



**Adventist Education**

A JOURNEY TO EXCELLENCE

# • Elementary Science

2015

**ELEMENTARY SCIENCE STANDARDS  
IN SEVENTH-DAY ADVENTIST SCHOOLS**

**OFFICE OF EDUCATION** | North American Division Seventh-day Adventist Church

## ADVENTIST EDUCATION STANDARDS

Standards, what learners should know (content) and be able to do (skills), serve as the framework for curriculum development. Standards in NAD Seventh-day Adventist schools reflect the Adventist worldview across the K-12 curricula as well as the integration of national and provincial/state standards. The Adventist worldview accepts the Bible as the standard by which everything else is measured. Four key concepts emerge from a biblical worldview that can be used as a lens for curriculum development, as well as informing the essential questions and big ideas of any content area: Creation (What is God's intention?), Fall (How has God's purpose been distorted?), Redemption (How does God help us to respond?), and Re-creation (How can we be restored in the image of God?).

— THE CORE OF ADVENTIST EDUCATION CURRICULUM

## SCIENCE AND ENGINEERING PRACTICES

1. Asking questions (for science) and defining problems (for engineering)
2. Developing and using models
3. Planning and carrying out investigations
4. Analyzing and interpreting data
5. Using mathematics and computational thinking
6. Constructing explanations (for science) and designing solutions (for engineering)
7. Engaging in argument from evidence
8. Obtaining, evaluating, and communicating information

— NEXT GENERATION SCIENCE STANDARDS

## STANDARDS CODING

The standards have been coded so that educators can easily refer to them in their curriculum, instruction, and assessment practices. The coding system that precedes each standard begins with the content area abbreviation in letters; all are identified with S—Science (S.K-2.LS.1). The second part of the code refers to the grade level (S.K-2.LS.1). The third part of the code refers to the particular science domain (S.K-2.LS.1), with LS standing for Life Sciences. The fourth part of the code refers to a particular skill within the science domain (S.K-2.LS.1). The coding system that follows each standard is the Next Generation Science Standards (NGSS) that aligns with the NAD standard. Where no NGSS is noted, there is no corresponding NGSS.

## PERFORMANCE-BASED STANDARDS

The science standards are performance-based outcomes (what students should be able to do) rather than content-based outcomes (what students should know). The content standards are implied within the context of the performance standards.

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## CREDITS

The following resources were referenced in developing Science Standards for Seventh-day Adventist Schools: a sampling of state standards, NAD Curriculum Guide for Science, Next Generation Science Standards (NGSS), National Health Education Standards (NHES), and the Core of Adventist Education Curriculum.

## 2015 ELEMENTARY SCIENCE — LIFE SCIENCES

GRADE	TOPICS	STANDARDS (NGSS ALIGNMENT)	BY DESIGN CHAPTER CORRELATION	INQUIRY ACTIVITIES
<b>Essential Question:</b> How do living organisms give evidence of God as the Designer, Creator, and Sustainer of life?		<b>Big Idea:</b> The complexity, order, and design of living organisms provide strong evidence of God as the Designer, Creator and Sustainer of life.	<b>Bold =</b> included content <i>Italic =</i> related content	TE = TEACHER EDITION SE = STUDENT EDITION SJ = STUDENT JOURNAL TT = TRY THIS LA = LESSON ACTIVITY EAL = EXPLORE-A-LAB MS = MATH IN SCIENCE ATBD = ACTIVITY TO BE DEVELOPED
<b>K-2</b>	<b>Molecules to Organisms: Structures and Processes</b>	S.K-2.LS.1 Use observations to describe patterns (e.g., animals need to take in food but plants do not, different kinds of food needed by different types of animals, requirement of plants to have light, all living things need water) of what plants and animals (including humans) need to survive. (K-LS1-1)	Level 1 – Ch. 1.1, 1.2, Ch. 2.3, Ch. 3.2 Level 2 – Ch. 1.1, 1.4, Ch. 2.1	Level 1 - ATBD Level 2 - ATBD
		S.K-2.LS.2 Use materials to design a solution to a human problem by mimicking how plants and/or animals use their external parts to help them survive, grow, and meet their needs (e.g., designing clothing or equipment to protect bicyclists by mimicking turtle shells, acorn shells, and animal scales; stabilizing structures by mimicking animal tails and roots on plants; keeping out intruders by mimicking thorns on branches and animal quills). (1-LS1-1)	Level 1 – Ch. 1.1, 1.2, Ch. 2.1, 2.2, 2.3 Level 2 – Ch. 1.2, 1.5	Level 1 - ATBD Level 2 - ATBD
		S.K-2.LS.3 Make observations to determine patterns in behavior of parents and offspring that help offspring survive (e.g., signals that offspring make such as crying, cheeping and the responses of parents such as feeding, comforting, protecting). (1-LS1-2)	Level 1 – Ch. 2.3 Level 2 – Ch. 1.4	Level 1 - ATBD Level 2 - ATBD
	<b>Ecosystems: Interactions, Energy, and Dynamics</b>	S.K-2.LS.4 Plan and conduct an investigation to determine if plants need sunlight and water to grow, ensuring that only one variable is tested at a time. (2-LS2-1)	Level 1 – Ch. 1.2 Level 2 – Ch. 1.1, 1.2	Level 1 - ATBD Level 2 - ATBD
		S.K-2.LS.5 Develop a simple model that mimics the function of an animal in dispersing seeds or pollinating plants. (2-LS2-2)	Level 1 – Ch. 1.2 <i>Level 2 – Ch. 1.2</i>	Level 1 - ATBD Level 2 - ATBD
	<b>Heredity: Inheritance and Variation of Traits</b>	S.K-2.LS.6 Make observations to construct an evidence-based account that young plants and animals are like, but not exactly like, their parents (e.g., leaves from same kind of plant are the same shape but can differ in size, young animals look similar to their parents but are not exactly the same). (1-LS3-1)	Level 1 – Ch. 1.2, Ch. 2.3	Level 1 - ATBD
	<b>Life: Origins, Unity, and Diversity</b>	S.K-2.LS.7 Make observations of plants and animals to compare the diversity of life in different habitats. (2-LS4-1)	Level 1 – Ch. 3.1 Level 2 – Ch. 2.1	Level 1 - ATBD Level 2 - ATBD
		S.K-2.LS.8 Apply scientific principles to begin to construct a personal model that explains how life began on earth and acknowledges God as the Creator.	<i>Level 1 – Ch. 1.1, Ch. 2.2, Ch. 8.1</i> <i>Level 2 – Ch. 8.1, 8.2</i>	Level 1 - ATBD Level 2 - ATBD

**2015 ELEMENTARY SCIENCE — LIFE SCIENCES** CONTINUED

<b>3-5</b>	<b>Molecules to Organisms: Structures and Processes</b>	<b>S.3-5.LS.1</b> Develop models (e.g., drawings, diagrams) to describe that organisms have unique and diverse life cycles but all have birth, growth, reproduction, and death in common. (3-LS1-1)	Level 3 – Ch. 1.3, Ch. 2.1, 2.2 Level 4 – Ch. 1.4 Level 5 – Ch. 1.3, Ch. 5.1, 5.2, 5.3, Ch. 6.1, 6.2	Level 3 - ATBD Level 4 - ATBD Level 5 - ATBD
		<b>S.3-5.LS.2</b> Construct an argument that plants and animals have internal and external structures (e.g., thorns, stems, roots, colored petals, heart, stomach, lung, brain, skin) that function to support survival, growth, behavior, and reproduction. (4-LS1-1)	Level 3 – Ch. 2.1, Ch. 5.1, Ch. 6.1 Level 4 – Ch. 1.1, 1.3, 1.4, Ch. 2.1, 2.2 Level 5 – Ch. 3.1, 3.2, 3.3, 3.4, Ch. 4.3, Ch. 5.2, 5.3, Ch. 6.1, 6.2	Level 3 - ATBD Level 4 - ATBD Level 5 - ATBD
		<b>S.3-5.LS.3</b> Use a model to describe systems of information transfer (e.g., nerves, hormones) that animals use to receive different types of information through their senses, process the information in their brain, and respond to the information in different ways. (4-LS1-2)	Level 4 – Ch. 4.1, Ch. 5.2	Level 4 - ATBD
		<b>S.3-5.LS.4</b> Support an argument that plants get the materials they need for growth chiefly from air and water. (5-LS1-1)	Level 3 – Ch. 2.1, 2.3 Level 4 – Ch. 1.1	Level 3 - ATBD Level 4 - ATBD
	<b>Ecosystems: Interactions, Energy, and Dynamics</b>	<b>S.3-5.LS.5</b> Construct an argument that some animals form groups that help members survive. (3-LS2-1)	Level 4 – Ch. 2.2, Ch. 3.2 Level 5 – Ch. 3.3, Ch. 4.1, 4.3	Level 4 - ATBD Level 5 - ATBD
		<b>S.3-5.LS.6</b> Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment. (5-LS2-1)	Level 3 – Ch. 3.1 Level 4 – Ch. 3.1, 3.2, 3.3, 3.4 Level 5 – Ch. 4.1, 4.2, 4.3	Level 3 - ATBD Level 4 - ATBD Level 5 - ATBD
	<b>Heredity: Inheritance and Variation of Traits</b>	<b>S.3-5.LS.7</b> Analyze and interpret data to provide evidence that plants and animals have traits inherited from parents and that variation of these traits exists in a group of similar organisms. (3-LS3-1)	Level 3 – Ch. 1.1, 1.3, Ch. 2.2 Level 4 – Ch. 1.1, 1.4 Level 5 – Ch. 1.3, Ch. 6.1	Level 3 - ATBD Level 4 - ATBD Level 5 - ATBD
		<b>S.3-5.LS.8</b> Use evidence to support the explanation that traits can be influenced by the environment (e.g., Galapagos finches, peppered moth). (3-LS3-2)	Level 3 – Ch. 3.1, 3.2, 3.3, 3.4 Level 4 – Ch. 2.1, 2.2, Ch. 3.3 Level 5 – Ch. 3.1, 3.2, 3.3, 3.4	Level 3 - ATBD Level 4 - ATBD Level 5 - ATBD
	<b>Life: Origins, Unity, and Diversity</b>	<b>S.3-5.LS.9</b> Analyze and interpret data (e.g., type, size, distributions) from fossils to provide evidence of the organisms and the environments (e.g., marine fossils on dry land, tropical plant fossils in Arctic areas, fossils of extinct organisms) in which they lived long ago. (3-LS4-1)	Level 4 – Ch. 8.2	Level 4 - ATBD
		<b>S.3-5.LS.10</b> Use evidence to construct an explanation for how the variations in characteristics among individuals of the same species may provide advantages in surviving, finding mates, and reproducing (e.g., plants with larger thorns are less likely to be eaten by predators, animals with better camouflage coloration are more likely to survive and to reproduce). (3-LS4-2)	Level 4 – Ch. 2.1, 2.2 Level 5 – Ch. 3.1, 3.2, 3.3	Level 4 - ATBD Level 5 - ATBD
		<b>S.3-5.LS.11</b> Construct an argument with evidence (e.g., needs, characteristics) that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all. (3-LS4-3)	Level 3 – Ch. 3.1, 3.2, 3.3, 3.4 Level 4 – Ch. 2.1, 2.2, Ch. 3.3	Level 3 - ATBD Level 4 - ATBD
		<b>S.3-5.LS.12</b> Make a claim about the merit of a plant or animal adaptation in response to an environmental change (e.g., land characteristics, water distribution, temperature, food, other organisms). (3-LS4-4)	Level 3 – Ch. 3.2, 3.3, 3.4 Level 4 – Ch. 2.1, 2.2, Ch. 3.2, 3.3 Level 5 – Ch. 3.1, 3.2, 3.3, 3.4, Ch. 4.3	Level 3 - ATBD Level 4 - ATBD Level 5 - ATBD
		<b>S.3-5.LS.13</b> Construct an argument with evidence to support that God has created within living things a pool of variations that allows organisms to adapt to changes in the environment.	Level 4 – Ch. 2.1, 2.2 Level 5 – Ch. 3.1, 3.2, 3.3, 3.4	Level 4 - ATBD Level 5 - ATBD
		<b>S.3-5.LS.14</b> Apply scientific principles to construct a personal model that explains origins of life on earth and acknowledges God as the Creator.	Level 3 – Ch. 1.1 Level 4 – Ch. 1.1, 1.2, Ch. 4.1 Level 5 – Ch. 1.1, 1.2, 1.3	Level 3 - ATBD Level 4 - ATBD Level 5 - ATBD

