



Fifth Grade Frameworks Pacing Guide

Cells

Crosscutting Concepts: System and System Models; Scale, Proportion, and Quantity; Stability and Change

Topics: Plant and Animal Cells, Microorganisms, Characteristics of Organisms

8-week Instructional Segment

Anchoring Phenomenon	GSE	Instructional Segments	Disciplinary Core Ideas	Science and Engineering Practices	Instructional Notes
Decomposition of multi-celled organisms by single-celled organisms	S5L3. a, b, c S5L4. a, b	How Small is a Cell?	From A Framework for K-12 Science Education : <i>By the end of grade 5</i> LS1.A: Structure and Function <ul style="list-style-type: none"> ● Plants and animals have internal and external structures that serve various functions in growth, survival, behavior and reproduction. ● All living things are made up of cells, which is the smallest unit that can be said to be alive. An organism may consist of one single cell (unicellular) or many different numbers and types of cells (multicellular). Unicellular organisms (microorganisms), like multicellular organisms, need food, water, a way to dispose of waste, and an environment in which they can live. LS1.C: Organization for Matter and Energy Flow in Organisms <ul style="list-style-type: none"> ● Animals and plants alike generally need to take in air and water, 	<ul style="list-style-type: none"> ● Constructing explanations and designing solutions ● Engaging in argument from evidence ● Developing and using models ● Obtaining, evaluating, and communicating information 	At this level students have difficulty with the idea that cells are the basic units in which life processes occur. This unit is not on classifying microorganisms other than into animal cells with cell membranes, nucleus and cytoplasm or into plant cells with cell walls, chloroplasts, nucleus and cytoplasm. This segment builds on the third and fourth grade understandings of habitat and food chains. This segment also focuses on evidence of harmful and beneficial organisms in the ecosystem. By the end of this unit, students are using the following language in their speaking and writing during EXPLAIN or

			<p>animals must take in food, and plants need light and minerals; anaerobic life, such as bacteria in the gut, functions without air. Food provides animals with the materials they need for body repair and growth and is digested to release the energy they need to maintain body warmth and for motion.</p> <p>LS2.B: Cycles of Matter and Energy Transfer in Ecosystems</p> <ul style="list-style-type: none"> ● Matter cycles between the air and soil, among plants, animals, and microbes as these organisms live and die. Organisms obtain gases, water, and minerals, from the environment and release waste matter back into the environment. <p>LS3.A: Inheritance of Traits</p> <ul style="list-style-type: none"> ● Many characteristics of organisms are inherited from their parents. Other characteristics result from individuals’ interactions with the environment, which can range from diet to learning. Many characteristics involve both inheritance and environment. <p>LS3.B: Variation of Traits</p> <ul style="list-style-type: none"> ● Offspring acquire a mix of traits from their biological parents. Different organisms vary in how they look and function because they have different inherited information. 		<p>ELABORATE.</p> <ul style="list-style-type: none"> ● Microscope ● Cell ● Microorganism ● Single-celled organisms ● Multi-celled organisms ● Nucleus ● Cell membrane ● Cell wall ● Cytoplasm <p>Bundled Curriculum- Just as the smallest living particle is a cell, the smallest physical particle is the atom. The evidence of electrons gives the basis for electricity.</p>
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			<p>In each kind of organism there is variation in the traits themselves, and different kinds of organisms may have different versions of the trait. The environment also affects the traits that an organism develops—differences in where they grow or in the food they consume may cause organisms that are related to end up looking or behaving differently.</p>		
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This instructional segment is connected to S5P2 and S5P3 Electricity and Magnetism. Just as the smallest living particle is a cell, the smallest physical particle is the atom. The evidence of electrons gives the basis for electricity.