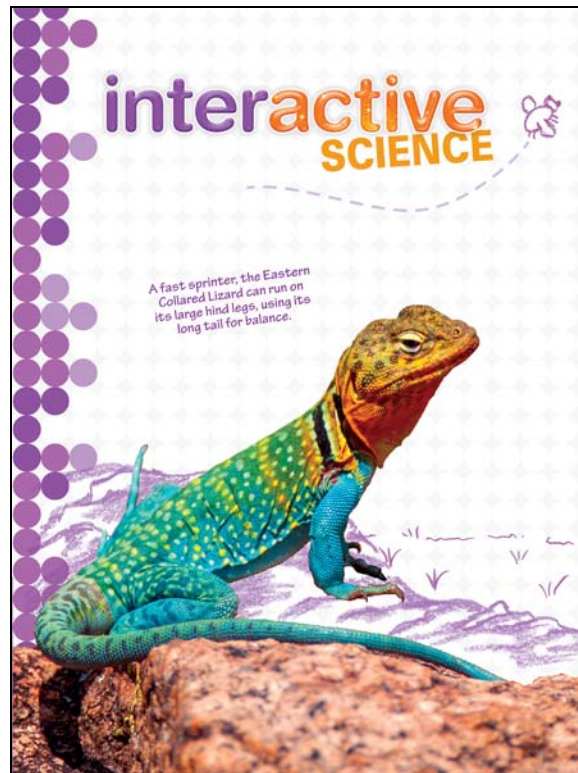


A Correlation of
Interactive Science
Grade 5, ©2016



To the
**2018 Mississippi
College-and-Career Readiness
Standards for Science**

A Correlation of Interactive Science ©2016, Grade 5 to the 2018 Mississippi College-and-Career Readiness Standards for Science

Introduction

The following document demonstrates how the ***Interactive Science, ©2016*** program aligns to the 2018 Mississippi College-and-Career Standards for Science, grades K-5. Correlation references are to the Student Edition and Teacher Edition. Please note that the Kindergarten Student Edition text pages are two-sided; each singular page contains a corresponding Activity Page on the reverse side.

Interactive Science is an elementary science program that makes learning personal, engaging, and relevant for today's student. The program features an innovative Write-in Student Edition that enables students to become active participants in their learning and truly connect the Big Ideas of science to their world.

The 2016 editions of ***Interactive Science*** were developed to support the Next Generation Science Standards (NGSS) for Grades K-5 in several ways. In the Student Edition, lessons provide interactive opportunities for students to acquire the Disciplinary Core Ideas that are the building blocks of the NGSS Performance Expectations at each grade level. STEM Activities, Apply It! activities, Design It! Activities, and Performance-Based Assessments enable students to research, investigate, and apply Science and Engineering Practices to real-world problems in a meaningful way. In the Teacher's Edition, the NGSS Cross-Cutting Concepts that link across grade levels and across disciplines within grade levels are noted at the chapter level, and a detailed and focused Performance Expectation Activity is provided for each NGSS standard.

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2018 Mississippi College-and-Career Readiness Standards for Science	Interactive Science, ©2016 Grade 5
GRADE FIVE: Life Science	
5.3 Ecology and Interdependence	
Conceptual Understanding: All organisms need energy to live and grow. Energy is obtained from the sun. Cells transform the energy that organisms need to perform essential life functions through a complex sequence of reactions in which chemical energy is transferred from one system of interacting molecules to another.	
5.3A Students will demonstrate an understanding of photosynthesis and the transfer of energy from the sun into chemical energy necessary for plant growth and survival.	
5.3A.1 <i>Research and communicate the basic process of photosynthesis that is used by plants to convert light energy into chemical energy that can be stored and released to fuel an organism's activities.</i>	SE/TE: 112 Structure for Respiration and Circulation 151 Plants and Energy 154-155 Photosynthesis 156-157 Respiration TE Only: 112 Elaborate 157b Apply Concept 181 Differentiated Instruction
5.3A.2 <i>Analyze environments that do not receive direct sunlight and devise explanations as to how photosynthesis occurs, either naturally or artificially.</i>	TE Only: 160 Common Misconceptions
Conceptual Understanding: A major role an organism serves in an ecosystem can be described by the way in which it obtains its energy. Energy is transferred within an ecosystem by producers, consumers, or decomposers. A healthy ecosystem is one in which a diverse population of life forms can meet their needs in a relatively stable web of life.	
5.3B Students will demonstrate an understanding of a healthy ecosystem with a stable web of life and the roles of living things within a food chain and/or food web, including producers, primary and secondary consumers, and decomposers.	
5.3B.1 <i>Obtain and evaluate scientific information regarding the characteristics of different ecosystems and the organisms they support (e.g., salt and fresh water, deserts, grasslands, forests, rain forests, or polar tundra lands).</i>	SE/TE: 144 Inquiry Try It What is in a local ecosystem? 145 Let's Read Science – Wetlands TE Only: 142E At-Home Labs Eco-Walk

