

Science Scope and Sequence

Curriculum Element — Commonly, by the grade level(s) given below, the student will be able to:

	N	K	1st	2nd	3rd	4th	5th	6th	Item #
I. Introduction - Can distinguish between living & non-living (organic & non-organic) materials	I	X	X						1
II. Life on the Earth:	X	X	X	X	X	X	X	X	2
II.A. Introduction	X	X	X	X	X	X	X	X	3
II.A.1. Distinguish between plants and animals	I	X	X						4
II.A.2. Describe the basic characteristics of plants and animals	I	X	X						5
II.A.3. Give several examples of the characteristic differences between plants & animals		I	X	X					6
II.B. A study of animals	X	X	X	X	X	X	X	X	7
II.B.1. Level 1 (First lessons)	X	X	X	X	X	X	X	X	8
II.B.1.a. Identify common forest animals	I	X	X						9
II.B.1.b. Identify common farm animals	I	X	X						10
II.B.1.c. Identify animals that live in the water	I	X	X						11
II.B.1.d. Identify common birds	I	X	X						12
II.B.1.e. Identify the names for the young of familiar animals found within the families of mammals, fish, birds, and amphibians	I	X	X						13

Science Scope and Sequence

Curriculum Element — Commonly, by the grade level(s) given below, the student will be able to:

	N	K	1st	2nd	3rd	4th	5th	6th	Item #
II.B.1.f. Explain in simple terms how the young of familiar animals from the families of mammals, fish, birds, and amphibians are born	I	X	X						14
II.B.1.g. Identify animals from around the world	I	X	X						15
II.B. 2. Level 2 (Vertebrates)	X	X	X	X	X	X	X	X	16
II.B.2.a. Describe the basic characteristics that distinguish each of the five following families of animals:	X	X	X	X	X	X	X	X	17
II.B.2.a1. Mammals	I	X	X						18
II.B.2.a2. Fish	I	X	X						19
II.B.2.a3. Birds	I	X	X						20
II.B.2.a4. Amphibians	I	X	X						21
II.B.2.a5. Reptiles	I	X	X						22
II.B.3. Level 3 (Invertebrates)	X	X	X	X	X	X	X	X	23
II.B.3.a. Describe the basic characteristics that distinguish each of the four additional families of animals that follow:	X	X	X	X	X	X	X	X	24
II.B.3.a1. Insects		I	X	X					25
II.B.3.a2. Molluscs		I	X	X					26

Science Scope and Sequence

Curriculum Element — Commonly, by the grade level(s) given below, the student will be able to:

	N	K	1st	2nd	3rd	4th	5th	6th	Item #
II.B.3.a3. Crustaceans		I	X	X					27
II.B.4. Classification Chart of the Animal Kingdom	X	X	X	X	X	X	X	X	28
II.B.4.a. Classify vertebrates on the chart				I	X	X	X		29
II.B.4.b. Classify invertebrates on the chart				I	X	X	X		30
II.B.5. A first study of the comparisons among the characteristics of vertebrates	X	X	X	X	X	X	X	X	31
II.B.5.a. Compare differences and similarities between the ears of vertebrates					I	X	X		32
II.B.5.b. Compare differences and similarities between the eyes of vertebrates					I	X	X		33
II.B.5.c. Compare differences and similarities between the mouths, bills, and beaks of vertebrates					I	X	X		34
II.B.5.d. Compare differences and similarities between the teeth of vertebrates					I	X	X		35
II.B.5.e. Compare differences and similarities between the limbs of vertebrates					I	X	X		36
II.B.5.f. Compare differences and similarities between the feet, hooves, claws, and paws of vertebrates					I	X	X		37
II.B.5.g. Compare differences and similarities between the skin and skin modifications (camouflage) of vertebrates					I	X	X		38
II.B.5.h. Compare differences and similarities between the locomotion of common vertebrates					I	X	X		39

Science Scope and Sequence

Curriculum Element — Commonly, by the grade level(s) given below, the student will be able to:

	N	K	1st	2nd	3rd	4th	5th	6th	Item #
II.B.6.b3b. Describe how animals that live in the desert have adapted to their environment	I	X	X	X	X	X	X		53
II.B.6.b3c. Describe how the animals of the arctic regions have adapted to their environment	I	X	X	X	X	X	X		54
II.B.6.b3d. Describe how the animals of the coral reef have adapted to their environment			I	X	X	X	X		55
II.B.6.b3e. Describe how microscopic life forms have adapted to their environment				I	X	X	X		56
II.B.6.b3f. Describe how animals that live in caves have adapted to their environment				I	X	X	X		57
II.B.6.b3g. Describe how animals that live in the tropics/subtropics have adapted to their environment.		I	X	X	X	X	X		57.1
II.B.6.c. Animal Reproduction	X	X	X	X	X	X	X	X	58
II.B.6.c1. Describe how microscopic organisms reproduce by unicellular fission					I	X	X		59
II.B.6.c2. Describe how birds reproduce					I	X	X		60
II.B.6.c3. Describe how fish reproduce					I	X	X		61
II.B.6.c4. Describe how mammals reproduce					I	X	X		62
II.B.6.c5. Describe how reptiles reproduce					I	X	X		63
II.B.6.c6. Describe human reproduction					I	X	X		64

Science Scope and Sequence

Curriculum Element — Commonly, by the grade level(s) given below, the student will be able to:

	N	K	1st	2nd	3rd	4th	5th	6th	Item #
II.B.6.d. A simple introduction to animal defense	X	X	X	X	X	X	X	X	65
II.B.6.d1. Identify and Describe familiar animals that use camouflage as a defense		I	X	X					66
II.B.6.d2. Identify and Give examples of familiar animals that look scary as a defense		I	X	X					67
II.B.6.d3. Identify and Give examples of familiar animals that look inedible as a defense		I	X	X					68
II.B.6.d4. Defensive behaviors		I	X	X					69
II.B.7. External Anatomy of Animals	X	X	X	X	X	X	X	X	70
II.B.7.a. Name the external body parts of familiar mammals	I	X	X						71
II.B.7.b. Name the external body parts of birds	I	X	X						72
II.B.7.c. Name the external body parts of amphibians	I	X	X						73
II.B.7.d. Name the external body parts of fish	I	X	X						74
II.B.7.e. Name the external body parts of reptiles	I	X	X						75
II.B. 8. Internal Anatomy of Animals	X	X	X	X	X	X	X	X	76
II.B.8.a. Describe that the bodies of animals are organized into organ systems which carry out distinct life functions		I	X	X	X	X	X		77

