



**A Correlation of the
GEMS Kits®
with the South Carolina
Science Academic Standards,
Grades K–5**

Prepared by

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Introduction

Carolina Biological Supply Company publishes the research-based, inquiry-centered science curriculum Great Explorations in Math and Science (GEMS) Kits® for grades K–8. This document gives a quick visual guide to the alignment of the GEMS Kits® with the South Carolina Science Academic Standards, grades K–5.

The recommended instructional grade range for each kit is indicated below. For more information about any of these units, visit www.carolina.com/GEMS.

Unit Abbrev.	Unit Title	Grades
AH	Aquatic Habitats	2–5
AUG	Ant Homes Under the Ground	K–1
BF	Bubble Festival	K–5
BH	Buzzing a Hive	K–3
EEE	Eggs Eggs Everywhere	K–1
ETY	Elephants and Their Young	K–1
HB	Hide a Butterfly	K
IA	Investigating Artifacts	K–5
ID	Involving Dissolving	1–3
LB	Ladybugs	K–1
LE	Liquid Explorations	1–3
MF	Mystery Festival	2–5
MOB	Mother Opossum and Her Babies	K–1
OSS	On Sandy Shores	2–4
PTY	Penguins and Their Young	K–1
SF	Secret Formulas	1–3
SSS	Space Science Sequence	3–5
STS	Sifting Through Science	K–2
SYE	Schoolyard Ecology	3–5
TER	Terrarium Habitats	K–5
TH	Tree Homes	K–1

Legend

To save paper, the curriculum location information in this document has been abbreviated as follows:

- Unit abbreviations = see chart above
- TG = Teacher’s Guide
- Act01, Act02, etc. = Activity 1, Activity 2, etc.
- L01, L02, etc. = Lesson 1, Lesson 2, etc.
- Ses01, Ses02, etc. = Session 1, Session 2, etc.
- Unit01, Unit02, etc. = Unit 1, Unit 2, etc. (these are the sections in the Teacher’s Guide for the Space Science Sequence unit)
- Exts = Extensions (found at the end of some of the Teacher’s Guides)
- p, pp = page, pages

**A Correlation of the GEMS Kits®
with the
South Carolina Science Academic Standards, Grades K–5**

KINDERGARTEN	
Standards and Indicators	Curriculum Location
Scientific Inquiry Standard K-1: The student will demonstrate an understanding of scientific inquiry, including the processes, skills, and mathematical thinking necessary to conduct a simple scientific investigation.	
K-1.1. Identify observed objects or events by using the senses.	AUG - TG: All activities except Act02 BF - TG: All activities BH - TG: All lessons EEE - TG: All activities ETY - TG: All activities HB - TG: All sessions IA - TG: All sessions LB - TG: All activities MOB - TG: All activities PTY - TG: All activities STS - TG: All activities TER - TG: All activities TH - TG: All activities
K-1.2 Use tools (including magnifiers and eyedroppers) safely, accurately, and appropriately when gathering specific data.	AUG - TG: All activities BF - TG: All activities BH - TG: All lessons EEE - TG: All activities ETY - TG: All activities HB - TG: All sessions IA - TG: All sessions LB - TG: All activities MOB - TG: All activities PTY - TG: All activities STS - TG: All activities TER - TG: All activities TH - TG: All activities
K-1.3 Predict and explain information or events based on observation or previous experience.	BF - TG: Act05 (pp80-85)
K-1.4 Compare objects by using nonstandard units of measurement.	BF - TG: Act03 (pp66-73)
K-1.5 Use appropriate safety procedures when conducting investigations.	AUG - TG: All activities BF - TG: All activities BH - TG: All lessons EEE - TG: All activities ETY - TG: All activities HB - TG: All sessions IA - TG: All sessions LB - TG: All activities MOB - TG: All activities PTY - TG: All activities STS - TG: All activities TER - TG: All activities TH - TG: All activities

