

RCS Scope and Sequence - 6th Grade Science

TCAP Categories			
TCAP Reporting Categories	RCS Categories	SPIs	
(1) Inquiry and Tech. & Engineer.	Embedded Inquiry Embedded T&E	SPIs 0607.Inq.1 to 5 SPI 0607.T/E.1 to 4	9
(2) Interdependence	Standard Two	SPI 0607.2.1 to 2.4	4
(3) The Universe	Standard Six	SPI 0607.6.1 to 6.7	7
(4) The Atmosphere	Standard Eight	SPI 0607.8.1 to 8.4	4
(5) Energy, Forces in Nature	Standard Ten Standard Twelve	SPI 0607.10.1 to 10.4 SPI 0607.12.1 to 12.2	6
30 Total SPIs			
1 st Grading Period			
State Performance Indicators	Checks for Understanding	Essential Questions	Resources (CTRL and left click for links)
SPI 0607.Inq.1 (Variables and Controls) Design a simple experimental procedure with an identified control and appropriate variables. <u>Reporting Category One:</u> Inquiry and Technology & Engineering	<u>RCS CFU:</u> 0607.Inq.1 Design and conduct an open-ended scientific investigation to answer a question that includes a control and appropriate variables.	What is the difference between a dependent and an independent variable	Links: Variables Variables song
SPI 0607.Inq.2 (Tools and Procedures) Select tools and procedures needed to conduct a moderately complex experiment. <u>Reporting Category One:</u> Inquiry and Technology & Engineering	<u>RCS CFU:</u> 0607.Inq.2 Identify tools and techniques needed to gather, organize, analyze, and interpret data collected from a moderately complex scientific investigation.	How can I perform an experiment using the steps of the scientific method and appropriate tools?	Links: Scientific Method Video Scientific Method Study Jam Brainpop – Scientific Method Brainpop – Measuring Matter
SPI 0607.Inq.3 (Interpret Data) Interpret and translate data into a table, graph, or diagram. <u>Reporting Category One:</u> Inquiry and Technology & Engineering	<u>RCS CFU:</u> 0607.Inq.3 Design a method to explain the results of an investigation using descriptions, explanations, or models.	Can I change the data I have collected from an experiment into a table, graph, or diagram?	Link: Collecting Data Song
SPI 0607.Inq.4 (Cause and Effect) Draw a conclusion that establishes a cause and effect relationship supported by evidence. <u>Reporting Category One:</u> Inquiry and Technology & Engineering	<u>RCS CFU:</u> 0607.Inq.4 Use evidence from a dataset to determine cause and effect relationships that explain a phenomenon.	Can I determine a cause and effect conclusion at the end of an experiment?	Links: Cause and Effect Cause and Effect 2 Cause and Effect 3

