

INTRODUCTION TO CLASSIFICATION OF ANIMALS		Weeks 1-3	Weeks 4-6	Weeks 7-9
1. Classification of Animals	Scientists classify animals according to the characteristics they share, for example: <ul style="list-style-type: none"> ○ Cold-blooded or warm-blooded ○ Vertebrates (have backbones and internal skeletons) or invertebrates (do not have backbones or internal skeletons) 			
	Different classes of vertebrates			
	Become familiar with examples of animals in each class and basic characteristics of each class, such as: <ul style="list-style-type: none"> ○ Fish: aquatic animals, breathe through gills, cold-blooded, most have scales, most develop from eggs that the female lays outside her body ○ Amphibians: live part of their lives in water and part on land, have gills when young, later develop lungs, cold-blooded, usually moist skin ○ Reptiles: hatch from eggs, cold blooded, have dry, thick, scaly skin ○ Birds: warm-blooded, most can fly, have feathers and wings, most build nests, hatch from eggs, most baby birds must be fed by parents and cared for until they can survive on own (though some, like baby chickens and quail, can search for food a few hours after hatching) 			
THE HUMAN BODY		Weeks 1-3	Weeks 4-6	Weeks 7-9
2A. Muscular System	Muscles <ul style="list-style-type: none"> ○ Involuntary and voluntary muscles 			
2B. Skeletal System	Skeleton, bones, marrow			
	Musculo-skeletal connections <ul style="list-style-type: none"> ○ Ligaments / Tendons, Achilles tendon / Cartilage 			
	Skull, cranium			
	Spinal column, vertebrae			
	Joints			
	Ribs, rib cage, sternum			
	Scapula (shoulder blades), pelvis, tibia, fibula			
	Broken bones, x-rays			
2C. Nervous System	Brain: medulla, cerebellum, cerebrum, cerebral cortex			
	Spinal cord			
	Nerves			
	Reflexes			
2D. Vision: How Eye Works	Parts of the eye: cornea, iris and pupil, lens, retina			
	Optic nerve			
	Farsighted and nearsighted			
2E. Hearing: How Ear Works	Sound as vibration			
	Outer ear, ear canal			
	Eardrum			
	Three tiny bones (hammer, anvil, and stirrup) pass vibrations to the cochlea			
	Auditory nerve			

LIGHT & OPTICS		Weeks 1-3	Weeks 4-6	Weeks 7-9
Through experimentation and observation, introduce students to basic physical phenomena of light, with associated vocabulary.				
3. Light & Optics	The speed of light: light travels at an amazingly high speed.			
	Light travels in straight lines (as can be demonstrated by forming shadows).			
	Transparent and opaque objects			
	Reflection			
	Mirrors: plane, concave, convex			
	Uses of mirrors in telescopes and some microscopes			
SOUND		Weeks 1-3	Weeks 4-6	Weeks 7-9
Through experimentation and observation, introduce students to basic physical phenomena of sound, with associated vocabulary.				
4. Sound	Sound is caused by an object vibrating rapidly.			
	Sounds travel through solids, liquids, and gases.			
	Sound waves are much slower than light waves.			
	Qualities of sound <ul style="list-style-type: none"> o Pitch: high or low, faster vibrations = higher pitch, slower vibrations = lower pitch o Intensity: loudness and quietness 			
	Human voice <ul style="list-style-type: none"> o Larynx (voice box) o Vibrating vocal cords: loner, thicker vocal cords create lower, deeper voices 			
	Sound and how the human ear works			
	Protecting your hearing			
ECOLOGY		Weeks 1-3	Weeks 4-6	Weeks 7-9
Some topics here, such as habitats, were introduced in first grade. In Grade 3, develop in more detail and explore new topics.				
5. Ecology	Habitats, interdependence of organisms and their environment			
	The concept of a “balance of nature” (constantly changing, not a static condition)			
	The food chain: producers, consumers, decomposers			
	Ecosystems: how they can be affected by changes in environment (for example, rainfall, food supply, etc.), and by man-made changes			

	<p>Man-made threats to the environment</p> <ul style="list-style-type: none"> ○ Air pollution: emissions, smog ○ Water pollution: industrial waste, run-off from farming <p>Measures we can take to protect the environment (for example, conservation, recycling)</p>			
ASTRONOMY		Weeks 1-3	Weeks 4-6	Weeks 7-9
6. Astronomy	The "Big Bang"			
	The universe: an extent almost beyond imagining			
	Galaxies: Milky Way and Andromeda			
	Our solar system <ul style="list-style-type: none"> ○ Sun: source of energy (heat and light) ○ The nine planets: Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune, Pluto 			
	Planetary motion: orbit and rotation <ul style="list-style-type: none"> ○ How day and night on earth are caused by the earth's rotation ○ Sunrise in the east and sunset in the west ○ How the seasons are caused by the earth' orbit around the sun, tilt of the earth's axis 			
	Gravity, gravitational pull <ul style="list-style-type: none"> ○ Gravitational pull of the moon (and to a lesser degree, the sun) causes ocean tides on earth ○ Gravitational pull of "black holes" prevents even light from escaping 			
	Asteroids, meteors ("shooting stars"), comets, Halley's Comet			
	How an eclipse happens			
	Stars and constellations			
	Orienteering (finding your way) by using North Star, Big Dipper			
	Exploration of space <ul style="list-style-type: none"> ○ Observation through telescopes ○ Rockets and satellites: from unmanned to manned flights ○ Apollo 11, fist landing on the moon: "One small step for a man, one giant leap for mankind" ○ Space shuttle 			
SCIENCE BIOGRAPHIES		Weeks 1-3	Weeks 4-6	Weeks 7-9
6. Biographies	<ul style="list-style-type: none"> ○ Alexander Graham Bell (Sound) ○ Copernicus (Astronomy) ○ Mae Jemison (Exploration of Space) ○ John Muir (Ecology) 			