Science Scope and Sequence

Curriculum Element — Commonly, by the grade level(s) given below, the student will be able to:

	N	K	1st	2nd	3rd	4th	5th	6th	Item #
II.B.8.b. Explain the function of the heart and circulatory system			I	X	X	X	X		78
II.B.8.c. Explain the function of the lungs in air breathing animals			I	X	X	X	X		79
II.B.8.d. Explain the function of the gills in water breathing animals				I	X	X	X		80
II.B.8.e. Explain the function of the skeletal system in vertebrates			I	X	X	X	X		81
II.B.8.f. Explain the role of the exoskeletal system in crustaceans				I	X	X	X		82
II.B.8.g. Explain the function of the digestive system				I	X	X	X		83
II.B.8.h. Explain the function of the glandular system				I	X	X	X		84
II.B.8.i. Explain the function of the excretory system				I	X	X	X		85
II.B.8.j. Explain the function of the muscular system				I	X	X	X		86
II.B. 9 Mankind's relationship to animals	X	X	X	X	X	X	X	X	87
II.B.9.a. Identify familiar animals that are commonly eaten		I	X	X					88
II.B.9.a1. Offer a brief history of mankind as a hunter of wild animals				I	X	X	X		89
II.B.9.a2. Offer a brief history of the domestication of farm animals raised for food				I	X	X	X		90

Science Scope and Sequence

Curriculum Element — Commonly, by the grade level(s) given below, the student will be able to:

	N	K	1st	2nd	3rd	4th	5th	6th	Item #
II.B.9.a3. Offer a brief history of man as agronomist - gatherer				I	X	X	X		90.1
II.B.9.a4. Offer arguments for & against vegetarianism, and state his/her personal beliefs						I	X		91
II.B.9.b. Describe the common animal food products, such as milk and cheese, that people eat		I	X	X					92
II.B.9.c. Describe the other common uses that people find for animal by-products, such as leather, bone, fertilizer			I	X	X	X	X		93
II.B.9.d. Animal husbandry	X	X	X	X	X	X	X	X	94
II.B.9.d1. Care for classroom pets	I	X	X	X	X	X	X	X	95
II.B.9.d2. Care for small farm animals		I	X	X	X	X	X	X	96
II.B.9.d3. Summarize the story of the domestication of common farm animals (See also History)					I	X	X		97
II.B.9.d4. Describe the operation of a traditional farm					I	X	X	X	98
II.B.9.d5. Describe the operation of a modern farm					I	X	X	X	99
II.B.10. Identify the following animals on field hikes or from pictures (without a field guide):	X	X	X	X	X	X	X	X	100
II.B.10.a. Identify common reptiles		I	X	X	X				101
II.B.10.b. Identify common amphibians		I	X	X	X				102

Science Scope and Sequence

Curriculum Element — Commonly, by the grade level(s) given below, the student will be able to:

	N	K	1st	2nd	3rd	4th	5th	6th	Item #
II.B.10.c. Identify common fish		I	X	X	X				103
II.B.10.d. Identify common insects & spiders		I	X	X	X				104
II.B.10.e. Identify common crustaceans		I	X	X	X				105
II.B.10.f. Identify common molluscs		I	X	X	X				106
II.B.11. Use field guides to Identify the following animals on field hikes and from pictures:	X	X	X	X	X	X	X	X	107
II.B.11.a. Identify breeds of dogs, cats, horses, and farm animals						I	X	X	108
II.B.11.b. Identify common mammals						I	X	X c.	109
II.B.11.e. Identify common amphibians						I	X	X	110
II.B.11.f. Identify common fish						I	X	X	111
II.B.11.g. Identify common insects & spiders						I	X	X	112
II.B.11.h. Identify common crustaceans						I	X	X	113
II.B.11.i. Identify common molluscs						I	X	X	114
II.B.12. Write descriptive animal stories			I	X	X				115

Science Scope and Sequence

Curriculum Element — Commonly, by the grade level(s) given below, the student will be able to:

	N	K	1st	2nd	3rd	4th	5th	6th	Item #
II.B.13. Animal lore	X	X	X	X	X	X	X	X	116
II.B.13.a. Describe the daily routines of the common animals found in our local forests, meadows, pond, and streams					I	X	X		117
II.B.13.b. Recognize and imitate the calls of common vertebrates					I	X	X		118
II.B.14. A study of living cells with the microscope	X	X	X	X	X	X	X	X	119
II.B.14.a. Explain that cells are basic structures of the majority of living things: plants & animals			I	X	X	X			120
II.B.14.b. Identify the following parts of a cell observed under a microscope: nucleus, cell membrane, cytoplasm, cell wall, chloroplast, and vacuole					I	X	X	X	121
II.B.14.c. Identify that there are different types of cells within an organism					I	X	X		122
II.B.14.d. Distinguish similarities and difference between plant and animal cells					I	X	X		123
II.B.14.e. Explain that growth is a result of cell division					I	X	X		124
II.C. Botany	X	X	X	X	X	X	X	X	125
II.C.1. Plant identification - Level 1	X	X	X	X	X	X	X	X	126
II.C.1.a. Identify common characteristics of plants		I	X	XX	X	X			127
II.C.1.b. Identify common trees around the school		I	X	XX	X	X			128

Science Scope and Sequence

Curriculum Element — Commonly, by the grade level(s) given below, the student will be able to:

	N	K	1st	2nd	3rd	4th	5th	6th	Item #
II.C.1.c. Identify common plants in the classroom		I	X	XX	X	X			129
II.C.1.d. Identify common garden flowers		I	X	XX	X	X e.		I	130
II.C.2. Plant identification - Level 2	X	X	X	X	X	X	X	X	131
II.C.2.a. Identify common trees by their wood			I	X	X	X	X		132
II.C.2.b. Identify the common shrubs and bushes that are found around the school			I	X	X	X	X		133
II.C.2.c. Use a field guide to Identify unfamiliar trees, grasses, shrubs, bushes, garden flowers, and wild flowers						I	X	X	134
II.C.2.d. Identify familiar trees by their shape and bark					I	X	X	X	135
II.C.3. Classification chart of the plant kingdom	X	X	X	X	X	X	X	X	136
II.C.3.a. Differentiate between monocots and dicots						I	X		137
II.C.3.b. Differentiate between bryophytes and tracheophytes						I	X		138
II.C.3.c. Differentiate between angiosperms and gymnosperms						I	X		139
II.C.3.d. Classify angiosperms						I	X		140
II.C.3.e. Classify gymnosperms						I	X		141

