

# Primary Index-----

Note: People's names are in bold print.

At the end of this primary index are additional indexes.

## A

abdomen, 104, 126-27, 213  
absorption, 104  
acne, 128, 140  
adapted, 254  
addicts, 286  
adrenal glands, 126, 160-61  
adrenaline, 160  
AIDS, 51, 268-69  
air pollution, 282  
alcohol, 127, 209, 285-87  
algae, 16, 20, 23, 31, 40, 42,  
50, 54, 68  
alligator, 202  
alpha waves, 155  
alveoli (air sacs), 122-23  
alveolus (air sac), 122-23  
amber, 257  
ameba 40, 44, 171  
American Chestnut tree,  
176, 182  
amino acids, 65, 80, 102,  
229-30, 232, 274-75  
amphibians, 56, 200-01  
anemia, 85  
anemone, 55, 196  
angioplasty, 277  
animal cell, 38, 42, 43  
animal kingdom, 54  
anoles, 174  
antacid, 105  
anther, 181  
antibiotic, 172  
antibodies, 229, 274-5  
antioxidants, 91  
anus, 99, 105, 197  
aorta, 110, 113  
appendectomy, 104  
appendicitis, 104  
appendix, 99, 104  
archaea, 50  
archaeopteryx, 259  
armadillo, 57  
arteries, 108-9, 112, 277-78  
arthritis, 133, 267  
artificial heart, 114  
artificial kidney, 126

asexual reproduction, 170, 172  
-in animals, 174-75  
-in plants, 176  
Asian bush honeysuckle, 29,  
180  
Asian carp, 29  
athletic trainers, 119  
ATP, 71-72  
atria, 111  
atrium, 110, 113  
axon, 149-50

## B

bacteria, 3, 50, 105, 267-70  
**Bakker, Dr. Bob**, 256  
balanced diet, 90-91  
balanced ecosystem, 31  
ball-and-socket joint, 132  
basking, 200  
bears, grizzly, 87  
**Beaumont, William**, 100  
behavior, 143  
benign tumor, 281  
beta waves, 155  
bias, 10, 112, 244  
biceps, 135  
bile, 102  
binary fission, 170  
biodiversity, 12-13, 24-5, 54,  
63, 68  
biofeedback, 155  
biologists, 5  
biology, 5  
biomagnification, 20, 30  
biome, 25  
biosphere, 5  
birds, 56, 204-06  
birth canal, 207-08  
Biuret solution, 81  
bladder, 127, 208  
blending traits, 240-41  
blind spot, 166  
blindness (and diet), 82, 84-85  
blinking, 166  
**Bloch, Dr. C.E.**, 82  
blood, 106-07  
blood cells, 44, 106-07, 273-74  
blood clot, 278-79  
blood pressure, 109, 278-79

blood transfusions, 106  
blood vessel disease, 277,  
279  
blood vessels, 104, 108  
bloodstream, 108  
blubber, 79  
blue babies, 115  
bodily wastes, 126  
body cells, 110, 219-20, 225  
body temperatures, 73, 128,  
155  
bone cell, 44  
bone marrow, 108, 131, 273,  
282  
bones, 130-33  
brain, 149-54  
brain map, 153  
breathing, 125  
brine shrimp eggs, 2  
bromothymol blue, 124  
bronchi, 121-22, 273  
bronchus, 121  
**Brown, Louise**, 207  
bud  
-in plant, 177  
-in yeast, 171  
budding (yeast), 171  
bulb, 177  
bumbees, 180  
**Burbank, Luther**, 52  
burning bush, 180

## C

calcium, 83, 140  
calories, 87-88  
cambium, 75  
cancer, 51, 123, 281-3, 285-6  
capillaries, 108-10, 112-13,  
128  
carbohydrates, 78-79, 91, 102  
-simple, 79 -complex 79  
carbon, 66  
carbon dioxide, 3, 14, 31, 49,  
69, 110, 124  
carbs (carbohydrates), 79  
carcinogens, 282  
cardiac, 136  
cardiac muscle, 136  
carnivore, 18, 58

