

Select a Course:	Science Grade 6
Teacher:	CORE Science Grade 6
Course:	Science Grade 6
Year:	2016-17
Months:	- All -

August	<p>Grade 6 Science Adaptations & Diversity LS4: Biological Evolution: Unity and Diversity</p> <ul style="list-style-type: none"> • Patterns • Structure & Function • LS4: Biological Evolution: Unity and Diversity 				
	Enduring Understandings	Essential Questions	Standards	Knowledge & Skills	Academic Language
September	<p>Grade 6 Science Natural Selection & Evolution LS4: Biological Evolution: Unity and Diversity</p> <ul style="list-style-type: none"> • Patterns • Structure & Function 				
	Enduring Understandings	Essential Questions	Standards	Knowledge & Skills	Academic Language
	<p>The collection of fossils and their placement in chronological order (e.g. through the location of the sedimentary layers in which they are found or through radioactive dating) is known as the fossil record. It documents the existence, diversity, extinction, and change of many life forms throughout the history of life on Earth. (MS-LS4-1)</p> <p>Anatomical similarities and differences between various organisms living today and between them and organisms in the fossil record, enable the reconstruction of evolutionary history and the inference of lines of evolutionary descent. (MS-LS4-2)</p>	<p>How do organisms change over time in response to changes in the environment?</p> <p>How can we infer the degree of relatedness among species?</p> <p>How are fossils used as clues to the past?</p> <p>How can the fossil record tell us about the relatedness among species?</p> <p>How has life on Earth changed over time?</p>	<p>MS-LS4.1 - 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 under the assumption that natural laws operate today as in the past.</p> <p>MS-LS4.2 - Apply scientific ideas to construct an explanation for the anatomical similarities and differences among modern organisms and between modern and fossil organisms to infer evolutionary relationships.</p> <p>RST.6-8.1 - Cite specific textual evidence to support analysis of science and technical texts.</p> <p>RST.6-8.2 - Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.</p> <p>RST.6-8.3 - Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.</p> <p>RST.6-8.4 - Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 6–8 texts and topics.</p>	<p>The relatedness of similar species can be gauged by their ability to produce fertile offspring.</p> <p>Use mathematical models, probability statements, and proportional reasoning to support explanations of trends in changes to populations over time.</p> <p>Fossils provide evidence of past life on Earth (bones, molds, petrified remains, etc.)</p> <p>Fossils are used to compare and contrast current organisms with those from the past.</p> <p>Interpret fossil records and anatomical similarities to explain how species have changed over time.</p>	<p>Variation</p> <p>Heredity</p> <p>Species</p> <p>Evolution</p> <p>Fossil</p> <p>Extinction</p> <p>Variation</p> <p>Trait</p> <p>Organism</p>


		<p>RST.6-8.7 - Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table).</p> <p>RST.6-8.9 - Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.</p> <p>RST.6-8.10 - By the end of grade 8, read and comprehend science/technical texts in the grades 6–8 text complexity band independently and proficiently.</p> <p>WHST.6-8.1.b - Support claim(s) with logical reasoning and relevant, accurate data and evidence that demonstrate an understanding of the topic or text, using credible sources.</p> <p>WHST.6-8.2.d - Use precise language and domain-specific vocabulary to inform about or explain the topic.</p> <p>WHST.6-8.9 - Draw evidence from informational texts to support analysis reflection, and research.</p> <p>G6-8:1.18 - Use Web browsing to access information (e.g., enter a URL, access links, create bookmarks/favorites, print Web pages).</p>	
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October **Grade 6 Science Evidence of Common Ancestry** LS4: Biological Evolution: Unity and Diversity