Characteristics of Organisms Standard K-2: The student will demonstrate an understanding of the characteristics of organisms. (Life Science)	
K-2.1 Recognize what organisms need to stay alive (including air, water, food, and shelter).	TER - TG: Act02 (pp15-21)
K-2.2 Identify examples of organisms and nonliving things.	
K-2.3 Match parents with their offspring to show that plants and animals closely resemble their parents.	
K-2.4 Compare individual examples of a particular type of plant or animal to determine that there are differences among individuals.	
K-2.5 Recognize that all organisms go through stages of growth and change called life cycles.	
My Body Standard K-3: The student will demonstrate an understanding of the distinct structures of human body and the different functions they serve. (Life Science)	
K-3.1 Identify the distinct structures in the human body that are for walking, holding, touching, seeing, smelling, hearing, talking, and tasting.	
K-3.2 Identify the functions of the sensory organs (including the eyes, nose, ears, tongue, and skin).	
Seasonal Changes Standard K-4: The student will demonstrate an understanding of seasonal weather changes. (Earth Science)	
K-4.1 Identify weather changes that occur from day to day.	
K-4.2 Compare the weather patterns that occur from season to season.	
K-4.3 Summarize ways that the seasons affect plants and animals.	
Exploring Matter Standard K-5: The student will demonstrate the understanding that objects can be described by their observable properties. (Physical Science)	
K-5.1 Classify objects by observable properties (including size, color, shape, magnetic attraction, heaviness, texture, and the ability to float in water).	BF - TG: Act01 (pp54-58) BF - TG: Act02 (pp59-65) BF - TG: Act03 (pp66-73) BF - TG: Act05 (pp80-85) BF - TG: Act09 (pp102-107) BF - TG: Act11 (pp114-118) STS - TG: Act01 (pp7-22)
K-5.2 Compare the properties of different types of materials (including wood, plastic, metal, cloth, and paper) from which objects are made.	
GRADE 1	
Standards and Indicators	Curriculum Location
Scientific Inquiry Standard 1-1: The student will demonstrate an understanding of scientific inquiry, including the processes, skills, and mathematical thinking necessary to conduct a simple scientific investigation.	

1-1.1 Compare, classify, and sequence objects by number, shape, texture, size, color, and motion, using standard English units of measurement where appropriate.	IA - TG: Ses01 (pp7-13) LE - TG: Act01 (pp5-13)
1-1.2 Use tools (including rulers) safely, accurately, and appropriately when gathering specific data.	AUG - TG: All activities BF - TG: All activities BH - TG: All lessons EEE - TG: All activities ETY - TG: All activities IA - TG: All sessions ID - TG: All activities LB - TG: All activities LE - TG: All activities MOB - TG: All activities PTY - TG: All activities SF - TG: All sessions STS - TG: All activities TER - TG: All activities TH - TG: All activities
1-1.3 Carry out simple scientific investigations when given clear directions.	AUG - TG: All activities BF - TG: All activities BH - TG: All lessons EEE - TG: All activities ETY - TG: All activities IA - TG: All sessions ID - TG: All activities LB - TG: All activities LE - TG: All activities MOB - TG: All activities PTY - TG: All activities SF - TG: All sessions STS - TG: All activities TER - TG: All activities TH - TG: All activities
1-1.4 Use appropriate safety procedures when conducting investigations.	AUG - TG: All activities BF - TG: All activities BH - TG: All lessons EEE - TG: All activities ETY - TG: All activities IA - TG: All sessions ID - TG: All activities LB - TG: All activities LE - TG: All activities MOB - TG: All activities PTY - TG: All activities SF - TG: All sessions STS - TG: All activities TER - TG: All activities TH - TG: All activities
Plants Standard 1-2: The student will demonstrate an understanding of the special characteristics and needs of plants that allow them to survive in their own distinct environments. (Life Science)	
1-2.1 Recall the basic needs of plants (including air, water, nutrients, space, and light) for energy and growth.	TER - TG: Act01 (pp5-13) TER - TG: Act02 (pp15-21)