**2015 ELEMENTARY SCIENCE — LIFE SCIENCES** CONTINUED

GRADE	TOPICS	STANDARDS (NGSS ALIGNMENT)	BY DESIGN CHAPTER CORRELATION	INQUIRY ACTIVITIES
6-8	Molecules to Organisms: Structures and Processes	S.6-8.LS.1 Conduct an investigation to provide evidence that living things are made of cells, either one cell or many different numbers and types of cells. (MS-LS1-1)	Level 6 – Ch. 1.1, Ch. 2.1, 2.2, 2.3 Level 7 – Ch. 1.1	Level 6 - ATBD Level 7 - ATBD
		S.6-8.LS.2 Develop and use a model to describe the function of a cell as a whole and ways parts of cells contribute to the function. (MS-LS1-2)	Level 6 – Ch. 2.1, 2.2, 2.3, 2.4, Ch. 3.1, 3.2, 3.3 Level 7 – Ch. 4.1, Ch. 6.1	Level 6 - ATBD Level 7 - ATBD
		S.6-8.LS.3 Use argument supported by evidence for how the body is a system of interacting subsystems composed of groups of cells. (MS-LS1-3)	Level 6 – Ch. 2.3, Ch. 4.1, 4.2, 4.3, 4.4, 4.5	Level 6 - ATBD
		S.6-8.LS.4 Use argument based on empirical evidence and scientific reasoning to support an explanation for how characteristic animal behaviors (e.g., nest building, herding, vocalization, colorful plumage) and specialized plant structures (e.g., bright flowers, flower nectar, odors that attract insects that transfer pollen, hard shells on nuts that squirrels bury) affect the probability of successful reproduction of animals and plants respectively. (MS-LS1-4)	Level 6 – Ch. 1.1 Level 7 – Ch. 3.3, 3.4 Level 8 – Ch. 1.1, Ch. 2.4, Ch. 3.3, Ch. 4.2, 4.4	Level 6 - ATBD Level 7 - ATBD Level 8 - ATBD
		S.6-8.LS.5 Construct a scientific explanation based on evidence (e.g., drought decreasing plant growth, fertilizer increasing plant growth, different varieties of plant seeds growing at different rates in different conditions, fish growing larger in large ponds) for how environmental (e.g., availability of food, light, space, water) and genetic (e.g., large breed cattle and species of grass affecting growth) factors influence the growth of organisms. (MS-LS1-5)	Level 7 – Ch. 1.1, 1.2, 1.3, 1.4, Ch. 4.2, 4.3 Level 8 – Ch. 3.2, 3.3, Ch. 4.1, 4.3, 4.4	Level 7 - ATBD Level 8 - ATBD
		S.6-8.LS.6 Construct a scientific explanation based on evidence for the role of photosynthesis in the cycling of matter and flow of energy into and out of organisms. (MS-LS1-6)	Level 6 – Ch. 2.3, 2.4 Level 8 – Ch. 3.1	Level 6 - ATBD Level 8 - ATBD
		S.6-8.LS.7 Develop a model to describe how food is rearranged through chemical reactions forming new molecules that support growth and/or release energy as this matter moves through an organism. (MS-LS1-7)	Level 6 – Ch. 1.3, Ch. 2.4, Ch. 3.2 Level 7 – Ch. 1.2, 1.3, 1.4 Level 8 – Ch. 2.1	Level 6 - ATBD Level 7 - ATBD Level 8 - ATBD
		S.6-8.LS.8 Gather and synthesize information that sensory receptors respond to stimuli by sending messages to the brain for immediate behavior or storage as memories. (MS-LS1-8)	Level 6 – Ch. 4.2, 4.4, 4.5	Level 6 - ATBD
	Ecosystems: Interactions, Energy, and Dynamics	S.6-8.LS.9 Analyze and interpret data to provide evidence for the effects of resource availability on organisms and populations of organisms in an ecosystem. (MS-LS2-1)	Level 8 – Ch. 4.1, 4.3, 4.4	Level 8 - ATBD
		S.6-8.LS.10 Construct an explanation that predicts patterns of interactions (e.g., competitive, predatory, mutually beneficial) among organisms across multiple ecosystems. (MS-LS2-2)	Level 8 – Ch. 4.1, 4.3, 4.4, 4.5	Level 8 - ATBD
		S.6-8.LS.11 Develop a model to describe the cycling of matter and flow of energy among living and nonliving parts of an ecosystem. (MS-LS2-3)	Level 6 – Ch. 1.1, 1.2, 1.3 Level 8 – Ch. 3.1, Ch. 4.1, 4.3	Level 6 - ATBD Level 8 - ATBD
		S.6-8.LS.12 Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations. (MS-LS2-4)	Level 8 – Ch. 4.1, 4.3, 4.4	Level 8 - ATBD
		S.6-8.LS.13 Evaluate competing design solutions (e.g., scientific, economic, social considerations) for maintaining biodiversity and ecosystem services (e.g., water purification, nutrient recycling, soil erosion prevention, habitat enhancement). (MS-LS2-5)	Level 8 – Ch. 3.3, Ch. 4.1, Ch. 9.1, 9.2, 9.3, 9.4	Level 8 - ATBD
	Heredity: Inheritance and Variation of Traits	S.6-8.LS.14 Develop and use a model to describe why structural changes to genes (mutations) located on chromosomes may affect proteins and may result in harmful, beneficial, or neutral effects to the structure and function of the organism. (MS-LS3-1)	Level 6 – Ch. 3.1, 3.2 Level 7 – Ch. 4.1	Level 6 - ATBD Level 7 - ATBD
		S.6-8.LS.15 Develop and use a model (e.g., Punnett squares, diagrams, simulations) to describe why asexual reproduction results in offspring with identical genetic information and sexual reproduction results in offspring with genetic variation. (MS-LS3-2)	Level 6 – Ch. 3.1 Level 7 – Ch. 4.1, 4.2, 4.3 Level 8 – Ch. 2.2, 2.3, 2.4	Level 6 - ATBD Level 7 - ATBD Level 8 - ATBD
	Life: Origins, Unity, and Diversity	S.6-8.LS.16 Analyze and interpret data for patterns in the fossil record that document the existence, diversity, extinction, and change of life forms throughout the history of life on Earth, comparing and contrasting creationist and naturalist perspectives. (MS-LS4-1)	Level 6 – Ch. 10.1, 10.2, 10.3 Level 8 – Ch. 1.2, 1.3, Ch. 10.3	Level 6 - ATBD Level 8 - ATBD
		S.6-8.LS.17 Apply scientific principles to construct an explanation for the anatomical similarities and differences among modern organisms and between modern and fossil organisms, comparing and contrasting creationist and naturalist perspectives. (MS-LS4-2)	Level 6 – Ch. 10.1, 10.2, 10.3 Level 8 – Ch. 1.3, Ch. 10.3	Level 6 - ATBD Level 8 - ATBD
		S.6-8.LS.18 Construct an explanation based on evidence that describes how genetic variations of traits in a population increase some individuals' probability of surviving and reproducing in a specific environment. (MS-LS4-4)	Level 6 – Ch. 1.1 Level 7 – Ch. 4.2, 4.3 Level 8 – Ch. 1.1, Ch. 3.2, Ch. 4.2, 4.4	Level 6 - ATBD Level 7 - ATBD Level 8 - ATBD
		S.6-8.LS.19 Gather and synthesize information about the technologies that have changed the way humans influence the inheritance of desired traits in organisms. (MS-LS4-5)	Level 7 – Ch. 4.4	Level 7 - ATBD
		S.6-8.LS.20 Use mathematical representations to support explanations of how natural selection may lead to increases and decreases of specific traits in populations over time. (MS-LS4-6)	Level 7 – Ch. 4.1, 4.2 Level 8 – Ch. 1.1, Ch. 4.2, 4.3, 4.4	Level 7 - ATBD Level 8 - ATBD
		S.6-8.LS.21 Apply scientific principles to construct and share a personal model that explains origins of life on earth and acknowledges God as the Creator.	Level 6 – Ch. 1.1, 1.2, 1.3 Level 7 – Ch. 1.1, Ch. 4.1 Level 8 – Ch. 1.1, 1.2, Ch. 10.2, 10.3	Level 6 - ATBD Level 7 - ATBD Level 8 - ATBD

## 2015 ELEMENTARY SCIENCE — HEALTH SCIENCES

GRADE	TOPICS	STANDARDS (NGSS ALIGNMENT)	BY DESIGN CHAPTER CORRELATION	INQUIRY ACTIVITIES
		<b>Essential Question:</b> Why does God want human beings to choose to have a healthy mind and body?	<b>Big Idea:</b> God designed a plan for healthful living that leads to optimum spiritual, physical, mental, and emotional health.	TE = TEACHER EDITION SE = STUDENT EDITION SJ = STUDENT JOURNAL TT = TRY THIS LA = LESSON ACTIVITY EAL = EXPLORE-A-LAB MS = MATH IN SCIENCE ATBD = ACTIVITY TO BE DEVELOPED
<b>K-2</b>	<b>Health Promotion and Disease Prevention</b>	<b>S.K-2.HS.1</b> Read texts and use media to determine the dimensions of health (e.g., nutrition, exercise) and patterns of behavior (e.g., eating healthy foods, daily exercise) that impact personal health.	Level 1 – Ch. 4.3, Ch. 5.2, 5.3, Ch. 6.2, 6.3 Level 2 – Ch. 3.2, 3.4, Ch. 4.3, Ch. 5.1, 5.2	Level 1 – Brush Off SE 119/SJ 22; Let's Try This Again TE 119/SJ 24, EAL 123, EAL 144; Be a Better Jumper SE 147/SJ 36; Practice Makes Perfect TE 147/SJ 38, EAL 149; Screen Time TE 151/SJ 40, EAL 152; Stand Up Straight SE 168/SJ 52; Calcium in Bones TE 168/SJ 54, EAL 174; Bicycle Helmet Survey SE 177/SJ 56 Level 2 – Which Foods Help Me Stay Healthy TE 107/SJ 2, TT 120; The Food Groups SE 121/SJ 16; Your Personal Food Guide TE 121/SJ 18, TT 174; Stopping Germs SE 175/SJ 42; Shake Hands SE 175/SJ 44, TT 184; Hole in Your Mouth SE 185/SJ 46, EAL 189; Be Seen to Be Safe SE 195/SJ 50; Seat Belt Crash Test TE 196/SJ 54
		<b>S.K-2.HS.2</b> Demonstrate ways to prevent communicable diseases and reduce accidental injuries.	Level 1 – Ch. 6.3 Level 2 – Ch. 5.2, 5.3	Level 1 – EAL 123; Bicycle Helmet Survey SE 177/SJ 56 Level 2 – Stopping Germs SE 175/SJ 42; Shake Hands SE 175/SJ 44, TT 184, TT 194; Be Seen to Be Safe SE 195/SJ 50; Seat Belt Crash Test TE 196/SJ 54
		<b>S.K-2.HS.3</b> Role play how to tell a trusted adult if threatened or harmed.	<i>Not specifically addressed</i>	Level 1 – ATBD Level 2 – ATBD
	<b>Health Resources</b>	<b>S.K-2.HS.4</b> Conduct an investigation to identify health professionals and other adults who can help to promote health.	<i>Level 2 – 4.3, Ch. 5.3</i>	Level 2 – ATBD
	<b>Healthy Lifestyle Choices</b>	<b>S.K-2.HS.5</b> Construct an argument that media influences personal decisions relating to healthy choices.	Level 1 – Ch. 5.2, 5.3, Ch. 6.2, 6.3 Level 2 – Ch. 3.3, Ch. 5.2	Level 1 – ATBD Level 2 – LA 134, EAL 189; ATBD
		<b>S.K-2.HS.6</b> Use a model to differentiate between situations when a health-related decision can be made individually or when assistance is needed.	Level 1 – Ch. 4.3, Ch. 5.3, Ch. 6.3 Level 2 – Ch. 3.1, 3.3, 5.2, 5.3	Level 1 – Brush Off SE 119/SJ 22; Let's Try This Again TE 119/SJ 24, EAL 123, LA 144; Be a Better Jumper SE 147/SJ 36; Practice Makes Perfect TE 147/SJ 38, EAL 149; Screen Time TE 151/SJ 40, EAL 152, EAL 174; Bicycle Helmet Survey SE 177/SJ 56 Level 2 – The Food Groups SE 121/SJ 116; Your Personal Food Guide TE 121/SJ 18; Fatty Foods SE 129/SJ 20; Comparing Similar Foods TE 129/SJ 22, LA 134; Stopping Germs SE 175/SJ 42; Shake Hands TE 175/SJ 44; Hole in Your Mouth SE 185/SJ 46; Fill the Cavity TE 185/SJ 48, EAL 189; Be Seen to Be Safe SE 195/SJ 50; Seat Belt Crash Test TE 196/SJ 54
		<b>S.K-2.HS.7</b> Identify a short-term personal health goal and implement a plan to attain that goal.	Level 1 – Ch. 5.2, 5.3, Ch. 6.2, 6.3	Level 1 – How Can You Make Healthy Choices TE 95/SJ 2; I Can Be More Fit TE 95/SJ 6, LA 144; Practice Makes Perfect TE 147/SJ 38, EAL 149, EAL 174; ATBD
		<b>S.K-2.HS.8</b> Ask questions and obtain information about God's plan for healthy living.	Level 2 – Ch. 3.3, Ch. 4.3, Ch. 5.2	Level 2 – Fatty Foods SE 129/SJ 20; Comparing Similar Foods TE 129/SJ 22, LA 134, LA 165; ATBD