- Patterns
- Structure & Function
- Cause & Effect

Enduring Understandings ✕	Essential Questions ✕	Standards ✕	Knowledge & Skills ✕	Academic Language ✕
<p> Comparison of the embryological development of different species also reveals similarities that show relationships not evident in the fully-formed anatomy. (MS-LS4-3)</p> <p> Natural selection leads to the predominance of certain traits in a population, and the suppression of others. (MS-LS4-4)</p> <p> Adaptation by natural selection acting over generations is one important process by which species change over time in response to changes in environmental conditions. Traits that support successful survival and reproduction in the new</p>	<p> How can embryological development be used to infer evolutionary relationships?</p> <p> How do organisms' physical features and behavior help them survive in their environment?</p> <p> Why is diversity (variation) important for the survival of a species?</p> <p> How does the fitness of a trait affect its likelihood for propagation in a species?</p>	<p>MS-LS1.4 - Use argument based on empirical evidence and scientific reasoning to support an explanation for how characteristic animal behaviors and specialized plant structures affect the probability of successful reproduction of animals and plants respectively.</p> <p>MS-LS4.2 - Apply scientific ideas to construct an explanation for the anatomical similarities and differences among modern organisms and between modern and fossil organisms to infer evolutionary relationships.</p> <p>MS-ESS1.4 - Construct a scientific explanation based on evidence from rock strata for how the geologic time scale is used to organize Earth's 4.6-billion-year-old history.</p> <p>MS-LS4.1 - Analyze and interpret data for patterns in the fossil record that document the existence, diversity, extinction, and change of life forms</p>	<p> The relatedness of similar species can be gauged by their ability to produce fertile offspring.</p> <p> Construct explanations based on evidence to support fundamental understandings of natural selection and evolution.</p> <p> Mutation, natural selection, and isolation in different environments provide mechanisms for evolution.</p> <p> The traits that allow a species to</p>	<p> Offspring</p> <p> Trait</p> <p> Competition</p> <p> Natural Selection</p> <p> Organism</p> <p> Species</p> <p> Variation</p> <p> Embryology</p> <p> Genes</p> <p> Adaptation</p>

environment become more common; those that do not become less common. Thus, the distribution of traits in a population changes. (MS-LS4-6)

 How do new species occur over time?

 How can we infer the degree of relatedness among species?

throughout the history of life on Earth under the assumption that natural laws operate today as in the past.

MS-LS4.3 - Analyze displays of pictorial data to compare patterns of similarities in the embryological development across multiple species to identify relationships not evident in the fully formed anatomy.

MS-LS4.4 - 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-LS4.6 - Use mathematical representations to support explanations of how natural selection may lead to increases and decreases of specific traits in populations over time.

RST.6-8.1 - Cite specific textual evidence to support analysis of science and technical texts.

RST.6-8.2 - Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.

RST.6-8.3 - Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.

RST.6-8.4 - Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 6–8 texts and topics.

RST.6-8.7 - Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table).

RST.6-8.9 - Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.


RST.6-8.10 - By the end of grade 8, read and comprehend science/technical texts in the grades 6–8 text complexity band independently and proficiently.


WHST.6-8.1.b - Support claim(s) with logical reasoning and relevant, accurate data and evidence that demonstrate an understanding of the topic or text, using credible sources.


WHST.6-8.2.d - Use precise language and domain-specific vocabulary to inform about or explain the topic.


WHST.6-8.9 - Draw evidence from informational texts to support analysis


survive (bird beaks, camouflage, height, etc...) will continue to exist in the species until they are no longer helpful.


 Those organisms with the best traits are most likely to survive and reproduce.


 As certain traits in an organism become obsolete, they disappear and are replaced with those that are helpful.


 Interpret fossil records and anatomical similarities to explain how species have changed over time.


 Embryos can be compared and contrasted for similarities among different species.





 Compare and contrast embryos among species to establish common ancestry.


 Defend the conclusion that species have changed with their environment over time.










 Adaptations give organisms an advantage that aid them in the competition for survival.

 Diversity (variation) is the key to natural selection. Without it, a species could be wiped out by a single event or condition.

 Use ideas of genetic variation in a population to make sense of organisms surviving and reproducing, hence passing on the traits of the species.

		reflection, and research.	<ul style="list-style-type: none">  Assess the survival advantage of traits in an environment.  Analyze the differences among individuals of a species.  Predict the likelihood of survival based an individual's traits.  Describe the relationship between an organism's environment and its adaptations. 	
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November	 Grade 6 Science Evidence of Common Ancestry LS4: Biological Evolution: Unity and Diversity <ul style="list-style-type: none"> • Patterns • Structure & Function • Cause & Effect 			
	Enduring Understandings ✕	Essential Questions ✕	Standards ✕	Knowledge & Skills ✕

