film emulsion that resists acid. Negative goes on, camera photographs board, and negative develops. Acid etches copper away. Then emulsion washes away, leaving copper pathways.

processor-in-memory
Memory and logic can be on same chip {processor-in-memory}|.

thin-film integrated circuit
Chips {thin-film integrated circuit}| can have small lasers, prisms, lenses, and switches to move light instead of electrons. More information can travel in light than in electrons, because light frequency is 10,000 greater than electron current frequency.

PRAC>Machine>Kinds>Electronic>Parts>Sink

sink
Materials {sink}| can absorb heat or electrons. Kitchens and bathrooms have basins to receive running water.

heat sink
Large metal masses {heat sink}| can absorb heat.

PRAC>Machine>Kinds>Electronic>Parts>Tube

triode
vacuum tube or transistor {triode}|.

vacuum fluorescent tube
Electronic number displays can use small cathode-ray tubes {vacuum fluorescent tube}|.

PRAC>Machine>Kinds>Engine

choke
Valves {choke}| can allow more gasoline into engines at startup.

cowling
Engines can have removable covers {cowling}|.

flameout
After engine turns off, last burning fuel can exit in exhaust {flameout}|.

flywheel
A heavy wheel {flywheel, inertia}| can connect to an axle or crankshaft, spread power bursts in engine, and store energy. Most mass is on outer rim.

Otto cycle
In first phase {intake}, piston goes down to cause vacuum and draws mixture into cylinder through intake valve. In second phase {compression phase}, piston compresses gases as it goes up. In third phase {ignition and expansion}, spark plug fires, and gases burn and expand to push piston down. In fourth phase {exhaust phase}, piston forces exhaust gases out exhaust valve as piston comes back up. Then the four phases repeat {Otto cycle}.

supercharger
Engines can have a fan {supercharger}| that blows air and/or fuel into cylinders, rather than delivering fuel only by suction.

thermal reactor
Exhaust-control devices {thermal reactor} can reduce hydrocarbons and carbon monoxide by burning.

PRAC>Machine>Kinds>Engine>Governor

fail-safe
Engine governors or processes turn device on or off to maintain safe conditions {fail-safe}|.

governor
Devices {governor, machine}| can regulate steam-engine rotation velocity.

PRAC>Machine>Kinds>Engine>Kinds

engine
Engines {reciprocating piston engine} {engine} can have pistons that move up and down in cylinders. Fuel is gasoline, kerosene, methanol, natural gas, or hydrogen.

external combustion engine
External combustion engines {external combustion engine}| {Stirling engine} can use two pistons at ends of one cylinder. Stationary fine-metal heat exchanger {regenerator, heat} cycles heat between pistons. Combustion supplies heat to heat exchanger, to expand vapor. Colder-side piston forces vapor through regenerator, to expand vapor and push other piston. Other piston then becomes colder piston, and cycle repeats. Stirling engines are more efficient than steam engines.

internal combustion engine
Engines {internal combustion engine}| can burn fuel inside cylinders. Fuel goes from fuel tank into a chamber {carburetor}, where it mixes with air. Piston engines use Otto cycle. Piston engines have four, six, eight, or twelve cylinders.

magnetohydrodynamics

Combustion can create ionized gas, which flows past wire coils to magnetically create electrical current {magnetohydrodynamics}| (MHD).

rotary engine
Internal combustion engines {rotary engine}| {Wankel engine} can have three chambers in a cylinder and a rotary piston. Chambers use Otto cycle. Rotor is on an eccentric shaft. Cooling elements are at rotor tips.

steam engine
External combustion engines {steam engine}| can continually burn fuel in an open chamber to heat water into vapor. Expanding vapor enters a cylinder and pushes piston, which connects to crankshaft. Force rotates crankshaft, and crankshaft returns piston to cylinder top, to start cycle again {reciprocating piston}.

stratified charge engine
Engines can have auxiliary burning places for compressed gases {stratified charge engine}.

traction engine
Locomotives {traction engine}| can operate off tracks.

PRAC>Machine>Kinds>Engine>Kinds>Turbine

turbine
Machines {turbine}| can have rotating blades turned by falling water or fuel combustion.

steam turbine
Steam from boiler can spin turbine blades {steam turbine}|.

PRAC>Machine>Kinds>Engine>Kinds>Diesel

diesel engine
Internal combustion engines {diesel engine}| can have no spark plugs and no carburetor. Fuel squirts into cylinder {fuel injection}. Compression is so high that fuel ignites without spark. Diesel engines use Otto cycle.

homogeneous-charge compression-ignition engine
Premixed fuel and air can explode by pressure in low-temperature, clean-burning internal-combustion diesel engine {homogeneous-charge compression-ignition engine} {HCCI engine}.

PRAC>Machine>Kinds>Engine>Kinds>Jet

pulsejet engine
Repeated internal combustion bursts can push out hot gas {pulsejet engine}|.

afterburner
Jet engines have a second combustion chamber {afterburner}|, where remaining fuel burns.

gas turbine
In jet engines {gas turbine}| {jet engine}, burning gas can expand through many thin-bladed propellers {vane, propeller} {propeller vane}, to rotate shaft. Shaft rotates fans to pull in air to mix with fuel. Gases leave through engine rear {exhaust manifold, gas turbine}.

reaction engine
Jet or rocket engines {reaction engine}| can emit high-speed gases backward.

PRAC>Machine>Kinds>Engine>Kinds>Jet>Ramjet

ramjet engine
Turbojet engines {ramjet engine}|, with no compressor or turbine, can use only air from forward motion.

scramjet engine
Ramjet engines can operate only at supersonic speeds {scramjet}.

PRAC>Machine>Kinds>Engine>Kinds>Rocket

rocket
Chamber burns oxygen and fuel mixture and sends hot gas out small opening in rear to propel object {rocket}| forward.

retrorocket
Rockets {retrorocket}| can fire in opposite direction to slow object.

PRAC>Machine>Kinds>Engine>Linkage

draglink
Two engine-shaft cranks can connect {draglink}| {drag link}, so they turn together.

piston rod
Piston connects to crankshaft by metal rod {piston rod}|.

rocker arm
Internal-combustion-engine lever {rocker arm}| pushes valve.

PRAC>Machine>Kinds>Engine>Linkage>Rotation

crankshaft
Devices {crankshaft}| can convert back-and-forth motion into rotary motion, opposite of pitman.

pitman
Devices {pitman}| can convert rotary motion into back-and-forth motion, opposite of crankshaft.

PRAC>Machine>Kinds>Engine>Sound

knock in engine
Engines can emit metallic taps {knock, engine}| if they fire too early or late.

ping in engine
Engines can emit metallic rings {ping}| if fuel is too volatile so it fires too early.

PRAC>Machine>Kinds>Transmission

transmission
Gears {transmission}| can exchange power for distance or distance for power. Engines have highest power at 3000 to 4000 revolutions per minute.

automatic transmission
Transmissions {automatic transmission}| can shift automatically after reaching specific speeds. In park, wheels lock. In neutral, automatic clutch does not engage. Forward gears can be low, drive 1, drive 2, drive 3, and overdrive. Reverse gear is the same as low gear but goes backward.

clutch
Devices {clutch}| can engage and disengage transmissions. A foot pedal connected to a spring presses discs {clutch plate} against a crankshaft extension that also has plates. Pedal depression overcomes spring, and plates move apart. Automatic transmissions have a fluid clutch, inside transmission.

differential in transmission
Drive shaft goes to bevel gears {differential, transmission}|, which can have different ratios as wheels turn corners, to prevent tire squealing and control loss. The five bevel gears are: one for axle halves, one on drive shaft end, one large free spinning gear touching other gears, and one gear parallel to axle and attached to large gear and axle gears. Gear parallel to axle is stationary when moving straight-ahead but turns while turning, so one half-axle can rotate more than other half-axle. Differentials {limited slip differential} can allow only some turning and then disengage.

manual transmission
Transmissions {manual transmission}| can have gears on drive shaft and gears on engine shaft. When clutch is in, drive-shaft gears can slide over engine-shaft gears to select power-distance ratio, which is close to 1:1 for first gear and 1:4 for highest gear.

overdrive
Transmissions can have a gear {overdrive}| with high ratio, to allow better gas mileage at higher speeds.

tie rod
Frame rods {tie rod}| can transmit tension. Tie rods transmit motion to front axles of front-wheel-drive automobiles.

torque converter
Automatic transmissions have barriers {stator, barrier} that point fluid at output rotor to increase torque {torque converter}| but decrease rotation and add heat.

PRAC>Machine>Kinds>Mechanical

brake
To stop car {brake, vehicle}|, an asbestos pad rubs against a metal disk {disc brake} or cylinder {drum brake}. Brake pedal pushes piston into cylinder {master cylinder}, forcing oil {brake fluid} into tubes to wheels. Tube ends at wheels have a small piston in a cylinder. Piston connects to a brake part {brake shoe} that holds the pad. Pressure forces shoe against brake drum or disc.

dragline
Surface-mining excavators {dragline}| remove soil and rock over mineral deposits {overburden}, using buckets on booms.

drill press
Drills {drill press}| can use pressure and tip cutters, to make holes.

hardware
tools, equipment, fasteners, and materials {hardware}.

harrow
soil pulverizer and/or smoother {harrow}|.

hatching
ridge grid {hatching}|.

megaphone
Cones {megaphone} can direct and amplify voice.

nose cone
Space vehicles that return to Earth have a front heat shield {nose cone}|.

pile driver
A heavy weight can drop {pile driver}|, to force a rod into ground.

piton

Metal spikes {piton}| can have an eye to attach rope.

plumb bob
A weight {plumb bob} can hang by string from a point, to measure vertical.

quoit
iron or rope ring {quoit}.

ripcord
Parachutes have a rope {ripcord}|, pulled to open parachute.

servomechanism
Devices {servomechanism}| can be part of feedback loops, so machines automatically adjust or turn on or off.

sheathing
Protective coverings {sheathing, cover}| can be around or over objects or buildings.

shirring
cloth rows {shirring}.

shock absorber
Vehicles have pistons in tubes that push oil through small openings to dampen motion {shock absorber}|.

stenotype
Machines {stenotype}| can have special keyboards for stenographers, such as court reporters or closed captioners, to type shorthand.

subassembly
Devices can have subdevices {subassembly}|.

suspension bridge
Bridges {suspension bridge}| can use two tall towers as posts. Giant cables, woven with many steel wires, go from one side, over first post, down to middle, up over second post, and down to other side. Straight cables hang from the giant cables to hold roadway.

tongue and groove
Boards can have groove on one board edge and ridge on other edge {tongue and groove}| {dressed and matched}, so tongue and groove mesh, as in hardwood floors.

treadle
Roadway pressure-sensitive stripes {treadle}| count number of vehicle axles and speed and direction.

ultrasonic cleaner
Ultrasound waves cause fluid compaction and rarefaction {cavitation, cleaning}, which cleans objects by pressure {ultrasonic cleaner}|.

vernier
Scales can have a small movable scale {vernier}| that slides along main scale and indicates fractions.

widget
small mechanical device or controller {gadget} {widget}.

winepress
Presses {winepress}| can crush grapes under cool pressure, to obtain juice.

PRAC>Machine>Kinds>Mechanical>Effects

milling
grinding {milling}.

pipefitting
joining pipes {pipefitting}|.

PRAC>Machine>Kinds>Mechanical>Effects>Forging

forging
hammering {forging}|.

drop forging
Falling drop forge half-die hits hot metal in stationary anvil half-die {drop forging}|, to make crankshafts, axles, and other large items.

PRAC>Machine>Kinds>Mechanical>Household

churn
Upright cylinders {churn}| can hold cream, and turning or raising and lowering a paddle makes butter or buttermilk.

cigarette lighter
A rough metal wheel scrapes against flint {cigarette lighter}|. The spark created lights lighter fluid or compressed butane. A glass fiber wick sucks lighter fluid. Compressed butane expands and vaporizes through tiny hole.

curtain
Draw curtains {curtain}| can use one string loop {drapery pull}. String lies in traverse rods. Loop attaches to right-hand curtain at top left and attaches to left-hand curtain at top right. Loop goes around pulley at curtain ends. Curtain hangs from holders in sliding rod. First holder pushes other holders back when curtain opens and spreads other holders out when curtain closes.

divining rod
A forked stick {divining rod} can be for locating underground water sources.

ferule
Rulers {ferule} can strike children.

hobbyhorse
rocking horse {hobbyhorse}.

lanyard
Braided necklaces {lanyard} can be for hanging a key or whistle.

metronome
Instruments {metronome}| can sound a frequency.

pacifier
Babies can suck small rubber bulbs {pacifier}.

razor
Razors {razor}| {straight razor} can have a blade with concave sides {hollow ground edge}. Leather straps {strop} can smooth edges. Razors {safety razor} can have plastic bars, which rest on face to prevent blade from gouging skin.

safety glasses
protective goggles {safety glasses}|.

shoetree
Shoe-shaped inserts {shoetree} can stretch shoes.

shoofly
Feathers {shoofly} can blow away flies.

slide rule
A logarithmic scale on a moving piece can move past a logarithmic scale on a stationary piece {slide rule}|, to add exponents to perform multiplications or multiply exponents to raise numbers to power.

snuffer
Metal cones {snuffer}| on rods can extinguish candles.

staff as pole
walking pole {staff, pole}.

Thermos bottle
Bottles {Thermos bottle}| can have two glass layers, with vacuum between. Glass layers have silvered surfaces facing each other, to reflect heat. Glass bottle attaches to container with rubber supports. Foam rubber, or plastic with many small compartments, is in ice buckets, refrigerators, and freezers.

thimble
Cylindrical cones {thimble}| can have textured tops and push needles through cloth.

treadmill
Conveyor belts {treadmill}| can roll as people walk.

tuning fork
Metal forks {tuning fork}, with two long tines, can resonate at one frequency.

typewriter
Devices {typewriter}| can print letters.
roller
A roller {platen} can rotate to move paper forward and back. Roller can slide back and forth, to allow typing anywhere on line.
process
When a key depresses, a lever moves type bar onto paper on platen. Shift key raises or lowers type bar to allow uppercase or lowercase letters to strike. Levers have angles so keys hit at same position. Depressing a key can rotate a wheel of raised letters into position for a hammer to strike from behind. Depressing a key can rotate a ball of raised letters into position for pressing against platen.
slide
When type bar, wheel, or ball returns to normal position, it hits a release lever that springs platen one space to right.

vise
A movable plate can squeeze against a stationary plate {vise}|, to hold object.

washboard
Ridged boards {washboard}, can rub clothes when washing.

PRAC>Machine>Kinds>Mechanical>Household>Zipper

zipper
Slide fasteners {zipper}| [1890 to 1913] can have sliders that guide hooks into each other, at bottom. Slider top goes over zipper ribs, on hook outer edges, to line up hooks on inside.

Velcro zipper
Velcro uses two tapes {Velcro zipper}|. One tape has many small plastic hooks. The other tape has loops.

PRAC>Machine>Kinds>Mechanical>Household>Pencil

pencil for writing
Anthracite coal subjected to high electric current makes soft carbon graphite. Graphite mixed with water and clay goes through holes in a steel plate. An oven dries and bakes the graphite rods. Machines apply wood covers {pencil, writing}|.

pencil sharpener
To sharpen pencils {pencil sharpener}|, hold pencil by hand or pincers in a tube. Handle goes to wheel with gear teeth inside and with tube to hold pencil. Two rollers are on opposite tube sides, in a V shape, with point at handle end. Rollers have gears that engage wheel. As handle turns, rollers and tube rotate. Helical edges on rollers peel off a thin wood layer.