**2015 ELEMENTARY SCIENCE — HEALTH SCIENCES** CONTINUED

GRADE	TOPICS	STANDARDS (NGSS ALIGNMENT)	BY DESIGN CHAPTER CORRELATION	INQUIRY ACTIVITIES
<b>3-5</b>	<b>Health Promotion and Disease Prevention</b>	<p><b>S.3-5.HS.1</b> Make observations to construct an evidence-based link between healthy behaviors and personal health.</p>	<p>Level 3 – Ch. 4.1, 4.2, 5.3, Ch. 6.2, 6.3 Level 4 – Ch. 4.2, 4.3, Ch. 5.3 Level 5 – Ch. 7.1, 7.2, 7.3</p>	<p>Level 3 – How Can Food Help Me Stay Healthy TE 127/SJ 2; Staying Healthy TE 127/SJ 6, TT 130; Testing Sunscreens SE 131/SJ 8; UV Filtering TE 131/SJ 10; Hand Washing and Drying TE 133/SJ 12, LA 135, TT 140; Bacteria Gardens SE 141/SJ 116; Cleaning the Gardens TE 141/SJ 18, LA 144; Make It Stronger TE 162/SJ 30, TT 172; Keep Your Heart Healthy SE 173/SJ 36, EAL 175; Measuring Breath SE 192/SJ 46; Cool Down TE 192/SJ 48; Aerobic Heart TE 193/SJ 50, LA 202; ATBD Level 4 – Balanced Diet SE 137/SJ 4; Greasy Chips TE 137/SJ 14, LA 139; Exercise Journal SE 141/SJ 16, LA 142, LA 143; ATBD Level 5 – How Can I Make Healthy Food Choices TE 159/SJ 1; Spreading Disease SE 205/SJ 51, SE 209/SJ 52; Deaths from Diseases Add Up SE 218/SJ 56, EAL 222; Sleep for a Week SE 228/SJ 60; Fruits and Veggies TE 228/SJ 62; Personal Fitness TE 229/SJ 64, EAL 230; ATBD</p>
		<p><b>S.3-5.HS.2</b> Construct an argument that spiritual, emotional, intellectual, physical, and social health are interrelated and dependent on one another.</p>	<p>Level 4 – Ch. 4.2, 4.3, Ch. 5.2, Ch. 6.2, 6.3</p>	<p>Level 4 – Balanced Diet SE 137/SJ 4, LA 139; Exercise Journal SE 141/SJ 16, LA 142; Health Rankings SE 147/SJ 20; Tracking Responses TE 147/SJ 22, LA 149; That Need for One More SE 169/SJ 30; Making Decisions SE 179/SJ 38; Decisions, Decisions SE 197/SJ 48, TT 200; Exploring Emotions SE 201/SJ 52, LA 203</p>
		<p><b>S.3-5.HS.3</b> Analyze patterns of accidental injuries in different locations; develop a specific action plan designed to reduce accidents; evaluate the success of the plan.</p>	<p>Level 4 – Ch. 4.2</p>	<p>Level 4 – ATBD</p>
		<p><b>S.3-5.HS.4</b> Develop a model that demonstrates effective verbal and nonverbal communication skills to enhance health and reduce health risks.</p>	<p>Level 3 – Ch. 6.3 Level 4 – Ch. 5.3, Ch. 6.1, 6.3</p>	<p>Level 3 – LA 201, LA 202 Level 4 – TT 178, LA 181; AriLink TE 183, LA 183, LA 185, TT 206, LA 204; Say What SE 207/SJ 56, LA 210</p>
		<p><b>S.3-5.HS.5</b> Use scientific evidence to develop a family health plan designed to strengthen and enhance personal health.</p>	<p>Level 3 – Ch. 4.1, Ch. 5.3, Ch. 6.3 Level 4 – Ch. 4.2, Ch. 5.3 Level 5 – Ch. 7.1</p>	<p>Level 3 – ATBD Level 4 – ATBD Level 5 – ATBD</p>
	<b>Health Resources</b>	<p><b>S.3-5.HS.6</b> Analyze and communicate the reliability of health information, products, and local services.</p>	<p>Level 3 – Ch. 5.3, Ch. 6.3 Level 5 – Ch. 7.3</p>	<p>Level 3 – ATBD Level 5 – ATBD</p>
	<b>Healthy Lifestyle Choices</b>	<p><b>S.3-5.HS.7</b> Construct a model that illustrates the various influences that impact personal health.</p>	<p>Level 3 – Ch. 4.1, Ch. 5.3, Ch. 6.3 Level 4 – Ch. 4.2, 4.3, Ch. 5.3 Level 5 – Ch. 7.3</p>	<p>Level 3 – ATBD Level 4 – ATBD Level 5 – LA 227; Sleep for a Week SE 228/SJ 60; Fruits and Veggies TE 228/SJ 62; Personal Fitness TE 229/SJ 64, EAL 230; ATBD</p>
	<p><b>S.3-5.HS.8</b> Conduct an investigation to evaluate the accuracy/influence of the media on health.</p>	<p>Level 5 – Ch. 7.2</p>	<p>Level 5 – ATBD</p>	
	<p><b>S.3-5.HS.9</b> Construct a model that demonstrates the ability to use decision-making skills to enhance health.</p>	<p>Level 4 – Ch. 5.3, Ch. 6.1, 6.2, 6.3</p>	<p>Level 4 – ATBD</p>	
	<p><b>S.3-5.HS.10</b> Select a personal health goal, evaluate health resources to develop and implement a plan aimed at achieving the goal, and monitor progress toward the goal.</p>	<p>Level 3 – Ch. 4.1, Ch. 5.1, 5.3, Ch. 6.2, 6.3 Level 4 – Ch. 4.2, Ch. 5.1, 5.3, Ch. 6.2</p>	<p>Level 3 – How Can Food Make Me Healthy TE 127/SJ 2; Staying Healthy TE 127/SJ 6, TT 130; Testing Sunscreens SE 131/SJ 8; UV Filtering TE 131/SJ 10; Hand Washing and Drying TE 133/SJ 12, LA 135; Make It Stronger TE 162/SJ 30, TT 172; Keep Your Heart Healthy SE 173/SJ 36, EAL 175; Measuring Breath SE 191/SJ 46; Cool Down TE 191/SJ 48; The Aerobic Heart TE 193/SJ 50, LA 202 Level 4 – How Can I Take Care of My Body to Stay Healthy TE 121/SJ 4; Balanced Diet SE 137/SJ 12; Exercise Journal TE 141/SJ 16, LA 142, LA 143; Choices We Make SE 159/SJ 26; Making Decisions SE 179/SJ 38; Peer Pressure TE 179/SJ 40, LA 183, LA 185, LA 203</p>	
	<p><b>S.3-5.HS.11</b> Gather, synthesize, and present information from the Bible about God's plan for healthy living.</p>	<p>Level 3 – Ch. 5.3, Ch. 6.3 Level 4 – Ch. 4.2, Ch. 5.3, Ch. 6.2</p>	<p>Level 3 – How Can Food Make Me Healthy TE 127/SJ 2; Staying Healthy TE 127/SJ 6; Make It Stronger TE 162/SJ 30, TT 172; Keep Your Heart Healthy SE 173/SJ 36, EAL 175; The Aerobic Heart TE 193/SJ 50 Level 4 – How Can I Take Care of My Body to Stay Healthy TE 121/SJ 4; Balanced Diet SE 137/SJ 12; Exercise Journal TE 141/SJ 16, LA 142, LA 143</p>	

**2015 ELEMENTARY SCIENCE — HEALTH SCIENCES** CONTINUED

GRADE	TOPICS	STANDARDS (NGSS ALIGNMENT)	BY DESIGN CHAPTER CORRELATION	INQUIRY ACTIVITIES
<b>6-8</b>	<b>Health Promotion and Disease Prevention</b>	<b>S.6-8.HS.1</b> Collect data from family members to compile evidence that supports the claim that personal health is influenced by the environment and genetics.	Level 7 – Ch. 4.2 Level 8 – <i>Ch. 5.2, 5.3, 6.3, 6.4</i>	Level 7 – What Are Your Traits TE 151/ SJ 100, EAL 153, EAL 161; Sex-Linked Traits SE 162/SJ 106 Level 8 – Who—Or What—Controls Your Health TE 161/SJ 5; Sickle-Cell Anemia SE 167/SJ 8; The Next Generation TE 167/SJ 8, LA 168, LA 171, LA 176; Survival Game SE 177/SJ 12; Making Real Life Changes TE 177/SJ 14; Heart Disease TE 178/SJ 16, EAL 180
		<b>S.6-8.HS.2</b> Construct a model that demonstrates the link between appropriate health care and personal health.	Level 6 – Ch. 6.1, 6.2 Level 8 – Ch. 6.3, 6.4, Ch. 7.1, 7.2, 7.3	Level 6 – How Can I Alter My Routine to Create a Healthier Lifestyle TE 113/ SJ 1; Hazards in Your Home SE 199/SJ 71; Seeking a Health Professional SE 202/SJ 72; When It Gets Worse TE 202/SJ 74 Level 8 – ATBD; Reading Medication Labels SE 253/SJ 68, LA 256; Investigating Health Risks TE 259/SJ 74
		<b>S.6-8.HS.3</b> Gather and synthesize information to identify barriers to obtaining appropriate health care and to practicing healthy behaviors, and suggest ways to overcome these barriers.	Level 8 – Ch. 5.1, Ch. 6.3, Ch. 7.3	Level 8 – ATBD
		<b>S.6-8.HS.4</b> Construct an evidenced-based argument that demonstrates the importance of assuming responsibility for personal health behaviors.	Level 6 – Ch. 6.2, 6.3 Level 7 – Ch. 5.3, Ch. 6.1, 6.2, 6.3 Level 8 – Ch. 5.5, Ch. 6.2, 6.3, 6.4, Ch. 7.1, 7.2, 7.3	Level 6 – How Can I Alter My Routine to Create a Healthier Lifestyle TE 113/ SJ 1; Hazards in Your Home SE 199/SJ 71; Accidents Happen SE 207/SJ 76, LA 210, LA 212; Emergency Decisions TE 222/SJ 84 Level 7 – Sexually Transmitted Diseases SE 201/SJ 20; Saying NO! TE 201/SJ 22, LA 206, LA 224; How Pathogens Spread TE 228/SJ 40, LA 231, EAL 234, LA 235; Hey, Wanna Trade SE 241/SJ 44; Preventing Infection TE 241/SJ 46, LA 249; Disease Defense SE 252/SJ 48 Level 8 – Who—Or What—Controls Your Health TE 161/SJ 5; What Factors Influence My Health SE 163/SJ 7, LA 176; Survival Game SE 177/SJ 12; Making Real Life Changes TE 177/SJ 14; Heart Disease TE 78/SJ 16, EAL 180, LA 203; Selecting the Best Aspirin SE 204/SJ 36, EAL 211; Reducing Fat TE 224/ SJ 48, EAL 227; Evaluate and Rank Behaviors SE 231/SJ 50; Create a Risk Survey TE 231/SJ 52; Reading Medication Labels SE 253/SJ 68, LA 254, LA 255, LA 256; Investigating Health Risks TE 259/SJ 74, LA 263, LA 264
		<b>S.6-8.HS.5</b> Evaluate behaviors in relation to the degree to which they benefit or harm personal health and the health of others.	Level 6 – Ch. 6.2, 6.3 Level 7 – Ch. 5.2, 5.3, Ch. 6.3 Level 8 – Ch. 5.3, Ch. 6.1, 6.2, 6.3	Level 6 – Hazards in Your Home SE 199/SJ 71; Accidents Happen SE 207/TE 76; Emergency Decisions TE 222/SJ 84; ATBD Level 7 – Investigating Bullying SE 191/SJ 16; Interactions at School TE 191/ SJ 18, LA 192; Sexually Transmitted Diseases SE 201/SJ 20; Saying NO TE 201/SJ 22, LA 206; Infectious Disease SE 215/SJ 31; How Pathogens Spread TE 228/SJ 40, LA 231, EAL 234, LA 235 Level 8 – What Factors Influence My Health SE 163/SJ 7, LA 187; Reducing Fat TE 224/SJ 48, EAL 227; Evaluate and Rank Behaviors SE 231/SJ 50; Create a Risk Survey TE 231/SJ 52
		<b>S.6-8.HS.6</b> Choose a health-enhancing practice and develop a presentation designed to persuade others to adopt a similar practice.	Level 6 – Ch. 5.1, 5.2, 5.3, 5.4, Ch. 6.2, 6.3 Level 7 – Ch. 5.2, 5.3, Ch. 6.2, 6.3, 6.4 Level 8 – Ch. 5.2, 5.3, Ch. 6.2, 6.3, 6.4, Ch. 7.1, 7.2, 7.3	Level 6 – ATBD Level 7 – ATBD; LA 205, LA 231, LA 249; Hand Washing Techniques TE 252/ SJ 50, LA 255; ATBD Level 8 – LA 176, EAL 180, LA 187, LA 212, EAL 227, LA 249; ATBD
	<b>Health Resources</b>	<b>S.6-8.HS.7</b> Develop guidelines for evaluating health information, products, and services, and conduct an investigation designed to assess the validity of health-related resources.	Level 8 – Ch. 6.4, Ch. 7.2, 7.3	Level 8 – ATBD; Pressure in Advertising SE 247/SJ 64; Reading Medication Labels SE 253/SJ 68; Price Comparison TE 253/SJ 72, LA 254, LA 255, LA 256, LA 262, LA 263, LA 264; ATBD
	<b>Healthy Lifestyle Choices</b>	<b>S.6-8.HS.8</b> Construct an argument that supports the claim that modifying unhealthy behaviors can enhance personal health.	Level 6 – Ch. 4.4, 4.5, Ch. 5.3, 5.4, Ch. 6.2 Level 7 – Ch. 5.3, Ch. 6.3, 6.4 Level 8 – Ch. 5.3, Ch. 6.2, 6.3, 6.4, <i>Ch. 7.1</i>	Level 6 – ATBD Level 7 – ATBD Level 8 – ATBD
	<b>S.6-8.HS.9</b> Plan and conduct an investigation that provides evidence that peers and perceptions of norms influence the health of adolescents.	Level 6 – Ch. 6.2 Level 7 – Ch. 5.3, Ch. 6.3 Level 8 – Ch. 6.2, 6.3, 6.4, Ch. 7.1, 7.2	Level 6 – ATBD Level 7 – LA 205; ATBD; Hey, Wanna Trade SE 241/SJ 44; ATBD Level 8 – Evaluate and Rank Behaviors SE 231/SJ 50, EAL 233, LA 249, LA 262, LA 263	
	<b>S.6-8.HS.10</b> Construct a model that demonstrates how public health policies can influence health promotion and disease prevention.	Level 6 – Ch. 6.2, 6.3 Level 7 – Ch. 6.2, 6.3 Level 8 – Ch. 6.1, 6.2, 6.3, Ch. 7.2, 7.3	Level 6 – ATBD Level 7 – LA 240, LA 235; ATBD Level 8 – ATBD	
	<b>S.6-8.HS.11</b> Analyze and interpret data that provides evidence to support the claim that traditional Adventist health practices promote optimal health.	Level 6 – Ch. 5.3, 5.4 Level 7 – Ch. 5.2, 5.3, <i>Ch. 6.2, 6.4, Ch. 7.1</i> Level 8 – Ch. 5.2, 5.3, Ch. 6.2, 6.3	Level 6 – ATBD Level 7 – ATBD Level 8 – ATBD	