Science Scope and Sequence

Curriculum Element — Commonly, by the grade level(s) given below, the student will be able to:

	N	K	1st	2nd	3rd	4th	5th	6th	Item #
II.C.4. Parts of a plant	X	X	X	X	X	X	X	X	142
II.C.4.a. Identify the parts of a flower		I	X	X	X	X	X		143
II.C.4.b. Identify the parts of a tree		I	X	X	X	X	X		144
II.C.4.c. Identify the parts of a leaf			I	X	X	X	X		145
II.C.5. Types and functions of plant parts	X	X	X	X	X	X	X	X	146
II.C.5.a. Explain the basic function of roots		I	X	X	X	X	X		147
II.C.5.a1. Identify the basic botanical terms for root types						I	X		148
II.C.5.b. Explain the basic function of plant leaves		I	X	X	X	X	X		149
II.C.5.b1. Explain that light energy is needed for green plants to produce food		I	X	X	X	X	X		150
II.C.5.b2. Explain the function of leaves and the process of photosynthesis				I	X	X	X		151
II.C.5.b3. Identify the basic requirements for plants to carry on photosynthesis				I	X	X	X		152
II.C.5.b4. Distinguish between deciduous and evergreen plants			I	X	X	X	X		153
II.C.5.b5. Identify the basic botanical terms for leaf shapes				I	X	X	X		154

Science Scope and Sequence

Curriculum Element — Commonly, by the grade level(s) given below, the student will be able to:

	N	K	1st	2nd	3rd	4th	5th	6th	Item #
II.C.5.b6. Identify the basic botanical terms for leaf margins					I	X	X		155
II.C.5.b7. Identify the basic botanical terms for leaf venation					I	X	X		156
II.C.5.c. Explain the basic function of plant stems		I	X	X	X	X	X		157
II.C.5.c1. Demonstrate the process of circulation within the plant stem system			I	X	X	X	X		158
II.C.5.c2. Demonstrate how to determine the age of a tree by counting its rings				I	X	X	X		159
II.C.5.d. Explain the function of flowers		I	X	X	X	X	X		160
II.C.5.d1. Explain the role of insects in pollination				I	X	X	X		161
II.C.5.e. Explain the function of fruits		I	X	X	X	X	X		162
II.C.5.e1. Identify the parts of a fruit					I	X	X		163
II.C.5.e2. Recognize that all fruits have seeds inside		I	X	X	X	X	X		164
II.C.5.e3. Differentiate between dry fruits and succulent fruits					I	X	X		165
II.C.5.f. Explain the function of seeds		I	X	X	X	X	X		166
II.C.5.f1. Identify the parts of a seed						I	X		167

Science Scope and Sequence

Curriculum Element — Commonly, by the grade level(s) given below, the student will be able to:

	N	K	1st	2nd	3rd	4th	5th	6th	Item #
II.C.6. Basic needs of plants	X	X	X	X	X	X	X	X	168
II.C.6.a. Demonstrate that plants need light, warmth, water and minerals	I	X	X	X	X	X	X		169
II.C.6.b. Demonstrate that plants contain water		I	X	X	X	X	X		170
II.C.6.c. Explain and Demonstrate that plants adapt to their environment		I	X	X	X	X	X		171
II.C.6.d. Demonstrate that plants grow in predictable patterns		I	X	X	X	X	X		172
II.C.6.e. Demonstrate that plants need soil		I	X	X	X	X	X		173
II.C.6.e1. Demonstrate that soil is a mixture of living and non-living substances			I	X	X	X	X		174
II.C.6.e2. Explain the relationship between the different types of soil and the amount of water that each holds			I	X	X	X	X		175
II.C.7. How mankind uses plants	X	X	X	X	X	X	X	X	176
II.C.7.a. Identify plants that we eat	I	X	X	X	X	X	X		177
II.C.7.b. Explain how trees are harvested commercially to make lumber for building & furniture		I	X	X	X	X	X		178
II.C.7.b1. Distinguish between hard and soft woods			I	X	X	X	X		179
II.C.7.c. Identify plants from which we make clothing		I	X	X	X	X	X		180

Science Scope and Sequence

Curriculum Element — Commonly, by the grade level(s) given below, the student will be able to:

	N	K	1st	2nd	3rd	4th	5th	6th	Item #
II.C.10.a7. Explain how a cold frame is used to start seedlings safely before the danger of frost has past							X		194
II.C.10.a8. Weed a garden	I	X	X	X	X	X	X	X	195
II.C.10.a9. Participate in raising a class crop of easily grown vegetables		I	X	X	X	X	X	X	196
II.C.10.a10. Design the layout and planting schedule for a vegetable garden					I	X	X	X	197
II.C.10.a11. Demonstrate how to successfully raise vegetables in containers					I	X	X	X	198
II.C.10.a12. Use stakes and trellises to support plants that need it					I	X	X	X	199
II.C.10.a13. Discuss pros and cons of chemical fertilizers vs. organic; discuss personal feelings about issue.						I	X	X	200
II.C.10.a14. Identify common organic fertilizers and pest controls and how to use them in a garden						I	X	X	201
II.C.10.a15. Explain the importance of preventing food from being spoiled by insects, rodents, and micro-organisms						I	X	X	202
II.C.10.a16. Explain the dangers of food poisoning and ways to avoid it				I	X	X			203
II.C.10.a17. Explain the role of cooking foods to kill any micro-organisms				I	X	X			204
II.C.10.a18. Explain the rationale for always washing fresh fruit and vegetables carefully before eating				I	X	X			205
II.C.10.a19. Explain the role of refrigeration on retarding the spoilage of food				I	X	X			206