PRAC>Machine>Kinds>Mechanical>Inclined Plane

inclined plane
Flat surfaces at angles to horizontal {inclined plane}| can allow lifting loads over longer distances, instead of straight up, requiring less force. Inclined-plane angle is in degrees or is ratio of height above horizontal to distance along horizontal.

screw as plane
Inclined planes can wind around axes {screw}|. Most screws are right-handed and screw in clockwise.

corkscrew
Helices {corkscrew}| can screw into corks. A lever pushes down on bottle top to pull out cork.

PRAC>Machine>Kinds>Mechanical>Lever

lever
Bars {lever}| can apply force to a point at one end, using movement over long distance at other end. Bar rotates around bar point {fulcrum} near force end, where it contacts a fixed object. Crowbars are levers.

boom
Long rods or structures {boom, crane}| can hold loads.

cantilever
Bridges can use two large triangular, or diamond-shaped, steel frameworks {cantilever}|. Cantilevers balance on posts. Frameworks meet at bridge center.

crowbar
Bars {crowbar}| {wrecking bar} can have wedges at one end and hooks with a claw foot at other end.

balance for weighing
Balances {scale, weighing} {balance, scale}| can have V-shaped or horizontal beams, with pivot points at center and two pans at ends {weighing, scale}. Scales {pendulum scale} can pull against a pair of weighted pendulums. Balances {pan balance} can have pans. Balances {steelyard} can have one pan and a movable weight {poise, balance}, which can slide along a horizontal arm. Balances {platform weigher} can allow object to be anywhere on platform, because platform parallel linkage always keeps platform horizontal. Platforms can be on springs or have a steelyard.

PRAC>Machine>Kinds>Mechanical>Lock

lock and key

Simple locks {lock} {lock and key}|, for chests or cases, have a keyhole and a key that looks like a little flag {key, lock}. When flag turns 360 degrees in lock, flag pushes a pin that slides a bolt in or out.

Door locks can use a key with blade ridges and slots on blade sides. Lock has a barrel. In lock barrel and wall are five small rods {pin} on springs in vertical tubes. Pins have two pieces, at different heights corresponding to ridges on key blade. When key is in lock, dividing lines for pins are at same radius as barrel radius, so barrel can turn. Barrel turn moves a bolt.

combination lock

Locks {combination lock}| can have three discs. First disc connects to a knob and has a protrusion. The protrusion hits a protrusion on second disc, which has a protrusion that hits third-disc protrusion. Turning knob, to turn first disc two complete clockwise turns, engages the three discs. At first number, knob stops and turns counter-clockwise. Only first disc moves. After complete turn, second disc engages again. At second number, knob stops and turns clockwise. Only first disc moves. At third number, first disc stops and disc notches align. Bolt can slide past disc edges.

fetter

ankle cuff or chain {fetter}.

manacle

handcuff {manacle}.

night latch

Door locks {night latch}| can have an inside knob and an outside keyhole.

PRAC>Machine>Kinds>Mechanical>Rig

rig

drill or sail structure and machinery {rig, structure}|.

gig as rig

holder {gig, holder}|.

PRAC>Machine>Kinds>Mechanical>Rotation

bearing mechanics

A rod or shaft {bearing, machine}| can turn in a sleeve full of oil. Lubricated-for-life bearings use a porous bronze sleeve soaked with oil and sealed to keep out dirt and prevent oil evaporation.

calender

Two metal rollers {calender}| can squeeze together plies or texture coverings.

cam

Pear-shaped rollers {cam}|, pushing on rods, can raise and lower rods.

can opener

A toothed wheel goes under can rim {can opener}|. Knife-edge or wheel cuts just next to top rim. Two arms squeeze knife-edge toward toothed wheel.

carousel

Cylindrical holders {carousel}| can rotate horizontally.

crank tool

Tools can have a handle {crank, machine}| at one end and holder at other, to allow turning wheel.

fishing reel

Reels {fishing reel}| can have a spool for line, with a handle to turn spool and a guide to lay line down evenly on spool. A knob can let spool spin freely without turning handle or can brake and lock spool. Fishing reels {spinning

reel} can have a fixed spool with axis pointing along rod toward fish. A guide {bail, fishing reel} on cup surrounding spool goes around spool, laying down line. Enclosed spools can have a hole in front.

flange
Wheels can have an inner ridge {flange}|, to prevent wheel from falling off track.

hinge
Fasteners {hinge}| can rotate around an axis or pin {hinge pin}. Hinge sides {leaf, hinge} can attach on door or jamb outside surface {surface hinge} or on door or jamb edge {mortise hinge}. Hinge pin can insert into holes {knuckle, hinge}. Leaf with more knuckles is on hinge stationary part. Hinges {loose hinge} can allow one leaf to slide off pin of other leaf. Hinges {piano hinge} can have a permanent pin with two leaves that can meet parallel and flat.

lawn mower
To cut grass {lawn mower}|, hand lawn mowers {reel-type mower} have metal bar {cutting bar} at grass level and four helical reel blades, which scissor grass on cutting bar as reel turns with rolling wheels. Motorized mowers {rotary blade lawn mower} have two-blade propeller at ground level, which spins rapidly, sucks grass straight up, chops grass, and blows grass out. Slip clutch allows motor to keep spinning if blade becomes stuck. Motorized mowers start by pulling cord to spin motor crankshaft.

ratchet wheel
Wheels {ratchet wheel}| can have angled teeth, typically with pawl engaged in tooth, pressed down by spring. Oscillations in both directions turn into intermittent angular motion in one direction. If spring and pawl have higher temperature than rotor, ratchet tends to go backwards. Perhaps, muscle contraction involves linear ratchet effect.

sector tool
Tools {sector tool}| can have two arms, with pivot at end, and be for numerical calculations, in same way as nomogram.

spit
Rods {spit}| can hold an animal over coals to cook, and a handle can turn the rod.

torsion balance
Balances {torsion balance}| can use rods that twist.

weather vane
Vanes {weather vane}| can point in direction from which wind comes, because force is greater on back-end larger surface.

whirling regulator
Centrifugal pendulums {whirling regulator}| can control rotation speed in windmills.

woodturning
Lathes can scrape wood {woodturning}|.

PRAC>Machine>Kinds>Mechanical>Rotation>Gimbal

gimbal
A ring holding a lower object, for example a ship's compass, can be in a base with two axes {gimbal}|, so ring stays horizontal when base tilts.

gyroscope
Spinning discs or circles {gyroscope}| {gyroscopic compass} can be in bearings {gimbal bearing} with three axes, which allow motion in any direction. Gyroscopes maintain space orientation. Laser beams can split and go through two paths, with different lengths if platform rotates, measured by wave interference. Paths are at triangle corners. Mechanical gyroscope rotation causes precession, which makes magnetic field. Semiconductor gyroscope vibrates in electric field against springs, and rotation changes vibration.

PRAC>Machine>Kinds>Mechanical>Rotation>Joint

ball and socket joint
A rod has a spherical head and a joined rod has a hollow spherical receptor {ball and socket joint}|.

toggle joint
Two rods can hinge at obtuse angle {toggle joint}|, and rods have hinges at other end. Force at central hinge pushes far ends outward.

universal joint
Two shafts can link at two axes {universal joint}|, perpendicular to each other and to shafts. Universal joint allows free movement in all directions.

PRAC>Machine>Kinds>Mechanical>Rotation>Joint>Swivel

caster for furniture
Mechanical joints {caster, furniture}| {furniture caster} can allow swivel and roll.
structure
A shaft rotates around vertical axis. Shaft holds an axle around which wheel or sphere rotates. Wheel can swivel and roll freely, so furniture can move easily.
types
Bent tubes can hold both vertical shaft and wheel shaft {skew caster}. Balls can be set in vertical holders {ball caster}.
speed
Casters typically wobble at higher speeds.
brakes
Casters can have brakes. Pedals prevent roll but not swivel.

swivel
Objects {swivel}| can have a central sheath holding a post attached to a base, allowing horizontal object rotation.

PRAC>Machine>Kinds>Mechanical>Rotation>Pulley

pulley
Wheels {pulley}| on axes can have rope with which to lift loads by pulling down.

block and tackle
Two pulley sets {block and tackle}| can pass rope back and forth over wheels {block} {tackle, pulley}. Rope pulled long distance supplies force to raise load short distance.

idler wheel
Pulley middle wheels {idler wheel}| allow drive wheel and driven wheel to turn in same direction.

PRAC>Machine>Kinds>Mechanical>Rotation>Tire

camber
Tire tops can tilt {camber}| out or in, rather than be vertical.
amount
Camber ranges from -1.0 to +1 degrees. Negative camber tilts in. Positive camber tilts out. Positive camber allows better support by wheel bearings.
turn
Tires tend to tilt out toward outside turn, because tread sticks to road and tire top has centrifugal force.
When car body slides toward outside turn, MacPherson strut suspensions tilt tires out, but unequal A-arms tilt tires in. During turns, tire inside or outside can lift off road. Negative camber for MacPherson strut suspensions and positive camber for unequal A-arms allow tires to be vertical during turns, when traction is most important.

pull
If one tire has higher camber, car pulls to that side.
road
Because road crown pulls car to right, in right-hand-drive countries, left tire can require higher camber.

caster for tire
Tires can lean to front or rear {caster, tire}, rather than be vertical. Positive caster is forward tilt. Too much positive caster causes shimmy, because weight falls in front of tread. Too little positive caster causes poor tracking, because weight falls down tire center.
Caster settings typically are 0.5 to 4 degrees. From 3 to 4 results in better straight-line tracking but heavier steering. From 0.5 to 1 makes lighter steering, but poorer straight-line tracking.
Negative caster is backward tilt. Negative caster puts weight behind tire and causes unstable tracking, because it pushes tire forward in various directions.

toe
Tires can swivel left or right, rather than aligning straight-ahead {toe}|. Toe is in or out. It causes stability because, during turns or bumps, tires tend to return to straight-ahead position. At higher speeds, toe becomes slightly more out, so starting slightly in is better. Out is only for front tire center offset or special wheel bearings. Rear tires are neither in nor out, because in or out causes instability and rapid tire wear.

PRAC>Machine>Kinds>Mechanical>Saddle

pommel of saddle
A raised post {pommel, saddle}, in saddle front, can hold hand or rope.

saddlebow
pommel {saddlebow}.

PRAC>Machine>Kinds>Mechanical>Sieve

colander
strainer or sieve {colander}|.

ricer
Food forced through colander with small holes {ricer}| makes texture like cooked rice.

PRAC>Machine>Kinds>Mechanical>Stapler

stapler
Steel-wire pieces in U shape {staple, stapler} are lightly glued together to make a row of staples. Spring presses row of staples against front of device {stapler}|. Front has a slot the width and breadth of one staple. Metal press has width and breadth of one staple. Pushing down metal press pushes one staple down front slot. At bottom, concave grooves {anvil, stapler} curve staple points in or out. Industrial staplers cut and shape steel wire, just before stapling.

magazine stapling
Thin magazines staple {magazine stapling}| in center of fold {saddle stitch}. Thick magazines staple from edge front to back {side stitch}, with a glued-on cover.

PRAC>Machine>Kinds>Mechanical>Weaving

weaving
In frames {weaving}|, threads are strung lengthwise evenly from top to bottom {warp, weaving}. Frame width is cloth width. Other threads pass over and under warp threads {weft, weaving}, from bottom up. Frame presses weft thread down next to one below.

loom

Continuous frames {loom}| can weave cloth.

parts

Looms have rollers {loom beam}, on which warp threads are wound tight. Warp-thread even-numbered ends pass through loops in middle of vertical wires on a frame {heald}. Odd-numbered warp threads pass through loops on second heald. Warp threads pass through frame vertical wires {reed, frame} and attach to second roller. As one heald rises, the other falls, so shuttle carrying weft thread can pass through. Reed presses new weft thread against previous weft thread.

types

Weaves {plain weave} can go over and under alternating warp threads, so weft threads go over and under same warp threads. Weaves {canvas weave} can go over and under every two warp threads, so weft threads go over and under same warp threads. Weaves {twill weave} can go over and under every two warp threads, so alternating weft threads go over and under different warp threads.

shuttle

In weaving, a holder {shuttle}| slides back and forth to place woof thread above and below warp threads.

spinning fiber

Piles of short, thin fibers {spinning fiber}| can make thread. First, people attach several fibers to wood or metal bar {spindle}. Fiber pile is next to spindle. As spindle turns, it pulls out more fibers from pile and winds fibers tight. After that, twisting several threads together makes larger and stronger string or twine.

spinning frame

Machines {spinning frame}| can draw and twist fibers into yarn and then wind yarn.

spinning jenny

Spinning frames {spinning jenny}| can have several spindles.

spinning wheel

Wheels {spinning wheel}| can turn a spindle, to twist fibers into yarn.

PRAC>Machine>Kinds>Mechanical>Weaving>Thread

warp thread

lengthwise threads {warp, thread}.

weft

Threads {weft, thread} can be across warp or fabric texture.

PRAC>Machine>Kinds>Mechanical>Window

window display

Store windowpanes tilt outward at top and inward at bottom to minimize reflections {store window} {window display}. Reflections go down into sidewalk.

casement

Windows {casement}| {window} can have glass doors hinged on side, top, or bottom. Latches lock windows shut. Cranks can open windows.

louvered window

Windows {louvered window}| can have horizontal glass slats. Cranks with a worm gear tilt glass slabs shut or open.

oriel

Bay windows {oriel}| can project out from wall.

venetian blind

Wood or metal slats {venetian blind}|, suspended from strings, can cover windows. Cord raises bottom slat and so pulls up other slats. Locking lever at top right-hand side holds raising cord, to keep blinds up. Left-side cord pulls strings up on one side and down on other side, to change slat angle.

window sash

Windows can have separate top half and bottom half {window sash}| {sash, window half}. Bottom has cords at two top corners. Cords go through window top-part edge, over pulley in window-frame side, down to weights {sash weight}. Small screwed-on doors are on lower frame sides, allowing access to weights. Sash windows {double hung sash} can move top and bottom panels.

PRAC>Machine>Kinds>Mechanical>Yoke

yoke

Crossbar and neck holders {yoke}| can be for two draft animals.

oxbow

U-shaped ox collars {oxbow} allow ox to pull something.

PRAC>Machine>Kinds>Fluid

coffee maker

Devices {coffee maker}| can make coffee.

Hot water can go over coffee grounds in filter paper and drip through into cup {Chemex}.

Hot water can go over coffee grounds in a metal or ceramic holder with tiny holes in bottom and drip through into cup {Filtre}.

Bottom part can hold water, and top part can hold grounds, so steam from lower pot forces water up through tube into grounds {Silex}.

A metal cup with perforated base can hold grounds above a pot filled with water. Steam, from bottom, pushes water up tube to a small glass cup at pot top to drip hot water onto grounds {percolator}.

