Hainesport Township School District
211 Broad Street Hainesport, NJ 08036

Course Title: Science Grade: 8
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Introduction 2020 New Jersey Student Learning Standards

Science Introduction Science Scientific and technological advances have proliferated and now permeate most aspects of life in the 21st century. It is increasingly important that all members of our society develop an understanding of scientific and engineering concepts and processes. Learning how to construct scientific explanations and how to design evidence-based solutions provides students with tools to think critically about personal and societal issues and needs. Students can then contribute meaningfully to decision-making processes, such as discussions about climate change, new approaches to health care, and innovative solutions to local and global problems.

Mission

Mission All students will possess an understanding of scientific concepts and processes required for personal decision making, participation in civic life, and preparation for careers in STEM fields (for those that chose).

Vision

Prepare students to become scientifically literate individuals who can effectively:

- Apply scientific thinking, skills, and understanding to real-world phenomena and problems;
- Engage in systems thinking and modeling to explain phenomena and to give a context for the ideas to be learned;
- Conduct investigations, solve problems, and engage in discussions;
- Discuss open-ended questions that focus on the strength of the evidence used to generate claims;

• Read and evaluate multiple sources, including science-related magazine and journal articles and web-based resources to gain knowledge about current and past science problems and solutions and develop well reasoned claims; and
• Communicate ideas through journal articles, reports, posters, and media presentations that explain and argue.

Spirit and Intent The New Jersey Student Learning Standards for Science (NJSLS-S)

Describe the expectations for what students should know and be able to do as well as promote three-dimensional science instruction across the three science domains (i.e., physical sciences, life science, earth and space sciences). From the earliest grades, the expectation is that students will engage in learning experiences that enable them to investigate phenomena, design solutions to problems, make sense of evidence to construct arguments, and critique and discuss those arguments (in appropriate ways relative to their grade level). The foundation of the NJSLS-S reflects three dimensions — science and engineering practices, disciplinary core ideas, and crosscutting concepts. The performance expectations are derived from the interplay of these three dimensions. It is essential that these three components are integrated into all learning experiences. Within each standard document, the three dimensions are intentionally presented as integrated components to foster sensemaking and designing solutions to problems. Because the NJSLS-S is built on the notions of coherence and contextuality, each of the science and engineering practices and crosscutting concepts appear multiple times across New Jersey Department of Education June 2020 1 topics and at every grade level. Additionally, the three dimensions should be an integral part of every curriculum unit and should not be taught in isolation.

Course Description and Concepts

Grade 8 Science is a hands-on inquiry based course in which students investigate topics related to life science, physics, chemistry and earth/space science. The course will help students to understand some of the basic principles of life science and acquire useful science and laboratory skills helping them to develop and design models to explain phenomenon. A student's ability to understand the discoveries of science rests in their ability to relate those ideas to the real world. Topics of study are to include: forces and motion, biodiversity and humans, chemical reactions and energy, structure and function, information processing, thermal energy, types of interactions and electromagnetic radiation.

New Jersey Student Learning Standards The Next Generation Science Standards

MS-PS1-3 Evidence Statements	MS-LS1-1 Evidence Statements	MS-LS1-2 Evidence Statements	MS-LS1-3 Evidence Statements
MS-LS1-4 Evidence Statements	MS-LS1-5 Evidence Statements	MS-LS1-6 Evidence Statements	MS-LS1-7 Evidence Statements
MS-LS1-8 Evidence Statements	MS-LS3-1 Evidence Statements	MS-LS3-2 Evidence Statements	MS-LS4-3 Evidence Statements
MS-LS4-4 Evidence Statements	MS-LS4-5 Evidence Statements	MS-LS4-6 Evidence Statements	MS-ESS3-3 Evidence Statements
MS-ESS3-4 Evidence Statements	MS-ESS3-5 Evidence Statements	MS-ETS1-1 Evidence Statements	MS-ETS1-2 Evidence Statements
MS-ETS1-3 Evidence Statements	MS-ETS1-4 Evidence Statements	**Next Generation Science Standards For Teachers** https://www.nextgenscience.org/teachers	

New Jersey Student Learning Standards for English Language Arts Companion Standards Grades 6-8 Progress Indicators Reading Science and Technical Subjects

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. Craft and Structure	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.6-8.5. Analyze the structure an author uses to organize a text, including how the major sections contribute to the whole and to an understanding of the topic.	RST.6-8.6. Analyze the author's purpose in providing an explanation, describing a procedure, or discussing an experiment in a text. Integration of Knowledge and Ideas

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.6-8.8. Distinguish among facts, reasoned judgment based on research findings, and speculation in a text.
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. Range of Reading and Level of Text Complexity	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.

NJ Technology Standards

8.1 Educational Technology: All students will use digital tools to access, manage, evaluate, and synthesize information in order to solve problems individually and collaborate and create and communicate knowledge.

8.2 Technology Education, Engineering, Design and Computational Thinking - Programming: All students will develop an understanding of the nature and impact of technology, engineering, technological design, computational thinking and the designed world as they relate to the individual, global society, and the environment.

Career Ready Practices

Career Ready Practices describe the career-ready skills that all educators in all content areas should seek to develop in their students. They are practices that have been linked to increase college, career, and life success. Career Ready Practices should be taught and reinforced in all career exploration and preparation programs with increasingly higher levels of complexity and expectation as a student advances through a program of study.

CRP1. Act as a responsible and contributing citizen and employee.
CRP2. Apply appropriate academic and technical skills.
CRP3. Attend to personal health and financial well-being.

CRP4. Communicate clearly and effectively and with reason.
CRP5. Consider the environmental, social and economic impacts of decisions.
CRP6. Demonstrate creativity and innovation.
CRP7. Employ valid and reliable research strategies.
CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.
CRP9. Model integrity, ethical leadership and effective management.
CRP10. Plan education and career paths aligned to personal goals.
CRP11. Use technology to enhance productivity.
CRP12. Work productively in teams while using cultural global competence.