carrier, 250  
**Carson, Rachel**, 30  
 cartilage, 121, 123, 132  
 cartilage rings, 121-22  
 cast, 258  
 caterpillar, 213  
 cell, 40, 65  
 cell membrane, 40  
 cell respiration, 71-72, 121, 125  
 cell wall  
   -in algae, 42  
   -in bacteria, 42, 172  
   -in plants, 42  
 cellulose, 42, 79  
 centipede, 213  
 central nervous system, 149  
 centrifuge, 106  
 CER (claim; evidence; reasoning), 6, 9  
 cerebellum, 150, 153-54  
 cerebrum, 150, 153-54  
 chemical digestion, 100  
 chemical messenger, 159  
 chemoprotection, 281  
 chemotherapy, 282  
 chicken egg, 205-06  
 chicken pox, 274  
 chimpanzee, 30, 157, 209  
 clinical social worker, 167  
 chlorine, 66  
 chlorophyll, 42, 69  
 chloroplasts, 42, 69, 260-61  
 cholesterol, 80, 91, 277-8  
 chromosomes, 219-21  
 cilia, 121, 273  
 circulate, 108, 112  
 circulatory system, 108  
 class, (classification), 48  
 climate, 25  
 climate change, 31  
   -see global warming  
 climax community, 22  
 climax plants, 22  
 clinical social worker, 167  
 clone, 175-76  
 clot, 278-79  
 clownfish, 196  
 cnidaria, 54-55  
 coal, 31, 257  
 cocaine, 286  
 cocoon, 211  
 cold-blooded animals, 205  
 community, 12  
 compare, 9

complete metamorphosis, 210-11  
 complex carbohydrates, 79  
 complex organisms, 45  
 compound, 66  
 compound microscope, 40  
 conclusion, 6  
 conditioned response, 155  
 conditioning, 155  
 cones (of trees), 187  
 coniferous forest, 25-26  
 conifers, 53  
 consumers  
   -first level, 16, 18  
   -second level, 16, 18  
   -third level, 16  
 contagious diseases, 267, 270  
 contract, 110, 135  
 control, 9, 10, 11, 281  
 control group, 10, 11, 281  
 controlled experiment, 10  
 coral, 54-55, 196  
 coral bleaching, 54  
 coral reef, 54  
 cornea, 146  
 coronary arteries, 278  
 counselor, 149  
 covering cells, 44  
 COVID-19, 51, 268-70, 272, 274, 276  
 CPR, 124  
**Crick, Francis**, 223  
 CRISPR, 249-50  
 cross pollination, 182  
 cultivator, 223, 226  
 cutting, 178  
 cyanobacteria, 50  
 cycle, 14  
 cystic fibrosis, 252  
 cytoplasm, 40

## D

**Darwin, Charles**, 254-55  
 data, 6  
 data table, 6  
 DDT, 30  
 decay bacteria, 18  
 deciduous forest, 25-26  
 decomposers, 18  
 deficiency disease, 83  
 dehydrated, 83  
 dementia, 149  
 depressants, 286-87  
 dermatologist, 128  
 desert, 25-26

diabetes, 90, 160  
 dialysis, 126  
 diaphragm, 125  
 diarrhea, 105  
 diatoms, 50  
 diet, 90-91  
   -fad, 81, 90  
   -vegetarian, 80  
 diffusion, 107, 110, 113, 123, 197  
 digestion, 98  
 digestive system, 97-98  
 dinosaurs, 256  
 DNA, 42, 48, 50-51, 209, 220, 224, 228-31, 231, 260  
 DNA fingerprinting, 238  
 Dolly, cloned sheep, 175  
 domain, 48, 50  
 domain archaea, 50  
 domain bacteria, 50  
 domain eukarya, 50  
 dominant genes, 236, 238-40, 250  
 dominant plants, 22  
 dominant traits, 235-36  
 double helix, 223  
 downers, 286  
**Drew, Dr. Charles**, 106  
 drug, 286  
 drug abuse, 286  
 drug dependence, 286  
 dry fruit, 185  
 duckbill platypus, 207  
**Dudrick, Dr. Stanley**, 102

## E

eagle, bald, 30  
 ear, 147  
 eardrum, 147  
 eating disorder, 90  
 ecologists, 5  
 ecology, 5  
 ecosystems, 12  
 eel, 5  
 egg, 181, 193  
 egg layers (mammals), 57, 207  
 egg tube, 197, 205, 207  
 electron microscope, 39  
 elements, 65  
 elodea, 43  
 embryo, 108, 169, 184-85, 194, 246  
 emerald ash borer, 211  
 emperor penguins, 204  
 endangered species, 31, 87