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<p>5.3B.2 <i>Develop and use a food chain model to classify organisms as producers, consumers, or decomposers. Trace the energy flow to explain how each group of organisms obtains energy.</i></p>	<p>SE/TE: 160 Energy Roles in Ecosystems 161 Decomposers 162 Food Chains 181-182 Vocabulary Smart Cards 183-184 Vocabulary Smart Cards</p> <p>TE Only: 165b Words to Know 162 Differentiated Instruction</p>
<p>5.3B.3 <i>Design and interpret models of food webs to justify what effects the removal or the addition of a species (i.e., introduced or invasive) would have on a specific population and/or the ecosystem as a whole.</i></p>	<p>SE/TE: 163 Food Webs 176 Nonnative Species 177 Regulation and Conservation 183-184 Vocabulary Smart Cards</p> <p>TE Only: 162 Differentiated Instruction 169 Nonnative Species</p>
<p>5.3B.4 <i>Communicate scientific or technical information that explains human positions in food webs and our potential impacts on these systems.</i></p>	<p>SE/TE: 160 Changes Caused by Humans 162 Lightning Lab You in the Food Chain 174 Inquiry Explore It Which materials break down fastest in soil? 175 People Change Ecosystems 177 Regulation and Conservation</p> <p>TE Only: 177a Inquiry Explore It Which materials break down fastest in soil? 177b Apply Concepts</p>

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GRADE FIVE: Physical Science	
5.5 Organization of Matter and Chemical Interactions	
Conceptual Understanding: Matter can be segregated into tiny particles that are too small to see, but can be detected by other methods. These tiny particles are referred to as atoms, which can be combined to form molecules. Substances of the same type exhibit specific properties that can be observed and measured.	
5.5A Students will demonstrate an understanding of the physical properties of matter.	
<p>5.5A.1 <i>Obtain and evaluate scientific information to describe basic physical qualities of atoms and molecules.</i></p>	<p>SE/TE: 9 Matter 12 Atoms 15 Compounds (molecule)</p> <p>TE Only: 1C Atoms and Ions 15b Words to Know</p>
<p>5.5A.2 <i>Collect, analyze, and interpret data from measurements of the physical properties of matter including solid, liquid, and gas (volume, shape, movement, and spacing of particles).</i></p>	<p>SE/TE: 16 Inquiry Explore It What are some properties of solids? 18 Mass 19 Volume 20 Temperature 23-24 States of Matter</p> <p>TE Only: 21a Inquiry Explore It What are some properties of solids? 21b Words to Know</p>

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<p>Conceptual Understanding: Substances of the same type can be classified by their similar, observable properties. Substances can be combined in a variety of ways. A mixture is formed when two or more kinds of matter are physically combined. Solutions are a special type of mixture in which one substance is distributed evenly into another substance. When the physical properties of the components in a mixture are not changed, they can be separated in different physical ways.</p>	
<p>5.58 Students will demonstrate an understanding of mixtures and solutions.</p>	
<p>5.5B.1 Analyze matter through observations and measurements to classify materials (e.g., powders, metals, minerals, or liquids) based on their properties (e.g., color, hardness, reflectivity, electrical conductivity, thermal conductivity, response to magnetic forces, solubility, or density).</p>	<p>SE/TE: 17 Color 21 Texture 33 Solubility 65 Electric and Magnetic Forces</p> <p>TE Only: 21b Apply Concepts</p> <p>See also Grade 4 SE/TE 29 Conduction 30 A Conduction Example 34-35 Inquiry Investigate It Which material is the better heat conductor? 88 How Electric Charges Flow</p> <p>Grade 4 TE Only 35b Inquiry Investigate It Which material is the better heat conductor?</p>
<p>5.5B.2 Obtain and evaluate scientific information to describe what happens to the properties of substances in mixtures and solutions.</p>	<p>SE/TE: 29 Mixtures 32 Solutions 45-46 Vocabulary Smart Cards</p> <p>TE Only: 32b Words to Know</p>
<p>5.5B.3 Analyze and interpret data to communicate that the concentration of a solution is determined by the relative amount of solute versus solvent in various mixtures.</p>	<p>TE Only: 32 Elaborate</p>