Pacing Guide

Unit Topic	Unit #	APX Unit Length
Evidence of Common Ancestry	I	15
Selection and Adaptation	II	20
Stability and Change on Earth	III	30
Human Impacts on Earth Systems and Global Climate Change	IV	25
Relationships Among Forms of Energy	V	20
Thermal Energy	VI	30
The Electromagnetic Spectrum	VII	20

Unit 1 (Evidence of Common Ancestry)	
Content Area	Science
Unit Title	Evidence of Common Ancestry
Grade Level	Grade 8
Recommended Pacing	APX: 15 Days
Unit Summary	In this unit of study, students analyze graphical displays and gather evidence from multiple sources in order to develop an understanding of how fossil records and anatomical similarities of the relationships among organisms and species describe biological evolution. Students search for patterns in the evidence to support their understanding of the fossil record and how those patterns show relationships between modern organisms and their common ancestors. The crosscutting concepts of *cause and effect, patterns*, and *structure and function* are called out as organizing concepts for these disciplinary core ideas. Students use the practices of *analyzing graphical displays* and *gathering, reading, and communicating information*. Students are also expected to use these practices to demonstrate understanding of the core ideas.
Interdisciplinary Connections	Primary Interdisciplinary Connections: ELA/Math
Career Readiness, Life Literacies, and Key Skills Addressed	***Creativity and Innovation:*** Gathering and evaluating knowledge and information from a variety of sources, including global perspectives, fosters creativity and innovative thinking. ***Information and Media Literacy:*** Sources of information are evaluated for accuracy and relevance when considering the use of information.
Computer Science and Design Thinking	***Data & Analysis:*** People use digital devices and tools to automate the collection, use, and transformation of data.
Supplemental Class Resources	GSuite for Education MosaMac Program NEWSELA MS -LS1 From Molecules to Organisms: Structures and Processes

	MS -LS2 Ecosystems: Interactions, Energy, and Dynamics MS -LS3 Heredity: Inheritance and Variation of Traits

Science Student Learning Objectives Covered in this Unit
• 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. *[Clarification Statement: Emphasis is on finding patterns of changes in the level of complexity of anatomical structures in organisms and the chronological order of fossil appearance in the rock layers.]* [Assessment Boundary: Assessment does not include the names of individual species or geological eras in the fossil record.] (MS-LS4-1) • 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. *[Clarification Statement: Emphasis is on explanations of the evolutionary relationships among organisms in terms of similarity or differences of the gross appearance of anatomical structures.]* (MS-LS4-2) • 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. *[Clarification Statement: Emphasis is on inferring general patterns of relatedness among embryos of different organisms by comparing the macroscopic appearance of diagrams or pictures.] [Assessment Boundary: Assessment of comparisons is limited to gross appearance of anatomical structures in embryological development.]* (MS-LS4-3)
ELA Student Learning Objectives Covered in this Unit
• Cite specific textual evidence to support the analysis of patterns found in the fossil record to document the existence, diversity, extinction, and change of life forms throughout the history of life on Earth. • Use scientific, precise details in the explanations. • Integrate quantitative or technical information about the fossil record that is expressed in words into a version of that information expressed visually in the form of a flowchart, diagram, model, graph, or table. • Attending to the precise details of explanations or descriptions, cite specific textual evidence to support analysis of science texts' information on the relationships between the anatomical similarities and differences among modern organisms and between modern and fossil organisms and their fossil relationships. • Write informative/explanatory text examining anatomical similarities and differences among modern organisms and between modern and fossil organisms and their fossil relationships. The text should convey ideas, concepts, and information through the selection, organization, and analysis of relevant content.

- Draw evidence from informational texts to support an analysis of, reflection on, and research about anatomical similarities and differences among modern organisms and between modern and fossil organisms used to infer evolutionary relationships.
- Engage in a range of collaborative discussions about the anatomical similarities and differences among modern organisms and between modern and fossil organisms used to infer evolutionary relationships. Discussions must provide opportunities for students to clearly express their own ideas and exchange ideas with others. The discussions may be one on one, in groups, or led by the teacher.
- Present claims and findings to explain the anatomical similarities and differences among modern organisms and between modern and fossil organisms to infer evolutionary relationships. Emphasize the important points in a focused, coherent manner with relevant evidence, valid reasoning, and well-chosen details. During the presentation, students must use appropriate eye contact, adequate volume, and clear pronunciation.
- Cite specific textual evidence to support the analysis of pictorial data comparing patterns of similarities in embryological development across multiple species to identify relationships not evident in the fully formed anatomy. Attention must be paid to the precise details of explanation or descriptions.
- Integrate quantitative or technical information about general patterns of relatedness among embryos of different organisms expressed in words in a text with a version expressed in a flowchart, diagram, model, graph, or table.
- Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with the information gained from reading a text about embryological development across multiple species in order to identify relationships not evident in the fully formed anatomy.

Math Student Learning Objectives Covered in this Unit

- Use variables to represent numbers and write expressions to represent patterns of changes in the level of complexity of anatomical structures in organisms and the chronological order of fossil appearances in the rock record to 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. Understand that a variable can represent an unknown number or, depending on the purpose at hand, any number in a specified set.
- Use variables to represent numbers and write expressions showing patterns that can be used to identify cause-and-effect relationships among the anatomical similarities and differences among modern organisms and between modern and fossil organisms. This representation will be used to infer evolutionary relationships. Understand that a variable can represent an unknown number or, depending on the purpose at hand, any number in a specified set.

Modifications

(Note: Teachers identify the modifications that they will use in the unit. See NGSS Appendix D: All Standards, All Students/Case Studies for vignettes and explanations of the modifications.)