1-2.2	Illustrate the major structures of plants (including stems, roots, leaves, flowers, fruits, and seeds).	BH - TG: Les02 (pp15-25) TH - TG: Act01 (pp15-23)
1-2.3	Classify plants according to their characteristics (including what specific type of environment they live in, whether they have edible parts, and what particular kinds of physical traits they have).	
1-2.4	Summarize the life cycle of plants (including germination, growth, and the production of flowers and seeds).	
1-2.5	Explain how distinct environments throughout the world support the life of different types of plants.	BH - TG: Les02 (pp15-25) TER - TG: Act01 (pp5-13) TER - TG: Act02 (pp15-21)
1-2.6	Identify characteristics of plants (including types of stems, roots, leaves, flowers, and seeds) that help them survive in their own distinct environments.	BH - TG: Les02 (pp15-25) TER - TG: Act01 (pp5-13) TER - TG: Act02 (pp15-21) TH - TG: Act01 (pp15-23)
Sun and Moon		
Standard 1-3: The student will demonstrate an understanding of the features of the sky and the patterns of the Sun and the Moon. (Earth Science)		
1-3.1	Compare the features of the day and night sky.	
1-3.2	Recall that the Sun is a source of heat and light for Earth.	IA - TG: All sessions
1-3.3	Recognize that the Sun and the Moon appear to rise and set.	
1-3.4	Illustrate changes in the Moon's appearance (including patterns over time).	
Earth Materials		
Standard 1-4: The student will demonstrate an understanding of the properties of Earth materials. (Earth Science)		
1-4.1	Recognize the composition of Earth (including rocks, sand, soil, and water).	
1-4.2	Classify rocks and sand by their physical appearance.	
1-4.3	Compare soil samples by sorting them according to properties (including color, texture, and the capacity to nourish growing plants).	TER - TG: Act01 (pp5-13)
1-4.4	Recognize the observable properties of water (including the fact that it takes the shape of its container, flows downhill, and feels wet).	PTY - TG: Act01 (pp5-13) PTY - TG: Act04 (pp39-45)
1-4.5	Illustrate the locations of water on Earth by using drawings, maps, or models.	
1-4.6	Exemplify Earth materials that are used for building structures or for growing plants.	TER - TG: Act01 (pp5-13)
Exploring Motion		
Standard 1-5: The student will demonstrate an understanding of the positions and motions of objects. (Physical Science)		
1-5.1	Identify the location of an object relative to another object.	
1-5.2	Explain the importance of pushing and pulling to the motion of an object.	EEE - TG: Act04 (pp41-47)
1-5.3	Illustrate the fact that sound is produced by vibrating objects.	

1-5.4	Illustrate ways in which objects can move in terms of direction and speed (including straight forward, back and forth, fast or slow, zigzag, and circular).	EEE - TG: Act04 (pp41-47)
GRADE 2		
Standards and Indicators		Curriculum Location
Scientific Inquiry		
Standard 2-1: The student will demonstrate an understanding of scientific inquiry, including the processes, skills, and mathematical thinking necessary to conduct a simple scientific investigation.		
2-1.1	Carry out simple scientific investigations to answer questions about familiar objects and events.	AH - TG: All activities BF - TG: All activities BH - TG: All lessons IA - TG: All sessions ID - TG: All activities LE - TG: All activities MF - TG: All sessions OSS - TG: All activities SF - TG: All sessions STS - TG: All activities TER - TG: All activities
2-1.2	Use tools (including thermometers, rain gauges, balances, and measuring cups) safely, accurately, and appropriately when gathering specific data in US customary (English) and metric units of measurement.	AH - TG: All activities BF - TG: All activities BH - TG: All lessons IA - TG: All sessions ID - TG: All activities LE - TG: All activities MF - TG: All sessions OSS - TG: All activities SF - TG: All sessions STS - TG: All activities TER - TG: All activities
2-1.3	Represent and communicate simple data and explanations through drawings, tables, pictographs, bar graphs, and oral and written language.	BF - TG: Act03 (pp66-73) BF - TG: Act04 (pp74-79) MF - TG: Exts (p94) OSS - TG: Act01 (pp13-25) OSS - TG: Act05 (pp91-108) SF - TG: Ses02 (pp27-31) SF - TG: Ses05 (pp53-61) SF - TG: Ses06 (pp63-68) SF - TG: Ses07 (pp71-77) SF - TG: Ses08 (pp79-86) SF - TG: Ses09 (pp89-97) STS - TG: Act01 (pp7-22) STS - TG: Act02 (pp25-35)
2-1.4	Infer explanations regarding scientific observations and experiences.	IA - TG: Ses01 (pp7-13) IA - TG: Ses02 (pp15-23) IA - TG: Ses05 (pp43-57) IA - TG: Ses06 (pp59-63)
2-1.5	Use appropriate safety procedures when conducting investigations.	AH - TG: All activities BF - TG: All activities BH - TG: All lessons IA - TG: All sessions ID - TG: All activities LE - TG: All activities