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5.5B.4 Investigate how different variables (e.g., temperature change, stirring, particle size, or surface area) affect the rate at which a solute will dissolve.	SE/TE: 32 Solutions
5.5B.5 Design an effective system (e.g., sifting, filtration, evaporation, magnetic attraction, or floatation) for separating various mixtures. Use an engineering design process to define the problem, design, construct, evaluate, and improve the system.*	SE/TE: 28 Inquiry Explore It How can a mixture be separated? 30-31 Separating Mixtures 40-41 Inquiry Investigate It What are some ways to separate a mixture? TE Only: 30 Teacher to Teacher 33a Inquiry Explore It How can a mixture be separated? 41b Inquiry Investigate It What are some ways to separate a mixture?
5.5B.6 Make and test predictions about how the density of an object affects whether the object sinks or floats when placed in a liquid.	Grade 2 SE/TE: 22 Sink or Float 58-59 Inquiry Apply It Using Scientific Methods Grade 2 TE Only: 58 Teacher Background
5.5B.7 Design a vessel that can safely transport a dense substance (e.g., honey or maple syrup) through water at various distances and under variable conditions. Use an engineering design process to define the problem, design, construct, evaluate, and improve the vessel.*	SE/TE: 380-387, Skills Handbook, What is the design process? guides students through the process.

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<p>Conceptual Understanding: Physical properties can be observed and measured without changing the composition of matter. A physical change occurs when the matter's physical appearance is altered while leaving the composition of the matter unchanged. When two or more substances are mixed together, a new substance with different properties can sometimes be formed, but the total amount (i.e., mass) of the substances is conserved (i.e., total mass stays the same). In a chemical change, the composition of the original matter is altered to create a new substance. A different compound is present at the completion of the chemical change.</p>	
<p>5.5C Students will demonstrate an understanding of the difference between physical and chemical changes.</p>	
<p>5.5C.1 Analyze and communicate the results of chemical changes that result in the formation of new materials (e.g., decaying, burning, rusting, or cooking).</p>	<p>SE/TE: 37 Chemical Changes 38-39 Temperature and Chemical Changes 38 Lightning Lab Comparing Apples and Lemons</p> <p>TE Only: 1C A Matter of Change 39b Apply Concepts</p>
<p>5.5C.2 Analyze and communicate the results of physical changes to a substance that results in a reversible change (e.g., changes in states of matter with the addition or removal of energy, changes in size or shape, or combining/separating mixtures or solutions).</p>	<p>SE/TE: 22 Inquiry Explore It How can water change state? 25 Freezing and Melting 26 Evaporation 27 Condensation 29 Mixtures 30-31 Separating Mixtures 32 Solutions 35 Physical Changes 36 Temperature and Physical Change</p> <p>TE Only: 27a Inquiry Explore It How can water change state? 27b Apply Concepts</p>
<p>5.5C.3 Analyze and interpret data to support claims that when two substances are mixed, the total weight of matter is conserved.</p>	<p>TE Only: 99b Performance Expectation Activity</p>