- Structure lessons around questions that are authentic, relate to students' interests, social/family background and knowledge of their community.
- Provide students with multiple choices for how they can represent their understandings (e.g. multisensory techniques-auditory/visual aids; pictures, illustrations, graphs, charts, data tables, multimedia, modeling).
- Provide opportunities for students to connect with people of similar backgrounds (e.g. conversations via digital tool such as SKYPE, experts from the community helping with a project, journal articles, and biographies).
- Provide multiple grouping opportunities for students to share their ideas and to encourage work among various backgrounds and cultures (e.g. multiple representation and multimodal experiences).
- Engage students with a variety of Science and Engineering practices to provide students with multiple entry points and multiple ways to demonstrate their understandings.
- Use project-based science learning to connect science with observable phenomena. • Structure the learning around explaining or solving a social or community-based issue.
- Provide ELL students with multiple literacy strategies.
- Collaborate with after-school programs or clubs to extend learning opportunities
- Restructure lesson using UDL principles (http://www.cast.org/our-work/about-udl.html#.VXmoXcfD_UA)

Unit Sequence/Essential Question: Part A: How do we know when an organism (fossil) was alive?	
Concepts	**Formative Assessments**
• The fossil record documents the existence, diversity, extinction, and change of many life forms throughout the history of life on Earth. • The collection of fossils and their placement in chronological order as identified through the location of sedimentary layers in which they are found or through radioactive dating is known as the fossil record. • Relative fossil dating is achieved by examining the fossil's relative position in sedimentary rock layers. • Objects and events in the fossil record occur in consistent patterns that are understandable through measurement and observation. • Patterns exist in the level of complexity of anatomical	• Students who understand the concepts can: • Use graphs, charts, and images to identify patterns within the fossil record. • Analyze and interpret data within the fossil record to determine similarities and differences in findings. • Make logical and conceptual connections between evidence in the fossil record and explanations about the existence, diversity, extinction, and change in many life forms throughout the history of life on Earth.

structures in organisms and the chronological order of fossil appearance in rock layers. ● Patterns can occur within one species of organism or across many species.	
Unit Sequence/Essential Question: Part B: How do we know that birds and dinosaurs are related?	
Concepts	**Formative Assessments**
● Similarities and differences exist in the gross anatomical structures of modern organisms. ● There are anatomical similarities and differences among modern organisms and between modern organisms and fossil organisms. ● Similarities and differences exist in the gross anatomical structures of modern organisms and their fossil relatives. ● Similarities and differences in the gross anatomical structures of modern organisms enable the reconstruction of evolutionary history and the inference of lines of evolutionary descent. ● Patterns and anatomical similarities in the fossil record can be used to identify cause-and-effect relationships. ● Science assumes that objects and events in evolutionary history occur in consistent patterns that are understandable through measurement and observation.	● Students who understand the concepts can: ● Apply scientific ideas to construct explanations for evolutionary relationships. ● Apply the patterns in gross anatomical structures among modern organisms and between modern organisms and fossil organisms to construct explanations of evolutionary relationships. ● Apply scientific ideas about evolutionary history to construct an explanation for evolutionary relationships evidenced by similarities or differences in the gross appearance of anatomical structures.
Unit Sequence/Essential Question: Part C: Other than bones and structures being similar, what other evidence is there that birds and dinosaurs are related?	
Concepts	**Formative Assessments**
● Relationships between embryos of different species show similarities in their development. ● General patterns of relatedness among embryos of different organisms can be inferred by comparing the macroscopic	● Students who understand the concepts can: ● Use diagrams or pictures to identify patterns in embryological development across multiple species. ● Analyze displays of pictorial data to identify where the

appearance of diagrams or pictures. ● Pictorial data can be used to identify patterns of similarities in embryological development across multiple species. ● Similarities in embryological development across multiple species show relationships that are not evident in the fully formed organisms.	embryological development is related linearly and where that linear nature ends. ● Infer general patterns of relatedness among embryos of different organisms by comparing the macroscopic appearance of diagrams or pictures.

District/School Summative Assessment Plan
Summative assessment is an opportunity for students to demonstrate mastery of the skills taught during a particular unit. ● Unit Test 1 Assessment (Evidence of Common Ancestry) ● Vocabulary Quiz 1/2/3 ● Teacher constructed standards based quiz Part A, Part B, Part C ● Alternative Assessment Teacher Constructed 1

Unit 2 (Selection and Adaptation)	
Content Area	Science
Unit Title	Selection and Adaptation
Grade Level	Grade 8
Recommended Pacing	APX: 20 Days
Unit Summary	Students construct explanations based on evidence to support fundamental understandings of natural selection and evolution. They will use ideas of genetic variation in a population to make sense of how organisms survive and reproduce, thus passing on the traits of the species. The crosscutting concepts of patterns and structure and function are called out as organizing concepts that students use to describe biological evolution. Students use the practices of

	constructing explanations, obtaining, evaluating, and communicating information, and using mathematical and computational thinking. Students are also expected to use these practices to demonstrate understanding of the core ideas.
Interdisciplinary Connections	Primary Interdisciplinary Connections: ELA/Math
Career Readiness, Life Literacies, and Key Skills Addressed	***Critical Thinking and Problem-solving :*** An essential aspect of problem solving is being able to self reflect on why possible solutions for solving problems were or were not successful.
Computer Science and Design Thinking	***Impacts of Computing:*** Advancements in computing technology can change individuals' behaviors. ***Nature of Technology:*** Engineers use a systematic process of creating or modifying technologies that is fueled and constrained by physical laws, cultural norms, and economic resources. Scientists use systematic investigation to understand the natural world.
Supplemental Class Resources	GSuite for Education MosaMac Program NEWSELA MS -LS4 Biological Evolution: Unity and Diversity