<p>SPI 0607.Inq.5 (Bias or Error)</p> <p>Identify a faulty interpretation of data that is due to bias or experimental error.</p> <p>Reporting Category One: Inquiry and Technology & Engineering</p>	<p>RCS CFU: 0607.Inq.5 Review an experimental design to determine possible sources of bias or error, state alternative explanations, and identify questions for further investigation.</p>	<p>How can I identify incorrect interpretation of data due to errors during the experiment?</p>	<p>Links: Bias in Science Bias in Science 2</p>
<p>SPI 0607.T/E.1 (Prototype Testing)</p> <p>Identify the tools and procedures needed to test the design features of a prototype.</p> <p>Reporting Category One: Inquiry , Technology & Engineering</p>	<p>RCS CFU: 0607.T/E.1 After constructing a prototype (see RCS CFU 0807.T/E.2) test it using appropriate scientific tools such as a spring scale, a triple-beam balance, a metric ruler, a calculator, a graduated cylinder, a stop watch, etc.</p>	<p>What are the ideal tools and testing methods for testing a given prototype?</p>	<p>Links: Robo-dog prototype Spiderman web shooter Measurement Tools Study Jam Brainpop – Metric Units</p>
<p>SPI 0607.T/E.2 (Engineering Design Process)</p> <p>Evaluate a protocol to determine if the engineering design process was successfully applied.</p> <p>Reporting Category One: Inquiry and Technology & Engineering</p>	<p>RCS CFU: 0607.T/E.2 Apply the engineering design process to construct a prototype that meets certain specifications.</p>	<p>How do we know that the engineering design process involves an ongoing series of events</p>	<p>Links: Zombies! EDP Explained NASA EDP</p>
<p>SPI 0607.T/E.3 (Intended/ Unintended Consequences)</p> <p>Distinguish between the intended benefits and the unintended consequences of a new technology.</p> <p>Reporting Category One: Inquiry and Technology & Engineering</p>	<p>RCS CFU: 0607.T/E.3 Explore how the unintended consequences of new technologies can impact society.</p>	<p>What are ways to compare the intended benefits with unintended consequences of new technology?</p>	<p>Link:</p>
<p>SPI 0607.T/E.4 (Adaptive/Assistive Bioengineering)</p> <p>Differentiate between adaptive and assistive bioengineered products (e.g., food, biofuels, medicines, integrated pest management).</p> <p>Reporting Category One: Inquiry and Technology & Engineering</p>	<p>RCS CFU: 0607.T/E.4.A Research bioengineering technologies that advance health and contribute to improvements in our daily lives.</p> <p>RCS CFU: 0607.T/E.4.B Develop an adaptive design and test its effectiveness.</p>	<p>How can I describe and explain adaptive and assistive bioengineered products?</p>	<p>Link 01: Assistive Technology</p>
<p>SPI 0607.10.1 (Types of Potential Energy)</p> <p>Distinguish among gravitational potential energy, elastic potential energy, and chemical potential energy.</p> <p>Reporting Category Five: Energy, Forces of Nature</p>	<p>RCS CFU: 0607.10.1 Compare and contrast the three forms of potential energy.</p>	<p>What is the difference between gravitational, elastic, and chemical potential energy?</p>	<p>Link: Types of Potential Energy Brainpop – Potential Energy</p>

<p>SPI 0607.10.2 (Potential vs. Kinetic Energy)</p> <p>Interpret the relationship between potential and kinetic energy.</p> <p>Reporting Category Five: Energy, Forces of Nature</p>	<p>RCS CFU: 0607.10.2 Compare potential and kinetic energy.</p>	<p>What is the relationship between potential and kinetic energy?</p>	<p>Links: Kinetic vs Potential</p> <p>Bill Nye – Energy</p> <p>Brainpop – Kinetic Energy Brainpop – Energy Sources</p>
<p>SPI 0607.10.3 (Energy Transformation)</p> <p>Recognize that energy can be transformed from one type to another.</p> <p>Reporting Category Five: Energy, Forces of Nature</p>	<p>RCS CFU: 0607.10.3 Design a model that demonstrates a specific energy transformation.</p>	<p>Can I recognize different types of energy transformations?</p>	<p>Links: School House Rocks Energy</p> <p>Electricity Study Jams</p> <p>Brainpop – Forms of Energy Brainpop – Electricity</p>
<p>SPI 0607.10.4 (Law of Conservation of Energy)</p> <p>Explain the Law of Conservation of Energy using data from a variety of energy transformations.</p> <p>Reporting Category Five: Energy, Forces of Nature</p>	<p>RCS CFU: 0607.10.4 Explain why a variety of energy transformations illustrates the Law of Conservation of Energy.</p>	<p>What is the Law of Conservation of Energy?</p>	<p>Links: Law of Conservation on Energy</p> <p>Law of Conservation of Energy 2</p>
<p>SPI 0607.12.1 (Simple Circuits)</p> <p>Identify how simple circuits are associated with the transfer of electrical energy when heat, light, sound, and chemical changes are produced.</p> <p>Reporting Category Five: Energy, Forces of Nature</p>	<p>RCS CFU: 0607.12.1 Prepare a poster that illustrates how electricity passes through a simple circuit to produce heat, light, or sound.</p>	<p>What is a simple circuit?</p> <p>How does electricity pass through a simple circuit to produce heat, light, and sound?</p>	<p>Link 01: What is a Circuit?</p> <p>Types of Circuits</p> <p>Brainpop – Electric Circuits</p>
<p>SPI 0607.12.2 (Conductors and Insulators)</p> <p>Identify materials that can conduct electricity.</p> <p>Reporting Category Five: Energy, Forces of Nature</p>	<p>RCS CFU: 0607.12.2 A Determine a material's electrical conductivity by testing it with a simple battery/bulb circuit.</p> <p>RCS CFU: 0607.12.2 B Compare and contrast the characteristics of objects and materials that conduct electricity with those that are electrical insulators</p>	<p>What materials conduct electricity?</p>	<p>Links: Conductors and Insulators</p> <p>Conductor Insulator Demonstration</p> <p>Conductors Study Jam</p>