## 2015 ELEMENTARY SCIENCE — EARTH AND SPACE SCIENCES

GRADE	TOPICS	STANDARDS (NGSS ALIGNMENT)	BY DESIGN CHAPTER CORRELATION	INQUIRY ACTIVITIES
		<p><b>Essential Question:</b> How do the structure and physical phenomena of Earth and space provide evidence of God as Designer, Creator, and Sustainer of the universe?</p> <p><b>Big Idea:</b> The structure and processes of Earth and space are organized and governed by natural laws that give evidence of God as Designer, Creator, and Sustainer.</p>	<p><b>Bold =</b> included content</p> <p><i>Italic =</i> related content</p>	<p>TE = TEACHER EDITION SE = STUDENT EDITION SJ = STUDENT JOURNAL TT = TRY THIS LA = LESSON ACTIVITY EAL = EXPLORE-A-LAB MS = MATH IN SCIENCE ATBD = ACTIVITY TO BE DEVELOPED</p>
<b>K-2</b>	<b>Earth's Systems</b>	<p><b>S.K-2.ES.1</b> Use and share observations of local weather conditions to describe patterns over time. (K-ESS2-1)</p>	<p>Level 1 – Ch. 7.1, 7.2</p> <p>Level 2 – Ch. 7.1, 7.2</p>	<p>Level 1 – Charting Weather SE 193/SJ 8; Weather Differences TE 93/SJ 10, EAL 196; Seasons and Plant Growth SE 209/SJ 16, EAL 216</p> <p>Level 2 – Weather Watch SE 259/SJ 34; Observing Weather Maps TE 263/SJ 38, EAL 265; Length of Days SE 277/SJ 44; Daylight Variations TE 277/SJ 46, EAL 280</p>
		<p><b>S.K-2.ES.2</b> Construct an argument supported by evidence for how plants and animals (including humans) can change the environment to meet their needs. (K-ESS2-2)</p>	<p>Level 1 – Ch. 3.1</p> <p>Level 2 – Ch. 2.1</p>	<p>Level 1 – Staying Warm in the Cold SE 219/ SJ 20; Keeping Warm TE 219/SJ 22; Clothing and Climate TE 222/SJ 24, EAL 224</p> <p>Level 2 – ATBD</p>
		<p><b>S.K-2.ES.3</b> Compare multiple solutions designed to slow or prevent wind or water from changing the shape of the land. (2-ESS2-1)</p>	<p>Level 2 – Ch. 6.3, Ch. 7.2</p>	<p>Level 2 – Water Changes Land SE 235/SJ 16; Rocks and Water Changing the Land TE 235/ SJ 18</p>
		<p><b>S.K-2.ES.4</b> Develop a model to represent the shapes and kinds of land and bodies of water in an area. (2-ESS2-2)</p>	<p>Level 1 – Ch. 8.2</p> <p>Level 2 – Ch. 6.1, 6.3</p>	<p>Level 1 – ATBD</p> <p>Level 2 – Land on a Map SE 213/SJ 8; Salt Dough Maps TE 213/SJ 10</p>
		<p><b>S.K-2.ES.5</b> Obtain information to identify where water is found on Earth and that it can be solid or liquid. (2-ESS2-3)</p>	<p>Level 1 – Ch. 7.2</p> <p>Level 2 – Ch. 6.1, 7.2</p>	<p>Level 1 – Watch Water Disappear SE 201/ SJ 12, EAL 206</p> <p>Level 2 – Land on a Map SE 213/SJ 18; Salt Dough Maps TE 213/SJ 10; How Clouds Form SE 269/SJ 40; Rain in a Plastic Bag TE 268/SJ 42, EAL 279</p>
	<b>Earth and Human Activity</b>	<p><b>S.K-2.ES.6</b> Use a model to represent the relationship between the needs of different plants and animals (including humans) and the places they live. (K-ESS3-2)</p>	<p>Level 1 – Ch. 3.1, 3.2, 3.3</p> <p>Level 2 – Ch. 1.1, 1.4, Ch. 2.2, 2.3</p>	<p>Level 1 – Animals in Trees SE 67/SJ 42; Homes for Animals TE 67/SJ 44; Feeding Crickets SE 75/ SJ 46; Cricket Menus TE 75/SJ 48; Plant Starters SE 83/SJ 52</p> <p>Level 2 – Feeding Birds TE 13/SJ 8; Water Me SE 17/SJ 10; Too Much Water TE 17/SJ 12; EAL 24, EAL 38; Build a Nest SE 47/SJ 26; Best Nests TE 47/SJ 28, EAL 51; Animal Homes SE 73/SJ 26; Animals Dining Out TE 73/SJ 38, EAL 75; Links in a Chain SE 82/SJ 40; Many Food Chains TE 82/SJ 42; Effects of Pollution SE 91/SJ 44; Water Pollution TE 91/SJ 46, EAL 100</p>
		<p><b>S.K-2.ES.7</b> Ask questions to obtain information about the purpose of weather forecasting to prepare for, and respond to, severe weather. (K-ESS3-2)</p>	<p>Level 1 – Ch. 7.1</p> <p>Level 2 – Ch. 7.1</p>	<p>Level 1 – Charting the Weather SE 193/SJ 8; Weather Differences TE 193/SJ 10, EAL 196</p> <p>Level 2 – Weather Watch SE 259/SJ 34; Make a Weather Instrument TE 259/SJ 36; Observing Weather Maps TE 263/SJ 38</p>
		<p><b>S.K-2.ES.8</b> Communicate solutions that will reduce the impact of humans on the land, water, air, and/or other living things in the local environment. (K-ESS3-3)</p>	<p>Level 1 – Ch. 3.3</p> <p>Level 2 – Ch. 2.3</p>	<p>Level 1 – Reuse Me TE 83/SJ 54</p> <p>Level 2 – Effects of Pollution SE 91/SJ 144; Water Pollution TE 91/SJ 146; Oil Spill Clean Up TE 97/SJ 48, EAL 100</p>
	<b>Earth's Place in the Universe</b>	<p><b>S.K-2.ES.9</b> Use observations of the sun, moon, and stars to describe patterns (e.g., sun and moon appear to track across the sky, stars visible at night) that can be predicted. (1-ESS1-1)</p>	<p>Level 1 – Ch. 8.1</p> <p>Level 2 – Ch. 8.1, 8.2, 8.3</p>	<p>Level 1 – Making a Star Pattern SE 231/SJ 28; Viewing a Star Pattern TE 231/SJ 30</p> <p>Level 2 – Orbit Me SE 289/SJ 52; Orbit Models TE 289/SJ 52; Make a Constellation SE 299/ SJ 54; More Constellations TE 299/SJ 56, EAL 300; Star Gazing TE 301/SJ 58; Far, Far Away SE 304/SJ 60; Help from Binoculars TE 305/SJ 62</p>
		<p><b>S.K-2.ES.10</b> Make observations at different times of year to relate the amount of daylight to the time of year. (1-ESS1-2)</p>	<p>Level 1 – Ch. 7.3</p> <p>Level 2 – Ch. 7.3</p>	<p>Level 1 – Seasons and Plant Growth SE 209/ SJ 16, EAL 216</p> <p>Level 2 – Length of Days SE 277/SJ 44; Daylight Variations TE 277/SJ 46, EAL 280</p>
		<p><b>S.K-2.ES.11</b> Use information from several sources to provide evidence that Earth events (e.g., volcanic explosions, earthquakes, rock erosion) can occur quickly or slowly. (2-ESS1-1)</p>	<p>Level 2 – Ch. 6.3</p>	<p>Level 2 – Water Changes Land SE 237/SJ 16; Rocks and Water Changing the Land TE 237/ SJ 18; Model of the Genesis Flood TE 239/ SJ 20, EAL 243</p>