A water boiler can have a spigot leading to a small cup, which holds grounds for steaming {Espresso machine}.

radiator

Devices {radiator}| can receive steam or hot water from boilers or engines through pipes. Radiators have large surface area, to release heat into air by convection. Fan can blow on radiator. Cooler condensed water returns to boiler or engine through pipes. Whistle of radiators comes from valves that allow cold air to leave radiator but shut when hot.

sprinkler

As water leaves openings, it pushes backward and can cause bar to rotate {sprinkler}|, to change spray direction to cover yard. Sprinklers {impulse sprayer} can use water jets that hit a weighted bar and then a spring pulls bar back to hit a stop, which turns sprinkler top around. Sprinklers {hose walker} can have a bar connected to a gear, which moves a wheel along a guide. Sprinklers {tape winder} can have a bar connected to a winder, which pulls in metal tape attached to ground. Sprinklers {fan sprayer} can have tubes with rows of holes and a small water wheel, which oscillates sprayer.

still

Boilers {still, alcohol}| can produce alcohol-water steam, which cools at optimum temperature to make concentrated alcohol solution.

squeegee

A rubber blade {squeegee}| on a perpendicular handle can wipe liquids from surfaces.

water wing

Beginning swimmers can wear inflated pads {water wing}| around upper arms.

PRAC>Machine>Kinds>Fluid>Toilet

toilet
Water tanks can have an opening to a bowl {toilet}| {water closet}. When rubber stopper moves, water falls into bowl. Bowl water goes out drain. A U-shaped pipe in drain {toilet trap} holds water, to prevent odors from coming from sewer pipes. Rubber plug falls back into hole. A float-control ball opens a valve to let water into tank, until float rises enough to close valve.

vacuum breaker
Flushing can cause vacuum {vacuum breaker}|, which sucks bowl contents out. Water flowing back in causes new vacuum.

PRAC>Machine>Kinds>Fluid>Spray

aerosol can
Spray cans {aerosol can}| {spray can} can contain pressurized gas-and-liquid mixtures, which expand out a small hole after pressing button. Expansion force breaks liquid into tiny droplets in gas. Freon gas turns to liquid at pressure six atmospheres.

atomizer
Air can mix with liquid and blow out an opening in a fine spray {atomizer}|.

vaporizer
Machines {vaporizer}| can push water against a screen to make spray or heat water to make steam.

PRAC>Machine>Kinds>Fluid>Tube

shunt tube
Tubes {shunt, machine}| allow fluid to flow between two cavities or tubes.

syringe
Tubes {syringe}| can have a fitted piston to pull liquid by suction or push liquid by pressure.

vapor lock
Tubes can trap vapor that can slow fluid flow {vapor lock}|, when temperature makes fuel vapor pressure equal to liquid gravity or vacuum pressure.

Venturi tube
Cylinders with a narrow part {Herschel Venturi tube} {Venturi tube, fluid}| can attach to a large tube in which fluid flows, to measure flow rate.

PRAC>Machine>Kinds>Fluid>Tube>Valve

valve
Tubes can have devices {valve, tube}| that prevent flow in one direction or flow in both directions.

ball cock
A hollow ball can float on water surface and an attached rod opens and closes a fluid valve {ball cock}| {float cup}.

ball valve
Valves {ball valve}| can have a ball that seals tube opening.

PRAC>Machine>Kinds>Fluid>Air

aerator
Side holes {aerator}| at faucet tips can let air into water. An aerator obstruction makes water turbulent, to allow more air.

air lock
Entrances {air lock}| can have two doors, so space between is a buffer.

aqualung
Divers can carry a compressed air tank with breathing apparatus {aqualung}|.

aspirator
Tubes {aspirator}| can have vacuum, which can pull up liquid or a small object.

baffle for air
Airflow can slow and quiet using perpendicular surfaces {baffle}|.

bellows
Air sacs {bellows}| can suck in air and then blow air out, to kindle fires.

blowpipe
Hollow tubes {blowpipe}| can blow air into receptacles.

hookah
People suck smoke, from hot tobacco placed on burning charcoal, over cool water into tube {waterpipe} {hookah}| {water pipe}.

scuba
Diver can use compressed air tank and breathing apparatus and wear wet suit {scuba}|.

snorkel
Skin divers use a tube {snorkel}| from mouth to surface. Tube has ball valve that prevents water from entering during inhalation.

PRAC>Machine>Kinds>Fluid>Faucet

faucet
Water is available from a valve {faucet}| at pipe end, with a handle to allow or stop water flow. Faucets press a rubber or plastic washer into water inlet to close valve.

spigot
faucet {spigot}.

stopcock
A rotating handle {turncock} {stopcock}| can close and open a fluid outlets.

PRAC>Machine>Kinds>Fluid>Pen

pen for writing
Quills or feathers {pen, writing}| can hold ink in hollow insides [500].

ballpoint pen
Pens {ballpoint pen}| can have a rough-surface steel ball at tip. Thick ink is on ball.

fountain pen
Pens {fountain pen}| can have rubber sacs to hold ink or have replaceable ink cartridges. From ink sac, a capillary tube leads to point {nib, pen}. Nib is flexible and has a split down middle lengthwise. Slit acts like a capillary tube to draw ink forward. Plastic under point {comb, pen} stores ink. Pressure or temperature change forces ink out reservoir.

quill
large hollow feather used to draw ink for writing {quill}.

PRAC>Machine>Kinds>Fluid>Petroleum

fractional distillation
Petroleum separates {fractional distillation column}| at 500 C into distillate, which goes to a solvent extractor to make lubricating oil, grease, and wax. Petroleum separates at 250 C into gas and oil, which goes to a catalytic cracker to make fuel oil, jet fuel, kerosene, and diesel fuel. Petroleum separates at 170 C into kerosene. Petroleum separates at 100 C into heavy naphtha, which goes to a catalytic reformer to make gasoline. Petroleum separates at 65 C into naphtha for gasoline, propane and butane gas to make gasoline by alkylation, propylene and ethylene plastic in thermal cracker, and butadiene rubber by polymerization. Residue is asphalt and tar.

chemical regenerator
Burning used catalyst can remove residual hydrocarbons {chemical regenerator}|. Combusted gases heat a brick lattice that heats incoming air and fuel. Flow reverses regularly {heat regenerator}.

cracker machine
Hot oil and gas hydrocarbons from a petroleum fractional-distillation column can mix with catalyst to make shorter chains, which fractionally distill to make jet fuel, kerosene, and diesel fuel {catalytic cracker} {cracker, machine}|. Regenerator receives catalyst.

gusher
Oil wells {gusher}| can strike oil or gas.

reformer
Unbranched hydrocarbons {heavy naphtha} from petroleum fractional distillation column and/or catalytic cracker flow over heated catalyst {catalytic reformer} {reformer}|, to make branched hydrocarbons for gasoline. Catalyst goes to regenerator.

solvent extractor
Petroleum distillate can make lubricating oil, grease, and wax {solvent extractor}|.

thermal cracker
Ethylene plastic comes from gases from fractional petroleum distillation {thermal cracker}|.

PRAC>Machine>Kinds>Fluid>Pump

pump
Devices {pump, machine}| can receive fluid from one opening, take fluid part, and force fluid out another opening.
types
Pumps {piston pump} can use pistons in cylinders to suck fluid in as they go down, while keeping outlet check valve closed by pressure, and then force fluid out as they go up, while keeping inlet check valve closed by pressure.
Piston pumps {axial piston pump} can use a circle of pistons. Rotating wedges {wobble plate} can press and release pistons as they turn.
Pumps {gear pump} can have two gears, one rotating clockwise and one counterclockwise, which squeeze fluid between teeth and housing and push fluid out one side.
Pumps {vane pump} can have rotors with spring-loaded sliding vanes. Vanes sweep fluid around housing from inlet to outlet.
priming
Fluid fills pumps to start them working {pump priming, fluid}.

sump
Basements or tanks {sump}| can hold water gathered by gravity. Pumps {sump pump} can remove water from sumps.

PRAC>Machine>Kinds>Heat

autoclave
Steam under pressure can clean laboratory utensils {autoclave}|.

gas oven
Gas ovens {gas oven}| have burners underneath, holes in oven-chamber bottom front to let air in, and flue in oven top leading to chimney in back. Chimney has several turns, to trap grease vapors. Gas burners have gas-jet rows or rings, with small flames {pilot light} at gas-inlet tubes.

heating pad
Pads {heating pad}| can have molded rubber around insulated wires. Wires are Nichrome.

pressure cooker
Heavy cookers {pressure cooker}| have sealed tops, to double pressure of boiled water inside. Pressure cookers boil at 120 C and can cook in shorter time. Safety valves let off excess steam. Remove top only after cooling, after normal pressure returns.

PRAC>Machine>Kinds>Heat>Furnace

smelter
Ore can melt, so impurities float on top and pure metal sinks to bottom {smelter}|.

steel making
Furnaces {Bessemer converter} {open-hearth furnace} can use air to burn impurities out of iron ore to make steel {steel making}|. Steel-making furnaces can use pure oxygen gas, instead of air, to burn impurities out of iron ore {L-D process} {basic oxygen process}.

PRAC>Machine>Kinds>Heat>Heater

fireplace
A log holder {andiron} allows air to flow from under logs up through chimney {fireplace}|. Just above fireplace is chimney throat, which contains a hinged metal plate, to open or close throat {damper}. Behind damper is space {smoke box} to collect smoke, in case of temporary downdraft. A passageway {flue} goes up chimney. A glass fire screen is desirable. Chimney should be at least 12 meters high, extend above roof by 60 centimeters, and be at least 400 square centimeters in area. There should be masonry firebox.

forced air heater
Heaters {forced air heater}| can use a fan to blow hot air.

Franklin stove
Stoves {Franklin stove}| can be a free-standing fireplace, raised off floor, in room middle, with exhaust pipe leading straight up to ceiling.

furnace as heater
Heaters {furnace, heater} {hot air heating} can heat air by electricity or by burning oil, natural gas, or coal carried into furnace by pipe or conveyor {stoker, furnace}. Air blows through ducts to rooms. Screened openings {register, furnace} in floor or walls have louvers to direct airflow. Air returns to furnace through main duct.

gas heater
Natural gas from jets burns, warms air, causes air to rise, and pulls in more air from below {gas heater}|.

heat pump
Heat pumps {heat pump}| can transfer heat from underground water to house. They work like air conditioners in reverse.

space heater
Heaters {space heater}| can have no blower. Convection moves air.

PRAC>Machine>Kinds>Heat>Welding

welding
Melting together by acetylene torch {welding, metal}| can connect two metals.

sintering
Welding can use no metal melting {sintering}|.

PRAC>Machine>Kinds>Illumination

collimator
Slit series {collimator}| make light passing through have only one direction.

pixel
Computer monitors or television screens have a smallest element {pixel}|. Elements can have different intensities.

projector
Arc lamps can illuminate transparent film slides {projector}|. Light goes through magnifying lenses to focus on screen. A glass plate absorbs hot infrared-light rays before they reach film. Slides have a glass slide holder to prevent warping by heat. Fan cools projector.

PRAC>Machine>Kinds>Illumination>Lighting

actinic light
Light {actinic light}| can have optimum spectra for photosynthesis. It is for aquariums with plants or coral.

arc lamp
Electric arcs emit light {arc lamp}|.

fluorescent light
Electric current passed through a tube heats mercury vapor slightly to emit ultraviolet light {fluorescent light}|. Ultraviolet light hits tube phosphorescent coating, to give white light. Fluorescent light is more efficient and cooler than incandescent light. Fluorescent light has more light at different wavelengths.

incandescent bulb
Light bulbs {incandescent bulb}| send electric current through tungsten filaments, which become white-hot. Bulb is globe of clear or frosted glass, with vacuum or nitrogen gas inside. If filament breaks, bulb burns out. You can hear filament hitting glass if you shake bulb.

photoflood
Lamps {photoflood}| can have high intensity and one direction.

strobe light
Light {strobe light}| {stroboscope} can flash on and off faster than 30 times per second. Photographs can show stopped action clearly.

PRAC>Machine>Kinds>Illumination>Lighting>Candle

candle for light
Strings {wick} can have paraffin wax or beeswax coverings {candle, burning}|. Flame heat melts wax, which string soaks up. Wax then vaporizes and burns.

taper
thin candle {taper}.

PRAC>Machine>Kinds>Illumination>Lighting>Display

light emitting diode
Electronic number displays can use transistors that emit red light when charged {light emitting diode}| (LED).

nixie tube
Electronic number displays {nixie tube}| can use gas discharge around cathodes.

organic light-emitting device
Organic molecule diodes {organic light-emitting device}| (OLED) can emit colored light with electric current.

photonic crystal
Crystals {photonic crystal}| can have empty spaces in refractive substances. It prevents a wavelength band {photonic band gap} from passing, by refraction and reflection. If substance is polymer and empty spaces are liquid crystals that can move around, affected wavelengths can change. Frequency can change, light passage can delay, or wavelength range can narrow. If liquid-crystal orientations are random, light scatters. If orientations align, material is transparent. Diffraction grating is one-dimensional photonic crystal.

planar gas discharge
Electronic number displays can use cathodes on flat bases {planar gas discharge}|.

PRAC>Machine>Kinds>Illumination>Lighting>Lamp

hurricane lamp
Kerosene lamps {hurricane lamp}| can have shields to prevent extinguishing by wind.

spirit lamp
alcohol or kerosene lamp {spirit lamp}|.

PRAC>Machine>Kinds>Optical

shadow box
Small glass wall cases {shadow box}| can display objects.

stereopticon
Holders {stereopticon} can have picture for left eye and picture for right eye, to better show depth [1838].

sundial
Horizontal platforms {sundial}| can have markings for daylight hours, and a middle rod or plate casts a shadow to indicate time.

time exposure
In dim light, leaving lens open {time exposure}| can make photographs.

PRAC>Machine>Kinds>Optical>Copying

mimeograph
Copying machines {mimeograph}| can use blue dye pressed onto sheet, which then transfers to other sheets using solvent.

photocopier
Light reflected from an image can make an electrostatic pattern on a plate, to which carbon particles cling and from which ink transfers to paper, to dry by heating {photocopier}| {xerox}.

photoengraving

Re-photographing a photograph through a glass screen that has 55 to 130 lines per square inch, vertically and horizontally {photoengraving}|, makes a negative that has very small dots.

process

Zinc or copper sheets {plate} with film emulsion receive negative. Light shines on plate to deposit silver. Developing plate and washing with acid dissolves zinc or copper at locations that have no silver. A roller applies ink to plate. Machines {printing press} press paper onto plate, to make heavy, medium, and light dots.

color

Color prints require yellow, red, blue, and black color plates {four-color process}. Art magazines use six plates and colors: yellow, red, blue, black, green, and white.

photostat

photographed document {photostat}|.

scanner

Photocopying {scanner, computer}| can transfer image to computer file.

xerography

Dry copying {xerography} can use electrically charged resin.

PRAC>Machine>Kinds>Optical>Projector

magic lantern

Transparent film slide is in front of oil lantern or light bulb {magic lantern}|. Light focuses on screen using lenses.

movie projector

Projectors {movie projector}| can use holes in film sides {sprocket, movie film} to position new film frames behind lens, 16 or more times a second. Movie projectors hold film frames for 1/30 second. A rotating disc blocks light while film frames change. Film moves by gears pulling film through by film sprockets. Take-up reel turns as main reel turns.