	MF - TG: All sessions OSS - TG: All activities SF - TG: All sessions STS - TG: All activities TER - TG: All activities
Animals Standard 2-2: The student will demonstrate an understanding of the needs and characteristics of animals as they interact in their own distinct environments. (Life Science)	
2-2.1 Recall the basic needs of animals (including air, water, food, and shelter) for energy, growth, and protection.	AH - TG: Act01 (pp13-23) TER - TG: Act02 (pp15-21)
2-2.2 Classify animals (including mammals, birds, amphibians, reptiles, fish, and insects) according to their physical characteristics.	
2-2.3 Explain how distinct environments throughout the world support the life of different types of animals.	
2-2.4 Summarize the interdependence between animals and plants as sources of food and shelter.	BH - TG: Exts (p67) TER - TG: Act03 (pp23-31) TER - TG: Act04 (pp33-41) TER - TG: Act05 (pp43-48)
2-2.5 Illustrate the various life cycles of animals (including birth and the stages of development).	AH - TG: Act04 (pp45-59) BH - TG: Les04 (pp39-53)
Weather Standard 2-3: The student will demonstrate an understanding of daily and seasonal weather conditions. (Earth Science)	
2-3.1 Explain the effects of moving air as it interacts with objects.	
2-3.2 Recall weather terminology (including temperature, wind direction, wind speed, and precipitation as rain, snow, sleet, and hail).	
2-3.3 Illustrate the weather conditions of different seasons.	
2-3.4 Carry out procedures to measure and record daily weather conditions (including temperature, precipitation amounts, wind speed as measured on the Beaufort scale, and wind direction as measured with a windsock or wind vane).	
2-3.5 Use pictorial weather symbols to record observable sky conditions.	
2-3.6 Identify safety precautions that one should take during severe weather conditions.	
Properties and Changes in Matter Standard 2-4: The student will demonstrate an understanding of the properties of matter and the changes that matter undergoes. (Physical Science)	
2-4.1 Recall the properties of solids and liquids.	BF - TG: All activities LE - TG: All activities
2-4.2 Exemplify matter that changes from a solid to a liquid and from a liquid to a solid.	
2-4.3 Explain how matter can be changed in ways such as heating or cooling, cutting or tearing, bending or stretching.	BF - TG: Act10 (pp108-113) LE - TG: Act03 (pp25-31)

2-4.4	Recognize that different materials can be mixed together and then separated again.	SF - TG: Ses01 (pp15-25) SF - TG: Ses03 (pp33-41) STS - TG: Act03 (pp37-46)
Magnetism Standard 2-5: The student will demonstrate an understanding of force and motion by applying the properties of magnetism. (Physical Science)		
2-5.1	Use magnets to make an object move without being touched.	STS - TG: Act02 (pp25-35)
2-5.2	Explain how the poles of magnets affect each other (that is, they attract and repel one another).	
2-5.3	Compare the effect of magnets on various materials.	STS - TG: Act02 (pp25-35)
2-5.4	Identify everyday uses of magnets.	STS - TG: Act02 (pp25-35)
GRADE 3		
Standards and Indicators		Curriculum Location
Scientific Inquiry Standard 3-1: The student will demonstrate an understanding of scientific inquiry, including the processes, skills, and mathematical thinking necessary to conduct a simple scientific investigation.		
3-1.1	Classify objects by two of their properties (attributes).	IA - TG: Ses01 (pp7-13) LE - TG: Act01 (pp5-13)
3-1.2	Classify objects or events in sequential order.	IA - TG: Ses01 (pp7-13) LE - TG: Act01 (pp5-13)
3-1.3	Generate questions such as “what if?” or “how?” about objects, organisms, and events in the environment and use those questions to conduct a simple scientific investigation.	AH - TG: All activities BF - TG: All activities BH - TG: All lessons IA - TG: All sessions ID - TG: All activities LE - TG: All activities MF - TG: All sessions OSS - TG: All activities SF - TG: All sessions SYE - TG: All activities TER - TG: All activities
3-1.4	Predict the outcome of a simple investigation and compare the result with the prediction.	AH - TG: Act01 (pp13-23) AH - TG: Act03 (pp35-43) BF - TG: Act05 (pp80-85)
3-1.5	Use tools (including beakers, meter tapes and sticks, forceps/tweezers, tuning forks, graduated cylinders, and graduated syringes) safely, accurately, and appropriately when gathering specific data.	AH - TG: All activities BF - TG: All activities BH - TG: All lessons IA - TG: All sessions ID - TG: All activities LE - TG: All activities MF - TG: All sessions OSS - TG: All activities SF - TG: All sessions TER - TG: All activities
3-1.6	Infer meaning from data communicated in graphs, tables, and diagrams.	BF - TG: Act03 (pp66-73) BF - TG: Act04 (pp74-79) OSS - TG: Act01 (pp13-25) OSS - TG: Act05 (pp91-108)
3-1.7	Explain why similar investigations might produce different results.	