**2015 ELEMENTARY SCIENCE — EARTH AND SPACE SCIENCES** CONTINUED

GRADE	TOPICS	STANDARDS (NGSS ALIGNMENT)	BY DESIGN CHAPTER CORRELATION	INQUIRY ACTIVITIES
<b>3-5</b>	<b>Earth's Systems</b>	<b>S.3-5.E5.1</b> Represent data (e.g., average temperature, precipitation, wind direction) in tables and graphical displays to describe typical weather conditions expected during a particular season. (3-ESS2-1)	Level 3 – Ch. 8.1, 8.2, 8.3 Level 5 – Ch. 8.1, 8.3	Level 3 – Measuring Pressure SE 241/SJ 24; Comparing Results TE 241/SJ 26, TT 248; Temperature Changes SE 249/SJ 28; Other Weather Factors TE 249/SJ 30, EAL 252; Measuring Wind Direction TE 253/SJ 32 Level 5 – Observing Air Pressure SE 243/SJ 8; Pressure in Other Locations TE 243/SJ 10; Cloud Cover and Weather SE 262/SJ 16; Fronts and the Weather TE 262/SJ 18; Build Your Own Anemometer TE 263/SJ 20
		<b>S.3-5.E5.2</b> Obtain and combine information to describe climates in different regions of the world. (3-ESS2-2)	Level 3 – Ch. 8.2, 8.3 Level 5 – Ch. 8.4	Level 3 – TT 258; Heat It Up SE 259/SJ 34; Hot Colors TE 259/SJ 36, EAL 265, EAL 266 Level 5 – EAL 273, EAL 275
		<b>S.3-5.E5.3</b> Make observations and/or measurements to provide evidence of the effects of weathering or the rate of erosion by water, ice, wind, or vegetation (e.g., angle of slope in downhill movement of water, amount of vegetation, speed of wind, relative rate of deposition, cycles of freezing and thawing water, cycles of heating and cooling, volume of water flow). (4-ESS2-1)	Level 4 – Ch. 7.3, 7.4	Level 4 – TT 238; Washing Away Soil SE 239/SJ 16; Mudflow in a Jar TE 245/SJ 20, EAL 247; Ice Age Maximum SE 251/SJ 24; Ice Dam Meltdown TE 251/SJ 26, EAL 254
		<b>S.3-5.E5.4</b> Analyze and interpret data from maps, including topographic maps, to describe patterns of Earth's features. (4-ESS2-2)	Level 3 – Ch. 7.1 Level 4 – Ch. 7.1	Level 3 – TT 212, ATBD Level 4 – TT 220, LA 225, ATBD
		<b>S.3-5.E5.5</b> Develop a model using an example to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact (e.g., influence of ocean on ecosystems, landform shape, climate; influence of the atmosphere on landforms and ecosystems; influence of mountain ranges on winds and clouds). (5-ESS2-1)	Level 3 – Ch. 7.1, Ch. 8.2 Level 4 – Ch. 7.1, 7.3	Level 3 – Earth's Land and Water SE 213/SJ 8; Seafloor Mapping TE 213/SJ 10, EAL 217 Level 4 – TT 220, An Egg-Like Earth SE 221/SJ 8; More Earth Models TE 221/SJ 10
		<b>S.3-5.E5.6</b> Describe and graph the amounts and percentages of water and fresh water in various reservoirs to provide evidence about the distribution of water on Earth. (5-ESS2-2)	Level 3 – Ch. 7.1 Level 4 – Ch. 7.1 Level 5 – Ch. 8.2, Ch. 10.1, 10.3	Level 3 – TT 212; Earth's Land and Water SE 213/SJ 8; Salty or Fresh TE 216/SJ 12 Level 4 – ATBD Level 5 – EAL 253; Drinkable Water SE 323/SJ 64; Freshwater Catch TE 323/SJ 66, EAL 327; Water Underground SE 337/SJ 76, EAL 341
	<b>S.3-5.E5.7</b> Make a claim about the merit of a design solution that reduces the impacts of a weather-related hazard (e.g., barriers to prevent flooding, wind resistant roofs, lightning rods). (3-ESS3-1)	Level 3 – Ch. 8.2 Level 5 – Ch. 8.3	Level 3 – ATBD Level 5 – ATBD	
	<b>S.3-5.E5.8</b> Obtain and combine information to describe that energy and fuels are derived from natural resources (e.g., wind energy, water behind dams, sunlight, fossil fuels, fissile materials) and their uses affect the environment (e.g., loss of habitat due to dams, surface mining, air pollution). (4-ESS3-1)	Level 3 – Ch. 3.4, 3.5 Level 4 – Ch. 3.4, Ch. 8.1, 8.3 Level 5 – Ch. 10.3, 10.4	Level 3 – Water Monitor TE 107/SJ 54; Connecting to Resources SE 113/SJ 56; What's Inside TE 113/SJ 58; Pollution in the Air TE 117/SJ 60, EAL 119, EAL 120 Level 4 – The Game of Life SE 109/SJ 56; Locally Threatened Species TE 109/SJ 58, EAL 112 Level 5 – Modeling Global Warming with a Terrarium SJ 91; ATBD	
	<b>S.3-5.E5.9</b> Generate and compare multiple solutions (e.g., earthquake resistant building, monitoring volcanic activity) to reduce the impacts of natural Earth processes on humans. (4-ESS3-2)	Level 4 – Ch. 7.2, 7.3	Level 4 – Stand Up to Earthquakes SE 228/SJ 4; A Strong Up to Earthquakes TE 228/SJ 14, Mudflow in a Jar TE 245/SJ 20	
	<b>S.3-5.E5.10</b> Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment. (5-ESS3-1)	Level 3 – Ch. 3.5 Level 4 – Ch. 8.3 Level 5 – Ch. 10.2, 10.3, 10.4	Level 3 – TT 112; Connecting to Resources SE 113; Pollution in the Air TE 117/SJ 60, EAL 119, EAL 120 Level 4 – TT 280; Cookie Mining SE 280/SJ 42; Restoring the Land TE 280/SJ 44, EAL 283 Level 5 – From Land to Ocean SE 332/SJ 68; Pollutants in Water TE 332/SJ 70; Runoff Pollution TE 334/SJ 72; Water Underground SE 337/SJ 76; Polluting Aquifers TE 337/SJ 78, EAL 341; Native vs Non-native SE 344/SJ 80; Green Gardening TE 344/SJ 82, LA 346	
	<b>S.3-5.E5.11</b> Identify evidence from patterns in rock formations and fossils in rock layers to support an explanation for changes in a landscape over time. (4-ESS1-1)	Level 4 – Ch. 7.1, 7.2, 7.4, Ch. 8.2	Level 4 – TT 262; Changing a Rock SE 263/SJ 30; TT 272; Fossil Layers SE 273/SJ 38; Indoor Fossil Dig TE 273/SJ 40, EAL 275	
	<b>S.3-5.E5.12</b> Support an argument that differences in the apparent brightness of the sun compared to other stars is due to their relative distances from the Earth. (5-ESS1-1)	Level 4 – Ch. 9.4	Level 4 – ATBD	
	<b>S.3-5.E5.13</b> Represent data in graphical displays to reveal patterns of daily changes in length and direction of shadows, day and night, and the seasonal appearance of some stars in the night sky. (5-ESS1-2)	Level 3 – Ch. 8.3, Ch. 9.2, 9.3 Level 4 – Ch. 9.2 Level 5 – Ch. 8.4	Level 3 – EAL 265; TT p280; The Growing and Shrinking Shadow SE 281/SJ 44; Shifting Shadows TE 281/SJ 46, EAL 283; Seasons on Earth TE 284/SJ 48; Now I See It, Now I Don't SE 289/SJ 50, A Lunar Eclipse TE 289/SJ 52 Level 4 – Make a Sundial TE 295/SJ 52; Star Map SJ 64 Level 5 - ATBD	
<b>3-5</b>	<b>Earth and Human Activity</b>			
<b>3-5</b>	<b>Earth's Place in the Universe</b>			

**2015 ELEMENTARY SCIENCE — EARTH AND SPACE SCIENCES** CONTINUED

GRADE	TOPICS	STANDARDS (NGSS ALIGNMENT)	BY DESIGN CHAPTER CORRELATION	INQUIRY ACTIVITIES
<b>6-8</b>	<b>Earth's Systems</b>	<b>S.6-8.ES.1</b> Develop a model to describe the cycling of Earth's materials and the flow of energy that drives this process. (MS-ESS2-1)	Level 6 – Ch. 7.2, Ch. 8.1, 8.2, 8.3, Ch. 9.1, 9.2, 9.3  Level 8- Ch. 8.1, 8.2, 8.3, Ch. 10.1	Level 6 – Creating Sedimentary Rock SE 231/SJ 7; Identifying Igneous Rock SE 240/SJ 14, EAL 243, EAL 246; Core Sampling SE 264/SJ 36; Coring Earth TE 264/SJ 38; Model Sea Floor Spreading SE 272/SJ 40; Modeling Sea Floor Features TE 272/SJ 42, EAL 276, EAL 284; Studying Erosion SE 291/SJ 61; Morphing Landscapes SE 294/SJ 62, EAL 295; Water Erosion TE 296/SJ 66, EAL 297; Modeling Sand Dunes SE 309/SJ 74; Beach Dunes TE 309/SJ 76, EAL 311  Level 8 – Currents and Temperature SE 273/ SJ 7; Can Crusher SE 278/SJ 8; Pop Out TE 278/ SJ 10, EAL 280, EAL 284; Moving Water SE 287/SJ 12; Factors Affecting Transpiration TE 287/SJ 14, EAL 291; Wind and Evaporation SE 295/ SJ 16; How Humid Is It SE 300/SJ 24; Latitude and Temperature SE 310/SJ 28; A Faulty Candy Bar SE 369/SJ 74; Where Does It Go TE 369/SJ 76
		<b>S.6-8.ES.2</b> Construct an explanation based on evidence for how geoscience processes (e.g., surface weathering and deposition by movements of water, ice, and wind) have changed Earth's surface at varying time and spatial scales (e.g., slow plate motions, uplift of large mountain ranges, rapid landslides, microscopic geochemical reactions). (MS-ESS2-2)	Level 6 – Ch. 7.2, Ch. 8.1, 8.2, 8.3, Ch. 9.1, 9.2, 9.3  Level 8 – Ch. 10.1	Level 6 – Level 6 – Creating Sedimentary Rock SE 231/SJ 7, EAL 246; Studying Erosion SE 291/SJ 61; Morphing Landscapes SE 294/SJ 62, EAL 295; Water Erosion TE 296/SJ 66, EAL 297; Modeling Sand Dunes SE 309/SJ 74; Beach Dunes TE309/SJ76, EAL 311  Level 8 – Glaciers on the Move SE 365/SJ 73; Faulty Candy Bar SE 369/SJ 74; Where Does It Go TE 369/SJ 76, EAL 370, EAL 373; Radiometric Decay SE 378/ SJ 78; Water Clock TE 378/SJ 80; And Then What Happened TE 383/SJ 82
		<b>S.6-8.ES.3</b> Analyze and interpret data on the distribution of fossils and rocks, continental shapes, and seafloor structures to provide evidence of the past plate motions. (MS-ESS2-3)	Level 6 – Ch. 8.1, 8.2, 8.3, Ch. 10.1, 10.2  Level 8 – Ch. 10.1, 10.2	Level 6 – EAL 267; Model Sea Floor Spreading SE 272/SJ 40; Modeling Sea Floor Features TE 272/SJ 42; Plate Boundary Types TE 275/SJ 44, EAL 276, EAL 284; Putting It Together SE 323/SJ 86; Geological Dig Experience TE 323/SJ 88; Stories in Stone TE 344/SJ 90; Who Goes There SE 334/SJ 94; Footprint Depth TE 334/SJ 98; ID the Trilobites SE 343/SJ 100  Level 8 – Where Does It Go TE 369/SJ 76
		<b>S.6-8.ES.4</b> Develop a model (conceptual or physical) to describe the cycling of water through Earth's systems driven by energy from the sun and the force of gravity. (MS-ESS2-4)	Level 8 – Ch. 8.2, 8.3	Level 8 – EAL 284; Moving Water SE287/ SJ 12, EAL 291; Wind and Evaporation SE 295/SJ 16
		<b>S.6-8.ES.5</b> Collect data (e.g., weather maps, diagrams, visualizations, laboratory experiments) to provide evidence for how the motions and complex interactions of air masses result in changes in weather conditions. (MS-ESS2-5)	Level 8 – Ch. 8.1, 8.2, 8.3, 8.4	Level 8 – Currents and Temperature SE 273/SJ 7, EAL 280, EAL 291, EAL 294; Wind and Evaporation SE 295/SJ 16
		<b>S.6-8.ES.6</b> Develop and use a model (e.g., diagrams, maps and globes, digital representations) to describe how unequal heating and rotation of the Earth cause patterns of atmospheric and oceanic circulation that determine regional climates. (MS-ESS2-6)	Level 7 – Ch. 8.1, Ch. 9.1, 9.2, 9.3  Level 8 – Ch. 8.3, 8.5	Level 7 – Planetary Orbits TE 295/SJ 8; Making a Sun Clock SE 330/SJ 30; Movement of Shadows TE 330/SJ 32; Solar Energy SE 336/SJ 34; Sunlight on Spherical Objects TE 336/SJ 36; The Tides SE 348/SJ 40  Level 8 – Currents and Temperature SE 273/SJ 7, EAL 280, EAL 291, EAL 294; Wind and Evaporation SE 295/SJ 16