PRAC>Machine>Kinds>Optical>Camera

camera

Still cameras {camera}| can expose film to light to record images.

lens

Cameras can move lens forward or backward {focus, camera}, to make picture clear. Close-ups use lens far forward. Cameras can have bellows or extension rings to allow lens to go far forward. Special lenses {zoom lens} can keep focus at different magnifications. Special lenses {telescopic lens} can magnify. Special lenses {fish-eye lens} can be wide field.

diaphragm

Cameras can make smaller or larger openings {diaphragm, camera} {iris diaphragm} {f-stop}, so picture is not too dark or light. Diaphragms usually have an iris of overlapping metal leaves. Diaphragms have positions 2 for wide open, 2.8, 4, 5.6, 8, 11, 16, 22, and 32 for almost closed. Larger numbers reduce area by half.

shutter

Cameras can open for periods {shutter, camera}. Shutters are fast, so motions are not blurs. Shutters open long enough to receive enough light. Shutter irises can be set near lens {between-the-lens shutter}, which have speeds from 1/2000 second to several seconds. Shutters used in small cameras can be rectangles, which pass across opening near film at fixed speed but which have adjustable size.

Camera shutter speeds are usually 1/25, 1/50, 1/100, and 1/200 second. Times of 1/50 second or faster prevent unsteady-hand blur.

accessories

Camera accessories include three-legged stand {tripod}, colored plastic disc {filter, camera}, and electronic flash {flashgun}.

movie camera

Cameras {movie camera}| can have a shutter that repeatedly opens for 1/30 second. Cameras use holes in film sides {sprocket, film} to position new film frame behind lens, 16 or more times a second. Cameras hold film frames for 1/30

second. Cameras repeat the process. Film moves by gears pulling film at film sprockets. Take-up reel turns as main reel turns.

reflex camera
Mirrors reflect image onto ground glass screen {reflex camera}|.

PRAC>Machine>Kinds>Optical>Film

blip on film
Film lines or spots {blip}| can be for timing or counting.

ferrotype
A hot smooth metal plate {ferrotype}| pressed against paper emulsion can make glossy paper, or dark enameled metal can create a direct positive image.

film
Emulsions {film}| can contain silver-compound molecules.
camera
Light enters camera lens and focuses on film. Black-and-white film has silver bromide or silver iodide crystal emulsion embedded in cellulose acetate. Light separates silver from silver bromide, to make latent image. People remove film from camera in the dark.
develop
Chemical treatment {developer, film treatment} makes actual image. Developer chemicals liberate more silver around silver already present, to bring out image. Chemical treatment {fixer, film treatment} {hypo} sets image permanently {negative film} in transparent reverse image. Fixer washes away remaining silver bromide, so film cannot change anymore if exposed to more light.
printing
Passing light through negative and lenses {enlarger, photography} can make a larger print {positive film}. Print paper has silver bromide crystals in gelatin {emulsion, film}. Print paper develops and fixes. Negative can be directly on top of print paper and have direct exposure to light {contact printing, film}.
transparency
Transparent negatives {slide, film} {transparency, film} can be for projection.
color
Color film has three layers, one for red, one for blue, and one for green. Layers have dyes to filter out other colors.
instant
Instant picture cameras {Polaroid camera} transfer negative to positive by pressing both together to release chemicals.

matte surface
non-glossy surface {matte, surface}|.

panchromatic
Film can display all colors {panchromatic}|.

PRAC>Machine>Kinds>Optical>Lens

magnifying lens
Telescopes and microscopes have a lens {magnifying lens}| that enlarges images.

objective lens
Telescopes and microscopes have a light-gathering lens {objective lens}|.

ocular lens
Telescopes and microscopes have a lens {ocular}| near eye for magnifying.

optical fiber

Thin fused silica, glass, or plastic rods {optical fiber}| can transmit light. Outside layer {cladding} reflects rays. Absorbing high-angle rays and reflecting low-angle rays makes one axial light ray. Refocusing light by refractive-index gradient makes one axial light ray. Wavelengths amplify in region with rare-earth erbium ions added, which laser excites. Over 150 wavelengths can be in fibers using multiplexing {dense wavelength division multiplexing} (DWDM), which allows 400 gigabits per second.

superlens

Blocks {superlens}| {metamaterial} can have thin wires in parallel planes {split-ring resonators} (SRR) a short distance apart, which have negative electrical permittivity and negative magnetic permeability and so negative refractive index. Forces from arrays push back on photons. Negative refractive index makes receding object blue-shifted. Cerenkov radiation travels in opposite direction, not forward. Refraction at boundary from positive to negative refraction bends light more, so it bends past perpendicular.

PRAC>Machine>Kinds>Optical>Magnify

binoculars

two attached low-magnification adjustable telescopes {binoculars}.

electron microscope

Electron beams can pass through {transmission electron microscope}, or reflect from {scanning electron microscope}, 0.1-micron thin slices {electron microscope}| (EM). Electric and magnetic fields focus electrons onto a phosphorescent screen. Microscopes can use electrons with energy above 1 MeV, because they act like X-rays. Electrons can pass through tissue and focus. Electron microscope resolution is 10^-10 meter.

telescope

Concave and convex lenses can focus and magnify images that are small and far away {telescope}|. Light amount increases with larger opening. Refracting telescopes have a large lens that collects light to a focal point, and a second small high-curvature lens that focuses image for viewing. Reflecting telescopes have a large lens that collects light to a mirror, which focuses light on a second small high-curvature lens that focuses image for viewing.

x-ray microscope

X-ray beams can pass through 0.1-micron slices {x-ray microscope}|. X-rays focus by electric and magnetic fields onto phosphorescent electron-gun-TV-like screen.

PRAC>Machine>Kinds>Printing

printing in color

Color printers {printing in color}| use systems.

RGB

RGB {red-green-blue} (RGB) adds red, green, and blue to make most colors. Color brightness range is 0 to 256. For example, fluorescent phosphors can emit light, or lights can glow. Though RGB can make 16 million colors, a set {Browser Safe set} of 216 RGB color combinations is for browsers.

CYMK

Color processes {cyan-yellow-magenta-black} (CYMK) {cyan-magenta-yellow-black} (CMYK) can use cyan, yellow, magenta, and black absorption, plus paper white, to display colors. For example, inkjet printers squirt cyan, yellow, and magenta or cyan, yellow, magenta, and black. CYMK allows one million colors, but it cannot make light, bold, or bright colors and cannot make some greens and blues.

circulation readers

Publications published at regular intervals have typical numbers of readers {circulation, publishing}.

edition

Plates or originals {edition} can be for printing.

postage meter

Machines {postage meter}| can imprint postage on envelopes.

press for printing
Machines {press}| can squeeze two plates together, typically for printing.

thirty symbol
Symbols {thirty} can mark article ends.

watermark
Designs {watermark} can be in wet paper.

PRAC>Machine>Kinds>Printing>Page

pagination
Works have page-numbering method {pagination}|, such as starting chapters at page 1 and preceding page number with chapter name or number followed by hyphen.

running title
Published-work titles {running title} can appear on all pages or alternating pages.

PRAC>Machine>Kinds>Printing>Paper

blueprint
Photo-prints {blueprint}|, using blue ink, can show building or project designs.

galley proof
Publishers send all proposed pages {galley proof}| to authors for a final review.

proof in printing
Publishers can make proposed sheets {proof, printing}.

sheaf of paper
Paper sheets can be in groups {sheaf, paper}|.

PRAC>Machine>Kinds>Printing>Book

bookbinding
To make books {bookbinding}|, a machine folds 16, 32, or 64 consecutive pages like theater programs, with untrimmed outer edges {signature, book}. Machines sew signature stack through fold center, and then press pages flat and trim them to make books. Machines glue cheesecloth to fold side to make edge {spine, book}. Machines glue extended cheesecloth edges to cover boards. Machines glue outer papers of outer signatures to other cheesecloth side.

paperback book
For paperback books, machines can trim stacked and pressed signatures on all sides, apply cheesecloth to edge using special penetrating glue, and glue cover onto spine {perfect binding} {paperback book}|.

PRAC>Machine>Kinds>Printing>Kinds

aquatint
Printing methods {aquatint}| can make color tones from etching.

collotype
Actinic light can etch gelatin plates [1870 to 1914] {collotype}|.

letterpress
Machines {letterpress}| can place raised letters {type, printing} in a racks, ink rack, and press paper onto type. This is oldest printing type.

linotype
Machines {linotype}| can typeset.
letter
Linotypes have keyboards similar to typewriter keyboards. When people type a letter, a metal column {mat, linotype} {matrix, linotype}, with letter recessed on top, slides into a slot. When people type a line, linotype fills spaces between letters with spacers, so lines {justified line} have set length.
line
Type lines are templates for hot liquid solder. Cooled solder hardens into lines of raised letters. Mats return to linotype for reuse.
page
A person {compositor} places raised-letter lines on a flat surface {stone, printing} in a metal frame {chase, printing}. Person tightens frame {locked up, printing}, to make one page.
inking
A person {pressman} lays chase on a printing press. Rubber rollers roll over ink and onto chase, which takes ink.
printing
Paper, clamped on a drum, rolls as chase slides under drum.
drying
Ink dries by heat or spray.

lithography
Photograph negatives on zinc or copper sheets {lithographic plate} can have coatings {lithography}| {offset printing}. Arc light exposes plate. Printed areas are greasy, and unprinted are dry. Plate clamps to drum, roller wets plate, and another roller inks plate. Ink only sticks to greasy areas. A rubber plate {blanket} rolls over metal plate to receive ink. Rubber plate is like chase in printing presses. A cylinder holds image.

monotype
Wet paint on glass, Plexiglas, or metal can transfer to paper by pressing {monotype}|.

process printing
Printing {process color} {process printing}| can use four colors: cyan, yellow, magenta, and black (CYMK).

rotogravure
Ink on etched copper cylinders in rotary presses can transfer to paper {rotogravure}.

PRAC>Machine>Kinds>Printing>Kinds>Silkscreen

serigraph
silkscreen {serigraph}|.

silkscreen
Frames with silk, nylon, or wire threads can have open areas to print and greased areas not to print. A squeegee forces ink through screen onto cloth or paper {silkscreen}|.

PRAC>Machine>Kinds>Printing>Font

typography
Published works have font and layout {typography}|, such as line spacing, distance between characters, indenting, spacing between paragraphs, and heading styles.

typeface
Characters have style {typeface}, such as Arial, Courier, Geneva, Helvetica, Maestro, Old English, Palatino, Times, TTY, or VT100.

allograph
Letters {allograph}| can have different shapes.

bold face
Characters can be darker {bold face}.

italic font
Characters can slant {italic}.

PRAC>Machine>Kinds>Printing>Font>Line

subscript
Characters can be smaller and aligned with line bottom {subscript}.

superscript
Characters can be smaller and aligned with line top {superscript}.

PRAC>Machine>Kinds>Printing>Font>Serif

serif
Characters can have points at corners {serif}, for easier readability.

sans serif
Characters can have no points at corners {sans serif}, for less clutter and clearer resolution on computer screens.

PRAC>Machine>Kinds>Printing>Methods

broadsheet
One page can have both sides printed in two passes {broadsheet}|.

broadside printing
One page can have print on one side {broadside printing}|.

folio
Machines can print two pages at same time {folio}|.

quarto
Machines can print four pages at same time {quarto}|.

octavo
Machines can print eight pages at same time {octavo}|.

PRAC>Machine>Kinds>Instrument

altimeter
Instruments {altimeter}| can measure height.

anemometer
Wind speed measurement uses spinning devices {anemometer}|, which generate electric current to move a dial.

aneroid barometer
Air capsules {aneroid barometer}| can compress or expand to measure air pressure.

barometer
Instruments {barometer}| can measure air pressure, typically using mercury columns.

calorimeter
Instruments {calorimeter}| can measure heat produced by burning masses.

cardiograph
Instruments {cardiograph}| can measure heartbeat rate.

chronograph
Electrically operated pens on revolving drums {chronograph}| can record short durations and rapid changes [1849].

colorimeter
Instruments {colorimeter}| can measure color in fluid.

dynamometer
Instruments {dynamometer}| can put loads on engines and measure force and work.

heat sensor
Phototubes {heat sensor}| can sense infrared light. People and animals radiate infrared light, as do hot machinery and exhaust, so heat sensors have military uses. Heat sensors also detect light-level changes for television cameras.

interferometer
To visualize air density, a straight edge and mirrors {interferometer}| {Schlieren interferometer} can make an interference pattern. Optical interferometers allow sharp images through atmosphere.

light meter
Photocells {light meter}| can measure light amount and can have a film-type dial.

manometer
Instruments {manometer}| {sphyngomanometer} can measure blood pressure.

meat thermometer
Thermometers {meat thermometer}| can measure temperatures from 120 to 210 F. Put meat thermometer in thickest meat part, thigh away from bone for turkey and lean center part for other meats. For beef, temperature of 170 is well done, 160 is medium, and 140 is rare.

odometer
A flexible shaft with wire inside can go from car wheel to dashboard dial {odometer}|. Rotating wheel rotates wire, which turns gear connected to counter. The same wire is for speedometer.

oscilloscope
Instruments {oscilloscope}| can measure frequency and amplitude.

pedometer
Instruments {pedometer}| can measure steps per minute.

planimeter
Instruments {planimeter}| can measure area, using an extensible rotating arm.

polarimeter
Instruments {polarimeter}| can measure light polarization angle.

polygraph
Lie detectors {polygraph}| can use decreased skin resistance from more sweating to indicate lies. To detect body changes associated with lying, measure skin electrical resistance, breathing rate, and heart rate. Lie detectors are best on statements asking about person's activities or about details, to see if person was there or not.

pychnometer
Instruments {pychnometer}| can measure specific gravity.

pyrometer
Thermometers {pyrometer}| can measure radiation intensity for wavelength range.

radiometer
Instruments {radiometer}| can measure electromagnetic radiation intensity by reflection from surface.

seismometer
Instruments {seismometer}| can measure earth movements in earthquakes.

spectrograph
Instruments {spectrograph}| can measure intensity at wavelengths.

spectrometer
Instruments {spectrometer}| {spectrophotometer} can measure light intensity passing through material or solution at a wavelength.

spectroscope
Instruments {spectroscope}| can measure intensity at a wavelength.

speedometer
Flexible shafts with wire inside run from car wheel to dashboard dial {speedometer}|. Rotating wheel rotates wire, which turns magnet behind aluminum disc, to set up electric current, which moves dial needle. The same wire is for odometer.

spherometer
Instruments {spherometer}| can measure surface curvature.

spirometer
Instruments {spirometer}| can measure air volume and flow rate inhaled and exhaled by lungs.

tachometer
Instruments {tachometer}| can measure revolutions per minute.

tensiometer
Instruments {tensiometer}| can measure tension.

thermometer
Temperature instruments {thermometer}| can be tubes with vacuum and mercury or alcohol inside. Mercury or alcohol expands as temperature increases.