2nd Grading Period

State Performance Indicators	Checks for Understanding	Essential Questions	Resources
<p>SPI 0607.8.1 (Wind Convection Currents)</p> <p>Analyze data to identify events associated with heat convection in the atmosphere.</p> <p><u>Reporting Category Four:</u> The Atmosphere</p>	<p><u>RCS CFU:</u> 0607.8.1 Recognize how convection currents in the atmosphere produce wind.</p>	<p>Can I identify events caused by heat convection?</p>	<p>Links: Convection Currents Convection Demonstrations</p> <p>Brainpop – Wind</p>
<p>SPI 0607.8.2 (Wind production)</p> <p>Recognize the connection between the sun’s energy and the wind.</p> <p><u>Reporting Category Four:</u> The Atmosphere</p>	<p><u>RCS CFU:</u> 0607.8.2 Design an experiment to investigate differences in the amount of sun’s energy absorbed by a variety of surface materials.</p>	<p>How is the sun’s energy and the wind connected?</p>	<p>Links: Bill Nye Wind Clip Land and Sea Breezes</p>
<p>SPI 0607.8.3 (Ocean Convection Currents)</p> <p>Describe how temperature differences in the ocean account for currents.</p> <p><u>Reporting Category Four:</u> The Atmosphere</p>	<p><u>RCS CFU:</u> 0607.8.3 A Design an experiment to demonstrate how ocean currents are associated with the sun’s energy.</p> <p><u>RCS CFU:</u> 0607.8.3 B Analyze ocean temperature data to demonstrate how these conditions affect the weather in nearby land masses.</p> <p><u>RCS CFU:</u> 0607.8.3 C Interpret data found on ocean current maps</p>	<p>How does the temperature affect the ocean’s currents?</p>	<p>Links: Convection Review Ocean Current Song</p> <p>Brainpop – Ocean Currents Brainpop – Temperature</p>
<p>SPI 0607.8.4 (Meteorological Data)</p> <p>Interpret meteorological data to make predictions about the weather.</p> <p><u>Reporting Category Four:</u> The Atmosphere</p>	<p><u>RCS CFU:</u> 0607.8.4 Use data collected from instruments such as a barometer, thermometer, psychrometer, and anemometer to describe local weather conditions.</p>	<p>Can I use meteorological data to make predictions about the weather?</p>	<p>Links: Predicting Weather Weather Instruments</p> <p>Brainpop – Weather</p>
<p>SPI 0607.6.1 (Universe Components)</p> <p>Use data to draw conclusions about the major components of the universe.</p> <p><u>Reporting Category Three:</u> The Universe</p>	<p><u>RCS CFU:</u> 0607.6.1 Use data to draw conclusions about the major components of the universe.</p>	<p>What are the major components of the universe?</p>	<p>Links: Inner Planets Study Jams Outer Planets Study Jams</p> <p>Brainpop – Asteroids, Comets, Galaxies, & Solar System</p>
<p>SPI 0607.6.2 (Distance in Space)</p> <p>Explain how the relative distance of objects from the earth affects how they appear.</p> <p><u>Reporting Category Three:</u> The Universe</p>	<p><u>RCS CFU:</u> 0607.6.2 Construct a model of the solar system showing accurate positional relationships and relative distances.</p>	<p>How does the distance of objects in space from Earth affect how they appear?</p>	<p>Links: Scale of the Universe Space Distance Comparison</p>