Endangered Species Act, 30, 87  
 endocrine glands, 160-61  
 endocrine system, 160-61  
 endorphins, 159-60  
 endosymbiosis, 261  
 energy, 70-73  
 energy sources, 31  
 environment, 2  
 enzymes, 80, 99, 100, 102  
 epiglottis, 97  
 equation, 70-72  
 erection, 207  
 esophagus, 98, 100  
 ethology, 30, 143  
 eukarya, 50  
 European starling, 29  
 evolution, 254, 257, 272  
 excretion, 127  
 exhale, 123-25  
 exoskeleton, 55, 210  
 experiment, 6, 9  
 external fertilization, 198, 200  
 extinct, 31, 256  
*Exxon Valdez*, 49  
 eye (human), 146  
 eye (potato), 177

## F

face mask, 270  
 fad diet, 81, 90  
**Fahey, Jed**, 281  
 Fallopian tube, 207  
 family (classification), 48  
 fats, 66, 79-80  
 fatty acids, 102  
 feces, 105  
*Felis*, 46-47  
*Felis domesticus*, 46  
 fentanyl, 286-87  
**Ferguson, Dr. Angelia**, 249  
 fermentation, 170  
 ferns, 53  
 fertilization, 193, 226  
   -external, 198, 200  
   -internal, 198, 201, 205, 210  
   -in flowers, 181-82  
 fertilize, 193  
 fertilized egg, 193, 207, 209  
 fetal alcohol syndrome, 285  
 fetus, 209  
 fiber, 78-79, 105  
**Fikrig, Dr. Erol**, 267  
 filament, 181

fingerprints, 238  
 first line of defense, 273  
 fish, 5, 56, 196-99  
 fission, 170  
 fixed joints, 132-3  
 flatworms, 55, 175  
 flavors (sensing), 147  
**Fleming, Sir Alexander**, 172  
 flowering plants, 53  
 flower parts, 181  
 flowers, fertilization in, 181-82, 184  
 flu, 51, 268-69  
   -1918 flu, 272  
 fly, 4, 5  
 food chain, 16  
 food desert, 90  
 food makers, 16  
 food web, 18  
 forceps, 43  
 forests, 22, 24-26  
 formula, 66  
 fossil fuels, 49  
 fossils, 256-58  
**Franklin, Rosalind**, 223, 284  
 fraternal twins, 246  
 frogs, 200-01, 203  
 fruit, 185-86  
 fruit flies, 237  
 fuels, 71, 78-81  
 function, 223  
 fungi, 14, 16, 18, 23, 51, 170-73, 178

## G

gallbladder, 99, 102  
 gap (between neurons), 149-50  
 gardeners, 63  
 garter snake, 202  
 gases, 65-66  
 gastric juice, 100  
 gay, 244  
 gender, 244-46  
 gender identity, 244  
 gene editing, 249  
 genera, 48  
 genes, 219-21  
 genetics, 219, 221  
 genetic disorders, 250  
 genetic engineering, 228  
 genetically modified, 176  
 genus, 48

geo, 144  
 geotropism, 144  
 germinate, 185  
 germs, 268, 272-75  
 GH (growth hormone), 160, 228  
 gills, 197  
 gizzard, 101  
 glands  
   -digestive, 100, 102  
   -endocrine, 160-61  
 global warming, 31, 36, 49, 54, 68, 204  
 glycerol, 102  
 GMO, 176, 182  
**Goodall, Jane**, 30  
 grafting, 52, 178  
 grains, 79, 91  
 grasslands, 25, 27  
**Gray, Victoria**, 249  
 grizzly bear, 87  
 growth hormone (GH), 160, 228  
 grub, 210  
**Gruentzig, Dr. Andreas**, 277

## H

habitat, 24, 28, 31  
 hallucinogens, 286-87  
 hamstrings, 137  
 hare, snowshoe, 28  
**Harvey, William**, 112  
 head  
   -of insect, 213  
   -of sperm, 193  
 Healthy Eating Pyramid, 64, 91, 281  
 hearing, 147  
 heart, 108-15  
 heart attack, 278  
 heart disease, 114  
 heat transplant, 114  
**Heimlich, Dr. Henry**, 97  
 Heimlich "Hug," 97  
 hemoglobin, 106  
 hemophilia, 251-52  
 herbivores, 18  
 herpetologists, 200  
 herps, 200  
 high blood pressure, 278-79  
 hinge joint, 132  
 hip replacement, 134  
 HIV (virus), 51, 269, 272-74  
*Homo neanderthalensis*, 130, 133