PRAC>Machine>Kinds>Instrument>Clock

clock
Electric clocks {clock} use synchronous motors, which turn at 60 cycles per second, USA AC-current frequency. Electric motor replaces pendulum, escapement, and spring or weight.

atomic clock
Clocks {atomic clock}| can use cesium-atom vibrations to establish frequency.

balance wheel
Clocks and watches can have oscillating wheels {balance wheel}| that determine frequency.

cesium clock
Clocks {cesium clock}| can depend on cesium emission-spectrum wavelength.

chronometer

very accurate clock {chronometer}|.

escapement
Clock parts {escapement}| can transfer power from main spring to gears, by oscillating. Escapement has pendulum, ratchet, and gear.
spring
Springs {mainspring} are coiled or flat steel ribbon, which is wound to provide energy.
oscillation
Clocks with a hanging pendulum use gravity for back-and-forth oscillation. Weight hangs on chain, as in cuckoo clocks. Clocks with a circular pendulum use a hairspring and lever for oscillation.
Pendulum connects to ratchet, which engages gear teeth. Alternatively, ratchet can press against gears to escapement wheel, so wheel turns one notch if released by ratchet. The mechanism pushes ratchet lightly, which pushes pendulum slightly and keeps pendulum moving in spite of friction.
process
Oscillation in one direction moves gear one step forward. Oscillation in other direction moves ratchet into position to receive next forward motion. Oscillation takes a fixed time, which shortening or lengthening can adjust.

hourglass clock
Two spherical chambers can have narrow constriction between them through which fine sand flows {hourglass, clock}|.

hydrogen clock
Maser clocks {hydrogen clock}| depend on hydrogen emission wavelengths and are accurate to one part in 10^15.

quartz clock
Clocks {quartz clock}| can use quartz-crystal oscillations in escapement. A battery provides current that oscillates crystal.

timer
Clocks {timer}| can mechanically or electrically start or start movements, at specific times.

PRAC>Machine>Tool

tool
Tools {tool} are for containing, cutting, electrical, exploding, fastening, gripping, marking, measuring, plumbing, lifting, safety, and shoveling.

chock
Wedges {chock} can stop movement.

gaff hook
Hooks {gaff, hook} on poles can bring up large caught fish.

last for shoe
Foot-shaped blocks {last} can make shoes.

lathe
Wood or metal turners {lathe} can allow woodworkers to use knives to scrape out cylindrical shapes.

pick tool
Curved blades {pick, tool} can have end points on big handles.

probe tool
Metal sticks {probe, tool} can move tissue aside or poke tissue.

sandblaster

Machines {sandblaster} can blow sand at high speed to clean stone.

swage
metal bender {swage}.

PRAC>Machine>Tool>Cutting

cutting tool
Tools {cutting tool} can include knife sharpener, putty knife, taping knife, and utility knife. Cutting tools can include oilstone, sander, sanding block, sandpaper, and steel wool. Sandpaper has be silicon carbide, aluminum oxide, garnet, or emery. Cutting tools can include saw, crosscut saw across wood grain, ripsaw along wood grain, circular saw, backsaw and miter box, keyhole saw or compass saw, tooth-saw, coping saw for curves, and hacksaw for metal. Cutting tools can include wire brush, scraper, plane, block plane, smoothing plane, jack plane, jointer plane, chisel, bench chisel, cold chisel, four-in-hand, rasp, wood rasp, rattail file, single-cut file, double-cut file, metal file, and file. Cutting tools can include tin snips, tube cutters, box cutters, and glasscutters.

adz
Curved axes {adz} {adze} can be for wood shaping.

auger
Boring points {auger} can be for concrete.

box cutter
blade in holder {box cutter}.

file
Cutting tools {file, tool} include rattail file, single-cut file, double-cut file, and metal file. Rough-surfaced tools can smooth, shape, and grind.

glasscutter
small hardened wheel in holder {glasscutter}.

pipe cutter
Hard metal cutters {pipe cutter} can be for hand scoring pipe.

plane as tool
Planes {plane, tool} include scraper, plane, block plane, smoothing plane, jack plane, and jointer plane. Flat surface has barely exposed blade to scrape off wood.

pruning hook
Long handles with scissors on end {pruning hook} can cut twigs.

reamer
Metal tools {reamer} can shape or enlarge holes.

scythe
Long bent handles with perpendicular curved blades {scythe} can mow or reap grasses.

sickle tool
Short handles with curved blades projecting from end {sickle} can cut grasses.

tube cutter
Small hardened wheel in tube holder {tube cutter} can cut tubes.

PRAC>Machine>Tool>Cutting>Awl

awl
Boring points {awl} for leather or wood can make holes or scratches.

bodkin
Points {bodkin} can make holes in leather or cloth.

broach
Tools {broach} can make holes bigger or change hole shapes.

PRAC>Machine>Tool>Cutting>Chisel

chisel
Chisels {chisel} include bench chisel and cold chisel. Tip with sharp edge is for scraping.

gouge
Chisels {gouge} can have a convex curved blade, to carve grooves.

PRAC>Machine>Tool>Cutting>Knife

knife
Knives {knife} {knives} include knife sharpener, oilstone, putty knife, taping knife, and utility knife.

jackknife
Large knives {jackknife, knife} can fold into handle.

lancet
Knives {lancet} can have a small pointed double-edge blade.

oilstone
knife sharpener {oilstone}.

scalpel
Knives {scalpel} can have a thin sharp blade at tip, for surgery.

PRAC>Machine>Tool>Cutting>Rasp

rasp
Rasps {rasp} include four-in-hand and wood rasp. It is like a file with high points.

burr
cut-metal rough edge {burr}.

PRAC>Machine>Tool>Cutting>Sander

sander
Sanders {sander} {sanding tool} include sander, sanding block, sandpaper, and steel wool. Grades are from coarse to superfine.

sandpaper
Cloth or paper {backing} can have silicon carbide, aluminum oxide, garnet, or emery {sandpaper}. Coat can be open or closed.

PRAC>Machine>Tool>Cutting>Saw

saw as tool

Saws {saw, tool} include crosscut saw, ripsaw, circular saw, backsaw and miter box, keyhole saw or compass saw, tooth-saw, coping saw, and hacksaw. Blade with teeth can cut stone, wood, metal, or plastic.

backsaw
Rectangular shaped saws {backsaw} can be in an open-top miter box with slits.

band saw
Saws {band saw} can have a continuous serrated edge.

buzz saw
Power saws {buzz saw} can have a circular blade.

carpenter's saw
Handsaws {carpenter's saw} can be for wood only, with one handle and one edge.

circular saw
disk {circular saw}.

coping saw
for curves {coping saw}.

crosscut saw
Saws {crosscut saw} and panels can change angle to cut across wood grain.

hacksaw
Hard metal saws {hacksaw} in a rectangular frame can cut metal.

jigsaw
Saws {jigsaw} can have a vertical wire blade, to cut curves in wood or plastic.

keyhole saw
pointed saw {keyhole saw} {compass saw}.

miter box
U-shaped containers {miter box} can have sides that have grooves, to hold board and guide angled and square cuts.

ripsaw
Saws {ripsaw} can have big teeth to cut along grain.

sawhorse
Racks or trestles {sawhorse} can support wood for sawing.

scroll saw
jigsaw {scroll saw}.

tooth-saw
with angled teeth {tooth-saw}.

whipsaw
Big crosscut saws {whipsaw} can be for two people.

PRAC>Machine>Tool>Cutting>Scissor

scissors
Scissors {scissors} include tin snips {tin snip}. Two blades have circular openings for fingers and connect in middle.

pinking shears
Scissors {pinking shears} can have zigzag or scalloped blades, to cut cloth.

shears
scissors {shears}.

snips
scissors {snips}.

PRAC>Machine>Tool>Electrical

electrical tool
Tools {electrical tool} can include flashlight, lantern, extension cords, wire stripper, electrician's pliers or lineman's pliers, outlet tester, continuity tester, circuit tester, and volt-ohm meter.

electrician's pliers
Grip wires {electrician's pliers} {lineman's pliers}.

wire stripper
Remove insulation from wires {wire stripper}.

PRAC>Machine>Tool>Electrical>Tester

circuit tester
Test circuits for power {circuit tester}.

continuity tester
Test unpowered circuits for continuous flow {continuity tester}.

outlet tester
Test for electrical faults {outlet tester}.

volt-ohm meter
Test unpowered or powered circuits for continuous flow or circuit gaps {volt-ohm meter}.

PRAC>Machine>Tool>Explosive

cap explosive
Explosives {cap, blasting} {blasting cap} can have coverings, for blasting.

dynamite
nitroglycerin and absorbent {dynamite}.

PRAC>Machine>Tool>Fastening

fastening tool
Tools {fastening tool} can include welders and torches, staplers, caulking guns, screwdrivers and ratchets, hammers, and drills. Fasteners include nails, screws, washers, picture hangers, shelf holders, plant hangers, tapes, glues, caulks, and putty.

counterbore
You can install fasteners so top is below surface {counterbore}. Top has putty or dowel plug.

countersunk
You can install fasteners so top is at surface {countersunk}.

bracket for shelf
Right-angle metal {bracket, shelf} can attach to wall and shelf.

caulking tool
Tools {caulking gun} {caulking tool} can include caulkers or caulking guns.

PRAC>Machine>Tool>Fastening>Drill

drill
Drills {drill, tool} include push drill, manual drill, and electric drill. Drill bits are screwdriver bit, twist bit, spade bit, combination bit, and masonry bit. Tools with a bit can make holes in wood, masonry, plastic, or metal.

bit of drill
Pointed screw {bit, drill} {drill bit} can be for drilling.

PRAC>Machine>Tool>Fastening>Fastener

fastener
Fasteners {fastener} include nails, screws, washers, picture hangers, shelf holders, plant hangers, tapes, glues, caulks, and putty.

nail
Nails {nail, tool} include brad, common nail, thin common nail {box nail}, larger-head finishing nail {casing nail}, small-head nail {finishing nail}, spiraled nail {spiral-shank nail}, ringed nail {annular-ring nail}, masonry nail, roofing nail, shingle nail, and wallboard nail. Nail size is from 1 to 6 inches {pennies}.

tape fastener
Tapes {tape, fastener} include electrical tape and plastic tape.

washer fastener
Washers {washer, tool} include flush washer, flat washer, and countersink washer.

brad
small nail {brad}.

PRAC>Machine>Tool>Fastening>Fastener>Nut

locknut
Nuts {locknut}| can have textured surfaces to prevent loosening.

wing nut
Nuts {wing nut} can have head with two flanges, to turn by hand.

PRAC>Machine>Tool>Fastening>Fastener>Screw

screw as fastener
Screws {screw, tool} include screws {wood screw} with pointed ends that go into soft materials and have smooth shank near head, which can be flathead screw, roundhead screw, or oval-head screw. Screws {machine screw} can have flat ends and go into nuts or sockets. Wallboard screw or drywall screw has Phillips head. Deck screw is long and thin. Screws {lag screw} can have hex head or square head, with no slot. Metal screw can be sheet metal screw or self-tapping screw. Heads can be slot {straight-slot head}, cross {Phillips head}, slot and quartered {one-way head}, or square {Robertson head}.

setscrew
Screws {setscrew} can prevent relative motion between attached pieces.

thumbscrew
Some screws {thumbscrew}| can turn using thumb and fingers.

PRAC>Machine>Tool>Fastening>Fastener>Caulk

caulk sealant
Caulks {caulk, sealant} include silicone rubber, polyurethane sealant, polyurethane foam, butyl rubber, acrylic latex, non-acrylic latex, and putty. Caulks dry hard. Sealants dry flexible.

acrylic latex
Flexible sealants {acrylic latex} can stick to wet surfaces.

butyl rubber
Flexible sealants {butyl rubber} can resist water.

non-acrylic latex
Sealants {non-acrylic latex} can be for interior joints.

plaster
Sand, water, and lime mixture {plaster} can cover walls.

polyurethane foam
Sealants {polyurethane foam} can be for interior and exterior cracks.

polyurethane sealant
Elastic sealants {polyurethane sealant} can be for cracks and glaze.

putty as caulk
Patching sealants {putty, caulk} can be for patches on wood or for glazing.

spackling
Patching sealants {spackling} can be for walls.

PRAC>Machine>Tool>Fastening>Fastener>Glue

glue
Glues {glue}| include white glue or household glue or paper glue, all-purpose cement, wood glue or yellow glue or carpenter's glue, epoxy resin, urethane glue, hot-melt glue, mastic construction adhesive, resorcinol glue, plastic resin glue, instant glue, and rubber cement.
Cooked animal bones and skin make sticky substance, which dries hard. Vegetable glues use flour soaked in water with caustic. Tapioca flour is best. Plastic-like glue {cyanoacrylate glue} is fast drying and permanent. A thin glue layer is better than a thick one. Surface oil or dirt makes glues not work. Glue first sets and then dries completely.

all-purpose cement
Glues {all-purpose cement} can resist water and dry fast.

casein glue
Sour milk curds in water and lime make a sticky substance {casein glue}|. When dry, it does not dissolve again in water or melt if heated, as animal or vegetable glues do.

epoxy glue
Strong glues {epoxy resin} can bind any material and are waterproof. Glues {epoxy glue}| can harden by chemical reaction, instead of drying out. Mixing a chemical {resin, epoxy} with another chemical {hardener, epoxy} starts a chemical reaction.

friction tape

Electrical tape {friction tape} can stick with no glue and resist moisture.

gum adhesive
Adhesives {gum adhesive}| can wet again.

hot-melt glue
Glue guns apply melted glue {hot-melt glue}.

instant glue
Acrylic glues {instant glue} can dry quickly.

mastic construction glue
Glues {mastic construction adhesive} can use latex and solvent and be flexible.

mucilage
Glues {mucilage}| can have protein and polysaccharide gelatin.

plastic glue
Glues {plastic glue}| can have plastic and be thermosetting or thermoplastic.

plastic resin glue
Glues {plastic resin glue} can bond wood.

resorcinol glue
Marine resins {resorcinol glue} can be waterproof and bond wood.

rubber cement
Rubber can dissolve in solvent to make a sticky substance {rubber cement}|, which can dry to leave a rubbery bond, which can stick to glass, plastic, and other smooth surfaces. If two surfaces with dry rubber cement touch, they stick firmly.

sealant
Sticky substances {sealant}| do not let water pass. Sealants can be rubber, latex, or silicone.

tape
Thin rubber-cement layer can be on plastic film rolls {pressure sensitive tape}| {tape, sticky}.

urethane glue
Strong glues {urethane glue} can bond any material and be waterproof.

white glue
Polyvinyl glues {white glue} {household glue} {paper glue} can be for porous surfaces.

wood glue
Aliphatic resins {wood glue} {yellow glue} {carpenter's glue} can be for wood.

PRAC>Machine>Tool>Fastening>Hammer

hammer
Hammers {hammer, tool} include ball-peen hammer, tack hammer, claw hammer, sledgehammer, nailset, and mallet. A metal head on a handle can strike something or pound something in.

anvil tool
Flat topped iron blocks {anvil, tool} can be for hammering.

ball-peen hammer

Hammers {ball-peen hammer} can have a rounded side and a flat side.

claw hammer
Hammers {claw hammer} can have fork on one end and flat side on other.

jackhammer
Pneumatic punches {jackhammer} can drill or break rock, concrete, or asphalt.

sledgehammer
Long heavy hammers {sledgehammer} can have two flat ends, requiring both arms.

PRAC>Machine>Tool>Fastening>Screwdriver

screwdriver as tool
Screwdrivers {screwdriver, tool} include standard-tip screwdriver, stubby screwdriver, Phillips-head screwdriver or Phillips-tip screwdriver, Robertson tip screwdriver or square-drive screwdriver, offset screwdriver, ratchet, spiral ratchet, and offset ratchet. A handle with a double-sided wedge at end can turn screws with head slots.

Phillips head screwdriver
Screwdrivers {Phillips head screwdriver} can have point and four ridges, to drive Phillips head screws.