Science Student Learning Objectives Covered in this Unit
• 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. *[Clarification Statement: Emphasis is on using simple probability statements and proportional reasoning to construct explanations]* (MS-LS4-4) • Gather and synthesize information about the technologies that have changed the way humans influence the inheritance of desired traits in organisms. *[Clarification Statement: Emphasis is on synthesizing information from reliable sources about the influence of humans on genetic outcomes in artificial selection (such as genetic modification, animal husbandry, gene therapy); and, on the impacts these technologies have on society as well as the technologies leading to these scientific discoveries.]* (MS-LS4-5) • Use mathematical representations to support explanations of how natural selection may lead to increases and decreases of specific traits in populations over time. *[Clarification Statement: Emphasis is on using mathematical models, probability statements, and proportional reasoning to support explanations of trends in changes to populations over time.] [Assessment Boundary: Assessment does not include*

Hardy Weinberg calculations.] (MS-LS4-6)

ELA Student Learning Objectives Covered in this Unit

- Cite specific textual evidence to support analysis of scientific and technical texts about how genetic variations in a population increase some individuals' probability of surviving and reproducing in a specific environment. Attention must be paid to precise details of explanations or descriptions.
- Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with information gained from reading a text on how genetic variations of traits in a population increase some individuals' probability of surviving and reproducing in a specific environment.
- Write informative/explanatory texts examining how natural selection leads to the predominance of some traits in a population and the suppression of others.
- Convey ideas, concepts, and information through the selection, organization, and analysis of relevant content.
- Draw evidence from informational texts to support the analysis, reflection, and research used to construct an explanation of how genetic variation of traits in a population increases some individuals' probability of surviving and reproducing in a specific environment.
- Engage effectively in a range of collaborative discussions with diverse partners to discuss how natural selection leads to the predominance of certain traits in a population and the suppression of others. Discussions may be one-on-one, in groups, or teacher-led; in these discussions, students should build on others' ideas while expressing their own clearly.
- Present claims and findings about how natural selection leads to the predominance of certain traits in a population and the suppression of others. Claims must emphasize salient points in a focused, coherent manner with relevant evidence, sound valid reasoning, and well-chosen details. Students must use appropriate eye contact, adequate volume, and clear pronunciation.
- Cite specific textual evidence to support analysis of information about the technologies that have changed the way humans influence the inheritance of desired traits in organisms (artificial selection).
- Gather relevant information from multiple print and digital sources; assess the credibility of each source; and quote or paraphrase the data and conclusions of others about technologies that have changed the way humans influence the inheritance of desired traits. Avoid plagiarism and provide basic bibliographic information for sources

Math Student Learning Objectives Covered in this Unit

- Mathematics Understand the concept of a ratio and use ratio language to describe a ratio relationship between specific genetic variations in a population and the probability of some individuals in that population surviving and reproducing in a specific environment.
- Summarize numerical data sets about a ratio relationship between genetic variations in a population and the probability of some individuals in that population surviving and reproducing in a specific environment.
- Recognize and represent proportional relationships in trends in changes to populations over time.

- Use mathematical models to support explanations of trends in changes to populations over time. Understand the concept of a ratio and use ratio language to describe a ratio relationship between natural selection and decreases of specific traits in populations over time.
- Summarize numerical data sets to support explanations of how natural selection may lead to increases and decreases of specific traits in populations over time.

Modifications

(Note: Teachers identify the modifications that they will use in the unit. See NGSS Appendix D: All Standards, All Students/Case Studies for vignettes and explanations of the modifications.)

- Structure lessons around questions that are authentic, relate to students' interests, social/family background and knowledge of their community.
- Provide students with multiple choices for how they can represent their understandings (e.g. multisensory techniques-auditory/visual aids; pictures, illustrations, graphs, charts, data tables, multimedia, modeling).
- Provide opportunities for students to connect with people of similar backgrounds (e.g. conversations via digital tool such as SKYPE, experts from the community helping with a project, journal articles, and biographies).
- Provide multiple grouping opportunities for students to share their ideas and to encourage work among various backgrounds and cultures (e.g. multiple representation and multimodal experiences).
- Engage students with a variety of Science and Engineering practices to provide students with multiple entry points and multiple ways to demonstrate their understandings. • Use project-based science learning to connect science with observable phenomena.
- Structure the learning around explaining or solving a social or community-based issue.
- Provide ELL students with multiple literacy strategies. • Collaborate with after-school programs or clubs to extend learning opportunities.
- Restructure lesson using UDL principles (http://www.cast.org/our-work/about-udl.html#.VXmoXcfD_UA)

Unit Sequence/Essential Question: Part A: How can changes to the genetic code increase or decrease an individual's chances of survival?

Concepts	Formative Assessments
• Genetic variations of traits in a population increase or decrease some individuals' probability of surviving and reproducing in a specific environment. • Natural selection leads to the predominance of certain traits in	• Students who understand the concepts can: • Construct an explanation that includes probability statements regarding variables and proportional reasoning of how genetic variations of traits in a population increase some individuals'