*Homo sapiens*, 48, 130  
 honeysuckle bush, 29, 180  
**Hooke, Robert**, 40  
 hormones, 159-61, 176  
 horse  
   -*evolution of*, 257  
   -*zebra birth*, 169  
 hotspots, 24  
 HPV virus, 51, 268-70  
 human genome project,  
   227  
 human growth hormone,  
   228, 160  
 human reproductive system,  
   207-09  
 humus, 25  
 Huntington's disease, 250-51  
 hybrid, 235-36, 238-40  
 hydra, 1  
 hydrated, 83  
 hydrocarbons, 49  
 hydrogen, 66  
 hypothesis, 6

## I

ice ages, 31  
 identical twins, 246  
 infectious, 268-70  
 inferring, 9, 11, 154  
 inhale, 121-23, 125  
 immune, 274  
 immune system, 272  
 immunity, 274  
 imprinting, 143  
 in vitro, 207  
 in vitro fertilization, 207  
 in vivo, 207  
 inborn behavior, 156  
 incomplete metamorphosis,  
   211-12  
 incubate, 205  
 Indian corn, 234  
 inflammation, 104  
 inhalants, 286-87  
 inhale, 121, 125  
 inherited traits, 219  
 inner ear, 147-48  
 insect, 55, 213  
 insulin, 160, 228  
 intercourse, 208  
 internal fertilization, 198  
 internet, 6  
 intestines, *See*  
   *large intestine; small intestine*  
 invasive species, 29, 180, 211

invertebrates, 54  
 involuntary action, 151-52  
 involuntary muscle, 136  
 involuntary response, 143  
 iodine, 43, 84, 101, 186  
 iris, 146  
 iron, 66, 83-4, 91  
 IVF, 207

## J

**Jackson, Bo**, 134  
**Jeffreys, Alec**, 238  
**Jenner, Edward**, 9, 10, 274  
 joints, 132-33  
 jumping beans, 210  
 jumping genes, 234  
**Just, Dr. Ernest**, 193

## K

kelp, 31, 50, 68  
 kidneys, 127  
   -*artificial*, 126  
 kingdom, 47-48

## L

labor, 209  
 landscape architects, 63  
 landscape maintenance  
   contractors, 63  
 large intestine, 98-99, 102, 105  
 larvae, 210-11  
 larynx, 122-3  
 laughter, 159  
 laypeople, 7  
 learned behavior, 155  
 leaves, 75  
**Leeuwenhoek, Anton van**,  
   39  
 lens (eye), 146  
 lens (magnifying), 40  
 leukemia, 282  
 lichens, 23, 24, 26, 196  
 life cycle, 198  
 life functions, 1  
 ligaments, 132  
 limiting factor, 28-29  
 lines of defense, 273  
**Linnaeus, Carolus**, 46  
 liver, 99, 102, 160  
 living things, 1-5  
 lizards, 174, 200, 202  
**Lorenz, Konrad**, 143  
 Loricifera, 54  
 lung capacity, 122

lungs, 111, 113, 121-23, 125,  
   127  
 Lyme disease, 267, 270  
 lynx, 28

## M

maggots, 4-5, 210  
 malaria, 10, 268-70  
 malignant tumor, 281  
**Malpighi, Marcello**, 112  
 mammals, 55-59,  
   -*reproduction*, 207-9  
 mammary glands, 207  
 mammoth, woolly, 31, 257  
**Margulis, Lynn**, 260-61  
 marine, 50  
 marrow, 108, 131, 273, 282  
 matter, 65  
**McClintock, Barbara**, 234  
**McCollum, Dr. E.V.**, 82  
 measles, 51, 269  
 measurement, 6  
 meat, 79-81, 91, 100, 102  
 mechanical digestion, 100  
 medical laboratory assistant,  
   292  
 medulla, 150, 153-54  
 meiosis, 225  
 melatonin, 163  
 memory, long term, 92, 163  
 memory, short term, 92, 163  
**Mendel, Gregor**, 235  
 menstruation, 208  
 mental health technician,  
   167  
 mercury, 20  
 messenger RNA, 228,  
   230-32, 274-75  
 metamorphosis, 201, 210-12  
 methane gas, 31, 65  
 Mexican arrow plant, 210  
 microbes, 40, 49-50, 272  
 microbiome, 78-79, 104-05, 270  
 microbiota, 78-79, 104-05, 270  
 microscope, 39-41, 108  
 microsphere, 65  
 middle ear, 147  
 milk, in mammals, 207  
**Miller, Stanley**, 65  
 Minamata bay, 20  
 minerals, 83-85  
 mitochondria, 42, 71-72, 260-61  
 mitosis, 224-26  
 model building, 233