December	 Grade 6 Science Earth Materials and Systems Earth's History as a Planet ESS2: Earth's Systems <ul style="list-style-type: none"> • Patterns • Cause & Effect • Scale Proportion & Quantity • Systems & System Models • Energy & Matter • Stability & Change 				
	Enduring Understandings ✕	Essential Questions ✕	Standards ✕	Knowledge & Skills ✕	Academic Language ✕
	<ul style="list-style-type: none">  Tectonic processes continually generate new ocean sea floor at ridges and destroy old sea floor at trenches. (MS-ESS2-3)  Maps of ancient land and water patterns, based on investigations of rocks and fossils, make clear how Earth's plates have moved great distances, collided, and spread apart. (MS-ESS2-3)  The geologic time scale 	<ul style="list-style-type: none">  How do materials in and on Earth's crust change over time?  How does the movement of tectonic plates impact the surface of Earth? 	MS-ESS1.4 - Construct a scientific explanation based on evidence from rock strata for how the geologic time scale is used to organize Earth's 4.6-billion-year-old history. MS-ESS2.1 - Develop a model to describe the cycling of Earth's materials and the flow of energy that drives this process. RST.6-8.1 - Cite specific textual evidence to support analysis of science and technical texts. RST.6-8.2 - Determine the central ideas or conclusions of a text; provide an	<ul style="list-style-type: none">  Students understand how Earth's geosystems operate by modeling the cycling of matter within and among different systems.  Students investigate the controlling properties of important materials and construct explanations based on the analysis of real geoscience data. 	<ul style="list-style-type: none">  strata volcanism relative dates Ice Age crystallization weathering melting deformation sedimentation minerals continental shelf ridge fracture zone trench geoscience deposition

interpreted from rock strata provides a way to organize Earth's history. Analyses of rock strata and the fossil record provide only relative dates, not an absolute scale. (MS-ESS1-4)

accurate summary of the text distinct from prior knowledge or opinions.

RST.6-8.3 - Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.

RST.6-8.4 - Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 6–8 texts and topics.

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WHST.6-8.2.d - Use precise language and domain-specific vocabulary to inform about or explain the topic.

WHST.6-8.9 - Draw evidence from informational texts to support analysis reflection, and research.

 Rock strata tell a story of how the Earth's structure has changed over time.
 - Earth's crust changes over time.
 - The age of Earth is estimated at 4.6 billion years.
 - Know what process occurs at each step of the rock cycle.
 - Earth's surface is shaped by erosion.
 - Minerals and rocks are formed by the cycling of Earth's materials.
 Processes that change Earth's surface can be large or small
 - Converging plates cause mountains, trenches, earthquakes
 - Earthquakes, volcanoes, and meteor impacts usually behave gradually but are punctuated by catastrophic events.

earthquake
volcano
plate tectonics
Igneous rock
magma
lava
sedimentary
metamorphic
heat
pressure

January

 **Grade 6 Science Plate Tectonics and Large-Scale System Interactions**

ESS2: Earth's Systems

- Patterns
- Cause & Effect
- Scale Proportion & Quantity
- Systems & System Models
- Stability & Change


Enduring Understandings ✕


Essential Questions ✕


Standards ✕


Knowledge & Skills ✕

Academic Language ✕

 Tectonic processes continually generate new ocean sea floor at ridges and destroy old sea floor at trenches. (MS-ESS2-3)

 Maps of ancient land and water patterns, based on investigations of rocks and fossils, make clear how Earth's plates have moved great distances, collided,


 How do materials in and on Earth's crust change over time?


 How does the movement of tectonic plates impact the surface of Earth?


MS-ESS2.2 - Construct an explanation based on evidence for how geoscience processes have changed Earth's surface at varying time and spatial scales.

MS-ESS2.3 - 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-ESS3.2 - Analyze and interpret data on natural hazards to forecast future

 Students understand how Earth's geosystems operate by modeling the cycling of matter within and among different systems.