a population and the suppression of others. ● Natural selection may have more than one cause, and some cause-and effect relationships within natural selection can only be described using probability.	probability surviving and reproducing in a specific environment. ● Use probability to describe some cause-and-effect relationships that can be used to explain why some individuals survive and reproduce in a specific environment.
Unit Sequence/Essential Question: Part B: How can the environment affect natural selection?	
Concepts	**Formative Assessments**
● Natural selection, which over generations leads to adaptations, is one important process through which species change over time in response to changes in environmental conditions. • The distribution of traits in a population changes. ● Traits that support successful survival and reproduction in the new environment become more common; those that do not become less common. ● Natural selection may have more than one cause, and some cause-and effect relationships in natural selection can only be described using probability. ● Mathematical representations can be used to support explanations of how natural selection may lead to increases and decreases of specific traits in populations over time.	● Students who understand the concepts can: ● Explain some causes of natural selection and the effect it has on the increase or decrease of specific traits in populations over time. ● Use mathematical representations to support conclusions about how natural selection may lead to increases and decreases of genetic traits in populations over time.
Unit Sequence/Essential Question: Part C: Are Genetically Modified Organisms (GMO) safe to eat?	
Concepts	**Formative Assessments**
● In artificial selection, humans have the capacity to influence certain characteristics of organisms by selective breeding. ● In artificial selection, humans choose desirable, genetically determined traits to pass on to offspring. ● Phenomena, such as genetic outcomes in artificial selection, may have more than one cause, and some cause-and-effect	● Students who understand the concepts can: • Gather, read, and synthesize information about technologies that have changed the way humans influence the inheritance of desired traits in organisms (artificial selection) from multiple appropriate sources. ● Describe how information from publications about

relationships in systems can only be described using probability. ● Technologies have changed the way humans influence the inheritance of desired traits in organisms. ● Engineering advances have led to important discoveries in the field of selective breeding. ● Engineering advances in the field of selective breeding have led to the development of entire industries and engineered systems. ● Scientific discoveries have led to the development of entire industries and engineered systems.	technologies and methods that have changed the way humans influence the inheritance of desired traits in organisms (artificial selection) used are supported or not supported by evidence. ● Assess the credibility, accuracy, and possible bias of publications and the methods they used when gathering information about technologies that have changed the way humans influence the inheritance of desired traits in organisms (artificial selection).

District/School Summative Assessment Plan
Summative assessment is an opportunity for students to demonstrate mastery of the skills taught during a particular unit. ● Unit Test Assessment (Selection and Adaptation) ● Vocabulary Quiz 1/2/3 ● Teacher constructed standards based quiz Part A, Part B, Part C ● Alternative Assessment Teacher Constructed 1

Unit 3 (Stability and Change on Earth)	
Content Area	Science
Unit Title	Stability and Change on Earth
Grade Level	Grade 8
Recommended Pacing	APX: 30 Days

Unit Summary	Students construct an understanding of the ways that human activities affect Earth's systems. Students use practices to understand the significant and complex issues surrounding human uses of land, energy, mineral, and water resources and the resulting impacts on the development of these resources. Students also understand that the distribution of these resources is uneven due to past and current geosciences processes or removal by humans. The crosscutting concepts of patterns, cause and effect, and stability and change are called out as organizing concepts for these disciplinary core ideas. In this unit of study students are expected to demonstrate proficiency in asking questions, analyzing and interpreting data, constructing explanations, and designing solutions. Students are also expected to use these practices to demonstrate understanding of the core ideas.
Interdisciplinary Connections	Primary Interdisciplinary Connections: ELA/Math
Career Readiness, Life Literacies, and Key Skills Addressed	***Critical Thinking and Problem Solving:*** Multiple solutions exist to solve a problem.
Computer Science and Design Thinking	***Nature of Technology:*** Sometimes a technology developed for one purpose is adapted to serve other purposes.
Supplemental Class Resources	GSuite for Education MosaMac Program NEWSELA MS -ESS3 Earth and Human Activity

Science Student Learning Objectives Covered in this Unit
• Construct a scientific explanation based on evidence for how the uneven distributions of Earth's mineral, energy, and groundwater resources are the result of past and current geoscience processes. *[Clarification Statement: Emphasis is on how these resources are limited and typically nonrenewable, and how their distributions are significantly changing as a result of removal by humans. Examples of uneven distributions of resources as a result of past processes include but are not limited to petroleum (locations of the burial of organic marine sediments and subsequent geologic traps), metal ores (locations of past volcanic and hydrothermal activity associated with subduction zones), and soil (locations of active weathering and/or deposition of rock).]* (MS-ESS3-1) • Analyze and interpret data on natural hazards to forecast future catastrophic events and inform the development of technologies to

mitigate their effects. *[Clarification Statement: Emphasis is on how some natural hazards, such as volcanic eruptions and severe weather, are preceded by phenomena that allow for reliable predictions, but others, such as earthquakes, occur suddenly and with no notice, and thus are not yet predictable. Examples of natural hazards can be taken from interior processes (such as earthquakes and volcanic eruptions), surface processes (such as mass wasting and tsunamis), or severe weather events (such as hurricanes, tornadoes, and floods). Examples of data can include the locations, magnitudes, and frequencies of the natural hazards. Examples of technologies can be global (such as satellite systems to monitor hurricanes or forest fires) or local (such as building basements in tornado-prone regions or reservoirs to mitigate droughts).]* (MS-ESS3- 2)

- Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems. *[Clarification Statement: Examples of evidence include grade-appropriate databases on human populations and the rates of consumption of food and natural resources (such as freshwater, mineral, and energy). Examples of impacts can include changes to the appearance, composition, and structure of Earth's systems as well as the rates at which they change. The consequences of increases in human populations and consumption of natural resources are described by science, but science does not make the decisions for the actions society takes.]* (MS-ESS3-4)
- Ask questions to clarify evidence of the factors that have caused the rise in global temperatures over the past century. *[Clarification Statement: Examples of factors include human activities (such as fossil fuel combustion, cement production, and agricultural activity) and natural processes (such as changes in incoming solar radiation or volcanic activity). Examples of evidence can include tables, graphs, and maps of global and regional temperatures, atmospheric levels of gases such as carbon dioxide and methane, and the rates of human activities. Emphasis is on the major role that human activities play in causing the rise in global temperatures.]* (MS-ESS3-5)