mold  
 -fossil, 258  
 -fungus 51, 172-73  
 molecules, 66, 98  
 molt, 54, 211  
 monarch butterfly, 210-11  
 mosquitoes, 270  
 moss, 52  
 motor nerves, 150-51  
 Mount Everest, 121  
 Mount St. Helens, 22  
 mouth, 98, 100  
 MRI (Magnetic Resonance Imaging), 244  
 mRNA, 228, 230-32, 274-75  
 mucus, 121, 273  
**Mullis, Kary**, 238  
 muscle tissue, 136  
 muscles, 134-37  
 mushroom, 14, 51  
 mutation, 254, 272  
 mycorrhizae, 14

## N

native plant, 180  
 native species, 29, 180  
 natural selection, 254, 272  
 Neanderthals, 130, 133  
 nerve cell, 44-45, 149-50  
 nerve ending, 146, 151  
 nerve fibers, 150  
 nerves, 44, 45  
 nervous system, 45, 149  
 neurologist, 92  
 neuron, 45, 149  
 neurosurgeon, 153  
 niche, 28-29  
 nicotine, 285-87  
 nitrate, 14-16  
 nitrogen, 14-16, 18, 54, 68  
 nitrogen cycle, 14-15  
 non-binary, 244  
 nonvascular plants, 52  
 nonwoody stems, 75  
 nose, 121-22, 147  
 nucleus, 40-41  
 nurse aides, 292  
 nurses, 292  
 nutrients, 78  
 nutrition, 91  
 nutritionists, 91  
 nymph, 211-12

## O

obesity, 90

objectively, 244  
 observation, 6  
 odor, 147  
 offspring, 170  
 oil spill, 49  
 oils (vegetable), 80  
 omnivore, 18  
On the Origin of Species, 255  
 optic nerve, 146  
 order (classification), 48  
 organism, 1  
 organ system, 45  
 organs, 45  
 outer ear, 147  
 ovary  
   -animals, 193, 207-08  
   -flowers, 181-82  
   -human, 160-61, 207-08  
 overdose, 83  
 oxygen, 3, 14, 66, 69-72, 74, 108, 110, 113  
 oxygen/carbon-dioxide cycle, 14

## P

pacemaker, 114  
 pain, 151  
 paleontologist, 256  
 paleontology, 256  
 pancreas, 99, 102, 160-61  
 pandemic, 272  
 pangolin, 276  
 paramecium, 50, 170-71  
 parasite, 50, 76, 268  
**Pasteur, Louis**, 5, 172, 274  
 pattern, 9, 11, 131, 213, 235, 238, 259, 261  
**Pauling, Linus**, 233  
**Pavlov, Ivan**, 155-56  
**Pence, Valerie**, 176  
**Penfield, Dr. Wilder**, 153  
 penguins, 204-05  
 penicillin, 172, 286  
*Penicillium*, 172  
 penis, 207  
 peppered moths, 253-54  
 period (menstrual), 208  
 periodic table, 65  
 peristalsis, 100, 105  
 petals, 181  
 petri dish, 172  
 phloem, 75  
 photosynthesis, 70, 72  
 phototropism, 145

phylum, 48, 52, 54-55, 59  
 physical therapist, 119  
 pioneer community, 22  
 pioneer plants, 22  
 pistil, 181-82  
 pitcher plant, 16  
 pith, 75  
 pituitary gland, 160-61  
 pivot joint, 132  
**Pizzo, Chris**, 121  
 placenta, 209  
 plague, 272  
 planarian, 55, 175  
 plant cell, 38, 42-43  
 plant kingdom, 48, 52  
 plant tissue culture, 176  
 plants, 48, 74-76, 176, 180, 184  
 plaque, 277-78  
 plasma, 106  
 platelets, 106  
 platypus, 57, 207  
 pollen, 180-82  
 pollen tube, 182  
 pollination, 182  
 pollution, 31  
 population, 12  
 population, human, 31, 36  
 pore, 128  
 potassium, 83  
**Pothineni, Venkata Raveendra**, 267  
 predator, 16, 18, 28  
 pregnancy, 209  
 pregnant, 209  
 prey, 16, 18, 28  
**Priestly, Joseph**, 74  
 prints, 257  
 producers, 16, 18, 20  
 protein, 15-16, 42, 65-66, 80-81, 87-88, 91, 99-100, 102, 106, 228-32, 251-52  
 protists, 50  
 protozoa, 40, 50  
 psychiatric nurse  
   practitioner, 167  
 psychiatric social worker, 167  
 psychiatric technician, 167  
 psychiatrist, 149, 167  
 psychologist, 149, 167  
 psychology, 167  
 pulse, 110  
 Punnett square, 239-40, 250, 252