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5.6 Motions, Forces, and Energy	
Conceptual Understanding: Gravity is a force that draws objects to Earth. This force acting on an object near Earth's surface pulls that object toward the planet's center. The motion <i>of</i> an object can be described in terms of its position, direction, and speed. Multiple factors determine the rate and motion of an object. Other than Earth, any celestial objects will exert varying gravitational pulls on other objects according to their mass and density.	
5.6 Students will demonstrate an understanding of the factors that affect the motion of an object.	
5.6.1 <i>Obtain and communicate information describing gravity's effect on an object.</i>	<p>SE/TE: xxii Quest, Plan a T5rio Around the World of Patterns, Quest Check in 2 64 Non-Contact Forces 85-86 Vocabulary Smart Cards</p> <p>TE Only: 64 Elaborate</p>
5.6.2 <i>Predict the future motion of various objects based on past observation and measurement of position, direction, and speed.</i>	<p>SE/TE: 66 Inquiry Explore It How can forces affect motion? 71 Same Mass, Different Forces 82 Inquiry Investigate it What forces affect the motion of a rocket?</p> <p>TE Only: 66 Lab Support 71 Predict/Apply 73a Inquiry Explore It How can forces affect motion? 82 Lab Support</p>

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<p>5.6.3 <i>Develop and use models to explain how the amount or type of force, both contact and non-contact, affects the motion of an object.</i></p>	<p>SE/TE: 61 Forces 62-63 Contact Forces 64-65 Non-Contact Forces 67 Changes In Motion 71 Same Mass, Different Force 74 Inquiry Explore It How do Forces Combine? 75 Adding Forces 82-83 Inquiry Investigate It What forces affect the motion of a rocket? 85-86 Vocabulary Smart Cards</p> <p>TE Only: 52C Four Types of Friction 60 Content Refresher 64 Content Refresher 83b What forces affect the motion of a rocket?</p>
<p>5.6.4 <i>Plan and conduct scientific investigations to test the effects of balanced and unbalanced forces on the speed and/or direction of objects in motion.</i></p>	<p>SE/TE: 66 Inquiry Explore It How can forces affect motion? 74 Inquiry Explore It How do forces combine? 76-77 Balanced Force 76 Lightning Lab</p> <p>TE Only: 52C Nothin' but Net 66 Lab Support 73a How can forces affect motion? 77a Inquiry Explore It How do forces combine? 77b Apply Concept</p>
<p>5.6.5 <i>Predict how a change of force, mass, and/or friction affects the motion of an object to convert potential energy into kinetic energy.</i></p>	<p>SE/TE: 62 Contact Forces 70 Same Force, Different Mass 71 Same Mass, Different Force</p> <p>TE Only: 63 Elaborate</p>

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<p>5.6.7 Design a system to increase the effects of friction on the motion of an object (e.g., non-slip surfaces or vehicle braking systems or flaps on aircraft wings). Use an engineering design process to define the problem, design, construct, evaluate, and improve the system.*</p>	<p>SE/TE: 380-387, Skills Handbook, What is the design process? guides students through the process.</p> <p>TE Only: 62 Conclude</p> <p>See also Grade 4 SE/TE: 68-69 Investigate It How does friction affect motion?</p> <p>Grade 4 TE Only: 69a-d Investigate It How does friction affect motion?</p>
<p>GRADE FIVE: Earth and Space Science</p>	
<p>5.8 Earth and the Universe</p>	
<p>Conceptual Understanding: Astronomy is the study of celestial objects in our solar system and beyond. A solar system includes one or more suns (stars) and all other objects orbiting in that system. Planets in our night sky change positions and are not always visible from Earth as they orbit our sun. Stars that can be seen in the night sky lie beyond our solar system and appear in patterns called constellations. Constellations can be used for navigation and appear to move together across the sky because of Earth's rotation and revolution around the sun.</p>	
<p>5.8A Students will demonstrate an understanding of the locations of objects in the solar system.</p>	
<p>5.8A.1 Develop and use scaled models of Earth's solar system to demonstrate the size, composition (i.e., rock or gas), location, and order of the planets as they orbit the Sun.</p>	<p>SE/TE: 259 Deciding About Distance 282 Lightning Lab 284 Inquiry Explore It How are the sizes of the inner and outer planets different? 285 Gas Giants 286 Jupiter 287 Saturn 288 Uranus, Neptune</p> <p>TE Only: 282 Lightning Lab 289a Inquiry Explore It How are the sizes of the inner and outer planets different? 289b Apply Concepts</p>