PRAC>Machine>Tool>Fastening>Stapler

staple
U-shaped wires {staple, wire} can insert into paper by stapler.

PRAC>Machine>Tool>Fastening>Torch

torch tool
Torches {torch, tool} include propane torch and welder.

blowtorch
Acetylene flames {blowtorch} can melt metal.

PRAC>Machine>Tool>Gripping

gripping tool
Tools {gripping tool} can include pry bar, wrecking bar, nail claw, vise, bench vise, woodworker's vise, clamp, bar clamp, C-clamp, pliers, needle-nose pliers, slip-joint pliers, cutting pliers, diagonal-cutting pliers, rib-joint pliers, locking-grip pliers, wrench, fixed wrench, open-end wrench, box-end wrench, adjustable wrench, pipe wrench, Allen wrenches, and ratchet.

bar as tool
Bars {bar, tool} include pry bar, wrecking bar, and nail claw.

pliers
Pliers {pliers} include needlenose pliers, slip-joint pliers, cutting pliers, diagonal-cutting pliers, rib-joint pliers, and locking-grip pliers.

PRAC>Machine>Tool>Gripping>Clamp

clamp
Clamps {clamp} include bench vise, woodworker's vise, bar clamp, and C-clamp.

chuck clamp
clamp {chuck}.

PRAC>Machine>Tool>Gripping>Wrench

wrench
Wrenches {wrenches} include fixed wrench, open-end wrench, box-end wrench, adjustable wrench, pipe wrench, Allen wrenches, and ratchet. A handle with a fixed or adjustable jaw projects to turn nuts.

Allan wrench
Right angles {Allan wrench} can have hexagonal cross-sections.

monkey wrench
Wrenches {monkey wrench} can have an adjustable clamp, to turn different size and shape nuts.

ratchet wrench
Wrenches {ratchet wrench} can prevent backward turning.

spanner
wrench {spanner}.

PRAC>Machine>Tool>Plumbing

plumbing tool
Tools {plumbing tool} can include closet auger, deep-socket wrench, snake or drain-and-trap auger, spud wrench, basin wrench, pipe wrench, plunger, and valve-seat dresser and valve-seat wrench.

basin wrench
long handle {basin wrench}.

closet auger
for reaming toilet drains {closet auger}.

deep-socket wrench
for packing nut on tub compression faucet {deep-socket wrench}.

drain-and-trap auger
for reaming sink and tub drains {snake, plumbing} {drain-and-trap auger}.

pipe wrench
Heavy long-handled big-jawed wrenches {pipe wrench} can have serrated jaws.

plunger
Rubber cones {plunger} can be for sucking and pressuring drains.

spud wrench
big jaws {spud wrench}.

valve-seat wrench
for compression faucets {valve-seat dresser} {valve-seat wrench}.

PRAC>Machine>Tool>Pulley

jack lever
Lever and catch {jack, lifting} can be for raising objects.

mule pulley
A guiding idle pulley {mule, tool} can be between drive shaft and non-parallel driven shaft.

winch
Rotating drums {winch} can attach to ground, to wind rope or cable to lift loads.

windlass
Rotating drums {windlass} can attach to ship, to wind and tighten rope.

capstan
Vertical cylinders {capstan}| can rotate to wind anchors.

turnbuckle
Cylinders {turnbuckle}|, on which to wind rope, can have screw assemblies inside to adjust stay or line length and tension.

PRAC>Machine>Tool>Shovel

mattock
Handles {mattock} can have a perpendicular flat metal piece on end.

plow
Blades {plow} can dig into and push aside earth.

spade
Long handles {spade} can have a metal flat rectangle projecting from end.

trowel
Flat rectangular handled metal {trowel} can smooth mortar or cement or dig earth.

PRAC>Machine>Tool>Marking

marking tool
Tools {marking tool} can include pencil, pen, carpenter's pencil, scratch awl, and electronic stud finder.

carbon paper
Paper {carbon paper} can have carbon black on one side, to copy writing to another paper.

carpenter's pencil
flat-sided soft-lead pencil {carpenter's pencil}.

electronic stud finder
Tools {electronic stud finder} can find vertical wall studs.

scratch awl
sharp point {scratch awl}.

stylus
pointed marking tool {stylus}.

PRAC>Machine>Tool>Measuring

measuring tool
Tools {measuring tool} can include ruler or straightedge, measuring tape or steel tape, carpenter's square, T-square, combination square, carpenter's level, torpedo level, and level.

caliper as tool
Hinged sticks {caliper}, can measure.

level tool
Tools {carpenter's level} {torpedo level} {level tool} can find horizontal. A flat metal or plastic stick with a bubble in water can show whether surface is level.

protractor
Semicircles {protractor} marked in degrees can measure angles.

rule as edge
ruler or straightedge {rule as edge} {rule, tool}.

ruler as edge
Rigid bars {ruler} can measure lengths.

square as edge
Ts can make right angles {carpenter's square} {T-square} {combination square} {square, measuring}.

surveyor's level
Levels {surveyor's level} can be on tripods.

T square
Perpendicular straightedges {T square} can make right angles and parallel lines.

tape measure
Flexible tape {measuring tape} {steel tape} {tape, measuring} can measure lengths.

try square
Metal rules at right angles {try square} can be for drawing right angles and parallel lines.

PRAC>Machine>Tool>Safety

safety tool
Equipment {safety equipment} {safety tool} can include safety goggles, dust mask, gloves, and ear covers.

dust mask
mouth covering {dust mask}.

ear covers
ear covering {ear covers}.

gloves
hand covering {gloves}.

goggles
eye covering {goggles}.

PRAC>Machine>Transportation

caravan
travelers in a single line {caravan}.

sprag
A short round pointed bar {sprag} can be between wheel spokes or under wheel, to prevent motion.

PRAC>Machine>Transportation>Seat

howdah
Covered seats {howdah} can be on camels or elephants.

litter as seat
Couches {litter, vehicle} for one person, can be on two horizontal poles.

palanquin
Covered couches {palanquin}, for one person, can be on two horizontal poles.

pillion
Extra seats {pillion} can be behind main seat on horses or motorcycles.

PRAC>Machine>Transportation>Vehicle

alligator tread
Wheels can turn continuous ridged tread {alligator tread}.

backhoe
ditch digger {backhoe}.

bulldozer
front concave blade {bulldozer}.

dredge
Machines {dredge} can remove mud and silt from lake, river, or harbor bottom.

forklift
Two prongs {forklift} can raise and lower pallets.

grader
angled concave blade in front {grader}.

omnibus
bus {omnibus}.

remotely operated vehicle
Vehicles {remotely operated vehicle}| (ROV) can have remote operation.

steamroller
Vehicles {steamroller}| can have a heavy metal roller to compact and smooth surfaces.

swamp buggy
Amphibious vehicles {swamp buggy} can have four-wheel drive and raised bodies.

transport vehicle
truck or rocket trailer {transport vehicle}.

travois
Two shafts or poles {travois} can have a platform or net.

PRAC>Machine>Transportation>Vehicle>Bicycle

unicycle
one wheel {unicycle}.

velocipede

Bicycles {velocipede} can have pedals on front wheels.

PRAC>Machine>Transportation>Vehicle>Agriculture

combine
Machines {combine}| can combine harvester and thresher.

cultivator
farm tractor {cultivator}.

reaper
Vehicles {reaper}| can cut grain stalks and bundle them.

thresher
Machines {thresher}| can shake grain stalks to remove husks and straw and retain seeds or kernels.

PRAC>Machine>Transportation>Vehicle>Airplane

air pocket
Downdraft, headwind, or tailwind change {air pocket} can make airplanes go downward.

wing load
weight divided by wing area {wing load}.

wingspan
distance from wing tip to wing tip {wingspan}.

PRAC>Machine>Transportation>Vehicle>Airplane>Motions

barrel roll
rotating around motion direction {barrel roll}.

Immelmann turn
Half roll at top of loop {Immelmann turn} can reverse direction and go higher.

wing over
climbing and turning then falling while turn continues {wing over}, until flying in opposite direction.

PRAC>Machine>Transportation>Vehicle>Airplane>Parts

airframe
structural frame {airframe}.

wing
Airplanes have parts {wing, airplane}| for lift.
shape
Airplane-wing shape optimizes upward pressure {lift, wing}, flows through air at upward angle {angle of attack} {attack angle}, puts strength where it needs to be strongest, and minimizes chance of sudden lift changes if attack angle changes.
tilt
Wing tilts up so air hits underneath wing to push wing up.
curves
Wing bottom is flat or only slightly curved, but top is highly arched {airfoil}. Wing cross-section is round in front and has point at back for streamlining. This shape causes air to travel farther over top and shorter over bottom. Air must move faster over top and slower underneath, so both meet at rear at same time. Slower air has more sideways pressure, because it has less forward pressure, and faster air has less sideways pressure, because it has more forward pressure, by

Bernoulli's theorem. Net sideways pressure pushes wing upward. However, this effect is small compared to upward push from attack angle.

parts

Wing back-edge sections {flap, wing} can slide out or retract to make wing longer or shorter, to allow airplane to stay up with less speed. Wing back-edge movable pieces {aileron} can tilt up or down to force wing down or up, to change wing angle for landing and taking off.

thrust

Forward force {thrust, force}, from jet engine or propeller, can push winged objects through fluids.

PRAC>Machine>Transportation>Vehicle>Airplane>Kinds

airplane

Airplane bodies {fuselage} hold wings {airplane}|. Tail vertical piece {rudder, airplane} can move right or left to move plane left or right. Tail wing has small ailerons {elevator, wing} {wing elevator} to help tail go up or down.

biplane

two wings {biplane}.

blimp

large balloon filled with helium or hydrogen {blimp}.

dirigible

large balloon filled with helium or hydrogen {dirigible}.

glider

airplane with no motor {glider}.

helicopter

Helicopter rotor blades have airfoil cross-section and are wings {helicopter}|. Helicopters move forward by tilting helicopter front down, to push air backward. The smaller propeller on helicopter tail prevents helicopter from rotor-angular-momentum spinning.

sailplane

airplane with sail {sailplane}.

zeppelin

A large balloon can have a structural skeleton filled with hydrogen compartments {zeppelin}.

PRAC>Machine>Transportation>Vehicle>Automobile

automobile

Cars {automobile}| have many parts and functions, especially from engine to wheels {drive train}.

fuel

A pump {fuel pump} maintains pressure in fuel line. Filters {fuel filter} keep fuel free of dirt and water.

air

Pressing down gas pedal opens fuel line and turns disc in airway {throttle}, to bring air through air filter. Fuel and air mix in a carburetor. Gasoline-air mixture goes through tubes {intake manifold} and valves {intake valve} into engine cylinders.

cylinder

Inside cylinder, a moveable steel cap {piston}, on a piston rod, uses steel rings {piston ring} to touch cylinder sides. Connecting rod attaches to offset rod crankshaft, located in oil-filled container {crankcase} at engine bottom.

cycle

When piston goes down, it sucks fuel-air mixture in. Intake valve closes. Then piston goes up to compress mixture. Original-volume to compressed-volume ratio {compression ratio} is between 6:1 and 10:1. At maximum compression, electric spark crosses arc {spark plug}, timed by electrical-current director {distributor, engine} that uses a capacitor to

gain high voltage. Mixture explodes, forcing piston down. If mixture ignites before spark, you hear sound {pinging} {knocking, engine}. When piston moves up, valve {exhaust valve} opens.

cam

Crankshaft connects using rods {connecting rod} to shaft {camshaft} which times valve opening and closing. Cylinders cycle 300 times a minute.

exhaust

Exhaust goes into a pipe system {exhaust manifold, car} and then to a noise-reducing device {muffler} containing baffles.

cooling

A belt {fan belt} connected to engine crankshaft rotates fan. Fan pulls air through radiator tube system containing engine water, to cool water. Water circulates through engine and radiator using a pump {water pump}, which turns by a belt connected to crankshaft.

transmission

A heavy wheel {flywheel, car} connects to crankshaft at other end, to maintain smooth rotation. Flywheel connects to a plate. Plate can attach to another plate, attached to gears, in a clutch that allows engine to turn wheels or idle freely. Transmission allows gears to shift and attaches to connections to wheels.

differential

A steel rod {drive shaft} from transmission goes to power wheels. Drive shaft enters universal joint, which can rotate around three axes, allowing wheels to bounce, twist, and tilt. Universal joint attaches to differential to allow wheels to turn at different speeds while going around corners. Differential attaches to a part {axle} that attaches to wheels.

starter

Automobiles need an electric motor {starter} to start pistons moving.

oil pump

Automobiles need an oil pump to circulate and filter oil.

generator

Automobiles need an electric generator to charge battery that powers starter.

PRAC>Machine>Transportation>Vehicle>Automobile>Kinds

cab as taxi

taxi {cab}.

coupe

two doors {coupe}.

flivver

Model T ford {flivver}.

hack as taxi

taxi {hack, taxi} {hackney}.

hardtop

Car roofs {hardtop} can have four supports, with no support between doors.

hearse

coffin carrier {hearse}.

jitney

small taxi {jitney}.

roadster

sports car {roadster}.

runabout

sporty car {runabout}.

sedan car
Car roofs can have six supports, with supports between doors {sedan}.

touring car
large open car {touring car}.

town car
large enclosed car {town car}.

PRAC>Machine>Transportation>Vehicle>Automobile>Parts

balloon tire
Tires {balloon tire}| can have pressurized air inside, rather than being solid rubber.

chassis
structural frame {chassis}.

fender
Vehicles can have covers {fender}| over tires. Cushions can separate boats, or boats and piers.

footboard
Vehicles can have a step {footboard}| at door bottom.

grille
Meshwork {grille} is on body in front of radiator.

jump seat
folding back seat {jump seat}.

monocoque
Body panels can form a frame {unitized construction} {monocoque}.

rumble seat
Folding seats {rumble seat} can be on backs of two-seater cars.

running board
Boards {running board} can be on sides below doors.

sidecar
Passenger car {sidecar} can attach to motorcycles.

spoiler
Vehicle top backs can have wings {spoiler}|, to hold down back at speeds above 150 km/hr.

undercarriage
under-body structural frame {undercarriage}.

undercoating
Thick wax-like materials {undercoating}, applied under car, can prevent rust.

wheelbase
distance from axle to axle {wheelbase}.

PRAC>Machine>Transportation>Vehicle>Boat

aquacade
boat parade {aquacade}.

flotilla
boat group {flotilla}.

head wind
Winds {head wind} can blow from front.

marina
boat docks {marina}.

merchant marine
commercial shipping {merchant marine}.

regatta
boat races {regatta}.

sea legs
habituated to rolling sea {sea legs}.

PRAC>Machine>Transportation>Vehicle>Boat>Actions

beat in sailing
sail across wind {beat, sailing}.

close-haul
sail as much upwind as possible {close-haul}.

luff
flap sail {luff}.

portage
carry boats and supplies between two rivers {portage}.

sounding as measuring
measuring distance to bottom {sounding}.

tack in sailing
sail upwind by sailing left and right at 45-degree angle {tack}.

PRAC>Machine>Transportation>Vehicle>Boat>Locations

aft
rear {aft}.

amidships
middle {amidships}.

fore
front {fore}.

larboard
left side {larboard}.

starboard

right side {starboard}.

stem of boat
bow large main beam {stem, boat}.

stern
rear {stern, boat}.

