

International Society for Technology in Education Standards		Grade Level Technology Targets
<p>1. Creativity and innovation: Students demonstrate creative thinking, construct knowledge, and develop innovative products and processes using technology.</p> <p>2. Communication and collaboration: Students use digital media and environments to communicate and work collaboratively, including at a distance, to support individual learning and contribute to the learning of others.</p> <p>3. Research and information fluency: Students apply digital tools to gather, evaluate, and use information.</p> <p>4. Critical thinking, problem solving, and decision making: Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources.</p> <p>5. Digital citizenship: Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior.</p> <p>6. Technology Operations and Concepts: Students demonstrate and sound understanding of technology concepts, systems and operations.</p>		<p>.</p> <p>.</p> <p>.</p> <p>.</p>
Quarter 1		
Standard 1 (Physical Science) Nature of Science (Aug.-Sept)	Standard 2 (Life Science) Cells and Cell Processes (Sept. –Oct.)	Standard 3 (Earth Science)
<p>Evidence Outcomes Key Topics: Embedded CAS throughout school year – Metric Measurements; Metric Conversions, Inferences vs. Observations; Scientific Process; Experimental Design; Independent and Dependent Variables; Constants (Controlled variables); Control Group; Lab Safety; Lab Equipment & Tools; Collecting Data; Scientific units; Graphing Skills.</p>	<p>Evidence Outcomes Key Topics: Macromolecules; Cell Theory; Organelles /Cell Parts & Functions; Types of Cells (Animal vs. Plant); Prokaryotic vs. Eukaryotic Cells; Microscopes; Cell Membranes and Transport (Osmosis and Diffusion); Radiant to Chemical Energy in Photosynthesis; Photosynthesis Reaction; Cellular Respiration Reaction; Photosynthesis & Cellular Respiration Relationship; Interdependence between Plants and Animals; <i>[Not: Endosymbiotic Theory, Light and Dark Reactions of Photosynthesis, Fermentation]</i></p> <p>Standards: LS3 and LS4</p>	<p>Evidence Outcomes</p>

3. Cells are the smallest unit of life that can function independently and perform all the necessary functions of life

a. Gather, analyze, and interpret data and models on the different types of cells, their structures, components and functions (DOK 1-2)

b. Develop, communicate, and justify an evidence-based scientific explanation regarding cell structures, components, and their specific functions (DOK 1-3)

c. Compare and contrast the basic structures and functions of plant cells, animal cells, and single-celled organisms (DOK 2)

d. Employ tools to gather, view, analyze, and report results for the scientific investigations of cells (DOK 1-2)

4. Photosynthesis and cellular respiration are important processes by which energy is acquired and utilized by organisms

a. Gather, analyze, and interpret data regarding the basic functions of photosynthesis and cellular respiration (DOK 1-2)

b. Use direct and indirect evidence to describe the relationship between photosynthesis and cellular respiration within plants – and between plants and animals (DOK 1-2)

c. Use computer simulations to model the relationship between photosynthesis and cellular respiration within plants – and between plants and animals (DOK 1-2)

Quarter 2		
Standard 1 (Physical Science)	Standard 2 (Life Science) Homeostasis and the Relationship of Human Body Systems (Oct. – Dec.)	Standard 3 (Earth Science)
Evidence Outcomes	<p>Evidence Outcomes Key Topics:</p> <p>Maintaining Homeostasis; Organization of Living Things (atoms, molecules, cells, tissues, organs, and organ systems); Relationship between body systems (Digestive System, Respiratory System, and Cardiovascular System; Skeletal and Muscular System, etc.); Structure and Function of Human Body systems and Homeostasis; <i>[Not: A comprehensive study of all human body systems]</i></p> <p>Standards: LS2</p> <p>2. The human body is composed of atoms, molecules, cells, tissues, organs, and organ systems that have specific functions and interactions</p> <p>a. Develop and design a scientific investigation about human body systems (DOK 2-4)</p> <p>b. Develop, communicate, and justify an evidence-based scientific explanation</p>	Evidence Outcomes