Science Scope and Sequence

Curriculum Element — Commonly, by the grade level(s) given below, the student will be able to:

	N	K	1st	2nd	3rd	4th	5th	6th	Item #
II.C.10.a20. Explain the technique and participate in the process of canning food in mason jars						I	X	X	207
II.C.10.a21. Explain and Demonstrate the technique of preparing foods for freezing						I	X	X	208
II.C.10.a22. Explain and Demonstrate the technique of drying foods						I	X	X	209
II.C.10.a23. Explain and Demonstrate the technique of pickling foods						I	X	X	210
II.C.10.a24. Explain the technique of freeze drying food							X	X	211
II.D. Ecology	X	X	X	X	X	X	X	X	212
II.D.1. Participate in web of life activities		I	X	X					212.1
II.D.2. Explain the concept of the web of life				I	X	X	X		213
II.D.3. Explain that biomes are ecological communities of plants and animals				I	X	X	X		214
II.D.4. A second study of the food chain	X	X	X	X	X	X	X	X	215
II.D.4.a. Explain that each organism in a food chain performs a distinct role					X	X	X		216
II.D.4.b. Identify the predator/prey relationship between two familiar animals					X	X	X		217
II.D.4.c. Explain the role of scavengers and decomposers in the environment					X	X	X		218

Science Scope and Sequence

Curriculum Element — Commonly, by the grade level(s) given below, the student will be able to:

	N	K	1st	2nd	3rd	4th	5th	6th	Item #
II.D.4.c1. Explain that some nongreen plants feed upon dead or decaying matter					X	X	X		219
II.D.4.c2. Demonstrate how forest decomposers turn humus into soil					X		X		220
II.D.4.c3. Demonstrate and discuss difference between bio-degradable and recyclable and non-degradable	I	X	X	X	X	X	X		220.1
II.D.4.c4. Demonstrate how various organisms act upon a dead tree to decompose it					X	X	X		221
II.D.4.C5. Participate in recycling using compost.	I	X	X	X	X	X	X		221.1
II.D.4.c6. Construct and operate a compost pile				I	X	X	X		222
II.D.4.c7. Explain that energy is recycled in an ecosystem through decomposition of matter				I	X	X	X		223
II.D.4.c8. Construct a web of life that shows the ecological relationships among all of the living things in a community				I	X	X	X		224
II.D.4.d. Identify what familiar animals eat				I	X	X	X		225
II.D.4.e. Identify plants and animals in an ecosystem that are dependent upon one another					I	X	X		226
II.D.4.f. Construct a terrarium food chain					I	X	X		227
II.D.4.g. Construct an aquarium food chain					I	X	X		228
II.D.4.h. Distinguish between the successive stages of forest development, from meadow to climax forest					I	X	X		229

Science Scope and Sequence

Curriculum Element — Commonly, by the grade level(s) given below, the student will be able to:

	N	K	1st	2nd	3rd	4th	5th	6th	Item #
II.D.5.b1. Offer a survey of the problem of air pollution						I	X	X	243
II.D.5.b2. Explain the major causes of air pollution		I	X	X	X	X	X	X	244
II.D.5.b3. Offer ideas about what can be done about the problem of air pollution						I	X	X	245
III. PHYSICAL SCIENCE: Upon completion of the grade level(s) indicated below, the student should be able to:	X	X	X	X	X	X	X	X	246
A. Matter	X	X	X	X	X	X	X	X	247
III.A.1. Distinguish between objects that sink and float	I	X							248
III.A.2. Identify things as solids, liquids, or gases		I	X						249
III.A.3. Demonstrate that air occupies space by ‘pouring air’ under water	I	X							250
III.A.4. Demonstrate that an object’s appearance can change while its material substance remains the same e.g. (ice, water, steam)		I	X						251
III.A.5. Demonstrate that two objects cannot occupy the same space at the same time	I	X	X						252
III.A.6. Demonstrate that a liquid behaves in different ways on surfaces made of different materials	I	X	X						253
III.A.7. Explain that matter can change from one form to another because of a change in temperature			I	X	X	X			254
III.A.8. Demonstrate and Explain the distinction between evaporation and condensation			I	X	X				255

Science Scope and Sequence

Curriculum Element — Commonly, by the grade level(s) given below, the student will be able to:

	N	K	1st	2nd	3rd	4th	5th	6th	Item #
III.A.9. Explain the basic structure of atoms			I	X	X	X	X	X	256
III.A.10. Differentiate between the nature of protons, electrons, and neutrons in atomic structure			I	X	X	X	X	X	257
III.A.11. Demonstrate that in physical change, matter changes in form but not in substance				I	X	X	X	X	258
III.A.12. Demonstrate that in chemical change, matter changes in substance as well as form				I	X	X	X	X	259
III.A.13. Demonstrate that different temperatures cause materials to expand or contract				I	X	X	X	X	260
III.A.14. Explain that a mixture is composed of individual substances that retain their identity when mixed and can be recovered in their original form by ordinary means			I	X	X	X	X	X	261
III.A.15. Demonstrate that elements can be combined to form compounds with properties different from those of the combining element			I	X	X	X	X	X	262
III.A.16. Differentiate between chemical elements and compounds			I	X	X	X	X	X	263
III.A.17. Explain that molecules are the smallest particles of a compound that still have all its properties			I	X	X	X	X	X	264
III.A.18. Describe matter as being composed of molecules which are in constant motion			I	X	X	X	X	X	265
III.A.19. Investigate and gather information about common elements from the encyclopedia				I	X	X	X		266
III.A.20. Give the chemical symbol & atomic structure of specified elements				I	X	X	X	X	267
III.A.21. Identify the chemical formulas for specified familiar compounds				X	X	X	X	X	268

Science Scope and Sequence

Curriculum Element — Commonly, by the grade level(s) given below, the student will be able to:

	N	K	1st	2nd	3rd	4th	5th	6th	Item #
III.A.22. Prepare research reports on the nature and our use of elements and compounds					X	X	X	X	269
III.A.23. Distinguish between a physical and a chemical change				I	X	X	X	X	270
III.A.24. Explain that the total amount of matter is not changed during a chemical or physical change				I	X	X	X	X	271
III.A.25. Demonstrate that density determines whether an object sinks or floats				I	X	X	X		272
III.A.26. Explain the basic principles of fire and combustion				I	X	X	X	X	273
III.A.27. Differentiate between acids and bases					I	X	X	X	274
III.A.28. Prepare solutions and mixtures					I	X	X	X	275
III.A.29. Explain the basic physical properties of liquids					I	X	X	X	276
III.A.30. Explain the basic physical properties of gases					I	X	X	X	277
III.A.31. Explain the basic physical properties of solids					I	X	X	X	278
III.A.32. Explain the basic principles of water pressure					I	X	X	X	279
III.A.33. Explain the basic principles of air pressure					I	X	X	X	280
III.A.34. Use an overflow basin to measure the volume of irregular solids					I	X	X	X	281

Science Scope and Sequence

Curriculum Element — Commonly, by the grade level(s) given below, the student will be able to:

	N	K	1st	2nd	3rd	4th	5th	6th	Item #
III.A.35. Recognize and can Identify common energy transformations					I	X	X	X	282
III.A.36. Describe the relative motion of an object with respect to the position or motion of another object					I	X	X		283
III.B. Energy	X	X	X	X	X	X	X	X	284
III.B.1. Recognize that some objects are attracted by magnets and others are not	I	X							285
III.B.2. Match sounds with their source	I	X							286
III.B.3. Demonstrate that a push or pull is needed to move an object	I	X							287
III.B.4. Set up a closed electrical circuit		I	X	X	X	X			288
III.B.5. Identify that sounds are produced by different sources and methods	I	X	X	X					289
III.B.6. Distinguish among materials that block the passage of light completely, allow some light to pass through, and pass light completely, identifying them as opaque, semi-opaque, and transparent		I	X	X	X	X	X	X	290
III.B.7. Demonstrate that changing an object's position in relationship to a light source changes the appearance of its shadow		I	X	X					291
III.B.8. Distinguish between conductors and nonconductors			I	X					292
III.B.9. Demonstrate that energy in the form of electro- magnetism can create motion			I	X	X				293
III.B.10. Identify types of fossil fuels, how they were formed, and how they are used			I	X	X	X	X	X	294

Science Scope and Sequence

Curriculum Element — Commonly, by the grade level(s) given below, the student will be able to:

	N	K	1st	2nd	3rd	4th	5th	6th	Item #
III.B.11. Identify the sun as a type of fuel, how it's captured and how it's used.			I	X	X	X	X		294.1
III.B.12. Describe ways to conserve natural resources		I	X	X	X	X	X	X	295
III.B.13. Demonstrate that water pressure can cause objects to move			I	X	X	X	X	X	296
III.B.14. Demonstrate that air pressure can cause objects to move			I	X	X	X	X	X	297
III.B.15. Identify sounds as a form of energy			I	X	X	X	X	X	298
III.B.16. Demonstrate that sound waves travel through solids, liquids, and gases			I	X	X	X	X	X	299
III.B.17. Demonstrate that light travels only in straight lines			I	X	X	X	X	X	300
III.B.18. Demonstrate that objects become visible only when light is reflected from them			I	X	X	X	X	X	301
III.B.19. Demonstrate that light bends when it passes from one medium to another			I	X	X	X	X	X	302
III.B.20. Identify light as a form of energy			I	X	X	X	X	X	303
III.B.21. Demonstrate that darker colors absorb more light energy than light colors			I	X	X	X	X	X	304
III.B.22. Demonstrate that mirrors and other highly reflective materials absorb almost no light energy			I	X	X	X	X	X	305
III.B.23. Explain why objects reflected in a mirror appear to be reversed			I	X	X	X	X	X	306

Science Scope and Sequence

Curriculum Element — Commonly, by the grade level(s) given below, the student will be able to:

	N	K	1st	2nd	3rd	4th	5th	6th	Item #
III.B.24. Explain why the sun or the moon appears to be so much larger or orange colored when they are very low on the horizon				I	X	X			307
III.B.25. Describe the forms of radiation on the electromagnetic spectrum				I	X	X	X	X	308
III.B.26. Describe the characteristics of the 4 physical states of matter: plasma, gas, liquid, solid					I	X	X	X	309
III.B.27. Explain the link between temperature and molecular movement					I	X	X	X	310
III.B.28. Demonstrate that any change in motion is caused by unbalanced forces				I	X	X	X	X	311
III.B.29. infer that gravitational pull Give s an object its weight				I	X	X	X	X	312
III.B.30. Explain the force of friction				I	X	X	X	X	313
III.B.31. Explain that gravity and friction will eventually cause an object in motion to stop				I	X	X	X	X	314
III.B.32. Explain that the property of inertia makes objects remain at rest or continue in motion					I	X	X	X	315
III.B.33. Offer a simple explanation of the flow of an electrical current through a conducting material					I	X	X	X	316
III.B.34. Construct a simple electromagnet, and Demonstrate that the number of coils of wire determines its magnetic attraction				I	X	X	X	X	317
III.B.35. Demonstrate the transformation of energy from one form to another				I	X	X	X	X	318
III.B.36. Demonstrate that every motion creates a force equal and opposite to it					I	X	X	X	319

Science Scope and Sequence

Curriculum Element — Commonly, by the grade level(s) given below, the student will be able to:

	N	K	1st	2nd	3rd	4th	5th	6th	Item #
III.C. Technology	X	X	X	X	X	X	X	X	320
III.C.1.A study of simple machines	X	X	X	X	X	X	X	X	321
III.C.1.a. Demonstrate the basic principles of the lever						I	X		322
III.C.1.b. Demonstrate the basic principles of the inclined plane						I	X		323
III.C.1.c. Demonstrate the basic principles of the wheel and axle						I	X		324
III.C.1.d. Demonstrate the basic principles of the pulley						I	X		325
III.C.1.e. Demonstrate the basic principles of the wedge						I	X		326
III.C.1.f. Demonstrate the basic principles of the screw						I	X		327
III.C.2. A study of simple technology	X	X	X	X	X	X	X	X	328
III.C.2.a. Try to start a fire with flint and steel						I	X		329
III.C.2.b. Construct an Eskimo fire bow drill and use it to try to start a fire						I	X		330
III.C.2.c. Construct a Chinese balance and use it to weigh objects						I	X		331
III.C.2.d. Construct a model water wheel						I	X		332