PRAC>Machine>Transportation>Vehicle>Boat>Measurement

beam of boat
maximum width {beam, boat}.

Plimsoll line
Hull lines {Plimsoll line} can show maximum allowed load.

tonnage
Ships can carry maximum mass {tonnage}|.

watch period
look-out period {watch}.

waterline
hull water level {waterline}.

PRAC>Machine>Transportation>Vehicle>Boat>Parts

bathyscaph
diving bell {bathyscaph}.

bilge
ship wastewater {bilge}.

buoy
anchored float {buoy}.

centerboard
A rectangular board {centerboard} can go up or down at center of small sailboats, to act as a keel.

davit
Curved arms {davit} on ship sides can raise and lower boats.

oarlock
U's {oarlock} can hold oar handles.

hydrophone
Telephones {hydrophone} can be for under water.

periscope
An extendable tube {periscope} can have lenses and mirrors or prisms, to see above water from submarines.

ribband
Wood or metal {ribband} can hold ship ribs during planking or plating.

running gear
non-permanent equipment {running gear}.

seine net
large vertical net {seine, net}.

PRAC>Machine>Transportation>Vehicle>Boat>Parts>Ballast

ballast
Weights {ballast} can be at ship bottoms for balance.

stabilizer
movable ballast {stabilizer}.

PRAC>Machine>Transportation>Vehicle>Boat>Parts>Grapple

grapnel
small three-hook anchor {grapnel}.

grappling iron
Large claws {grapple} {grappling hook} {grappling iron} can go over rails of adjacent ships.

PRAC>Machine>Transportation>Vehicle>Boat>Parts>Locations

bow of boat
front {bow, boat}.

bulkhead
Watertight walls {bulkhead} can be between ship compartments.

catbird seat
lookout seat near main-mast top {catbird seat}.

companionway
Ship stairs {companionway} can go from deck to cabins.

conning tower
An armored raised command room {conning tower} can be under bridge.

crow's nest
Lookouts {crow's nest} can be near main-mast tops.

galley on boat
kitchen {galley}.

gangplank
Walkways {gangplank} can go from ship to dock.

gunwale
side top {gunwale} {gunnel}.

hatch
Openings {hatch} can go from deck to below.

mizzenmast
third mast {mizzenmast}.

sponson

A gun-platform part {sponson} can project over side, for more firing angles.

stateroom
ship or train compartment {stateroom}.

topgallant
above topmast and below royal mast {topgallant}.

PRAC>Machine>Transportation>Vehicle>Boat>Parts>Anchor

mooring
anchor or dock {mooring}.

drogue
Sea anchors {drogue}| can measure currents at different depths.

sea anchor
Canvas {sea anchor} over conical frame can act as a drag to reduce drift.

sheet anchor
large emergency anchor {sheet anchor}.

PRAC>Machine>Transportation>Vehicle>Boat>Parts>Deck

hurricane deck
upper deck {hurricane deck}.

poop deck
aft deck {poop deck}.

quarterdeck
upper-deck rear {quarterdeck}.

PRAC>Machine>Transportation>Vehicle>Boat>Parts>Keel

keel
Large main beam {keel, boat} can attach to hull.

keelson
Wood timber {keelson} can bolt to keel.

stemson
A wood timber {stemson} can bolt to stem and keelson, where they meet near bow.

PRAC>Machine>Transportation>Vehicle>Boat>Parts>Rope

backstay
Wire {backstay} can go from mast top to stern.

hawser
towing or mooring rope {hawser}.

lifeline
Rope {lifeline} can go to drowning person.

ratline

Horizontal ropes {ratline} can allow climbing to sails.

rigging
mast and sail ropes and tackle {rigging}.

PRAC>Machine>Transportation>Vehicle>Boat>Parts>Sail

fore-and-aft sail
four-sided sail {fore-and-aft sail}, like diamond.

gaff sail
four-sided sail {gaff, sail}.

lateen
sail {lateen}.

sailcloth
nylon sail fabric {sailcloth}.

sheet as sail
sail {sheet}.

spanker sail
Four-sided sails {spanker} can be on aft-most lower mast.

square rig
Square sails {square rig} can be set horizontally.

PRAC>Machine>Transportation>Vehicle>Boat>Parts>Spar

spar
Wood or metal poles {spar} can hold sails.

bowsprit
Spars {bowsprit} can point forward from bow.

sprit
Diagonal spars {sprit} can be from peak across four-sided fore-and-aft sail.

yard of mast
Long poles {yard, mast} can be across mast.

yardarm
yard end {yardarm}.

PRAC>Machine>Transportation>Vehicle>Boat>Kinds

argosy
large commercial ship or fleet {argosy}.

ark
Noah's ship {ark}.

barge
flat-bottom freighter {barge}.

cutter as boat
Small boats {cutter} can carry supplies or passengers to ships, or war motorboats.

dory
Boats {dory} can have flat bottoms and high sides.

hydrofoil
Boats {hydrofoil} can have wing underneath.

icebreaker
Ships {icebreaker} can have reinforced bows.

launch as boat
motorboat {launch}.

lighter ship
Barges {lighter} can carry cargo from ship outside harbor to shore.

lightship
Ships {lightship} can be lighthouses.

liner ship
passenger ship {liner}.

merchantman
commercial ship {merchantman}.

outrigger
Boats {outrigger} can have board parallel to hull.

packet ship
passenger and cargo ship {packet, boat}.

sampan
Asian flat-bottom boat {sampan}.

scow
rectangular flat-bottom boat {scow}.

side-wheeler
Ships {side-wheeler} can have paddle wheels on side.

skiff
flat-bottom boat {skiff}.

stern-wheeler
Ships {stern-wheeler} can have paddle wheel at rear.

tender ship
Ships {tender} can carry supplies and people to larger ships.

tub boat
old boat {tub, boat}.

vessel as ship
boat or ship {vessel, ship}.

yacht
Sailboats or motorboats {yacht} can be for pleasure cruising.

PRAC>Machine>Transportation>Vehicle>Boat>Kinds>Small

dinghy
rowboat {dinghy}.

dugout
Canoes {dugout} can be logs.

gondola
Boats {gondola} can move and steer by poles.

kayak
Boats {kayak, boat} can be for one person to paddle.

longboat
large canoe {longboat}.

punt boat
Rectangular boats {punt, boat} can have flat bottoms and move and steer by pole.

shell boat
Long thin boats {shell, rowing} {rowing shell} can be for rowing contests.

PRAC>Machine>Transportation>Vehicle>Boat>Kinds>Sail

bark as ship
Ships {bark} can have three to five masts and square sails.

brigantine
Ships {brigantine} can have fore and aft masts and square sails.

caravel
small Spanish or Portuguese sailing ship {caravel} [1400 to 1600].

catamaran
Platform with sail can connect two narrow hulls {catamaran}.

catboat
catamaran {catboat}.

clipper ship
Ships {clipper} can have three tall sails and narrow hull.

dhow
Asian long, flat-bottom sailboats {dhow} can have lateen rigging.

galleon
Large ships {galleon} can have three masts and square sails [1400 to 1600].

junk ship
Ships {junk, ship} {junket, boat} can have flat bottoms, two or three masts, and triangular sails.

ketch
Ships {ketch} can have taller mast fore and smaller mast aft and square sails.

schooner
Ships {schooner} can have fore mast smaller than aft mast and triangular sails.

sloop
Boats {sloop} can have one mast and two triangular sails.

windjammer
sailing ship {windjammer}.

xebec
Ships {xebec} can have three masts and square and triangular sails.

yawl
Ships {yawl} can have tall fore mast and short aft mast, or small boat.

PRAC>Machine>Transportation>Vehicle>Boat>War Ship

battleship
largest ship besides aircraft carrier {battleship}.

corsair
fast ship used by pirates {corsair}.

corvette
War ships {corvette} can have three masts and square sails and be smaller and faster than frigates.

cruiser
war ship smaller than frigate {cruiser}.

destroyer
war ship larger than frigate {destroyer}.

dreadnought
battleship {dreadnought}.

flagship
main fleet ship {flagship}.

frigate
War ships {frigate} can have three masts and square sails [1600 to 1900]. War ships can be larger than cruisers and smaller than destroyers.

man-of-war
war ship {man-of-war}.

minesweeper
mine locating and removing ship {minesweeper}.

pocket battleship
small battleship {pocket battleship}.

submarine
Ships {submarine} can travel completely underwater.

trireme
Ships {trireme} can have three rows of oars.

U-boat
World War II German submarine {U-boat}.

PRAC>Machine>Transportation>Vehicle>Carriage

barouche
Carriages {barouche} can have four wheels, folding tops, and outside driver's seats.

brougham
Carriages {brougham} can have four wheels, hard tops and sides, and outside driver's seats.

buckboard
Carriages {buckboard} can have four wheels and bench seats.

buggy
Carriages {buggy} can have four wheels.

cabriolet
Carriages {cabriolet} can have two wheels, one horse, and folding top.

chaise carriage
Carriages {chaise} can have convertible top and two wheels.

chariot carriage
Carriages {chariot} can have two wheels for racing or fighting.

chuck wagon
Wagons {chuck wagon} can have food and utensils.

coach as carriage
Buses or long carriages {coach} can have four wheels.

Conestoga
Wagons {Conestoga} can have four wheels and cloth tops.

equipage
Carriages can have footmen {equipage}.

hansom
Carriages {hansom} can have two wheels, covers, and open driver's seats behind.

landau
Four-seat carriages {landau} can have movable roofs.

pedicab
rickshaw {pedicab}.

phaeton
Carriages {phaeton} can have four wheels, folding tops, no extra driver's seat, and two horses.

prairie schooner
Conestoga wagon {prairie schooner}.

shay
chaise {shay}.

sulky
Carriages {sulky} can be for one person and one horse with two wheels.

surrey
Carriages {surrey} can have two seats, four wheels, and one horse.

victoria carriage
Carriages {victoria} can have folding tops, four wheels, and high front driver's seats.

PRAC>Machine>Transportation>Vehicle>Carriage>Baby

perambulator
baby carriage {perambulator}.

pram
baby carriage {pram}.

stroller
baby carriage {stroller}.

PRAC>Machine>Transportation>Vehicle>Cart

dolly
Platforms {dolly} can have four casters.

dray
Strong platforms {dray} can have four small wheels.

pallet
Platforms {pallet} can have slots for lifting.

tumbrel
Carts {tumbrel} can have two wheels.

wheelbarrow
Carts {wheelbarrow} can have one wheel.

PRAC>Machine>Transportation>Vehicle>Sled

runner of sled
blade {runner}.

PRAC>Machine>Transportation>Vehicle>Sled>Kinds

bobsled
Sleds {bobsled} can have steerable front runners.

sledge
Low sleds {sledge} can have runners for snow and ice.

sleigh
High sleds {sleigh} can have runners for snow and ice and have horses.

PRAC>Machine>Transportation>Vehicle>Train

train
Vehicles {train, railroad}| {railroad train} can run on tracks.
force
Locomotives can use diesel engines or diesel-electric engines. Electric trains need a third rail, covered by insulator or buried in ground. Train shoe rides on third rail. Overhead wires can supply electricity. Arm reaches up from trolley to roller that rides on electric cable.
traction
Friction {traction, track} between rails and locomotive wheels pushes train.
grade
Track has angle {grade, track} to horizontal, which must be low enough for good traction.

iron horse
railroad engine {iron horse}.

rolling stock
train cars {rolling stock}.

PRAC>Machine>Transportation>Vehicle>Train>Kinds

cable car
coach attached to moving underground cable {cable car}.

elevated train
tracks raised above street level {elevated train} (el).

tram
Open passenger cars {tram} can be on tracks or hang from cables.

PRAC>Machine>Transportation>Vehicle>Train>Car

boxcar
rectangular {boxcar}.

caboose
small car with cabin, at train end {caboose}.

flatcar
platform with side posts {flatcar}.

PRAC>Machine>Transportation>Vehicle>Train>Track

track for train
Tracks {track, train} {railroad track} have standard width {gauge, track} between rails: 4 feet 8 1/2 inches. Narrow-gauge railroad uses narrower width. Model trains use HO gauge, in which eighth inch equals one foot, or other gauges.

spur of track
Railroad track {spur, track}| can have a dead-end branch, to hold waiting train cars or locomotives.

third rail
power rail {third rail} for electric train.

PRAC>Machine>Transportation>Vehicle>Truck

lorry
truck {lorry}.

paddy wagon
arrested-people or prisoner wagon {paddy wagon}.

panel truck
no back windows {panel truck}.

semitrailer
Trucks can have four or more wheels, front posts, and rear wheels {semitrailer} {semi}.

wrecker
tow truck {wrecker}.

PRAC>Military Affairs

army
Armies {army} can have full-time professional soldiers {standing army} or trained part-time soldiers {reserve army}.

dog tag
Stamped or inscribed metal {dog tag} can be for identification.

peace pipe
Pipe {peace pipe} sharing can happen at peace ceremonies.

report of gun
explosion or gunfire noise {report, rifle}.

shell shock
Physical or mental shock {shell shock} can result from exposure to combat.

PRAC>Military Affairs>Bugle

reveille
Bugle or drum calls {reveille} can wake up troops.

taps
Bugle calls {taps} can be for lights out or for funerals.

tattoo of bugle
Bugle calls {tattoo} can be calls to quarters.

PRAC>Military Affairs>Buildings

armory
weapon storage building {armory}.

bartizan
Scottish and French overhanging corner turret {bartizan}.

billet
troop lodgings {billet, lodging}.

bivouac

field camp {bivouac}.

boot camp
training camp {boot camp}.

brig
prison {brig}.

gibbet
gallows {gibbet}.

mess as room
dining room {mess}.

Post Exchange
military general store {Post Exchange} (PX).

pup tent
two-person tent {pup tent}.

PRAC>Military Affairs>Clothing

baldric
Chest straps {baldric} can hold sword or bugle.

bandoleer
Chest belts {bandoleer} can hold cartridges.

cat-o-nine-tails
Handle with nine knotted cords {cat-o-nine-tails} can be for whipping.

oak-leaf cluster
valor award {oak-leaf cluster}.

swagger stick
short cane with strap {swagger stick}.

PRAC>Military Affairs>Drill

drill in army
repeated marching pattern {drill, army}.

present arms
Point weapon {present arms}.

PRAC>Military Affairs>Flag

gonfalon
Banner {gonfalon} in frame, or bar with three points, can be for identification.

pennon
military-lance banner {pennon}.

standard as flag
flag {standard, flag}.

tricolor
French flag {tricolor}.

union jack
British flag {union jack}.

white flag for surrender
surrender indicator {white flag, surrender}.

PRAC>Military Affairs>Law

armistice truce
Truces {armistice} can be for negotiating peace treaties.

Black Maria
police van {Black Maria}.

brevet
pilot certificate {brevet}.

civil war
War {civil war} can be between regions or groups in one country.

court-martial
military court run by officers {court-martial}.

drumhead court-martial
Informal and quick military trial {drumhead court-martial} can have predetermined outcome.

furlough
leave of absence {furlough}.

mutiny
rebellion against captain {mutiny}.

pillory
Wood boards {pillory} can have head and hand holes, to punish people.

selective service
draft system {selective service}.