<p>3-1.8 Use appropriate safety procedures when conducting investigations.</p>	<p>AH - TG: All activities BF - TG: All activities BH - TG: All lessons IA - TG: All sessions ID - TG: All activities LE - TG: All activities MF - TG: All sessions OSS - TG: All activities SF - TG: All sessions SYE - TG: All activities TER - TG: All activities</p>
<p>Habitats and Adaptations Standard 3-2: The student will demonstrate an understanding of the structures, characteristics, and adaptations of organisms that allow them to function and survive within their habitats. (Life Science)</p>	
<p>3-2.1 Illustrate the life cycles of seed plants and various animals and summarize how they grow and are adapted to conditions within their habitats.</p>	<p>AH - TG: Act04 (pp45-59) BH - TG: Exts (p67) BH - TG: Les04 (pp39-53) OSS - TG: Act04 (pp59-89) TER - TG: Act03 (pp23-31) TER - TG: Act04 (pp33-41) TER - TG: Act05 (pp43-48)</p>
<p>3-2.2 Explain how physical and behavioral adaptations allow organisms to survive (including hibernation, defense, locomotion, movement, food obtainment, and camouflage for animals and seed dispersal, color, and response to light for plants).</p>	<p>AH - TG: Act02 (pp25-33) AH - TG: Act03 (pp35-43) AH - TG: Act05 (pp61-70) BH - TG: Exts (p67) OSS - TG: Act04 (pp59-89) TER - TG: Act03 (pp23-31) TER - TG: Act04 (pp33-41) TER - TG: Act05 (pp43-48)</p>
<p>3-2.3 Recall the characteristics of an organism's habitat that allow the organism to survive there.</p>	<p>AH - TG: All activities BH - TG: Les03 (pp27-37) OSS - TG: Act04 (pp59-89) SYE - TG: Act02 (pp21-31) TER - TG: All activities</p>
<p>3-2.4 Explain how changes in the habitats of plants and animals affect their survival.</p>	<p>AH - TG: All activities BH - TG: Les03 (pp27-37) OSS - TG: Act04 (pp59-89) SYE - TG: Act02 (pp21-31) TER - TG: All activities</p>
<p>3-2.5 Summarize the organization of simple food chains (including the roles of producers, consumers, and decomposers).</p>	<p>AH - TG: Act04 (pp45-59) AH - TG: Act05 (pp61-70) TER - TG: Act03 (pp23-31)</p>
<p>Earth's Materials and Changes Standard 3-3: The student will demonstrate an understanding of Earth's composition and the changes that occur to the features of Earth's surface. (Earth Science)</p>	
<p>3-3.1 Classify rocks (including sedimentary, igneous, and metamorphic) and soils (including humus, clay, sand, and silt) on the basis of their properties.</p>	<p>OSS - TG: Act02 (pp27-43)</p>
<p>3-3.2 Identify common minerals on the basis of their properties by using a minerals identification key.</p>	

3-3.3	Recognize types of fossils (including molds, casts, and preserved parts of plants and animals).	
3-3.4	Infer ideas about Earth's early environments from fossils of plants and animals that lived long ago.	
3-3.5	Illustrate Earth's saltwater and freshwater features (including oceans, seas, rivers, lakes, ponds, streams, and glaciers).	
3-3.6	Illustrate Earth's land features (including volcanoes, mountains, valleys, canyons, caverns, and islands) by using models, pictures, diagrams, and maps.	
3-3.7	Exemplify Earth materials that are used as fuel, as a resource for building materials, and as a medium for growing plants.	TER - TG: Act01 (pp5-13)
3-3.8	Illustrate changes in Earth's surface that are due to slow processes (including weathering, erosion, and deposition) and changes that are due to rapid processes (including landslides, volcanic eruptions, floods, and earthquakes).	OSS - TG: Act02 (pp27-43) OSS - TG: Act03 (pp45-56)
Heat and Changes in Matter		
Standard 3-4: The student will demonstrate an understanding of the changes in matter that are caused by heat.		
3-4.1	Classify different forms of matter (including solids, liquids, and gases) according to their observable and measurable properties.	
3-4.2	Explain how water and other substances change from one state to another (including melting, freezing, condensing, boiling, and evaporating).	
3-4.3	Explain how heat moves easily from one object to another through direct contact in some materials (called conductors) and not so easily through other materials (called insulators).	BF - TG: Act10 (pp108-113)
3-4.4	Identify sources of heat and exemplify ways that heat can be produced (including rubbing, burning, and using electricity).	BF - TG: Act10 (pp108-113)
Motion and Sound		
Standard 3-5: The student will demonstrate an understanding of how motion and sound are affected by a push or pull on an object and the vibration of an object. (Physical Science)		
3-5.1	Identify the position of an object relative to a reference point by using position terms such as "above," "below," "inside of," "underneath," or "on top of" and a distance scale or measurement.	
3-5.2	Compare the motion of common objects in terms of speed and direction.	
3-5.3	Explain how the motion of an object is affected by the strength of a push or pull and the mass of the object.	
3-5.4	Explain the relationship between the motion of an object and the pull of gravity.	
3-5.5	Recall that vibrating objects produce sound and that vibrations can be transferred from one material to another.	
3-5.6	Compare the pitch and volume of different sounds.	
3-5.7	Recognize ways to change the volume of sounds.	