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<p>5.8A.2 <i>Use evidence to argue why the sun appears brighter than other stars.</i></p>	<p>SE/TE: 270 My Planet Diary: Misconceptions</p> <p>TE Only: 275a My Planet Diary: Misconceptions 313c Performance Expectation Activity</p>
<p>5.8A.3 <i>Describe how constellations appear to move from Earth's perspective throughout the seasons (e.g., Ursa Major, Ursa Minor, and Orion).</i></p>	<p>SE/TE: 274 Constellations 275 Stars on the Move</p> <p>TE Only: 275b Apply Concepts</p>
<p>5.8A.4 <i>Construct scientific arguments to support claims about the importance of astronomy in navigation and exploration, including the use of telescopes, compasses, and star charts.</i></p>	<p>SE/TE: 274 Constellations</p> <p>TE Only: 274 Science-Social Studies 275 Differentiated Instruction</p> <p>See also Grade 4 SE/TE 310 More Tools</p>
<p>Conceptual Understanding: Earth orbits around the sun as the moon orbits around Earth. The revolution and rotation of Earth on a tilted axis provide evidence of patterns that can be observed, studied, and predicted.</p>	
<p>5.8B Students will demonstrate an understanding of the principles that govern moon phases, day and night, appearance of objects in the sky, and seasonal changes.</p>	
<p>5.8B.1 <i>Analyze and interpret data from observations and research (e.g., from NASA, NOAA, or the USGS) to explain patterns in the location, movement, and appearance of the moon throughout a month and over the course of a year.</i></p>	<p>SE/TE: 281 Earth and the Moon</p> <p>TE Only 281 Science Notebook</p>

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<p align="center">2018 Mississippi College-and-Career Readiness Standards for Science</p>	<p align="center">Interactive Science, ©2016 Grade 5</p>
<p>5.8B.2 <i>Develop and use a model of the Earth-Sun-Moon system to analyze the cyclic patterns of lunar phases, solar and lunar eclipses, and seasons.</i></p>	<p>SE/TE: 256-257 What is happening in the sky? 267 Earth’s Revolution 268-269 Seasons</p> <p>TE Only: 256 Content Refresher 269b Apply Concepts 281 Science Notebook</p>
<p>5.8B.3 <i>Develop and use models to explain the factors (e.g., tilt, revolution, and angle of sunlight) that result in Earth’s seasonal changes.</i></p>	<p>SE/TE: 264 Inquiry Explore It How does sunlight strike Earth’s surface? 267 Lightning Lab 268-269 Seasons 313 Model a Planet’s Orbit</p> <p>TE Only: 268 21st Century Learning 269a Inquiry Explore It How does sunlight strike Earth’s surface?</p>
<p>5.8B.4 <i>Obtain information and analyze how our understanding of the solar system has evolved over time (e.g., Earth-centered model of Aristotle and Ptolemy compared to the Sun-centered model of Copernicus and Galileo).</i></p>	<p>SE/TE: 265 Earth and the Sun 286-287, Jupiter, Saturn</p>

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5.10 Earth's Resources	
Conceptual Understanding: Human activities can impact natural processes and availability of resources. To reduce impacts on the environment (including humans), various best practices can be used. New and improved conservation practices are constantly being developed and tested.	
5.10 Students will demonstrate an understanding of the effects of human interaction with Earth and how Earth's natural resources can be protected and conserved.	
5.10.1. <i>Collect and organize scientific ideas that individuals and communities can use to conserve Earth's natural resources and systems (e.g., implementing watershed management practices to conserve water resources, utilizing no-till farming to improve soil fertility, reducing emissions to abate air pollution, or recycling to reduce landfill waste).</i>	SE/TE: 177 Regulation and Conservation 189 Create a Compost Pile 241 Fields 325 Go Green TE Only: 142D Waste Handling Methods 241 21 st Century Learning
5.10.2 <i>Design a process for better preparing communities to withstand manmade or natural disasters (e.g., removing oil from water or soil, systems that reduce the impact of floods, structures that resist hurricane forces). Use an engineering design process to define the problem, design, construct, evaluate, and improve the disaster plan.*</i>	SE/TE: 168 Fast Changes 200-203 STEM Activity Filter It Out 380-387, Skills Handbook, What is the design process? guides students through the process TE Only: 168 Explain