3rd Grading Period

State Performance Indicators	Checks for Understanding	Essential Questions	Resources (CTRL and left click for links)
<p>SPI 0607.6.3 (Day & Year)</p> <p>Distinguish among a day, lunar cycle, and year based on the movements of the earth, sun, and moon.</p> <p><u>Reporting Category Three:</u> The Universe</p>	<p><u>RCS CFU:</u> 0607.6.3 Investigate how the earth, sun, and moon are responsible for a day, lunar cycle, and year.</p>	<p>How is the movement of the Earth, sun, and moon related to days, lunar cycles, and years?</p>	<p>Links: Why Day becomes Night Day and Night Concept</p>
<p>SPI 0607.6.4 (Lunar Cycle)</p> <p>Explain the different phases of the moon using a model of the earth, moon, and sun.</p> <p><u>Reporting Category Three:</u> The Universe</p>	<p><u>RCS CFU:</u> 0607.6.4 Explain why the positions of the earth, moon, and sun were used to develop calendars and clocks.</p>	<p>Can I identify the different phases of the moon?</p>	<p>Link 01: Moon Phases Phases of the Moon Changing of Moon Phases Brainpop – Moon Phases</p>
<p>SPI 0607.6.5 (Tides)</p> <p>Predict the types of tides that occur when the earth and moon occupy various positions.</p> <p><u>Reporting Category Three:</u> The Universe</p>	<p><u>RCS CFU:</u> 0607.6.5 Illustrate the positions of the earth, moon, and sun during specific tidal conditions.</p>	<p>What effect does the earth and the moon have on the ocean's tides?</p>	<p>Links: How Tides Work So How Do the Tides Work? Brainpop – Tides</p>
<p>SPI 0607.6.6 (Seasons)</p> <p>Use a diagram that shows the positions of the earth and sun to explain the four seasons.</p> <p><u>Reporting Category Three:</u> The Universe</p>	<p><u>RCS CFU:</u> 0607.6.6 Diagram the relationship of the earth and sun that accounts for the seasons.</p>	<p>How do the positions of the Earth and sun cause the four seasons?</p>	<p>Links: What causes Seasons? Seasons Study jams Brainpop – Seasons Brainpop – Solstice and Equinox</p>
<p>SPI 0607.6.7 (Eclipses)</p> <p>Explain the difference between a solar and a lunar eclipse.</p> <p><u>Reporting Category Three:</u> The Universe</p>	<p><u>RCS CFU:</u> 0607.6.7 Model the positions of the earth, moon, and sun during solar and lunar eclipses</p>	<p>What is the difference between a solar and lunar eclipse?</p>	<p>Link 01: Total Solar Eclipse NASA Lunar Eclipse Brainpop – Eclipse</p>

<p>SPI 0607.2.1 (Producers, Consumers, & Decomposers)</p> <p>Classify organisms as producers, consumers, scavengers, or decomposers according to their role in a food chain or food web.</p> <p><u>Reporting Category Two:</u> Interdependence</p>	<p><u>RCS CFU:</u> 0607.2.1 Compare and contrast the different methods used by organisms to obtain nutrition in a biological community.</p>	<p>Can I identify the producers, consumers, scavengers, and decomposers in a food chain or food web?</p>	<p>Link 01: Food Web described</p> <p>Food Chain Song</p> <p>What's Eating You?</p> <p>Brainpop – Food Chains</p>
<p>SPI 0607.2.2 (Transfer of energy)</p> <p>Interpret how materials and energy are transferred through an ecosystem</p> <p><u>Reporting Category Two:</u> Interdependence</p>	<p><u>RCS CFU:</u> 0607.2.2 Use a food web or energy pyramid to demonstrate the way materials and energy are transferred</p>	<p>How are materials and energy transferred between organisms in an ecosystem?</p>	<p>Link: The 10 Percent Rule</p> <p>Brainpop – Energy Pyramid Brainpop – Ecosystem</p>
<p>SPI 0607.2.3 (Abiotic vs Biotic)</p> <p>Identify the biotic and abiotic elements of the major biomes</p> <p><u>Reporting Category Two:</u> Interdependence</p>	<p><u>RCS CFU:</u> 0607.2.3 Create a graphic organizer that illustrates how biotic and abiotic elements of an environment interact.</p>	<p>Can I identify the biotic and abiotic factors in the major biomes?</p>	<p>Links: What are Abiotic and Biotic Factors?</p> <p>Abiotic vs Biotic</p>
<p>SPI 0607.2.4 (Biomes)</p> <p>Identify the environmental conditions and interdependencies among organisms found in the major biomes.</p> <p><u>Reporting Category Two:</u> Interdependence</p>	<p><u>RCS CFU:</u> 0607.2.4 A Use a food web or energy pyramid to demonstrate the interdependence of organisms within a specific biome.</p> <p><u>RCS CFU:</u> 0607.2.4 B Create poster presentations to illustrate differences among the world's major biomes.</p>	<p>What types of environmental conditions occur in the major biomes and how do the organisms depend on one another?</p>	<p>Links: Symbiosis Explained</p> <p>Predator vs Prey</p> <p>Brainpop – Symbiosis</p>