 Students investigate the controlling properties of important materials

 strata
volcanism
melting
deformation
continental shelf
ridge
fracture zone
trench
geoscience
deposition
earthquake
volcano
plate tectonics


<p>and spread apart. (MS-ESS2-3)</p>	<p>catastrophic events and inform the development of technologies to mitigate their effects.</p> <p>RST.6-8.1 - Cite specific textual evidence to support analysis of science and technical texts.</p> <p>RST.6-8.2 - Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.</p> <p>RST.6-8.3 - Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.</p> <p>RST.6-8.4 - Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 6–8 texts and topics.</p> <p>RST.6-8.7 - Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table).</p> <p>RST.6-8.9 - Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.</p> <p>RST.6-8.10 - By the end of grade 8, read and comprehend science/technical texts in the grades 6–8 text complexity band independently and proficiently.</p> <p>WHST.6-8.1.b - Support claim(s) with logical reasoning and relevant, accurate data and evidence that demonstrate an understanding of the topic or text, using credible sources.</p> <p>WHST.6-8.2.d - Use precise language and domain-specific vocabulary to inform about or explain the topic.</p> <p>WHST.6-8.9 - Draw evidence from informational texts to support analysis reflection, and research.</p>	<p>and construct explanations based on the analysis of real geoscience data.</p> <p>Processes that change Earth's surface can be large or small</p> <ul style="list-style-type: none"> - Converging plates cause mountains, trenches, earthquakes - Earthquakes, volcanoes, and meteor impacts usually behave gradually but are punctuated by catastrophic events. Rock strata tell a story of how the Earth's structure has changed over time. - Earth's crust changes over time. - The age of Earth is estimated at 4.6 billion years. - Know what process occurs at each step of the rock cycle. - Earth's surface is shaped by erosion. - Minerals and rocks are formed by the cycling of Earth's materials. 	<p>igneous rock magma lava heat pressure</p>
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<p>February</p>	<p> 6th Grade Science Universe and its Stars MS-ESS1 Earth's Place in the Universe</p> <ul style="list-style-type: none"> • Scale Proportion & Quantity • Systems & System Models 			
<p>Enduring Understandings ✕</p>	<p>Essential Questions ✕</p>	<p>Standards ✕</p>	<p>Knowledge & Skills ✕</p>	<p>Academic Language ✕</p>
<p> Earth and its solar system are part of the Milky Way galaxy, which is one of many galaxies in the universe.</p>	<p> What factors affect the force of gravity exerted between two objects?</p> <p> How do the</p>	<p>MS-ESS1.2 - Develop and use a model to describe the role of gravity in the motions within galaxies and the solar system.</p> <p>RST.6-8.1 - Cite specific textual evidence to support analysis of science and</p>	<p> Earth is part of the Milky Way Galaxy.</p> <p> The force of gravity between two objects is dependent</p>	<p> Gravity</p> <p> Force</p> <p> Mass</p>

	<p>motions of celestial objects demonstrate the effects of gravity?</p> <p> To which galaxy does Earth belong?</p>	<p>technical texts.</p> <p>RST.6-8.2 - Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.</p> <p>RST.6-8.3 - Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.</p> <p>RST.6-8.4 - Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 6–8 texts and topics.</p> <p>RST.6-8.7 - Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table).</p> <p>RST.6-8.9 - Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.</p> <p>RST.6-8.10 - By the end of grade 8, read and comprehend science/technical texts in the grades 6–8 text complexity band independently and proficiently.</p> <p>WHST.6-8.1.b - Support claim(s) with logical reasoning and relevant, accurate data and evidence that demonstrate an understanding of the topic or text, using credible sources.</p> <p>WHST.6-8.2.d - Use precise language and domain-specific vocabulary to inform about or explain the topic.</p> <p>WHST.6-8.9 - Draw evidence from informational texts to support analysis reflection, and research.</p>	<p>upon their masses and their distance apart.</p> <p> Gravity keeps the planets in orbit around the sun.</p> <p> Model inertia and gravity and how it pertains to keeping planets in orbit.</p> <p> Analyze planetary characteristics to draw conclusions about the effects of surface gravity.</p> <p> Define the length of time for period of rotation and period of revolution for the moon and the Earth.</p>	<p> Galaxy</p> <p> Apparent Motion</p>
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<p>March</p>	<p> Grade 6 Science Earth and the Solar System MS-ESS1 Earth's Place in the Universe</p> <ul style="list-style-type: none"> • Scale Proportion & Quantity • Systems & System Models 			
<p>Enduring Understandings ✕</p>	<p>Essential Questions ✕</p>	<p>Standards ✕</p>	<p>Knowledge & Skills ✕</p>	<p>Academic Language ✕</p>
<p> The solar system consists of the sun and a collection of objects, including planets, their moons, and asteroids that are held in orbit around the sun by its gravitational pull on them. (MS-ESS1-2),(MS-ESS1-3)</p> <p> This model of the solar system can explain eclipses</p>	<p> What is Earth's place in the Universe?</p> <p> How can the motions of Earth and moon explain seasons, eclipses, tides, & moon phases?</p> <p> What makes up our solar system?</p>	<p>MS-ESS1.1 - Develop and use a model of the Earth-sun-moon system to describe the cyclic patterns of lunar phases, eclipses of the sun and moon, and seasons.</p> <p>MS-ESS1.2 - Develop and use a model to describe the role of gravity in the motions within galaxies and the solar system.</p> <p>MS-ESS1.3 - Analyze and interpret data to determine scale properties of objects</p>	<p> The tilt of the Earth relative to the sun causes seasons.</p> <p> The positions of the Sun, Moon, and Earth create moon phases and eclipses.</p> <p> The planets and</p>	<p> Axis</p> <p> Solstice</p> <p> Equinox</p> <p> Rotation</p> <p> Revolution</p> <p> Phases</p>