**2015 ELEMENTARY SCIENCE — EARTH AND SPACE SCIENCES** CONTINUED

GRADE	TOPICS	STANDARDS (NGSS ALIGNMENT)	BY DESIGN CHAPTER CORRELATION	INQUIRY ACTIVITIES
<b>6-8</b>	<b>Earth and Human Activity</b>	<b>S.6-8.ES.7</b> Construct a scientific explanation based on evidence for how the uneven distributions of Earth’s mineral, energy, and groundwater resources are the results of past and current geoscience processes (e.g., plate tectonics, the Flood). (MS-ESS3-1)	Level 6 – Ch. 7.3, Ch. 8.1, 8.2, 8.3, Ch. 9.3 Level 8 – Ch. 9.3, Ch. 10.1, 10.2, 10.3	Level 6 – ATBD; Mining Desert TE 253/SJ 22; Core Sampling SE 264/SJ 36; Coring the Earth TE 264/SJ 38, EAL 265; Model Sea Floor Spreading SE 272/SJ 40; Plate Boundary Types TE 275/SJ 44, EAL 284 Level 8 – EAL 370; ATBD
		<b>S.6-8.ES.8</b> Analyze and interpret data (e.g., locations, magnitudes, frequencies) on natural hazards to forecast future catastrophic events and inform the development of technologies to mitigate their effects. (MS-ESS3-2)	Level 6 – Ch. 8.3, Level 7 – Ch. 8.2, 8.3 Level 8 – Ch. 10.1	Level 6 – Finding the Epicenter SE 280/SJ 48; Recent Epicenters TE 280/SJ 50, EAL 284 Level 7 – ATBD Level 8 – ATBD
		<b>S.6-8.ES.9</b> Apply scientific principles to design a method for monitoring and minimizing a human impact (e.g., water usage, soil usage, pollution) on the environment. (MS-ESS3-3)	Level 8 – Ch. 9.1, 9.2, 9.3, 9.4	Level 8 – Resource Tally SE 323/SJ 43, EAL 327; Evaluating Biofuels SE 328/SJ 44; Alternative Biofuels TE 323/SJ 46, EAL 334; Fertilizer Contest TE 336/SJ 48; Preventing Hillside Erosion SE 338/SJ 51; Testing Erosion Control TE 338/SJ 54, EAL 348, EAL 352; It’s Raining SE 351/SJ 56; Currents and Temperature SE 273/SJ 7, EAL 280, EAL 291, EAL 294; Wind and Evaporation SE 295/SJ 16; It Feels Like a Sauna SE 357/SJ 60
		<b>S.6-8.ES.10</b> Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth’s systems. (MS-ESS3-4)	Level 6 – Ch. 7.3 Level 8 – Ch. 8.5, Ch. 9.1, 9.2, 9.3, 9.4	Level 6 – MS 252; Mining Desert TE 253/SJ 22, LA 255 Level 8 – Resource Tally SE 323/SJ 43; It’s Raining SE 351/SJ 56; It Feels Like a Sauna SE 357/SJ 60, EAL 334, LA 35
		<b>S.6-8.ES.11</b> Ask questions to clarify evidence (e.g., tables, graphs, maps of global and regional temperatures, atmospheric levels of gases, rates of human activities) of the factors that have caused the rise in global temperatures over the past century (e.g., fossil fuel combustion, cement production, agricultural activity, change in incoming solar radiation, volcanic activity). (MS-ESS3-5)	Level 6 – Ch. 8.3 Level 8 – Ch. 9.1, 9.2, 9.3, 9.4	Level 6 – EAL 284 Level 8 – EAL 356; It Feels Like a Sauna SE 357/SJ 60; Ash Shade TE 357/SJ 64; ATBD
	<b>Earth’s Place in the Universe</b>	<b>S.6-8.ES.12</b> Develop and use a model (physical, graphical, or conceptual) of the Earth-sun-moon system to describe the cyclic patterns of lunar phases, eclipses of the sun and moon, and seasons. (MS-ESS1-1)	Level 7 – Ch. 9.1, 9.2, 9.3 Level 8 – Ch. 8.5	Level 7 – Make Your Own Solar Eclipse SE 327/SJ 29; Make a Sun Clock SE 330/SJ 30; Movement of Shadows TE 330/SJ 32; Solar Energy SE 336/SJ 34, EAL 338, EAL 345; Moon Phases and Eclipses TE 345/SJ 38; The Tides SE 349/SJ 40; Extreme Tides TE 345/SJ 42 Level 8 – EAL 311
		<b>S.6-8.ES.13</b> Develop and use a model (physical or conceptual) to describe the role of gravity in the motions within galaxies and the solar system. (MS-ESS1-2)	Level 7 – Ch. 8.1, 8.2, Ch. 9.1, 9.2, 9.3, Ch. 10.2	Level 7 – Planetary Orbits TE 295/SJ 8; Solar System Distances SE 296/SJ 10; Moon Orbit TE 296/SJ 12, EAL 307
		<b>S.6-8.ES.14</b> Analyze and interpret data (e.g., statistical information, drawings and photographs, models) to determine scale properties (e.g., size, surface features, orbital radius) of objects in the solar system. (MS-ESS1-3)	Level 7 – Ch. 8.1, 8.2, Ch. 9.3	Level 7 – How Much Do You Weigh SE 291/SJ 7; Planetary Orbits TE 295/SJ 8; Solar System Distances SE 296/SJ 10; Moon Orbit TE 296/SJ 12; Making Dents SE 208/SJ 14
		<b>S.6-8.ES.15</b> Apply scientific principles to construct an explanation, based on evidence from rock strata, for how the geologic column is used to organize Earth’s relative age and geologic history, comparing and contrasting creationist and naturalistic perspectives. (MS-ESS1-4)	Level 6 – Ch. 10.1, 10.2, 10.3 Level 8 – Ch. 1.1, 1.2, Ch. 10.2, 10.3	Level 6 – Putting It Together SE 323/SJ 86; Geological Dig Experience TE 323/SJ 88; Stories in Stone TE 329/SJ 90, LA 329, EAL 330, EAL 331; Who Goes There SE 334/SJ 94; Footprint Depth TE 334/SJ 98, ID the Trilobites SE 343/SJ 100; Recent Extinctions TE 343/SJ 104, EAL 345 Level 8 – EAL 21, EAL 37, EAL 42, EAL 373; And Then What Happened SE 383/SJ 82; Please Stay in Order TE 394/SJ 85

## 2015 ELEMENTARY SCIENCE — PHYSICAL SCIENCES

GRADE	TOPICS	STANDARDS (NGSS ALIGNMENT)	BY DESIGN CHAPTER CORRELATION	INQUIRY ACTIVITIES
<p><b>Essential Question:</b> How does the order and consistency of natural laws provide evidence of God as the Designer, Creator, and Sustainer of the physical world?</p>		<p><b>Big Idea:</b> Matter and energy are organized and behave according to natural laws that cannot be explained by chance but are consistent and give evidence of God as the Designer, Creator, and Sustainer.</p>	<p><b>Bold =</b> included content <i>Italic =</i> related content</p>	<p>TE = TEACHER EDITION SE = STUDENT EDITION SJ = STUDENT JOURNAL TT = TRY THIS LA = LESSON ACTIVITY EAL = EXPLORE-A-LAB MS = MATH IN SCIENCE ATBD = ACTIVITY TO BE DEVELOPED</p>
<b>K-2</b>	<b>Matter and Its Interactions</b>	<p><b>S.K-2.PS.1</b> Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties (e.g., color, texture, hardness, flexibility). (2-PS1-1)</p>	Level 2 – Ch. 9.1, 9.2	Level 2 – Sorting It Out SE 319/SJ 8; Mixed Up Animals TE 319/SJ 10; EAL 326
		<p><b>S.K-2.PS.2</b> Analyze data obtained from testing different materials to determine which materials have the properties (e.g., strength, flexibility, hardness, texture, absorbency) that are best suited for an intended purpose. (2-PS1-2)</p>	<i>Level 2 – Ch. 9.1</i>	Level 2 - ATBD
		<p><b>S.K-2.PS.3</b> Make observations to construct an evidence-based account of how an object made of a small set of pieces (e.g., blocks, building bricks, other assorted small objects) can be disassembled and made into a new object. (2-PS1-3)</p>	Level 2 – Ch. 9.2, 9.3	Level 2 - ATBD
		<p><b>S.K-2.PS.4</b> Construct an argument with evidence that some changes caused by heating or cooling can be reversed (e.g., water, butter) and some cannot (e.g., cooking an egg, freezing a plant leaf, heating paper). (2-PS1-4)</p>	Level 1 – Ch. 10.1 Level 2 – Ch. 9.2, 9.3, Ch. 10.2	Level 1 – Heating Things Up SE 301/SJ 28; EAL 302 Level 2 – TT 338, EAL 355
	<b>Motion and Stability: Forces and Interactions</b>	<p><b>S.K-2.PS.5</b> Plan and conduct an investigation to compare the effects of different strengths or different directions of pushes and pulls (e.g., string attached to an object being pulled, pushing an object, stopping a rolling ball, two objects colliding and pushing on each other) on the motion of an object. (K-PS2-1)</p>	Level 1 – Ch. 9.2, 9.3	Level 1 – Observing Motion SE 271/SJ 12; Changing Motion TE 271/SJ 14, EAL 272; Slow It Down TE 273/SJ 16, LA 275, TT 278; Make It Move SE 279/SJ 18; Move That Block TE 279/SJ 20, LA 281
		<p><b>S.K-2.PS.6</b> Analyze data to determine if a design solution (e.g., ramp to increase speed of an object, structure that causes an object to turn) works as intended to change the speed or direction of an object with a push or a pull. (K-PS2-2)</p>	Level 1 – Ch. 9.2, 9.3	Level 1 – EAL 272, LA 275, TT 278; Make It Move SE 279/SJ 16; Move That Block TE 279/SJ 20
	<b>Energy</b>	<p><b>S.K-2.PS.7</b> Make observations to determine the effect of sunlight on Earth's surface (e.g., sand, soil, rocks, water). (K-PS3-1)</p>	Level 1 – Ch. 10.1 Level 2 – Ch. 10.2	Level 1 – EAL 302, LA 304 Level 2 – EAL 368
		<p><b>S.K-2.PS.8</b> Use tools and materials to design and build a structure (e.g., umbrellas, canopies, tents) that will reduce the warming effect of sunlight on an area. (K-PS3-2)</p>	Level 2 – Ch. 7.3, Ch. 10.2	Level 2 – EAL 368; ATBD
	<b>Waves and Their Applications in Technologies for Information Transfer</b>	<p><b>S.K-2.PS.9</b> Plan and conduct investigations to provide evidence that vibrating materials (e.g., tuning forks, plucking a stretched string) can make sound and that sound can make materials vibrate (e.g., holding a piece of paper near a speaker, holding an object near a vibrating tuning fork). (1-PS4-1)</p>	Level 1 – Ch. 10.2 Level 2 – Ch. 10.3	Level 1 – TT 308; Making Different Sounds SE 309/SJ 34, EAL 310, EAL 311 Level 2 – EAL 375; ATBD
		<p><b>S.K-2.PS.10</b> Make observations (e.g., those made in a completely dark room, pinhole box, video of a cave explorer) to construct an evidence-based account that objects can be seen only when illuminated (e.g., external light source, object giving off its own light). (1-PS4-2)</p>	Level 2 – Ch. 10.3	Level 2 – Shine a Light SE 371/SJ 34; ATBD
		<p><b>S.K-2.PS.11</b> Plan and conduct an investigation to determine the effect of placing objects made with different materials (e.g., transparent, translucent, opaque, reflective) in the path of a beam of light. (1-PS4-3)</p>	Level 2 – Ch. 10.3	Level 2 – Shine a Light SE 371/SJ 34; ATBD
		<p><b>S.K-2.PS.12</b> Use tools and materials to design and build a device (e.g., light source, paper cup and string “telephones,” drum beats pattern) that uses light or sound to solve the problem of communicating over a distance. (1-PS4-4)</p>	<i>Level 1 – Ch. 10.2</i> <i>Level 2 – Ch. 10.3</i>	Level 1 – ATBD Level 2 – ATBD