ELA Student Learning Objectives Covered in this Unit

- English Language Arts/Literacy Cite specific textual evidence to support analysis of how the uneven distributions of Earth's mineral, energy, and groundwater resources are the result of past and current geosciences processes.
- Write informative/explanatory texts examining how the uneven distributions of Earth's mineral, energy, and groundwater resources are the result of past and current geosciences processes.
- Convey ideas, concepts, and information through the selection, organization, and analysis of relevant content.
- Draw evidence from informational texts to support analysis, reflection, and research on how the uneven distributions of Earth's mineral, energy, and groundwater resources are the result of past and current geosciences processes.
- Cite specific textual evidence in data used to support the analysis of natural hazards and to forecast future catastrophic events and inform the development of technologies to mitigate their effects.
- Integrate quantitative or technical information about natural hazards and forecasting future catastrophic events that is expressed visually (e.g., in a flowchart, diagram, model, graph, or table). Use the integrated text and visual displays to analyze and interpret data on natural hazards to forecast future catastrophic events and inform the development of technologies to mitigate their effects.

- Cite specific textual evidence to support an argument about the role of human activity and natural processes in the gradual increase in global temperatures over the past century.

Math Student Learning Objectives Covered in this Unit

- Mathematics Use variables to represent numbers and write expressions for how the uneven distributions of Earth's mineral, energy, and groundwater resources are the result of past and current geosciences processes. Convey ideas, concepts, and information through the selection, organization, and analysis of relevant content.
- Use variables to represent quantities for how the distribution of Earth's mineral, energy, and groundwater resources are significantly changing as a result of removal by humans. Construct simple equations and inequalities to solve problems by reasoning about the quantities.
- Analyze and interpret data on natural hazards by reasoning abstractly (manipulating symbols abstractly) and quantitatively (while attending to the meaning of those symbols) to forecast future catastrophic events and inform the development of technologies to mitigate their effects.
- Use variables to represent numbers and write expressions for the locations, magnitudes, and frequencies of natural hazards and how these data can be used to forecast future catastrophic events and inform the development of technologies to mitigate their effects. The variable can represent an unknown number or, depending on the purpose at hand, any number in a specified set.
- Use variables to represent quantities for the location, magnitudes, and frequencies of natural hazards and how these data can be used to forecast future catastrophic events and inform the development of technologies to mitigate their effects.
- Construct simple equations and inequalities to solve problems by reasoning about the quantities. Students will clarify evidence of the factors that have caused the rise in global temperatures over the past century, reasoning abstractly (manipulating symbols abstractly) and quantitatively (while attending to the meaning of those symbols).
- Use variables to represent numbers and write expressions for data found in tables, graphs, and maps of global and regional temperatures; atmospheric levels of gases such as carbon dioxide and methane' and the rates of human activities. The variable can represent an unknown number or, depending on the purpose at hand, any number in a specified set.
- Use variables to represent quantities found in tables, graphs, and maps of global and regional temperatures, atmospheric levels of gases such as carbon dioxide and methane, and the rates of human activities.
- Construct simple equations and inequalities to solve problems by reasoning about the quantities.

Modifications

(Note: Teachers identify the modifications that they will use in the unit. See NGSS Appendix D: All Standards, All Students/Case Studies for vignettes and explanations of the modifications.)

- Structure lessons around questions that are authentic, relate to students' interests, social/family background and knowledge of their community.
- Provide students with multiple choices for how they can represent their understandings (e.g. multisensory techniques-auditory/visual aids; pictures, illustrations, graphs, charts, data tables, multimedia, modeling).
- Provide opportunities for students to connect with people of similar backgrounds (e.g. conversations via digital tool such as SKYPE, experts from the community helping with a project, journal articles, and biographies).
- Provide multiple grouping opportunities for students to share their ideas and to encourage work among various backgrounds and cultures (e.g. multiple representation and multimodal experiences).
- Engage students with a variety of Science and Engineering practices to provide students with multiple entry points and multiple ways to demonstrate their understandings.
- Use project-based science learning to connect science with observable phenomena.
- Structure the learning around explaining or solving a social or community-based issue.
- Provide ELL students with multiple literacy strategies. • Collaborate with after-school programs or clubs to extend learning opportunities.
- Restructure lesson using UDL principles (http://www.cast.org/our-work/about-udl.html#.VXmoXcfD_UA)

Unit Sequence/Essential Question: Part A: Why aren't minerals and groundwater distributed evenly across the world?	
Concepts	**Formative Assessments**
• Humans depend on Earth's land, ocean, atmosphere, and biosphere for many different resources. • All human activities draw on Earth's land, ocean, atmosphere, and biosphere resources and have both short and long-term consequences, positive as well as negative, for the health of people and the natural environment. • Minerals, fresh water, and biosphere resources are distributed unevenly around the planet as a result of past geologic processes. • Cause-and-effect relationships may be used to explain how uneven distributions of Earth's mineral, energy, and groundwater resources have resulted from past and current geosciences processes.	• Students who understand the concepts can: • Construct a scientific explanation based on valid and reliable evidence of how the uneven distributions of Earth's mineral, energy, and groundwater resources are the result of past and current geosciences processes. • Obtain evidence from sources, which must include the student's own experiments. • Construct a scientific explanation based on the assumption that theories and laws that describe the current geosciences process operate today as they did in the past and will continue to do so in the future.