pupa, 211  
pupil, 143-44, 146  
pure (trait), 235

## Q

“quad” muscle, 137

## R

rabies, 269-70, 272  
radiation, 282  
radiation therapy, 282  
rainforest, 24-26  
**Rajadas, Jayakumar**, 267  
Raynaud’s disease, 155  
reasoning, 156-57  
recessive genes, 236, 238-40, 250-252  
recessive trait, 235  
rectum, 98, 105  
red blood cells (RBCs), 106  
red clover, 180-81  
red meat, 91  
**Redi, Francesco**, 4  
reflex, 151, 153  
regeneration, 174-75  
reproduction, 3  
    -in higher animals, 193-209  
    -in humans, 207-09  
reproduction  
    -in plants, 176-87  
    -in simple organisms, 170-73  
reptile, 56, 200-02  
respiration, 121, 125  
respiratory system, 121  
response, 2, 143-44, 151, 155  
retina, 146  
ribosomes, 42, 230-32, 274-75  
ribs, 125  
RNA, 51, 228, 230-33  
robots, 1  
root cells, 76  
root hairs, 76  
roots, 76  
Royal Society, 10

## S

**Sabin, Dr. Florence**, 108  
SADD (Students Against Drunk Driving), 285  
saliva, 100-01, 152  
salivary glands, 99, 152  
salt, 66  
scab, 107

scavengers, 18  
scientific name, 46, 48  
scientific thinking, 5-7, 9-11  
screen time, 92, 163  
scrotum, 207-08  
sea anemone, 55, 196  
sea slug, 175  
sea urchin, 193-94  
**Sedlacek, Dr. Keith**, 155  
seed, 80, 182, 184-85  
seed coat, 184-86  
seed pod (or seedpod), 185-86  
seeing, 146  
self-pollination, 182  
semicircular canals, 148  
sense organs, 146  
sensory nerves, 150-51  
sepals, 181  
**Servheen, Chris**, 87  
sex cells, 181, 219-20, 225-26,  
sex chromosomes, 244-47, 251-52  
sexual reproduction, 170, 181-82, 184, 186, 193-213  
sexually transmitted infections, 269-70  
shark, 56, 197-98, 269  
sickle cell disease, 249-50  
Silent Spring, 30  
silks (corn), 183  
**Simard, Suzanne**, 14  
simple carbohydrates, 79, 102  
simple microscope, 39  
skeletal muscle, 135-36  
skeleton, 131-32  
skin cell, 41, 44  
skinks, 174  
skull, 131  
sleep, 90, 92, 163  
small intestine, 98-100, 102, 104-05  
smallpox virus, 9, 272  
smell, sense of, 147  
smoking ( tobacco), 123, 278-79, 282-83, 285  
smooth muscle, 136  
snail, 55, 195  
snakes, 56, 175, 200-02,  
snowshoe hare, 28  
social worker, 167  
sodium, 66, 83-84  
sodium chloride, 66  
solid fats, 80  
specialized, 44

species, 12, 48  
sperm  
    -in animals, 193, 197-98, 200-01, 205, 207-08  
    -in plants, 181-82, 184  
sperm tube, 197, 207-08  
sphincter, 105, 127, 146  
spike protein, 274-75  
spinal cord, 131, 149-53  
spiny anteater, 207  
spirogyra, 50  
spontaneous generation, 4  
spores, 51, 172-73  
**St. Martin, Alexis**, 100  
stamens, 181  
starch, 79, 88, 100-02, 184, 186  
starfish, 174  
stem cells, 175, 249  
stems, 75  
stent, 277  
STI (sexually transmitted infections), 269-70  
stigma, 181-82  
stimulants, 286-87  
stimulus, 143-06, 151, 155, 160  
stock, 52, 178  
stomach, 98-100, 105  
straight, 244  
stretch, 136  
stroke, 278-79  
structures, 48, 223  
Students Against Drunk Driving, 285  
succession, 22  
sulfuraphane, 281  
sugar, 69-72, 79, 88, 90, 100-02, 160  
surgery (for cancer), 282  
sustainable, 31, 49  
sweat, 128  
sweat glands, 128  
symbiotic relationship, 196  
symbiosis, 196, 261  
    (more examples - 23, 54)  
symptoms, 83, 268  
systems (within an organism), 45