of the sun and the moon. Earth's spin axis is fixed in direction over the short-term but tilted relative to its orbit around the sun. The seasons are a result of that tilt and are caused by the differential intensity of sunlight on different areas of Earth across the year. (MS-ESS1-1)

 The solar system appears to have formed from a disk of dust and gas, drawn together by gravity.

 Patterns of the apparent motion of the sun, the moon, and stars in the sky can be observed, described, predicted, and explained with models.

in the solar system.

RST.6-8.1 - Cite specific textual evidence to support analysis of science and technical texts.

RST.6-8.2 - Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.

RST.6-8.3 - Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.

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WHST.6-8.2.d - Use precise language and domain-specific vocabulary to inform about or explain the topic.


WHST.6-8.9 - Draw evidence from informational texts to support analysis reflection, and research.


G6-8:1.15 - Produce simple charts and graphs from a spreadsheet.


G6-8:1.17 - Apply advanced formatting features to customize tables, charts, and graphs.

asteroids orbit the sun.

 The solar system formed from a nebula.

 Explain effects of interactions among sun, Earth, and moon.

 Model the positions of the sun, Earth, and moon to represent phases.

 Model the positions of the sun, Earth, and moon to represent eclipses.

 Eclipse

 Umbra

 Penumbra

 Tides

 Nebula

April

 **Grade 6 Science Waves & Electromagnetic Radiation**

MS-PS4 Waves and their Applications in Technologies for Information Transfer

- Wave Properties
- Electromagnetic Radiation
- Instrumentation Technologies & Instrumentation



