	<p>regarding the functions and interactions of the human body (DOK 1-3)</p> <p>c. Gather, analyze, and interpret data and models on the functions and interactions of the human body (DOK 1-3)</p>	
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Quarter 3		
Standard 1 (Physical Science)	Standard 2 (Life Science) Genetics (Jan.) Adaptation & Evolution (Feb.-March)	Standard 3 (Earth Science)
<p>Evidence Outcomes</p>	<p>Evidence Outcomes</p> <p>Key Topics:</p> <p>DNA; Gene vs. Allele; Dominant and Recessive Traits; Heterozygous vs. Homozygous, Genotype vs. Phenotype; Punnett Square;</p> <p><i>[Not: Patterns of Inheritance, Genetic Engineering, Genetic Disorders]</i></p> <p>Traits; Types of Adaptations (Behavioral and Physical); DNA Mutations and impact on survival; Natural Selection; Environmental Changes as a mechanism for adaptations; Antibiotic resistance; Charles Darwin; Theory of Evolution by Natural Selection; Evidence for Evolution; Homologous structures; Multiple lines of evidence show the evolution of organisms over geologic time; <i>[Not: Evolutionary pathways (convergent, divergent, coevolution)]</i></p> <p>Standards: LS1 and LS5</p>	<p>Evidence Outcomes</p>

1. Individual organisms with certain traits are more likely than others to survive and have offspring in a specific environment.

- a. Develop, communicate, and justify an evidence-based explanation for why a given organism with specific traits will or will not survive to have offspring in a given environment (DOK 1-3)
- b. Analyze and interpret data about specific adaptations to provide evidence and develop claims about differential survival and reproductive success (DOK 1-3)
- c. Use information and communication technology tools to gather information from credible sources, analyze findings, and draw conclusions to create and justify an evidence-based scientific explanation (DOK 1-2)
- d. Use computer simulations to model differential survival and reproductive success associated with specific traits in a given environment (DOK 1-2)

5. Multiple lines of evidence show the evolution of organisms over geologic time

- a. Interpret and analyze data from the fossil record to support a claim that organisms and environments have evolved over time (DOK 1-2)
- b. Analyze and critique the evidence

	<p>regarding the causes and effects of a mass extinction event (DOK 2-3)</p> <p>c. Analyze and interpret data that show human evolution (DOK 1-3)</p> <p>d. Use technology to share research findings about the evidence regarding the causes and effects of a mass extinction event (DOK 1-2)</p>	
Quarter 4		
Standard 1 (Physical Science)	Standard 2 (Life Science)	Standard 3 (Earth Science) Geologic History (April) Plate Tectonics (Apr.-May)
<p>Evidence Outcomes</p>	<p>Evidence Outcomes</p>	<p>Evidence Outcomes</p> <p>Key Topics:</p> <p>Relative dating; Absolute (radioactive) dating; Law of Superposition; Earth's Geological Timeline; History of Life on Earth; Mass extinctions; Pangea; Theory of Continental drift; Formation and types of fossils; Index Fossils; Alfred Wegener; <i>[Not: Rock cycle]</i></p> <p>Earth's Interior Structure; Earthquakes; Seismic Waves (P and S); Fault lines; Hot spots; volcanic eruptions; mountain formation; mid-ocean ridges; Sea floor spreading; subduction zones; types of plate boundaries; Theory of Plate Tectonics; <i>[Not: structure of volcanoes]</i></p> <p>Standards: ES2 and ES1</p> <p>2. Geologic time, history, and changing life forms are indicated</p>

		<p>by fossils and successive sedimentation, folding, faulting, and uplifting of layers of sedimentary rock</p> <ol style="list-style-type: none"> a. Describe the geologic time scale and why it is used (DOK 1) b. Identify and describe the impact of major geologic events on life on Earth (DOK 1) c. Identify and describe major events in Earth's geologic history (DOK 1) d. Use direct and indirect evidence to determine the sequence of events in geologic time (DOK 1-2) <p>1. Major geologic events such as earthquakes, volcanic eruptions, mid-ocean ridges, and mountain formation are associated with plate boundaries and attributed to plate motions</p> <ol style="list-style-type: none"> a. Gather, analyze, and communicate data that explains Earth's plates, plate motions, and the results of plate motions (DOK 1-2) b. Identify, interpret, and explain models of plates motions on Earth (DOK 1-3) c. Use maps to locate likely geologic "hot spots", using evidence of earthquakes and volcanic activity (DOK 1-3) d. Use web-based or other technology tools to show connections and patterns in data about
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		tectonic plate boundaries and earthquakes, volcanic eruptions, and mountain formation (DOK 1-2)
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End of Year Expectations By Standard		
Standard 1 (Physical Science)	Standard 2 (Life Science)	Standard 3 (Earth Science)