**2015 ELEMENTARY SCIENCE — PHYSICAL SCIENCES** CONTINUED

GRADE	TOPICS	STANDARDS (NGSS ALIGNMENT)	BY DESIGN CHAPTER CORRELATION	INQUIRY ACTIVITIES
<b>3-5</b>	<b>Matter and Its Interactions</b>	<p><b>S.3-5.PS.1</b> Develop a model to describe that matter is made of particles too small to be seen (e.g., add air to expand a basketball, compress air in a syringe, dissolve sugar in water, evaporate salt water). (5-PS1-1)</p>	<p>Level 4 – Ch. 10.1, 10.2, 10.3</p>	<p>Level 4 – TT 338, TT 346; Look Closer and Closer SE 347/SJ 18; Making Mosaics TE 347/ SJ 20, EAL 350; To Dissolve or Not SE 351/ SJ 22; Temperature and Dissolving TE 351/ SJ 24</p>
		<p><b>S.3-5.PS.2</b> Measure and graph quantities to provide evidence that the total weight of matter is conserved regardless of the type of change (e.g., phase changes, dissolving, mixing) that occurs when heating, cooling, or mixing substances. (5-PS1-2)</p>	<p>Level 4 – Ch. 10.1, 10.4, 10.5</p>	<p>Level 4 – TT 358; Making Rust TE 359/SJ 28, EAL 362</p>
		<p><b>S.3-5.PS.3</b> Make observations and measurements to identify materials (e.g., powders, metals, minerals, liquids) based on their properties (e.g., color, hardness, reflectivity, electrical conductivity, thermal conductivity, response to magnetic forces, solubility). (5-PS1-3)</p>	<p>Level 4 – Ch. 8.1, Ch. 10.1, 10.2, Ch. 11.1, 11.2</p>	<p>Level 4 – TT 262; Mystery Rocks TE 266/SJ 34, EAL 367; To Dissolve or Not SE 353/SJ 22; Changing Matter SE 359/SJ 26; Making Rust TE 359/SJ 28; Magnetic Fields and Iron Filings SE 369/SJ 32, EAL 372, EAL 373, EAL 381</p>
		<p><b>S.3-5.PS.4</b> Conduct an investigation to determine whether the mixing of two or more substances results in new substances. (5-PS1-4)</p>	<p>Level 4 – Ch. 10.4, 10.5</p>	<p>Level 4 – EAL 356, TT 358; Changing Matter SE 359/ SJ 26; Making Rust TE 359/ SJ 32, EAL 362</p>
	<b>Motion and Stability: Forces and Interactions</b>	<p><b>S.3-5.PS.5</b> Plan and conduct an investigation to provide evidence of the effects of balanced (e.g., pushing two opposite sides of a box) and unbalanced (e.g., pushing one side of a box) forces on the motion of an object. (3-PS2-1)</p>	<p>Level 3 – Ch. 11.2, 11.3 Level 5 – Ch. 13.1, 13.2, 13.3</p>	<p>Level 3 – TT 350, EAL 342, EAL 348; Measuring Force SE 351/SJ 32; Pulling Force TE 352/SJ 34, EAL 358 Level 5 – EAL 423; Comparing Motion SE 435/SJ 58; Force, Mass, and Acceleration SE 441/SJ 62, EAL 442, EAL 445, EAL 446, EAL 448</p>
		<p><b>S.3-5.PS.6</b> Observe and/or measure an object's motion to provide evidence that a pattern can be used to predict future motion (e.g., child swinging, ball rolling in a bowl, pendulum). (3-PS2-2)</p>	<p>Level 3 – Ch. 11.1, 11.2 Level 5 – Ch. 13.1, 13.2, 13.3</p>	<p>Level 3 – TT 340, EAL 348, EAL 358 Level 5 – Observing Sliding Friction SE 424/ SJ 54; Surface Area of Sliding Surface TE 424/ SJ 56, EAL 427, EAL 431; Comparing Ramp Height SE 435/SJ 58; Motion and Mass SE 435/ SJ 60; Forces, Mass, and Acceleration SE 441/ SJ 62; Increasing Mass TE 441/SJ 64, EAL 442, EAL 446, EAL448; Seltzer Rockets TE 449/SJ 66</p>
		<p><b>S.3-5.PS.7</b> Ask questions to determine cause and effect relationships (e.g., distance between objects affects strength of the force, orientation of magnets affect direction of magnetic force) of electric or magnetic interactions between two objects not in contact with each other. (3-PS2-3)</p>	<p>Level 4 – Ch. 11.1, 11.2, 11.3</p>	<p>Level 4 – TT 368; Magnetic Fields and Iron Filings SE 369/SJ 32; Find the Magnet TE 369/SJ 34, EAL 372, EAL 373; Balloon Static SE 377/ SJ 40; Attractive Charges TE 377/SJ 42; Make an Electromagnet SE 385/SJ 44; Stronger Electromagnets TE 385/ SJ 46, EAL 386</p>
		<p><b>S.3-5.PS.8</b> Define a simple design problem (e.g., constructing a door latch, creating a device to keep two moving objects from touching) that can be solved by applying scientific ideas about magnets. (3-PS2-4)</p>	<p>Level 4 – Ch. 11.1, 11.2</p>	<p>Level 4 – ATBD</p>
		<p><b>S.3-5.PS.9</b> Support an argument that the gravitational force exerted by Earth on objects is directed down toward the center of the earth. (5-PS2-1)</p>	<p>Level 3 – Ch. 9.2, Ch. 11.2 Level 5 – Ch. 13.3</p>	<p>Level 3 – LA 352; ATBD Level 5 – EAL 442; Seltzer Rocket TE 449/ SJ 66</p>

**2015 ELEMENTARY SCIENCE — PHYSICAL SCIENCES** CONTINUED

GRADE	TOPICS	STANDARDS (NGSS ALIGNMENT)	BY DESIGN CHAPTER CORRELATION	INQUIRY ACTIVITIES
<b>3-5</b>	<b>Energy</b>	<p><b>S.3-5.PS.10</b> Use evidence to construct an explanation relating the speed of an object to the energy of that object. (4-PS3-1)</p>	<p>Level 3 – Ch. 10.1, 10.3, Ch. 11.1, 11.2 Level 4 – 10.2 Level 5 – Ch. 13.2, 13.3</p>	<p>Level 3 – Models of Particles in a Liquid, a Solid and a Gas SE 305/SJ 8; Vibrating Confetti SE 321/SJ 16; Vibrating Strings TE 321/SJ 18, EAL 331, EAL 333; Racing Speed SE 341/SJ 28, EAL 342, EAL 348, EAL 358 Level 4 – ATBD Level 5 – Comparing Motion SE 435/SJ 58; Motion and Mass TE 435/SJ 60; Force, Mass, and Acceleration SE 441/SJ 62; Increasing Mass TE 441/SJ 64, EAL 448</p>
		<p><b>S.3-5.PS.11</b> Make observations to provide evidence that energy can be transferred from place to place by sound, light, heat, and electric currents. (4-PS3-2)</p>	<p>Level 3 – Ch. 10.2, 10.3, 10.4 Level 4 – Ch. 11.2 Level 5 – Ch. 11.2, 11.3, Ch. 12.1, 12.3</p>	<p>Level 3 – Transfer of Thermal Energy SE 313/SJ 12; Bring on the Heat TE 313/SJ 14, EAL 316, EAL 318; Vibrating Confetti SE 321/SJ 16; Vibrating Strings TE 321/SJ 18, EAL 322; How Waves Move SE 329/SJ 20 Level 4 – Melting and Boiling SE 339/SJ 14, TT 376; ATBD Level 5 – Sand Shaker SE 366/SJ 12, EAL 369; Light Bulb Energy SE 370/SJ 16; Lizard Lighting TE 370/SJ 18, EAL 372, EAL 374; Changes in Pitch and Loudness SE 376/SJ 20; Rubber Band Thickness and Pitch TE 376/ SJ 22; Build a Wave Machine SE 390/SJ 32; New Waves TE 390/SJ 34, EAL 397</p>
		<p><b>S.3-5.PS.12</b> Ask questions and predict outcomes about the changes in energy that occur when objects collide. (4-PS3-3)</p>	<p>Level 3 – Ch. 11.2 Level 5 – Ch. 13.2, 13.3</p>	<p>Level 3 – EAL 358 Level 5 – EAL 434, EAL 446; ATBD</p>
		<p><b>S.3-5.PS.13</b> Apply scientific principles to design, test, and refine a device (e.g., electric motor, solar heater) that converts energy from one form to another. (4-PS3-4)</p>	<p>Level 3 – Ch. 10.2, 10.3 Level 4 – Ch. 11.2, 11.3 Level 5 – Ch. 14.2, 14.3</p>	<p>Level 3 – Solar Cooker SJ 44 Level 4 – Make an Electromagnet SE 385/ SJ 44; Building an Electric Motor SJ 50 Level 5 – Simple to Complex SE 473/SJ 88; Design a Machine TE 473/SJ 90, EAL 478, SJ 100</p>
		<p><b>S.3-5.PS.14</b> Use models (e.g., diagrams, flow charts) to describe that energy in animals' food (used for body repair, growth, motion, and to maintain body warmth) was once energy from the sun. (5-PS3-1)</p>	<p>Level 3 – Ch. 2.3 Level 4 – Ch. 3.1 Level 5 – Ch. 4.2, 4.3</p>	<p>Level 3 – Colored Light Effects SE 69/SJ 34; Different Kinds of Light TE 69/SJ 36, EAL 72, Web of Life Mobile SJ 66 Level 4 – ATBD Level 5 – An Owl's Meal SE 138/SJ 104, LA 140, EAL 145</p>
	<b>Waves and their Applications in Technologies for Information Transfer</b>	<p><b>S.3-5.PS.15</b> Develop a model (e.g., diagrams, analogies, physical models) of waves to describe patterns in terms of amplitude and wavelength and that waves can cause objects to move. (4-PS4-1)</p>	<p>Level 3 – Ch. 10.2, 10.3, Level 5 – Ch. 11.3</p>	<p>Level 3 – TT 320; Vibrating Confetti SE 321/SJ 16; Vibrating Strings TE 321/SJ 18 Level 5 – EAL 374, EAL 381</p>
		<p><b>S.3-5.PS.16</b> Develop a model to describe that light reflecting from objects and entering the eye allows objects to be seen. (4-PS4-2)</p>	<p>Level 3 – Ch. 10.4 Level 5 – Ch. 12.3 See Level 6 – Ch. 4.5</p>	<p>Level 3 – ATBD Level 5 – ATBD</p>
		<p><b>S.3-5.PS.17</b> Generate and compare multiple solutions (e.g., drum sending codes through sound waves, grid of 1's and 0's representing black and white to send information about a picture, Morse code) that use patterns to transfer information. (4-PS4-3)</p>	<p>Level 3 – Ch. 10.3 Level 5 – Ch. 11.3</p>	<p>Level 3 – ATBD Level 5 – ATBD</p>