Science Scope and Sequence

Curriculum Element — Commonly, by the grade level(s) given below, the student will be able to:

	N	K	1st	2nd	3rd	4th	5th	6th	Item #
III.C.2.e. Construct a model wind mill						I	X		333
III.C.2.f. Construct detailed & accurate models of four types of simple technology housing: an igloo, a grass hut, a log home, a stone hut, and a simple wood frame house						I	X		334
III.C.2.g. Make primitive cutting implements from stone and/or bone						I	X		335
III.C.2.h. Make a brick mold and use it to make little fired bricks for building models						I	X		336
III.C.2.i. Make pots and vessels from clay and fire them in a pit kiln			I	X	X	X	X		337
III.C.2.j. Construct a Roman arch accurately						I	X		338
III.C.2.k. Explain and illustrate the history of mankind's use of animal power						I	X		339
III.C.2.l. Explain how a steam engine works, and Describe the history of its implementation over the last 200 years						I	X		340
III.C.3. A brief study of modern technology	X	X	X	X	X	X	X	X	341
III.C.3.a. The gasoline engine	X	X	X	X	X	X	X	X	342
III.C.3.a1. Offer a brief history of the development of the automobile							I	X	343
III.C.3.a2. Explain how the modern gasoline motor works							I	X	344
III.C.3.a3. Explain how the Diesel motor works							I	X	345

Science Scope and Sequence

Curriculum Element — Commonly, by the grade level(s) given below, the student will be able to:

	N	K	1st	2nd	3rd	4th	5th	6th	Item #
III.C.3.a4. Explain how the gas turbine engine works							I	X	346
III.C.3.b. The electric motor	X	X	X	X	X	X	X	X	347
III.C.3.b1. How power is generated	X	X	X	X	X	X	X	X	348
III.C.3. b1.1. Explain how electricity is generated from coal and oil							I	X	349
III.C.3. b1.2. Explain how hydroelectric power is generated							I	X	350
III.C.3. b1.3. Explain how nuclear power plants generate electricity, and Discuss the controversies surrounding this method							I	X	351
III.C.3.b2. Explain how electrical power is transmitted from the power plant to homes							I	X	352
III.C.3.b3. Explain how batteries are used to store power							I	X	353
III.C.3.b4. Construct a simple working electric motor							I	X	354
III.C.3.b5. Identify the uses of the electric motor around the house							I	X	355
III.C.3.b6. Describe the development of electric automobiles							I	X	356
III.C.3.c. The electric light bulb	X	X	X	X	X	X	X	X	357
III.C.3.c1. Summarize the history of lighting before the discovery of electric light				I	X	X	X	X	358

Science Scope and Sequence

Curriculum Element — Commonly, by the grade level(s) given below, the student will be able to:

	N	K	1st	2nd	3rd	4th	5th	6th	Item #
III.C.3.c2. Summarize the history of the discovery of the electric light, and its impact on society				I	X	X	X	X	359
III.C.3.c3. Explain the principles behind the electric light					I	X	X	X	360
III.C.3.c. Radio and Television	X	X	X	X	X	X	X	X	361
III.C.3.d1. Explain the principles behind radio and television					I	X	X	X	362
III.C.3.d2. Briefly describe the story of the development of radio and television					I	X	X	X	363
III.C.3.d3. Briefly describe the operation of a radio or TV studio					I	X	X	X	364
III.C.3.e. The computer and the microchip	X	X	X	X	X	X	X	X	365
III.C.3.e1. Explain the principles behind the microchip and the computer						I	X	X	366
III.C.3.e2. Describe the history of the development of the computer					I	X	X	X	367
III.C.3.e3. Describe the applications to which the computer is being put in everyday life					I	X	X	X	368
III.C.3.f. The airplane	X	X	X	X	X	X	X	X	369
III.C.3.f1. Explain the basic principles of flight						I	X	X	370
III.C.3.f2. Describe the history of the development of the modern airplane				I	X	X	X	X	371

Science Scope and Sequence

Curriculum Element — Commonly, by the grade level(s) given below, the student will be able to:

	N	K	1st	2nd	3rd	4th	5th	6th	Item #
III.C.3.g. Describe the principles behind the laser and how they are being used in today's technology						I	X	X	372
III.C.3.f. Describe the principles behind the microwave oven						I	X	X	373
III.D. ASTRONOMY	X	X	X	X	X	X	X	X	374
III.D.1. Retell the major creation myths and legends from around the world			I	X	X	X			375
III.D.2. Explain in simple terms the "Big Bang" theory of cosmic creation			I	X	X	X	X	X	376
III.D.3. Explain in simple terms the role of gravity in the formation of the protogalactic nebula and the formation of the first stars			I	X	X	X	X	X	377
III.D.4. The stars	X	X	X	X	X	X	X	X	378
III.D.4.a. Explain how scientists believe stars are formed			I	X	X	X	X	X	379
III.D.4.b. Explain in simple terms the fundamentals of stellar nucleosynthesis			I	X	X	X	X	X	380
III.D.4.c. Explain in simple terms what scientists know about the life cycle of stars			I	X	X	X	X	X	381
III.D.4.d. Explain that the apparent brightness of stars is related to their size, distance, and temperature			I	X	X	X	X	X	382
III.D.4.e. Explain that the apparent movement of the stars in the night sky is related to the rotation of the Earth on its axis				I	X	X	X	X	383
III.D.4.f. Retell the myths and legends connected to the familiar constellations			I	X	X	X	X	X	384

Science Scope and Sequence

Curriculum Element — Commonly, by the grade level(s) given below, the student will be able to:

	N	K	1st	2nd	3rd	4th	5th	6th	Item #
III.D.4.g. Identify familiar constellations in the night sky			I	X	X	X	X	X	385
III.D.4.h. Briefly explain in simple terms the concept of the speed of light and that scientists predict that no objects can go faster than it						I	X	X	386
III.D.4.i. Explain the concept of a light year						I	X	X	387
III.D.4.j. Calculate the distance from the earth of a cosmic object located X-lights years away							I	X	388
III.D.4.k. Explain the currently held scientific theory about black holes						I	X	X	389
III.D.4.l. Explain how astronomical tools, such as optical telescopes, radio telescopes, and spectrographs, are used to extend the human senses						I	X	X	390
III.D.4.m. Explain why a radio or optical telescope located in outer space would be more useful to scientists than an earth bound observatory							I	X	391
III.D.4.n. Briefly explain how a star's spectrum is used by astronomers to determine its chemical composition							I	X	392
III.D.4.o. Explain what a galaxy is in relation to a single star system like ours						I	X	X	393
III.D.5. Identify the planets and Give basic facts about their size, distance from the sun, planetary days and years, moons, and environments as we know them today		I	X	X	X	X	X	X	394
III.D.6. Earth-Sun relationships	X	X	X	X	X	X	X	X	395
III.D.6.a. Explain the Earth's rotation on its axis and its relationship to day/night			I	X	X	X	X	X	396
III.D.6.b. Explain the Earth/Sun relationships that cause our seasons			I	X	X	X	X	X	397

Science Scope and Sequence

Curriculum Element — Commonly, by the grade level(s) given below, the student will be able to:

	N	K	1st	2nd	3rd	4th	5th	6th	Item #
III.D.6.c. Explain in simple terms why the days get longer and shorter with the seasons			I	X	X	X	X	X	398
III.D.6.d. Distinguish between solstices and equinoxes				I	X	X	X	X	399
III.D.6.e. Distinguish between perihelions and aphelions				I	X	X	X	X	400
III.D. 7. Earth-Moon relationships	X	X	X	X	X	X	X	X	401
III.D.7.a. Explain the Earth/Moon relationships that results in tides on the Earth					I	X	X	X	402
III.D.7.b. Explain that graphs of tide tables data show the cyclical nature of tides						I	X	X	403
III.D.7.c. Explain the cause of solar and lunar eclipses				I	X	X	X	X	404
III.D.8. Summarize what scientists know about meteorites and comets				I	X	X	X	X	405
III.D.9. Give a fairly detailed report on the history of mankind’s space program to date, and Demonstrate familiarity with some of the steps that scientists expect to develop in the next 20 years						I	X	X	406
III.E. Earth Science	X	X	X	X	X	X	X	X	407
III.E.1. The land and its formation	X	X	X	X	X	X	X	X	408
III.E.1.a. Surface features resulting from internal forces of the Earth	X	X	X	X	X	X	X	X	409
III.E.1.a1. Describe the interior makeup of the Earth			I	X	X	X			410

Science Scope and Sequence

Curriculum Element — Commonly, by the grade level(s) given below, the student will be able to:

	N	K	1st	2nd	3rd	4th	5th	6th	Item #
III.E.1.a2. Explain the causes and characteristics of volcanoes and how they have affected the surface features of the Earth			I	X	X	X			411
III.E.1.a3. Explain how the age of intense volcanic activity released the gases that eventually made up our atmosphere and eventually our oceans			I	X	X	X			412
III.E.1.a4. Explain tectonic plates and the theory of continental drift				I	X	X			413
III.E.1.a5. Explain the cause of earth quakes, and how they have affected the surface of the earth				I	X	X			414
III.E.1.b. Identify surface features resulting from the forces of nature	X	X	X	X	X	X	X	X	415
III.E.1.b1. Demonstrate that weathering and erosion continually break down and build up the land				I	X	X			416
III.E.1.b2. Identify erosional and depositional features of running water				I	X	X			417
III.E.2. Mineralogy	X	X	X	X	X	X	X	X	418
III.E.2.a. Describe the composition and formation of rocks				I	X	X			419
III.E.2.b. Explain the difference between igneous, metamorphic, and sedimentary rocks				I	X	X			420
III.E.2.c. Classify rocks as either igneous, metamorphic, or sedimentary				I	X	X			421
III.E.2.d. Explain how the correlation of index fossils and rock layers is used to Identify the age of a Give n rock formation					I	X			422
III.E.2.e. Identify minerals by their properties					I	X			423

Science Scope and Sequence

Curriculum Element — Commonly, by the grade level(s) given below, the student will be able to:

	N	K	1st	2nd	3rd	4th	5th	6th	Item #
III.E.3. Weather	X	X	X	X	X	X	X	X	424
III.E.3.a. Illustrate that water moves through the atmosphere and hydrosphere in cycles			I	X	X	X			425
III.E.3.b. Explain that temperature differences influence the movement of air in the atmosphere			I	X	X	X			426
III.E.3.c. Identify Give n types of clouds, and use them to predict the short-range weather			I	X	X	X			427
III.E.3.d. Relate types of clouds to stability of air masses				I	X	X			428
III.E.3.e. Explain the causes of ocean currents, and their effects upon local climate				I	X	X			429
III.E.3.f. Interpret symbols from a weather map				I	X	X			430
III.F. Basic skills of science	X	X	X	X	X	X	X	X	431
III.F.1. Using measuring devices	X	X	X	X	X	X	X	X	432
III.F.1.a. Demonstrate that objects can be balanced on a simple scale	I	X							433
III.F.1.b. Measure an object's weight on a simple balance in non-standard units (e.g.: pennies or paper-clips)	I	X							434
III.F.1.c. Use a spring scale to weigh objects			I	X					435
III.F.1.d. Weigh objects with a beam balance scale						I	X	X	436

Science Scope and Sequence

Curriculum Element — Commonly, by the grade level(s) given below, the student will be able to:

	N	K	1st	2nd	3rd	4th	5th	6th	Item #
III.F.1.e. Measure temperature accurately with a thermometer				I	X				437
III.F.2. Observation: Gathering and analyzing data	X	X	X	X	X	X	X	X	438
III.F.2.a. group and classify objects according to one physical property: (e.g. size, shape)	I	X							439
III.F.2.b. group and classify objects according to more than one physical characteristic	I	X	X						440
III.F.2.c. Use a hand magnifier to investigate objects at a larger apparent scale	I	X							441
III.F.2.d. Demonstrate emerging skill in scientific observation by accurately describing the physical properties of objects	I	X	X						442
III.F.2.e. Demonstrate at least two techniques for gathering samples of data					I	X	X	X	443
III.F.2.f. Classify the origin of objects as either plant, animal, or mineral					I	X			444
III.F.2.g. Recognize the right of individuals to have differing points of view					I	X	X	X	445
III.F.2.h. Illustrate that objects can be represented as larger or smaller than life-size through the use of scale measurement					I	X	X	X	446
III.F.3. Scientific Experiments	X	X	X	X	X	X	X	X	447
III.F.3.a. Describe the process and results of a science experiment			I	X	X	X	X	X	448
III.F.3.b. Record data about scientific phenomena in a prepared table or chart				I	X	X	X	X	449