• Resources that are unevenly distributed as a result of past processes include but are not limited to petroleum, metal ores, and soil. • Mineral, fresh water, ocean, biosphere, and atmosphere resources are limited, and many are not renewable or replaceable over human lifetimes. • The distribution of some of Earth's land, ocean, atmosphere, and biosphere resources are changing significantly due to removal by humans.	
Unit Sequence/Essential Question: Part B: How can we predict and prepare for natural disasters?	
Concepts	**Formative Assessments**
• Natural hazards can be the result of interior processes, surface processes, or severe weather events. • Some natural hazards, such as volcanic eruptions and severe weather, are preceded by phenomena that allow for reliable predictions, but others, such as earthquakes, occur suddenly and with no notice, and thus are not yet predictable. • Mapping the history of natural hazards in a region, combined with an understanding of related geologic forces, can help forecast the locations and likelihoods of future events. • Data on natural hazards can be used to forecast future catastrophic events and inform the development of technologies to mitigate their effects. • Data on natural hazards can include the locations, magnitudes, and frequencies of the natural hazards. • Graphs, charts, and images can be used to identify patterns of natural hazards in a region. • Graphs, charts, and images can be used to understand patterns of geologic forces that can help forecast the locations and likelihoods of future events. • Technologies that can be used to mitigate the effects of natural	• Students who understand the concepts can: • Analyze and interpret data on natural hazards to determine similarities and differences and to distinguish between correlation and causation.

hazards can be global or local. ● Technologies used to mitigate the effects of natural hazards vary from region to region and over time	
Unit Sequence/Essential Question: Part C: How might we treat resources if we thought about the Earth as a spaceship on an extended survey of the solar system? (How would astronauts manage their resources?)	
Concepts	**Formative Assessments**
● All human activity draws on natural resources and has both short and long term consequences, positive as well as negative, for the health of people and the natural environment. Students who understand the concepts can: ● Construct an oral and written argument supported by empirical evidence and scientific reasoning to support or refute an explanation or a model for an Increase in human population and per-capita consumption of natural resources impact Earth's systems. ● Typically as human populations and per-capita consumption of natural resources increase, so do the negative impacts on Earth unless the activities and technologies involved are engineered otherwise. ● Cause and effect relationships may be used to predict how increases in human population and per-capita consumption of natural resources impact Earth's systems. ● The consequences of increases in human populations and consumption of natural resources are described by science. • Science does not make the decisions for the actions society takes. ● Scientific knowledge can describe the consequences of human population and per-capita consumption of natural resources impact Earth's systems but does not necessarily prescribe the decisions that society takes.	● Students who understand the concepts can: • Construct an oral and written argument supported by empirical evidence and scientific reasoning to support or refute an explanation or a model for a phenomenon or a solution to a problem.

Unit Sequence/Essential Question:Part D: How can basic chemistry be used to explain the mechanisms that control the global temperature of the atmosphere?	
Concepts	**Formative Assessments**
● Stability in Earth's surface temperature might be disturbed either by sudden events or gradual changes that accumulate over time. • Human activities and natural processes are examples of factors that have caused the rise in global temperatures over the past century. ● Human activities play a major role in causing the rise in global temperatures. ● Human activities, such as the release of greenhouse gases from burning fossil fuels, are major factors in the current rise in Earth's mean surface temperature (global warming). ● Reducing the level of climate change and reducing human vulnerability to whatever climate changes do occur depend on understanding of climate science, engineering capabilities, and other kinds of knowledge, such as understanding of human behavior, and on applying that knowledge wisely in decisions and activities. ● Evidence that some factors have caused the rise in global temperature over the last century can include tables, graphs, and maps of global and regional temperatures, atmospheric levels of gases such as carbon dioxide and methane, and the rates of human activities.	● Students who understand the concepts can: ● Ask questions to identify and clarify a variety of evidence for an argument about the factors that have caused the rise in global temperatures over the past century. ● Ask questions to clarify human activities and natural processes that are major factors in the current rise in Earth's mean surface temperature.

District/School Summative Assessment Plan
Summative assessment is an opportunity for students to demonstrate mastery of the skills taught during a particular unit. ● Unit Test Assessment (Stability and Change on Earth) ● Vocabulary Quiz 1/2/3/4

- Teacher constructed standards based quiz Part A, Part B, Part C, Part D
- Alternative Assessment Teacher Constructed 1

Unit 4 (Human Impacts)	
Content Area	Science
Unit Title	Human Impacts
Grade Level	Grade 8
Recommended Pacing	APX: 25 Days
Unit Summary	In this unit of study, students analyze and interpret data and design solutions to build on their understanding of the ways that human activities affect Earth's systems. The emphasis of this unit is the significant and complex issues surrounding human uses of land, energy, mineral, and water resources and the resulting impacts of these uses. The crosscutting concepts of cause and effect and the influence of science, engineering, and technology on society and the natural world are called out as organizing concepts for these disciplinary core ideas. Building on Unit 3, students define a problem by precisely specifying criteria and constraints for solutions as well as potential impacts on society and the natural environment; systematically evaluate alternative solutions; analyze data from tests of different solutions; combining the best ideas into an improved solution; and develop and iteratively test and improve their model to reach an optimal solution. In this unit of study students are expected to demonstrate proficiency in analyzing and interpreting data and designing solutions. Students are also expected to use these practices to demonstrate understanding of the core ideas.
Interdisciplinary Connections	Primary Interdisciplinary Connections: ELA/Math
Career Readiness, Life Literacies, and Key Skills Addressed	***Creativity and Innovation:*** Gathering and evaluating knowledge and information from a variety of sources, including global perspectives, fosters creativity and innovative thinking.

	Information and Media Literacy: Sources of information are evaluated for accuracy and relevance when considering the use of information.
Computer Science and Design Thinking	***Data & Analysis:*** People use digital devices and tools to automate the collection, use, and transformation of data.
Supplemental Class Resources	GSuite for Education MosaMac Program NEWSELA MS -ESS3 Earth and Human Activity MS-ETS1 Engineering Design

Science Student Learning Objectives Covered in this Unit
• Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment. *[Clarification Statement: Examples of the design process include examining human environmental impacts, assessing the kinds of solutions that are feasible, and designing and evaluating) solutions that could reduce that impact. Examples of human impacts can include water usage (such as the withdrawal of water from streams and aquifers or the construction of dams and levees), land usage (such as urban development, agriculture, or the removal of wetlands), and pollution (such as of the air, water, or land).]* (MS-ESS3-3) • Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions. (MS-ETS1-1) • Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem. (MS-ETS1-2) • 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-ETS1-3)
ELA Student Learning Objectives Covered in this Unit
• Conduct short research projects to determine a method for monitoring and minimizing a human impact on the environment, drawing on several sources and generating additional, related, focused questions that allow multiple avenues of exploration.