2015 ELEMENTARY SCIENCE — PHYSICAL SCIENCES CONTINUED

GRADE	TOPICS	STANDARDS (NGSS ALIGNMENT)	BY DESIGN CHAPTER CORRELATION	INQUIRY ACTIVITIES
6-8	Matter and Its Interactions	<b>S.6-8.PS.1</b> Develop models (e.g., drawings, 3D ball and stick structures, computer representations) to describe the atomic composition of simple molecules (e.g., ammonia, methanol) and extended structures (e.g., sodium chloride, diamonds). (MS-PS1-1)	Level 6 – Ch. 12.1, 12.3 Level 8 – Ch. 13.1, 13.2, 13.3	Level 6 – Atomic Models SE 402/SJ 38; Molecular Models SE 420/SJ 50; Chemical Formula of a Molecule TE 420/SJ 54, EAL 422  Level 8 – Let's Join Up SE 477/SJ 65; Investigate Ionic Bonds SE 481/SJ 66; Model of Calcium Chloride TE 481/SJ 68, EAL 482; Build Models of Molecules SE 488/SJ 70; Build Large Molecules TE 488/SJ 72; Build and Name Ionic Compounds SE 495/SJ 78; Build Diatomic Models TE 495/SJ 80, EAL 499
		<b>S.6-8.PS.2</b> Analyze and interpret data on the properties of substances before and after the substances interact to determine if a chemical reaction (e.g., burning sugar or steel wool, fat reacting with sodium hydroxide, mixing zinc with hydrogen chloride) has occurred. (MS-PS1-2)	Level 6 – Ch. 11.3, 11.4, Ch. 12.2 Level 8 – Ch. 11.3, Ch. 14.1, 14.2	Level 6 – Reactions in a Bag SE 381/SJ 16, EAL 382, EAL 386; Pondering Plaster SE 388/SJ 20, EAL 389, EAL 391; Degrees of Change TE 391/SJ 24, EAL 393; Copper Coat a Nail  Level 8 – Cabbage Chemistry SE 423/SJ 18; Let's Join Up SE 477/SJ 65; How Do You Know SE 505/SJ 91, EAL 507; Making Changes SE 509/SJ 92; Testing Powders TE 509/SJ 94; Investigating Chemical Reactions SE 510/SJ 96, EAL 512, EAL 513; Where Did It Go SE 519/SJ 100, EAL 522, EAL 524
		<b>S.6-8.PS.3</b> Gather and make sense of information to describe that synthetic materials come from natural resources and impact society (e.g., new medicines, foods, alternative fuels). (MS-PS1-3)	Level 6 – Ch. 7.3 Level 8 – Ch. 9.1	Level 6 – Nail File or Emory Board SE 249/SJ 18; Building Rocks TE 249/SJ 20; ATBD  Level 8 – Resource Tally SE 323/SJ 43; Evaluating Biofuels SE 328/SJ 44; Alternative Biofuels TE 328/SJ 46; Fertilizer Contest TE 336/SJ 48
		<b>S.6-8.PS.4</b> Develop a model (e.g., drawings, diagrams) that predicts and describes changes in particle (e.g., molecules, inert atoms) motion, temperature, and state of a pure substance (e.g., water, carbon dioxide, helium) when thermal energy is added or removed. (MS-PS1-4)	Level 6 – Ch. 11.2 Level 7 – Ch. 14.1, 14.3 Level 8 – Ch. 11.1, Ch. 14.3	Level 6 – Dissolving Sugar SE 372/SJ 12, EAL 374  Level 7 – Heat Experiment SE 513/SJ 93; Heat and Temperature SE 540/SJ 107; Comparing Conduction TE 540/SJ 108, EAL 543, EAL 546, EAL 548, EAL 555  Level 8 – EAL 410, EAL 527
		<b>S.6-8.PS.5</b> Develop and use a model to describe how the total number of atoms does not change in a chemical reaction and thus mass is conserved. (MS-PS1-5)	Level 6 – Ch. 11.3 Level 8 – Ch. 14.2, 14.3, 14.4	Level 6 – Reaction in a Bag SE 381/SJ 16, EAL 382, EAL 386  Level 8 – Where Did It Go SE 519/SJ 100; Conserving Mass TE 519/SJ 102
		<b>S.6-8.PS.6</b> Design, construct, test, and modify a device that either releases or absorbs thermal energy by chemical processes. (MS-PS1-6)	Level 8 – Ch. 12.1, Ch. 14.1, 14.2	Level 8 – Let's Join Up SE 477/SJ 65, EAL 513; ATBD
	Motion and Stability: Forces and Interactions	<b>S.6-8.PS.7</b> Apply Newton's Third Law to design a solution to a problem involving the motion of two colliding objects (e.g., two cars, car and stationary objects, meteor and space vehicle). (MS-PS2-1)	Level 7 – Ch. 12.2, 12.3	Level 7 – Collisions TE 453/SJ 48; ATBD
		<b>S.6-8.PS.8</b> Plan an investigation to provide evidence that the change in an object's motion depends on the sum of the forces on the object and the mass of the object. (MS-PS2-2)	Level 7 – Ch. 12.1, 12.2, 12.3	Level 7 – Accelerated Motion SE 449/SJ 42; Comparing Accelerated Motion TE 449; Collisions TE 453/SJ 48, EAL 454, EAL 458
		<b>S.6-8.PS.9</b> Ask questions about data (e.g., effect of the number of turns of wire on the strength of an electromagnet, effect of increasing the number or strength of magnets on speed of an electric motor) to determine the factors that affect the strength of electric and magnetic forces (e.g., electromagnets, electric motors, generators). (MS-PS2-3)	Level 6 – Ch. 14.1, 14.2, 14.3	Level 6 – Creating Magnets SE 482/SJ 108; Generating Electric Current SE 490/SJ 114; Different Magnets TE 490/SJ 116, EAL 492, Making a Generator SE 497/SJ 118; Using Electric Current TE 497/SJ 120, EAL 500
		<b>S.6-8.PS.10</b> Construct and present arguments using evidence (e.g., data generated from simulations or digital tools; charts displaying mass, strength of interaction, distance from the Sun, orbital periods of objects within the solar system) to support the claim that gravitational interactions exert attraction and depend on the masses of interacting objects. (MS-PS2-4)	Level 7 – Ch. 8.1, 8.2, Ch. 9.1, 9.3	Level 7 – How Much Do You Weigh SE 291/SJ 7; Planetary Orbits TE 295/SJ 8, EAL 332; The Tides SE 348/SJ 40; Extreme Tides TE 348/SJ 42
		<b>S.6-8.PS.11</b> Conduct an investigation and evaluate the experimental design to provide evidence that fields exist between objects exerting forces on each other even though the objects are not in contact (e.g., interactions of magnets, electrically-charged strips of tape, electrically-charged pith balls). (MS-PS2-5)	Level 6 – Ch. 13.1, 14.1, 14.2, 14.3 Level 7 – Ch. 12.3, 12.4	Level 6 – Electrostatic Discharge SE 437/SJ 73, LA 438; Taking Charge SE 440/SJ 74; Distance and Strength TE 440/SJ 76; Creating Magnets SE 482/SJ 108, EAL 483, EAL 489; Generating Electric Current SE 490/SJ 114; Different Magnets TE 490/SJ 116, EAL 492; Making a Generator SE 497/SJ 114; Using Electric Current TE 497/SJ 120, EAL 500  Level 7 – EAL p461, EAL p462, EAL p472



**2015 ELEMENTARY SCIENCE — PHYSICAL SCIENCES** CONTINUED

GRADE	TOPICS	STANDARDS (NGSS ALIGNMENT)	BY DESIGN CHAPTER CORRELATION	INQUIRY ACTIVITIES
6-8	Energy	<p><b>S.6-8.PS.12</b> Construct and interpret graphical displays of data to describe the relationships of kinetic energy to the mass of an object and the speed of an object (e.g., riding a bicycle at different speeds, rolling different sizes of rock downhill, getting hit by a Wiffle® ball versus a tennis ball). (MS-PS3-1)</p>	<p>Level 7 – Ch. 12.2, Ch. 14.1, 14.2</p>	<p>Level 7 – Accelerated Motion SE 449/SJ 42; Comparing Accelerated Motion TE 449/ SJ 46; Collisions TE 453/ SJ 48, EAL 516; Swinging Pendulum TE 518/SJ 94, EAL 519, Investigating Potential Energy SE 520/SJ 98, EAL 526</p>
		<p><b>S.6-8.PS.13</b> Develop a model (e.g., representations, diagrams, pictures, written descriptions) to describe that when the arrangement of objects interacting at a distance changes, different amounts of potential energy are stored in the system (e.g., the Earth and either a roller coaster cart at varying positions on a hill or objects at varying heights on shelves, changing direction/orientation of a magnet, balloon with static electrical charge brought close to a classmate’s hair). (MS-PS3-2)</p>	<p>Level 6 – Ch. 13.1, Ch. 14.1 Level 7 – Ch. 12.3, Ch. 14.1, 14.2</p>	<p>Level 6 – Electrostatic Discharge SE 437/ SJ 73; Taking Charge SE 440/SJ 174; Distance and Strength TE 440/ SJ 176; Creating Magnets SE 482/SJ 108, EAL 483, EAL 489 Level 7 – EAL 461, EAL 462; Swinging Pendulum TE 518/SJ 94; Investigating Potential Energy SE 520/SJ 98, EAL 526</p>
		<p><b>S.6-8.PS.14</b> Apply scientific principles to design, construct, and test a device (e.g., insulated box, solar cooker, Styrofoam® cup) that either minimizes or maximizes thermal energy transfer. (MS-PS3-3)</p>	<p>Level 7 – Ch. 14.3, 14.4</p>	<p>Level 7 – Heat Experiment SE 523/SJ 93; Comparing Conduction TE 540/SJ 108, EAL 541, EALp543; Cold Stuff SE 554/SJ 110, EAL 555</p>
		<p><b>S.6-8.PS.15</b> Plan an investigation (e.g., comparing final water temperatures after different masses of ice are melted in the same volume of water with the same initial temperature) to determine the relationships among the energy transferred, the type of matter, the mass, and the change in the average kinetic energy of the particles as measured by the temperature of the sample. (MS-PS3-4)</p>	<p>Level 7 – Ch. 14.3, 14.4</p>	<p>Level 7 – Heat Experiment SE 513/SJ 93, EAL 538, EAL 543, EAL 546; Cold Stuff SE 554/SJ 110; Cool Down, or Warm Up TE 554/SJ 112</p>
		<p><b>S.6-8.PS.16</b> Construct, use, and present arguments to support the claim that when the kinetic energy of an object changes, energy is transferred to or from the object. (MS-PS3-5)</p>	<p>Level 7 – Ch. 12.2, 12.3, Ch. 14.1, 14.2</p>	<p>Level 7 – Collisions SE 453/SJ 48, EAL 465, EAL 516, EAL 519; Investigating Potential Energy SE 520/SJ 98, EAL 526, EAL 532</p>
6-8	Waves and their Applications in Technologies for Information Transfer	<p><b>S.6-8.PS.17</b> Use mathematical representations to describe a simple model for waves that includes how the amplitude of a wave is related to the energy in a wave. (MS-PS4-1)</p>	<p>Level 7 – Ch. 11.1, 11.2</p>	<p>Level 7 – Make Waves SE 398/SJ 9, EAL 399, EAL 406; Gluba SE 407/SJ 12, EAL 411</p>
		<p><b>S.6-8.PS.18</b> Develop and use a model (e.g., drawings, simulations, written descriptions) to describe that waves are reflected, absorbed, or transmitted through various materials. (MS-PS4-2)</p>	<p>Level 7 – Ch. 11.1, 11.2, 11.4</p>	<p>Level 7 – EAL 410, EAL 411, EAL 420, EAL 421, EAL 424, EAL 425; Creating Interference SE 427/SJ 20; Creating More Interference TE 427/SJ 22; Blending Colors TE 429/SJ 24</p>
		<p><b>S.6-8.PS.19</b> Integrate qualitative scientific and technical information to support the claim that digitized signals (e.g., fiber optic cable transmits light pulses, radio wave pulses in Wi-Fi devices, conversion of stored binary patterns to make sound or text on a computer screen) are a more reliable way to encode and transmit information than analog signals. (MS-PS4-3)</p>	<p>Level 7 – Ch. 11.3</p>	<p>Level 7 – ATBD</p>

# 2015 ELEMENTARY SCIENCE — ENGINEERING, TECHNOLOGY, AND APPLICATIONS OF SCIENCE

GRADE	TOPICS	STANDARDS (NGSS ALIGNMENT)	BY DESIGN CHAPTER CORRELATION	INQUIRY ACTIVITIES
<b>Essential Question:</b> How has God equipped humans to apply knowledge of science to solve problems for the benefit of His Creation?		<b>Big Idea:</b> God designed humans to wonder, question, and develop an attitude of inquiry as scientific principles are applied to the materials and forces of nature for the benefit of His Creation.	<b>Bold =</b> included content  <i>Italic =</i> related content	TE = TEACHER EDITION SE = STUDENT EDITION SJ = STUDENT JOURNAL TT = TRY THIS LA = LESSON ACTIVITY EAL = EXPLORE-A-LAB MS = MATH IN SCIENCE ATBD = ACTIVITY TO BE DEVELOPED
<b>K-2</b>	<b>Engineering Design</b>	<b>S.K-2.ET.1</b> Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool. (K-2-ETS1-1)	These performance standards are found in multiple places throughout the By Design program.	Level 1 - ATBD  Level 2 - ATBD
		<b>S.K-2.ET.2</b> Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object functions to solve a given problem. (K-2-ETS1-2)		
		<b>S.K-2.ET.3</b> Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs. (K-2-ETS1-3)		
<b>3-5</b>	<b>Engineering Design</b>	<b>S.3-5.ET.1</b> Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost. (3-5-ETS1-1)	These performance standards are found in multiple places throughout the By Design program.	Level 3 - ATBD  Level 4 - ATBD  Level 5 - ATBD
		<b>S.3-5.ET.2</b> Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem. (3-5-ETS1-2)		
		<b>S.3-5.ET.3</b> Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved. (3-5-ETS1-3)		
<b>6-8</b>	<b>Engineering Design</b>	<b>S.6-8.ET.1</b> Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions. (MS-ETS1-1)	These performance standards are found in multiple places throughout the By Design program.	Level 6 - ATBD  Level 7 - ATBD  Level 8 - ATBD
		<b>S.6-8.ET.2</b> Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem. (MS-ETS1-2)		
		<b>S.6-8.ET.3</b> Analyze data from tests to determine similarities and difference among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success. (MS-ETS1-3)		
		<b>S.6-8.ET.4</b> Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved. (MS-ETS1-4)		