3-5.8	Explain how the vibration of an object affects pitch.	
GRADE 4		
Standards and Indicators		Curriculum Location
Scientific Inquiry		
Standard 4-1: The student will demonstrate an understanding of scientific inquiry, including the processes, skills, and mathematical thinking necessary to conduct a simple scientific investigation.		
4-1.1	Classify observations as either quantitative or qualitative.	AH - TG: All activities BF - TG: All activities IA - TG: All sessions MF - TG: All sessions OSS - TG: All activities SYE - TG: All activities TER - TG: All activities
4-1.2	Use appropriate instruments and tools (including a compass, an anemometer, mirrors, and a prism) safely and accurately when conducting simple investigations.	AH - TG: All activities BF - TG: All activities IA - TG: All sessions MF - TG: All sessions OSS - TG: All activities SSS - TG: Unit01.All sessions SSS - TG: Unit02.All sessions SYE - TG: All activities except Act03 TER - TG: All activities
4-1.3	Summarize the characteristics of a simple scientific investigation that represent a fair test (including a question that identifies the problem, a prediction that indicates a possible outcome, a process that tests one manipulated variable at a time, and results that are communicated and explained).	AH - TG: All activities BF - TG: All activities IA - TG: All sessions MF - TG: All sessions OSS - TG: All activities SSS - TG: Unit01.All sessions SSS - TG: Unit02.All sessions SYE - TG: All activities TER - TG: All activities
4-1.4	Distinguish among observations, predictions, and inferences.	AH - TG: All activities BF - TG: All activities IA - TG: All sessions MF - TG: All sessions OSS - TG: All activities SSS - TG: All units and all sessions SYE - TG: All activities TER - TG: All activities
4-1.5	Recognize the correct placement of variables on a line graph.	BF - TG: Act03 (pp66-73) OSS - TG: Act01 (pp13-25) OSS - TG: Act05 (pp91-108) SSS - TG: Unit01.Ses01.6
4-1.6	Construct and interpret diagrams, tables, and graphs made from recorded measurements and observations.	BF - TG: Act03 (pp66-73) BF - TG: Act04 (pp74-79) OSS - TG: Act01 (pp13-25) OSS - TG: Act05 (pp91-108)
4-1.7	Use appropriate safety procedures when conducting investigations.	AH - TG: All activities BF - TG: All activities IA - TG: All sessions MF - TG: All sessions OSS - TG: All activities SSS - TG: All units and all sessions

	SYE - TG: All activities TER - TG: All activities
Organisms and Their Environments Standard 4-2: The student will demonstrate an understanding of the characteristics and patterns of behavior that allow organisms to survive in their own distinct environments. (Life Science)	
4-2.1 Classify organisms into major groups (including plants or animals, flowering or nonflowering plants, and vertebrates [fish, amphibians, reptiles, birds, and mammals] or invertebrates) according to their physical characteristics.	SYE - TG: Act03 (pp33-41) SYE - TG: Act04 (pp43-49) TER - TG: Act03 (pp23-31) TER - TG: Act04 (pp33-41) TER - TG: Act05 (pp43-48)
4-2.2 Explain how the characteristics of distinct environments (including swamps, rivers and streams, tropical rain forests, deserts, and the polar regions) influence the variety of organisms in each.	AH - TG: All activities OSS - TG: Act04 (pp59-89) SYE - TG: Act02 (pp21-31) SYE - TG: Act05 (pp51-59) TER - TG: All activities
4-2.3 Explain how humans and other animals use their senses and sensory organs to detect signals from the environment and how their behaviors are influenced by these signals.	
4-2.4 Distinguish between the characteristics of an organism that are inherited and those that are acquired over time.	
4-2.5 Explain how an organism's patterns of behavior are related to its environment (including the kinds and the number of other organisms present, the availability of food and other resources, and the physical characteristics of the environment).	AH - TG: All activities except Act04 SYE - TG: Act02 (pp21-31) SYE - TG: Act03 (pp33-41) SYE - TG: Act04 (pp43-49) TER - TG: All activities except Act01
4-2.6 Explain how organisms cause changes in their environment.	
Astronomy Standard 4-3: The student will demonstrate an understanding of the properties, movements, and locations of objects in the solar system. (Earth Science)	
4-3.1 Recall that Earth is one of many planets in the solar system that orbit the Sun.	SSS - TG: Unit01.All sessions
4-3.2 Compare the properties (including the type of surface and atmosphere) and the location of Earth to the Sun, which is a star, and the Moon.	SSS - TG: Unit01.All sessions
4-3.3 Explain how the Sun affects Earth.	SSS - TG: Unit01.All sessions
4-3.4 Explain how the tilt of Earth's axis and the revolution around the Sun results in the seasons of the year.	
4-3.5 Explain how the rotation of Earth results in day and night.	SSS - TG: Unit03.All sessions
4-3.6 Illustrate the phases of the Moon and the Moon's effect on ocean tides.	SSS - TG: Unit04.All sessions
4-3.7 Interpret the change in the length of shadows during the day in relation to the position of the Sun in the sky.	
4-3.8 Recognize the purpose of telescopes.	SSS - TG: Unit01.All sessions
Weather Standard 4-4: The student will demonstrate an understanding of weather patterns and phenomena. (Earth Science)	
4-4.1 Summarize the processes of the water cycle (including evaporation, condensation, precipitation, and runoff).	