## T

T-cells, 274  
tadpoles, 200-01, 203  
**Talalay, Paul**, 281  
taproot, 76  
tassels (corn), 183  
taste, 147

temperature (body), 3, 73, 128, 155  
 tendons, 135, 137  
 tentacles, 54, 196  
 test-tube babies, 207  
 testes (pl. testis), 160-61, 193, 207-08  
 theory, 7  
 thorax (insect), 213  
 threatened species, 87  
 thyroid gland, 160-61  
 thyroxin, 160  
 ticks, 55, 267  
 tidal peritoneal dialysis, 126  
 Tiktaalik, 259  
 tissue, 44  
 tissue culture, 176  
 tobacco (smoking), 123, 278-79, 282-83, 285  
 tongue, 47  
**Tontlewicz, Jimmy**, 124  
 touch, sense of, 146  
 toxins, 268  
 trachea, 97, 121-23, 273  
 traits, 219  
 transfusion, 106  
 transplant (organ), 126  
 transport system, 108  
 trial-and-error learning, 156-57  
 triceps, 135  
 tropical rainforest, 24-25, 68  
 tropism, 144  
**Tschanz, John**, 126  
**Tschanz, Ken**, 126  
 tuber, 177, 179  
 tuberculosis, 108, 269  
 tumor, 281  
 tundra, 24-25  
 turning joint, 132  
 twins, 219, 246  
 type 2 diabetes, 90, 160

## U

umami, 147

umbilical cord, 209  
 upper, 286  
 urea, 127  
 ureter, 127  
 urethra, 127, 207-08  
**Urey, Harold**, 65  
 urinary bladder, 127  
 urine, 127  
 uterus, 207-08

## V

vaccination, 10  
 vaccines, 10, 51, 274-75  
 vacuoles, 42  
 VAD, 114  
 vagina, 207-08  
 valve, 108-14  
 vaping, 285-86  
 vascular plants, 52-53  
 vector, 267, 270  
 vegetables, 79, 82, 84, 91, 185  
 vegetative propagation, 176, 178  
 vegetarian, 80  
 veins,  
   -in animals, 52, 108-09, 112-13  
   -in plants, 52-53  
 ventricle, 110-11, 113  
 ventricular assist device (VAD), 114  
 Venus flytrap, 16  
 verify, 10  
 vertebrae, 54, 131  
 vertebrates, 54-56  
 veterinarian, 217  
**Victoria Gray**, 249  
 villi, 104-05  
 virus, 51, 268-70  
   -replication, 270  
 vitamin A, 82, 84  
 vitamin C, 83-84  
 vitamin D, 82-84  
 vitamins, 82-84, 105  
 vocal cords, 123

voice box, 122-23  
 voluntary action, 152  
 voluntary muscle, 135  
 voluntary response, 143

## W

warm-blooded animals, 205  
 wastes, bodily, 3, 126  
 water, 83  
 water cycle, 14  
 water vapor, 14  
**Watson, James**, 223  
 weight  
   -body, 87-88, 90  
   -chemicals, 66  
 wetland, 31, 36  
 white blood cells, (WBCs), 106, 109, 273, 282  
 wildlife (in cities), 12  
**Wilkins, Maurice**, 223  
 windpipe (trachea), 97, 121-23, 273  
 wing pads, 211-12  
 womb, 207-08  
 woody stems, 75  
 woolly mammoth, 31, 257  
 worms, parasitic, 268-70

## X

X chromosome, 244-47, 251-52  
 xylem, 75

## Y

Y chromosome, 244-47, 251-52  
 yeast, 51, 170-71  
 yogurt, 3  
 yolk, 193, 198, 200-01, 205-06  
 yolk sac, 197-98

## Z

zebra, 169  
 zoo veterinarians, 217  
 zoos, 217  
 zoo keepers, 217  
 zygote, 193-94, 198, 209, 226

