

Oneness-Family School - First through Third Grade - Science Benchmarks Overview
Academy: Biology

BIOLOGY		
First Grade	Second Grade	Third Grade
<p>Zoology</p> <p>The student discerns the differences between vertebrates (chordates) and invertebrates (Non-Chordata).</p> <p>Cares for live animals in the classroom.</p> <p>Animal 3 part cards. The student is able to label and read the descriptions of each animal.</p> <p>The student identifies and classifies between the 5 classes of chordates.</p> <p>The student identifies animals specific to a particular continent.</p> <p>The student learns about each phylum in the animal kingdom using picture cards with Zoology Classified Nomenclature definition cards.</p> <p>Student learns how to classify live animal specimens.</p> <p>Student learns how to classify an animal using a classification chart.</p> <p>Student learns 6 main classifications of each class of Chordate.</p>	<p>Zoology</p> <p>Explains how animals of each phylum of chordates meet their needs through the following categories:</p> <p>Habitat and climate</p> <p>Relationship to humans</p> <p>Reproduction</p> <p>Care for offspring</p> <p>Movement</p> <p>Nutrition</p>	<p>Zoology</p> <p>Explains each function of life that non-chordates share with chordates</p> <p>Discriminates between the seven phyla of non-chordates and their defining characteristics</p> <p>Identifies and labels the parts and subsequent functions of non-chordate body parts</p> <p>Identifies and explains the functions of human organs</p> <p>Explains the characteristics of producers, consumers, and decomposers within the following ecosystems:</p> <ul style="list-style-type: none"> • Pond • Woodland • Desert • Mountain • Rainforest • Tundra

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<p>Name the external parts of each phylum of chordates and their function.</p>		
<p>Botany</p> <p>Students are introduced to the plant kingdom using real specimens to expand their knowledge of botany.</p> <p>Students learn about plants and how each part functions in the system.</p> <p>Students build a vocabulary towards classification and advanced study of physiology using charts, card sets, pictures, labels, & definition booklets.</p> <p>Students learn the parts of a root using a real tomato plant and 3 part cards that represent the tomato plant.</p> <p>Students are introduced to the story of the fern and its importance in the context of the timeline of the Earth.</p> <p>Students label the parts of a fern.</p> <p>Students learn the basic parts of the flower and their definitions.</p> <p>Students learn how to build a flower.</p>	<p>Botany</p> <p>Identifies the parts of the plant, as well as the two manifestations of each of the following categories within plant structure:</p> <ul style="list-style-type: none"> ● Roots ● Stems ● Leaf venations ● Leaf blades and margins <p>Identifies and defines gamopetalous and polypetalous calyx</p> <p>Identifies at least five of the thirteen types of Corolla</p> <p>Identifies all four parts of the stamen</p> <p>Identifies the four parts of the pistil</p> <p>Discriminates between the four types of succulent fruits</p> <p>Discriminates between and describes monocots and dicots</p> <p>Identifies the five main characteristics of the plant kingdom</p>	<p>Botany</p> <p>Identifies four parts and/or attachments in the study of physiology</p> <p>Identifies all different subterranean, erect, and aerial stems</p> <p>Identifies five types of leaves and the six main types of leaf margins</p> <p>Describes the function of a fasciculate root system using an understanding of taproots and main roots</p> <p>Defines a deciduous tree using an understanding of the parts of woody stems</p> <p>Discriminates between and describes spermoderm, embryo, a monocotyledon, and dicotyledon seeds</p> <p>Describes the function of starch in seed and plant development</p> <p>Explains how light affects mold growth</p> <p>Explains the reproduction cycle of mushrooms</p> <p>Explains the reproduction cycle of yeast cells</p>

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<p>Learns the 2 classifications of fruit.</p> <p>Learns about the parts of a monocot by planting a corn seed.</p> <p>Students learn the classification of the plant kingdom.</p> <p>Learns how to classify plants using live specimens.</p> <p>Learns how to test leaves for starch.</p> <p>Compares types of leaf veins by producing dry rubbing drawings.</p> <p>Learns how temperature affects seed germination.</p> <p>Learns how plants get water from the roots to the leaves of a plant using celery stalks and water with food coloring.</p> <p>Learns how tubers grow new plants from stems.</p> <p>Learns that seeds will germinate faster with light vs no light exposure.</p> <p>Learns that seeds will sprout at the part that is submerged in water.</p>	<p>Explains how the availability of light affects plant growth</p> <p>Retells how long it takes for roots to form and explains the significance of how they seek water</p>	<p>Understands the role of air in plant growth</p> <p>Defines indefinite inflorescence and discriminates between its nine types:</p> <ul style="list-style-type: none"> ● Spike ● Raceme ● Panicle ● Corymb ● Simple umbel ● Compound umbel ● Capitulum ● Spadix ● Catkin <p>Measures the starch content of a leaf</p> <p>Describes the effect of gravity on plant growth</p> <p>Describes the effect of chemical hormones on plant growth</p> <p>Identifies and describes the function of a micropyle for a seed</p> <p>Describes the effect of cotyledon on seed growth</p> <p>Identifies the shape of moss cells and their optimal environment for growth</p> <p>Explains seedless plant reproduction through spores, using ferns as an example</p>

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<p>The student learns that all life comes from the sun and learns how the food chain functions.</p>		<p>Compares and contrasts pollen grains from different plants</p> <p>Describes the structure and of the following plant parts: the function of chloroplasts</p> <ul style="list-style-type: none"> ● Chloroplasts ● Stomata ● Root Hairs <p>Identifies oxygen as a product of photosynthesis through experimentation</p> <p>Identifies the characteristics of the Protoctista kingdom using the classification chart</p> <p>Can name 4 of the 12 classes within the Protoctista kingdom and identifies them using three part cards</p> <p>Identifies the characteristics of the fungi kingdom using the classification chart</p> <p>Discriminates between fungi, plants, and animals by identifying key characteristics of each class within the fungi kingdom</p> <p>Identifies the characteristics of the prokaryotic kingdom using a classification chart and the number of classes contained therein</p> <p>Identifies and describes the function of the 14 basic parts of a microscope</p>
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		<p>Defines and identifies the relations between the following ecology terms:</p> <ul style="list-style-type: none">● Ecology● Biosphere● Ecosystem● Food Chain● Food Web <p>Identifies and describes the function of the following structures of a cell:</p> <ul style="list-style-type: none">● Cell Membrane● Cytoplasm● Golgi Bodies● Microfilaments● Microtubules● Mitochondria● Nucleus● Nucleolus● Ribosomes● Vacuoles <p>Identifies the needs of living organisms within a contained and observed ecosystem</p>