PRAC>Military Affairs>Protection

armorplate
protective metal sheet {armorplate}.

barricade
temporary barrier across route {barricade}.

battlement
fort-wall indented parapet {battlement}.

breastwork
chest-high temporary barrier {breastwork}.

bunker

ground fortification {bunker}.

citadel
Fortresses {citadel} can be on high ground near cities.

fastness
mountain fort {fastness}.

foxhole
Depressions {foxhole} can be dug in ground.

outwork
Earth or other barrier {outwork} can be outside better fortifications.

parapet
low embankment or wall {parapet}.

PRAC>Military Affairs>Protection>Personal

breastplate
chest armor {breastplate}.

buckler
small round shield {buckler}.

chain mail
Upper body armor {chain mail} can have metal links or scales.

greave
Armor plate {greave} can go from knee to ankle.

hauberk
chain-mail tunic {hauberk}.

PRAC>Military Affairs>Provisions

provisions
food {provisions}.

C ration
packaged meal {C ration}.

hardtack
hard flour and water biscuit {hardtack}.

K ration
prepared meal {K ration}.

materiel
military equipment and supplies {materiel}.

provender
provisions {provender}.

PRAC>Military Affairs>Soldier

commando
raider {commando}.

conquistador
Spanish military leaders {conquistador} were in Mexico and Peru [1500 to 1600].

gendarme
French policeman {gendarme}.

guerrilla
raider {guerrilla}.

gunrunner
People {gunrunner} can smuggle weapons.

mercenary soldier
Soldiers {mercenary, soldier} hired to fight can be from another place or group.

PRAC>Military Affairs>Soldier>Army

cadet
military-academy officer-training student {cadet}.

cavalier horseman
military horseman {cavalier, horseman}.

centurion
Roman-century member {centurion}.

chasseur
European light infantryman {chasseur, infantryman}.

chevalier
knight {chevalier}.

color guard
A small group {color guard} of finely dressed marching soldiers can transport flag.

conscript
draftee, or person compelled to serve {conscript}.

Cossack soldier
south-Russia military horseman {Cossack, horseman}.

doughboy
World War I American soldier {doughboy}.

dragoon
highly armed horseman {dragoon}.

GI
ground infantryman {GI}.

grenadier
regiment member {grenadier}.

hussar
European light cavalryman {hussar}.

janissary
Turkish guards {janissary} can be in sultan's personal service.

leatherneck
marine {leatherneck}.

legionnaire
French Foreign Legion member {legionnaire}.

medic
medical person {medic}.

musketeer
musket shooter {musketeer}.

paratrooper
parachute-using soldier {paratrooper}.

plebe
military-academy first-year person {plebe}.

scout
Soldiers {scout} can get information about area or enemy.

soldier of fortune
mercenary {soldier of fortune}.

storm trooper
Nazi militiaman {storm trooper}.

PRAC>Military Affairs>Soldier>Army>Officer

aide-de-camp
officer assistant to higher officer {aide-de-camp, army}.

brigadier
officer above colonel {brigadier}.

chief of staff
division or higher leader {chief of staff}.

colonel
officer higher than lieutenant colonel {colonel}.

commandant
military-post or functional-group leader {commandant}.

commissioned officer
trained officer higher than warrant officer {commissioned officer}.

field marshal
highest-rank European officer {field marshal}.

lieutenant
Army officers {lieutenant} can be below captain. Navy officers can be below lieutenant commander.

major
officer above captain {major, army}.

provost marshal
military police commander {provost marshal}.

quartermaster
Army officers {quartermaster} can be for food, clothing, and equipment. Navy petty officers can be for navigation.

warrant officer
officer higher than non-commissioned officer but lower than commissioned officer {warrant officer}.

PRAC>Military Affairs>Soldier>Army>Officer>Non-Commissioned

corporal
lowest non-commissioned officer {corporal}.

noncom
non-commissioned officer {noncom}.

non-commissioned officer
corporal or sergeant {non-commissioned officer} (NCO).

sergeant army
highest non-commissioned officer {sergeant}.

topkick
senior non-commissioned officer or master sergeant {topkick}.

PRAC>Military Affairs>Soldier>Navy

ensign
lowest commissioned navy officer {ensign}, below lieutenant.

admiral
officer commanding fleet or navy {admiral}, second highest rank.

commander
naval officer higher than lieutenant commander {commander}.

commodore
most senior naval-squadron captain {commodore}, or officer below rear admiral.

petty officer
navy non-commissioned officer {petty officer}.

rear admiral
officer higher than captain {rear admiral}.

yeoman of the guard
navy clerical petty officer {yeoman of the guard}.

PRAC>Military Affairs>Soldier>Groups

admiralty
naval court {admiralty}.

battalion
four infantry or artillery companies {battalion}.

brigade
several battalions {brigade}.

cavalry
military horsemen and horses, or armored vehicles and soldiers {cavalry}.

column
line of soldiers {column, soldier}.

corps
specialized military branch {corps, army}, such as Marine Corps.

division of soldiers
unit of corps {division, soldier}.

garrison soldiers
military-post soldiers {garrison, soldier}.

Gestapo
Nazi secret police {Gestapo}.

militia
local army {militia}|.

phalanx
10 rows of men with pikes {phalanx}.

platoon
Company units {platoon} can have two or more squads.

rear echelon
rear guard {rear echelon}.

rearguard action
fighting to secure retreat {rearguard action}.

reconnaissance
exploring area for military information {reconnaissance}.

regiment
two or more battalions {regiment}.

regular army
not a corps {regular army}.

shock troops
lead attackers {shock troops}.

squadron
Planes or vessels {squadron} can have two or more divisions.

PRAC>Military Affairs>Strategy

ballistics
projectile structure, function, and effects {ballistics}.

containment
policy of keeping enemy within current borders {containment}.

field of honor
battlefield or dueling ground {field of honor}.

firing line
riflemen facing enemy {firing line}.

mailed fist
threat {mailed fist}.

militarism
policy of using military force {militarism}.

pincer
Soldiers can advance around right and left enemy flanks {pincer}.

stratagem
deceptive or surprise movement {stratagem}.

war game
practice battle {war game}.

PRAC>Military Affairs>Weapon

armament
weapon {armament}.

arsenal
available weapons {arsenal}.

ballistic missile
Missiles {ballistic missile} can ascend under power and then glide on trajectory to target.

barb weapon
Backward points {barb on weapon} can be on weapons.

battleaxe
heavy ax {battleax} {battleaxe}.

bazooka
rocket firer {bazooka}.

brass knuckles
Metal shaped to fit over fingers {brass knuckles} can strike people.

caltrop

Sharp spikes, jacks, or spurs {caltrop} can be in ground to injure charging horses, as used by Robert the Bruce at Bannockburn.

flame-thrower
burning fuel shooter {flame-thrower}.

grenade
Small bombs {grenade, bomb} can have a fuse, to throw or launch.

guillotine
A falling blade can cut off heads {guillotine}.

mace as weapon
Handles can have a metal spiked ball {mace, weapon}.

megaton
Bombs can have same explosive power as one million tons of dynamite {megaton}.

range finder
Devices {range finder} can measure distance for artillery.

shrapnel
shell fragments or metal balls {shrapnel}.

PRAC>Military Affairs>Weapon>Cannon

artillery
cannons {artillery}.

battery of cannon
cannon set {battery, gun}.

howitzer
high shooting cannon {howitzer}.

PRAC>Military Affairs>Weapon>Holder

pillbox
roofed concrete hut for machine gun {pillbox}.

trunnion
Cylinders {trunnion} on middle cannon side can rest in U-shaped holders to pivot cannon up or down.

turret
Rotating tank tops {turret}, or ship domes, can contain large guns.

PRAC>Military Affairs>Weapon>Munition

magazine
ammunition storage area {magazine}.

munitions
ammunition and guns {munitions}.

ordnance
weapons and ammunition {ordnance}.

powder horn
Cones {powder horn} can hold gunpowder.

powder keg
Barrels {powder keg} can hold gunpowder.

PRAC>Military Affairs>Weapon>Vehicle

caisson
Ammunition boxes or ammunition wagons {caisson} can have two wheels and a horse.

half-track
Vehicles can have front wheels and front back caterpillar tracks {half-track}.

panzer
armed tank {panzer}.

PRAC>Military Affairs>Weapon>Bow

ballista
Large crossbows {ballista} can throw large balls.

cross bow
Arrow holders with bow affixed {cross bow} can allow pulling back string and holding it until released manually.

PRAC>Military Affairs>Weapon>Club

billy club
short wood club {billy}.

blackjack club
short leather-clad club {blackjack, weapon}.

cudgel
short thick club {cudgel}.

nightstick
police club {nightstick}.

quarterstaff
long wood pole {quarterstaff}.

shillelagh
Irish club {shillelagh}.

truncheon
short police stick {truncheon}.

PRAC>Military Affairs>Weapon>Firing

ack-ack
anti-aircraft fire {ack-ack}.

ambuscade
barrage {ambuscade}.

barrage
multiply fired cannon or missiles {barrage}.

broadside by guns
firing all guns on one side {broadside, ship}.

cannonade
continual artillery fire {cannonade}.

flak gunfire
anti-aircraft fire {flak, gunfire}.

fusillade
near simultaneous rifle or cannon firing {fusillade}.

salvo
simultaneous fire from a gun set {salvo}.

strafe
airplane or helicopter machine gun firing {strafe}.

volley of gunfire
sequential rifle or rocket firing {volley}.

PRAC>Military Affairs>Weapon>Gun

gun
A hammer hits a chemical {fulminate, material} that ignites on impact {gun}. Fulminate ignites gunpowder behind bullet {firing, gun}. Expanding gas pushes bullet. Bullet goes down tube {barrel, gun}, which has spiral grooves {rifling, gun} to spin bullet. Longer barrel is more accurate and gives more distance. Fulminate, gunpowder, and bullet can be separate. Bullet can be in shell filled with powder, with percussion cap containing fulminate on back {cartridge, bullet}.

riot gun
Guns {riot gun} can have plastic or rubber bullets and low power.

shotgun
Smoothbore guns {shotgun} can shoot pellets.

PRAC>Military Affairs>Weapon>Gun>Pistol

derringer
small American pistol {derringer}.

forty-five
0.45-caliber pistol {forty-five}.

magnum gun
high-caliber pistol {magnum, handgun}.

thirty-eight
0.38-caliber pistol {thirty-eight}.

thirty-two
0.32-caliber pistol {thirty-two}.

twenty-two
0.22-caliber pistol {twenty-two}.

zip gun
pistol assembled at home {zip gun}.

PRAC>Military Affairs>Weapon>Gun>Old

blunderbuss
Short muskets {blunderbuss} can have a wide opening, to shoot shot over a wide area.

breechloader
In guns {breechloader}|, bullet and powder can be separately put into barrel back end {breech, gun}. It became obsolete after cartridges began.

flintlock
In old muzzle-loading rifle {flintlock}|, using flintlock, hammer struck flint, sparks went through hole in barrel back, and gunpowder ignited. Alternatively, hammer with flint tip hit metal plate {frizzen}, and sparks exploded powder in pan [1600 to 1700].

matchlock
lighted match explodes powder in pan [1350 to 1400], or muzzle-loading rifle using matchlock {matchlock}.

musket
Rifles {musket} can have a long smooth-bore barrel.

muzzleloader
Shooter pushes bullet and charge down muzzle to make it ready to fire {muzzleloader}.

PRAC>Military Affairs>Weapon>Gun>Automatic

automatic weapon
repeating rifle or gun {automatic weapon}.

burp gun
machine gun {burp gun}.

Gattling gun
early machine gun {Gattling gun}.

semiautomatic weapon
Guns {semiautomatic weapon} can fire repeatedly or fire manually in single shots.

submachine gun
shoulder-fired machine gun {submachine gun}.

tommy gun
0.45-caliber submachine gun {tommy gun}.

PRAC>Military Affairs>Weapon>Gun>Rifle

air rifle
Guns {air rifle} can use compressed air.

automatic rifle

Clip, magazine, or belt can automatically feed cartridges to gun {automatic rifle}| {machine gun}. Automatic guns can shoot hundreds of shots {round, gun} per minute. Power of exploding powder ejects shell and inserts new cartridge.

carbine
short-barrel rifle {carbine}.

rifle
Guns {rifle, weapon}| can have long barrels and use cartridges. Cartridges load one at time.

Springfield rifle
Clip, magazine, or belt can manually feed cartridges into gun {Springfield rifle}|.

PRAC>Military Affairs>Weapon>Gun>Parts

bayonet
rifle-end knife {bayonet}.

bolt of gun
A sliding bar {bolt, rifle} can eject an empty cartridge and put in a new cartridge.

bore of gun
gun barrel inside {bore}.

butt of gun
rifle or pistol handle {butt, rifle}.

caliber
gun-barrel inside diameter {caliber}.

cross hairs
sight horizontal and vertical strings {cross hairs}.

firing pin
Bolt tip {firing pin} can hit primer.

grapeshot
small iron cannon balls {grapeshot}.

hair-trigger
Triggers {hair-trigger} can fire with light touch.

muzzle of gun
barrel front {muzzle, gun}.

PRAC>Military Affairs>Weapon>Gun>Parts>Bullet

BB
small metal ball {BB}.

blank cartridge
cartridge with no bullet {blank}.

buckshot
Small lead balls {buckshot} can be in shotgun shells.

dumdum
Soft bullets {dumdum} can expand on contact.

sabot
Bullets {sabot} can be in plastic jackets.

tracer
Bullets {tracer} can have lights to show enemy positions.

PRAC>Military Affairs>Weapon>Knife

bowie knife
Long hunting knives {bowie knife} can have one edge.

machete
Large broad-blade knives {machete} can cut vegetables.

shiv
knife {shiv}.

switchblade
Folding knives {switchblade} can swing open by a spring.

yataghan
Turkish curved one-edge long knife {yataghan}.

PRAC>Military Affairs>Weapon>Knife>Dagger

dirk
dagger {dirk}.

poniard
dagger {poniard}.

stiletto
small dagger {stiletto}.

PRAC>Military Affairs>Weapon>Mine

claymore
mine {claymore}.

depth charge
Boats can drops mines {depth charge} into water to hit submarines.

PRAC>Military Affairs>Weapon>Rope

bola
Ropes {bola} can have weights at ends, to trip animals.

bullwhip
heavy long whip {bullwhip}.

garrote
Strangulation {garrote} {garrotte} can be by wire or iron collar.

lariat
lasso {lariat}.

lasso
Ropes {lasso} can have an adjustable noose.

PRAC>Military Affairs>Weapon>Spear

halberd
Long handles can have an ax blade and a spike [1400 to 1600] {halberd}.

lance spear
Long handles can have a metal point {lance, weapon}.

pike as weapon
Long spears or handles can have a metal point {pike, weapon}.

pikestaff
pike on staff {pikestaff}.

trident
Handles can have three large tines {trident}.

PRAC>Military Affairs>Weapon>Sword

bilbo
small sharp-pointed double-edge sword {bilbo}.

bolo
Philippine heavy machete {bolo}.

broadsword
Swords {broadsword} can have a wide double-edged blade.

cuirass
sword {cuirass}.

cutlass
short thick curved sword {cutlass}.

falchion
straight or curved short broad one-edged sword {falchion}.

haft
sword or knife handle {haft, sword}.

hilt
Sword or knife handle part {hilt} can be next to blade.

rapier
double-edge sword {rapier}.

scabbard
dagger or sword sheath {scabbard}.

scimitar

Near-Eastern curved sword {scimitar}.