4-4.2	Classify clouds according to their three basic types (cumulus, cirrus, and stratus) and summarize how clouds form.	
4-4.3	Compare daily and seasonal changes in weather conditions (including wind speed and direction, precipitation, and temperature) and patterns.	
4-4.4	Summarize the conditions and effects of severe weather phenomena (including thunderstorms, hurricanes, and tornadoes) and related safety concerns.	
4-4.5	Carry out the procedures for data collecting and measuring weather conditions (including wind speed and direction, precipitation, and temperature) by using appropriate tools and instruments.	
4-4.6	Predict weather from data collected through observation and measurements.	
Properties of Light and Electricity		
Standard 4-5: The student will demonstrate an understanding of the properties of light and electricity. (Physical Science)		
4-5.1	Summarize the basic properties of light (including brightness and colors).	BF - TG: Act05 (pp80-85)
4-5.2	Illustrate the fact that light, as a form of energy, is made up of many different colors.	BF - TG: Act05 (pp80-85)
4-5.3	Summarize how light travels and explain what happens when it strikes an object (including reflection, refraction, and absorption).	
4-5.4	Compare how light behaves when it strikes transparent, translucent, and opaque materials.	
4-5.5	Explain how electricity, as a form of energy, can be transformed into other forms of energy (including light, heat, and sound).	
4-5.6	Summarize the functions of the components of complete circuits (including wire, switch, battery, and light bulb).	
4-5.7	Illustrate the path of electric current in series and parallel circuits.	
4-5.8	Classify materials as either conductors or insulators of electricity.	
4-5.9	Summarize the properties of magnets and electromagnets (including polarity, attraction/repulsion, and strength).	OSS - TG: Act01 (pp13-25)
4-5.10	Summarize the factors that affect the strength of an electromagnet.	
GRADE 5		
Standards and Indicators		Curriculum Location
Scientific Inquiry		
Standard 5-1: The student will demonstrate an understanding of scientific inquiry, including the foundations of technological design and the processes, skills, and mathematical thinking necessary to conduct a controlled scientific investigation.		
5-1.1	Identify questions suitable for generating a hypothesis.	AH - TG: All activities BF - TG: All activities IA - TG: All sessions