Enduring Understandings 


Essential Questions 

Standards 

Knowledge & Skills 


Academic Language 

<p> A simple wave has a repeating pattern with a specific wavelength, frequency, and amplitude. (MS-PS4-1)</p> <p> A sound wave needs a medium through which it is transmitted. (MS-PS4-2)</p> <p> When light shines on an object, it is reflected, absorbed, or transmitted through the object, depending on the object's material and the frequency (color) of the light. (MS-PS4-2)</p> <p> The path that light travels can be traced as straight lines, except at surfaces between different transparent materials (e.g., air and water, air and glass) where the light path bends. (MS-PS4-2)</p> <p> A wave model of light is useful for explaining brightness, color, and the frequency-dependent bending of light at a surface between media. (MS-PS4-2)</p> <p> However, because light can travel through space, it cannot be a matter wave, like sound or water waves. (MS-PS4-2)</p> <p> PS4.C: Information Technologies and Instrumentation</p> <p> Digitized signals (sent as wave pulses) are a more reliable way to encode and transmit information. (MS-PS4-3)</p>	<p>MS-PS4.1 - 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.</p> <p>MS-PS4.2 - Develop and use a model to describe that waves are reflected, absorbed, or transmitted through various materials.</p> <p>MS-PS4.3 - Integrate qualitative scientific and technical information to support the claim that digitized signals are a more reliable way to encode and transmit information than analog signals.</p> <p>RST.6-8.1 - Cite specific textual evidence to support analysis of science and technical texts.</p> <p>RST.6-8.2 - Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.</p> <p>RST.6-8.3 - Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.</p> <p>RST.6-8.4 - Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 6–8 texts and topics.</p> <p>RST.6-8.7 - Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table).</p> <p>RST.6-8.9 - Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.</p> <p>RST.6-8.10 - By the end of grade 8, read and comprehend science/technical texts in the grades 6–8 text complexity band independently and proficiently.</p> <p>WHST.6-8.1.b - Support claim(s) with logical reasoning and relevant, accurate data and evidence that demonstrate an understanding of the topic or text, using credible sources.</p> <p>WHST.6-8.2.d - Use precise language and domain-specific vocabulary to inform about or explain the topic.</p> <p>WHST.6-8.9 - Draw evidence from informational texts to support analysis reflection, and research.</p>	<p> -Waves have different properties</p> <p>-Wave properties are used in different ways</p> <p>-Describe and predict how waves interact with matter</p> <p>-Waves are used for digital communication</p> <p>-Different frequencies of electromagnetic radiation can be used for different purposes.</p> <p>-Light has a fixed speed.</p> <p>-Electromagnetic radiation does not require a medium.</p> <p>-Use spectral absorption/emission lines to identify elements.</p> <p>-Use a formula to convert between wavelength and frequency.</p> <p>-Compare light waves and sound waves.</p>	<p> Frequency</p> <p> Wavelength</p> <p> Amplitude</p> <p> Electromagnetic Spectrum</p> <p> Digital</p> <p> Analog</p> <p> Reflection</p> <p> Refraction</p> <p> Telescope</p>
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<p>May</p>	<p> Grade 6 Science Engineering Design MS-ETS1 Engineering Design</p> <ul style="list-style-type: none"> • Defining the problem • Developing possible solutions
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• Improving designs

Enduring Understandings ✕

 Define a problem by precisely specifying criteria and constraints for solutions as well as potential impacts on society and the natural environment, systematically evaluating alternative solutions, analyzing data from tests of different solutions and combining the best ideas into an improved solution, and developing a model and iteratively testing and improving it to reach an optimal solution.

Essential Questions ✕

 How do engineers solve problems? What is a design for?

What are the criteria and constraints of a successful solution?

Why do engineers and designers strive to improve products used in our daily lives?

Standards ✕

MS-ETS1.1 - 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-ETS1.2 - Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.

MS-ETS1.3 - Analyze data from tests to determine similarities and differences 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-ETS1.4 - 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.

RST.6-8.1 - Cite specific textual evidence to support analysis of science and technical texts.

RST.6-8.2 - Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.

RST.6-8.3 - Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.

RST.6-8.4 - Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 6–8 texts and topics.


RST.6-8.7 - Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table).

RST.6-8.9 - Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.

RST.6-8.10 - By the end of grade 8, read and comprehend science/technical texts in the grades 6–8 text complexity band independently and proficiently.

WHST.6-8.1.b - Support claim(s) with

Knowledge & Skills ✕

 Engineering is a process.

Revise design solutions in an iterative fashion.

Academic Language ✕

 design constraints
criteria
analysis
solution
variable

			<p>logical reasoning and relevant, accurate data and evidence that demonstrate an understanding of the topic or text, using credible sources.</p> <p>WHST.6-8.2.d - Use precise language and domain-specific vocabulary to inform about or explain the topic.</p> <p>WHST.6-8.9 - Draw evidence from informational texts to support analysis reflection, and research.</p>		
June	<p>Enduring Understandings ✕</p>	<p>Essential Questions ✕</p>	<p>Standards ✕</p>	<p>Knowledge & Skills ✕</p>	<p>Academic Language ✕</p>
July	<p>Enduring Understandings ✕</p>	<p>Essential Questions ✕</p>	<p>Standards ✕</p>	<p>Knowledge & Skills ✕</p>	<p>Academic Language ✕</p>