## Index 2) Terms not in the reading, but included on tables or illustrations (captions or labels)

adenine, 230, 233  
 amebic dysentery, 269  
 amphetamines, 287  
 anabolic steroids, 287  
 anvil (of ear), 147  
 arthropods, 55  
 asbestos, 282  
 ascorbic acid, 84

athletes foot, 269  
 bacilli, 268  
 bacteria diseases, 268-9  
 barbiturates, 287  
 beriberi, 85  
 botulism, 269  
 caffeine, 287  
 carpels, 131

chordates, 55  
 clavicle, 131  
 cocaine, 287  
 cocci, 268  
 codeine, 287  
 colds, 269  
 cone cells, 146  
 crustaceans, 55

cystic fibrosis, 252  
 cytosine, 230, 233  
 deer tick, 267  
 diphtheria, 269  
 Down's syndrome, 252  
*Drosophila melanogaster*  
 (fruit fly), 237  
 echinoderms, 55  
 e-cigarettes, 287  
 femur, 131  
 fentanyl, 287  
 fibula, 131  
 flying mammals, 57  
 fungus diseases, 269  
 goiter, 85, 86  
 gonorrhea, 269  
 guanine, 230, 233  
 hammer (of ear), 147  
 hepatitis, 269  
 herpes, 269  
 hoofed mammals, 58  
 humerus, 131  
 influenza, 268, 269  
 joint-legged animals  
 (arthropods), 55  
 LSD, 287  
 malaria protozoan, 268  
 mandible, 131  
 marijuana, 287  
 marsupial, 57  
 mescaline, 287  
 metacarpals, 131  
 metatarsals, 131

methaqualone, 287  
 milk  
   -in diet, 88, 91  
 mollusk (soft bodied), 55  
 mumps, 269  
 muscle cell types, 44  
 muscular dystrophy, 252  
 niacin, 84-85  
 night blindness, 84-85  
 nitrites, 282  
 nursing (chimpanzee), 209  
 opioids, 287  
 PCP, 287  
 patella, 131  
 pellagra, 85  
 pelvis, 131  
 phalanges, 131  
 PKU disease, 252  
 pneumonia, 269  
 polio, 269  
 porifera, 55  
 porkworm, 268-69  
 pouched mammals, 87  
 primates, 58  
 protozoan diseases, 268-69  
 pseudopodia, 40  
 radius, 131  
 radon, 282  
 riboflavin, 84  
 rickets, 85  
 ringworm, 269  
 rod cells, 146  
 rodents, 57

roundworms, 55  
 segmented worms, 55  
 scapula, 131  
 scion, 178  
 sea mammals, 58  
 sloth, 57  
 spirilla, 268  
 sponges, 55  
 sternum, 131  
 stirrup (of ear), 147  
 stomates, 69  
 strep throat, 269  
 syphilis, 269  
 tapeworm, 268-69  
 tarsals, 131  
 Tay-Sach's disease, 252  
 thiamin, 84  
 thymine, 230, 233  
 tibia, 131  
 toothless mammals, 57  
 tranquilizers, 287  
 trichina (porkworm), 269  
 trunk-nosed mammals, 58  
 Turner's syndrome, 252  
 typhoid fever, 269  
 ulna, 131  
 uracil, 233  
 virus diseases, 268-69  
 vitamin B, 84  
 vitamin E, 84  
 vitamin K, 84  
 worm diseases, 268-69

### Index 3) Entries mentioned only as potential research topics

Alzheimer's disease, 149  
 aquatic macroinvertebrates,  
   216  
 blood types, 118  
 botanist, 190  
 carbon sink, 36  
**Charpentier,**  
   **Emmanuelle,** 249  
 complete and incomplete  
   protein, 94  
**Doudna, Jennifer,** 249  
**Earle, Sylvia,** 12  
 emulsify, 103  
 epigenetics, 289

glycogen, 118  
 homogenize, 103  
*Half-Earth Project,* 12, 24  
 human population, 36  
 indicator species, 216  
 macroinvertebrates, 216  
 mammalian diving reflex, 124  
*Mission Blue,* 12  
**Morgan, Thomas Hunt,** 237  
 nucleotide, 264  
 osmosis, 118  
 overpopulation, 36  
 Parkinson's disease, 149  
 peatland, 36

permeable membrane, 118  
 pharynx, 97, 118  
 semipermeable membrane, 118  
**Shubin, Neil,** 259  
 stromatolite, 62  
 Tiktaalik, 259  
 transgenic, 176  
 transposon, 234  
 turgor pressure, 118  
 United Nations Biodiversity  
   Conference, 12  
**Wilson, E.O.,** 12  
   Diversity foundation, 12  
 xenotransplant, 126

### Index 4) Terms from an optional section of Unit 9, Lesson 3 on DNA's production of proteins

amylase, 229  
 base, 229  
 base pairs, 227, 229-30

complementary bases, 230  
 genetic code, 230

single-stranded, 230  
 sugar-phosphate, 233