	MF - TG: All sessions SYE - TG: All activities TER - TG: All activities
5-1.2 Identify independent (manipulated), dependent (responding), and controlled variables in an experiment.	
5-1.3 Plan and conduct controlled scientific investigations, manipulating one variable at a time.	AH - TG: All activities BF - TG: All activities IA - TG: All sessions MF - TG: All sessions SYE - TG: All activities TER - TG: All activities
5-1.4 Use appropriate tools and instruments (including a timing device and a 10x magnifier) safely and accurately when conducting a controlled scientific investigation.	AH - TG: All activities BF - TG: All activities IA - TG: All sessions MF - TG: All sessions SYE - TG: All activities except Act03 TER - TG: All activities
5-1.5 Construct a line graph from recorded data with correct placement of independent (manipulated) and dependent (responding) variables.	BF - TG: Act03 (pp66-73)
5-1.6 Evaluate results of an investigation to formulate a valid conclusion based on evidence and communicate the findings of the evaluation in oral or written form.	AH - TG: All activities AH - TG: Exts (pp70-78) BF - TG: All activities IA - TG: All sessions MF - TG: All sessions SYE - TG: All activities TER - TG: All activities
5-1.7 Use a simple technological design process to develop a solution or a product, communicating the design by using descriptions, models, and drawings.	
5-1.8 Use appropriate safety procedures when conducting investigations.	AH - TG: All activities BF - TG: All activities IA - TG: All sessions MF - TG: All sessions SYE - TG: All activities TER - TG: All activities
Ecosystems: Terrestrial and Aquatic Standard 5-2: The student will demonstrate an understanding of relationships among biotic and abiotic factors within terrestrial and aquatic ecosystems. (Life Science)	
5-2.1 Recall the cell as the smallest unit of life and identify its major structures (including cell membrane, cytoplasm, nucleus, and vacuole).	
5-2.2 Summarize the composition of an ecosystem, considering both biotic factors (including populations to the level of microorganisms and communities) and abiotic factors.	SYE - TG: Act05 (pp51-59)
5-2.3 Compare the characteristics of different ecosystems (including estuaries/salt marshes, oceans, lakes and ponds, forests, and grasslands).	SYE - TG: Act05 (pp51-59)

5-2.4	Identify the roles of organisms as they interact and depend on one another through food chains and food webs in an ecosystem, considering producers and consumers (herbivores, carnivores, and omnivores), decomposers (microorganisms, termites, worms, and fungi), predators and prey, and parasites and hosts.	AH - TG: Act04 (pp45-59) AH - TG: Act05 (pp61-70) SYE - TG: Act03 (pp33-41) SYE - TG: Act04 (pp43-49) TER - TG: Act03 (pp23-31) TER - TG: Act04 (pp33-41) TER - TG: Act05 (pp43-48)
5-2.5	Explain how limiting factors (including food, water, space, and shelter) affect populations in ecosystems.	
Landforms and Oceans Standard 5-3: The student will demonstrate an understanding of features, processes, and changes in Earth's land and oceans. (Earth Science)		
5-3.1	Explain how natural processes (including weathering, erosion, deposition, landslides, volcanic eruptions, earthquakes, and floods) affect Earth's oceans and land in constructive and destructive ways.	
5-3.2	Illustrate the geologic landforms of the ocean floor (including the continental shelf and slope, the mid-ocean ridge, rift zone, trench, and the ocean basin).	
5-3.3	Compare continental and oceanic landforms.	
5-3.4	Explain how waves, currents, tides, and storms affect the geologic features of the ocean shore zone (including beaches, barrier islands, estuaries, and inlets).	
5-3.5	Compare the movement of water by waves, currents, and tides.	
5-3.6	Explain how human activity (including conservation efforts and pollution) has affected the land and the oceans of Earth.	
Properties of Matter Standard 5-4: The student will demonstrate an understanding of properties of matter. (Physical Science)		
5-4.1	Recall that matter is made up of particles too small to be seen.	
5-4.2	Compare the physical properties of the states of matter (including volume, shape, and the movement and spacing of particles).	
5-4.3	Summarize the characteristics of a mixture, recognizing a solution as a kind of mixture.	BF - TG: All activities except Act03
5-4.4	Use the processes of filtration, sifting, magnetic attraction, evaporation, chromatography, and floatation to separate mixtures.	
5-4.5	Explain how the solute and the solvent in a solution determine the concentration.	
5-4.6	Explain how temperature change, particle size, and stirring affect the rate of dissolving.	
5-4.7	Illustrate the fact that when some substances are mixed together, they chemically combine to form a new substance that cannot easily be separated.	
5-4.8	Explain how the mixing and dissolving of foreign substances is related to the pollution of the water, air, and soil.	

Forces and Motion Standard 5-5: The student will demonstrate an understanding of the nature of force and motion. (Physical Science)	
5-5.1 Illustrate the affects of force (including magnetism, gravity, and friction) on motion.	
5-5.2 Summarize the motion of an object in terms of position, direction, and speed.	
5-5.3 Explain how unbalanced forces affect the rate and direction of motion in objects.	
5-5.4 Explain ways to change the effect that friction has on the motion of objects (including changing the texture of the surfaces, changing the amount of surface area involved, and adding lubrication).	
5-5.5 Use a graph to illustrate the motion of an object.	
5-5.6 Explain how a change of force or a change in mass affects the motion of an object.	