Science Scope and Sequence

Curriculum Element — Commonly, by the grade level(s) given below, the student will be able to:

	N	K	1st	2nd	3rd	4th	5th	6th	Item #
IV.A.1. Recognize that food is essential for life, growth, and the maintenance of good health	I	X	X						463
IV.A.2. Recognize that food contains nutrients necessary for life, growth, and good health		I	X	X	X	X			464
IV.A.3. Recognize that food comes from many sources	I	X	X						465
IV.A.4. Recognize that we wash our hands before eating or handling food to avoid the spread of germs	I	X							466
IV.A.5. Recognize that most foods must be thoroughly cooked to kill any micro-organisms	I	X	X	X	X	X			467
IV.A.6. Demonstrate good personal hygiene habits	I	X	X	X	X	X			468
IV.A.7. Classify food into food groups		I	X	X	X	X			469
IV.A.8. Identify the components of a well balanced and nutritious diet		I	X	X	X	X			470
IV.A.9. Relate food processing, handling, and preparation methods to nutritional value				I	X	X			471
IV.A.10. Explain why cleanliness is important in storing, preparing and eating foods				I	X	X			472
IV.A.11. Relate social and geographic variables to diet				I	X	X			473
IV.A.12. Describe the positive and negative effects of food on the human body				I	X	X			474
IV.A.13. Analyze food to determine the nutrient content					I	X			475

Science Scope and Sequence

Curriculum Element — Commonly, by the grade level(s) given below, the student will be able to:

	N	K	1st	2nd	3rd	4th	5th	6th	Item #
IV.B.5. Recognize the importance of brushing teeth after eating	I	X	X	X	X	X	X	X	489
IV.B.6. Recognize and Explain the importance of regular bathing and hair washing	I	X	X	X	X	X	X	X	490
IV.B.7. Demonstrate good health habits	I	X	X	X	X	X	X	X	491
IV.B.8. Identify the symptoms of common illnesses	I	X	X	X	X	X	X		492
IV.B.9. Recognize that many diseases can be prevented or controlled		I	X	X	X	X	X		493
IV.B.10. Recognize that germs cause many diseases		I	X	X	X	X	X		494
IV.B.11. Identify some methods of preventing the spread of illness and disease		I	X	X	X	X	X		495
IV.B.12. Explain the functions of the doctor, nurse, and dentist	I	X	X	X	X	X	X		496
IV.B.13. Recognize how personal health habits can affect the health of everyone in our family or class		I	X	X	X	X	X		497
IV.B.14. Recognize the importance of regular medical and dental check-ups		I	X	X	X	X	X		498
IV.B.15. Classify diseases as organic, infectious, dietary, or allergic						I	X		499
IV.B.16. Describe the locations and functions of the human body's six natural defenses against disease						I	X		500
IV.B.17. Recognize that our life cycles are divided into significant stages		I	X	X	X	X	X	X	501

Science Scope and Sequence

Curriculum Element — Commonly, by the grade level(s) given below, the student will be able to:

	N	K	1st	2nd	3rd	4th	5th	6th	Item #
IV.B.18. Identify the stages of human development		I	X	X	X	X	X	X	502
IV.B.19 Identify the basic human physical, social, and emotional needs		I	X	X	X	X	X	X	503
IV.B.20. Demonstrate the basic skills of nonviolent resolution of disagreements and hurt feelings		I	X	X	X	X	X	X	504
IV.B.21. Demonstrate the skill of giving others thanks and acknowledgment for acts of kindness	I	X	X	X	X	X	X	X	505
IV.B.22. Demonstrate a high degree of skills in friendship building and conflict resolution		I	X	X	X	X	X	X	506
IV.B.23. Demonstrate a spontaneous caring for others through day-to-day acts of kindness, assistance, and charity	I	X	X	X	X	X	X	X	507
IV. C. Reproduction	X	X	X	X	X	X	X	X	508
IV.C.1. Explain how living things reproduce					I	X	X		509
IV.C.2. Identify and Explain how the part of the human reproductive system work						I	X		510
IV.C.4. Identify the major changes that take place during adolescence and puberty						I	X		511
IV.C.5. Recognize that physical, social-emotional growth, and maturity are interrelated						I	X		512
IV.C.6. Briefly explain the menstrual cycle and the types of sanitary protection that are available						I	X		513
IV.C.7. Understands the process of fertilization, prenatal development, and birth					I	X	X		514

Science Scope and Sequence

Curriculum Element — Commonly, by the grade level(s) given below, the student will be able to:

	N	K	1st	2nd	3rd	4th	5th	6th	Item #
IV.C.8. Demonstrate knowledge of information and attitudes surrounding reproduction, pregnancy, and birth						I	X		515
IV.C.9. Demonstrate an emotionally mature, non-sexist view and relationship to the opposite sex						I	X	X	516
IV.D. The Affects of Potentially Damaging Chemicals and Drugs	X	X	X	X	X	X	X	X	517
IV.D.1. Recognize potentially dangerous substances	I	X							518
IV.D.2. Explain why medicine must be used correctly according to the doctor's instructions		I	X						519
IV.D.3. Recognize products that contain alcohol, caffeine, or tobacco and consider why people use them		I	X	X				X	520
IV.D.4. Discuss the medical affect of smoking on long- term health			I	X				X	521
IV.D.5. Identify the physical, psychological, and social effects of alcohol use/abuse			I	X				X	522
IV.D.6. Explain why it is illegal for an adult to drive a car when he/she has been drinking alcohol			I	X				X	523
IV.D.7. Give examples of the way the media encourages the casual use of over-the-counter non-prescription drugs and the concern over its affect on our habits							I	X	524
IV.D.8. Recognize the influence of advertisements for alcoholic beverages on attitudes and behavior							I	X	525
IV.D.9. Identify some common plants that are poisonous			I	X				X	526
IV.D.10. Identify some of the common illegal drugs and Describe their effects on their users			I	X				X	527