- Gather relevant information from multiple print and digital sources about a method for monitoring and minimizing a human impact on the environment, assess the credibility of each source, and quote or paraphrase the data and conclusions of others while avoiding plagiarism and providing basic bibliographic information for sources.
- Draw evidence from informational texts about minimizing a human impact on the environment to support analysis, reflection, and research. • Cite specific textual evidence about a method for monitoring and minimizing a human impact on the environment to support analysis of science and technical texts.
- Compare and contrast the information gained from experiments, simulations, videos, or multimedia sources with that gained from reading a text on a method for monitoring and minimizing a human impact on the environment.
- Integrate quantitative or technical information about a method for monitoring and minimizing a human impact on the environment expressed in words with a version of that information expressed visually.

Math Student Learning Objectives Covered in this Unit

- Use abstract and quantitative reasoning to analyze and interpret data in order to determine similarities and differences in findings of how well designed methods meet the criteria and constraints of solutions that could reduce a human impact on the environment.
- Understand the concept of a ratio and use ratio language to describe a ratio relationship between human impacts on environments and the impact of methods to minimize these impacts.
- Use variables to represent quantities when analyzing and interpreting data to determine how well designed methods meet the criteria and constraints of solutions that could reduce a human impact on the environment and construct simple equations and inequalities to solve problems by reasoning about the quantities.
- While analyzing data to determine how well designed methods meet the criteria and constraints of solutions that could reduce a human impact on the environment, solve multi step mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies.

Modifications

(Note: Teachers identify the modifications that they will use in the unit. See NGSS Appendix D: All Standards, All Students/Case Studies for vignettes and explanations of the modifications.)

- Structure lessons around questions that are authentic, relate to students' interests, social/family background and knowledge of their community.
- Provide students with multiple choices for how they can represent their understandings (e.g. multisensory techniques-auditory/visual aids; pictures, illustrations, graphs, charts, data tables, multimedia, modeling).

- Provide opportunities for students to connect with people of similar backgrounds (e.g. conversations via digital tool such as SKYPE, experts from the community helping with a project, journal articles, and biographies).
- Provide multiple grouping opportunities for students to share their ideas and to encourage work among various backgrounds and cultures (e.g. multiple representation and multimodal experiences).
- Engage students with a variety of Science and Engineering practices to provide students with multiple entry points and multiple ways to demonstrate their understandings. • Use project-based science learning to connect science with observable phenomena.
- Structure the learning around explaining or solving a social or community-based issue.
- Provide ELL students with multiple literacy strategies. • Collaborate with after-school programs or clubs to extend learning opportunities.
- Restructure lesson using UDL principles (http://www.cast.org/our-work/about-udl.html#.VXmoXcfD_UA)

Unit Sequence/Essential Question: Part A: How do we monitor the health of the environment (our life support system)? Is it possible to predict and protect ourselves from natural hazards?	
Concepts	**Formative Assessments**
• Human activities have significantly altered the biosphere, sometimes damaging or destroying natural habitats and causing the extinction of other species. • Changes to Earth's environments can have different impacts (negative and positive) for different living things. • Typically as human populations and per capita consumption of natural resources increase, so do the negative impacts on Earth, unless the activities and technologies involved are engineered otherwise. • Relationships can be classified as causal or correlational, and correlation does not necessarily imply causation. • The uses of technologies and any limitations on their use are driven by individual or societal needs, desires, and values; by the findings of scientific research; and by differences in such factors as climate, natural resources, and economic conditions. Thus technology use varies from region to region and over time.	• Students who understand the concepts can: • Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment.

District/School Summative Assessment Plan
Summative assessment is an opportunity for students to demonstrate mastery of the skills taught during a particular unit. ● Unit Test Assessment (Human Impacts) ● Vocabulary Quiz 1/2/3 ● Teacher constructed standards based quiz Part A, Part B, Part C ● Alternative Assessment Teacher Constructed 1

Unit 5 (Relationships among Forms of Energy)	
Content Area	Science
Unit Title	Relationships among Forms of Energy
Grade Level	Grade 8
Recommended Pacing	APX: 20 Days
Unit Summary	In this unit, students use the practices of analyzing and interpreting data, developing and using models, and engaging in argument from evidence to make sense of the relationship between energy and forces. Students develop their understanding of important qualitative ideas about the conservation of energy. Students understand that objects that are moving have kinetic energy and that objects may also contain stored (potential) energy, depending on their relative positions. Students also understand the difference between energy and temperature, and the relationship between forces and energy. The crosscutting concepts of scale, proportion, and quantity, systems and system models, and energy and matter are called out as organizing concepts for these disciplinary core ideas. Students use the practices of analyzing and interpreting data, developing and using models, and engaging in argument from evidence. Students are also expected to use these practices to demonstrate understanding of the core ideas.

Interdisciplinary Connections	Primary Interdisciplinary Connections: ELA/Math
Career Readiness, Life Literacies, and Key Skills Addressed	***Creativity and Innovation:*** Gathering and evaluating knowledge and information from a variety of sources, including global perspectives, fosters creativity and innovative thinking.
Computer Science and Design Thinking	***Engineering Design:*** The process includes generating ideas, choosing the best solution, and making, testing, and redesigning models or prototypes.
Supplemental Class Resources	GSuite for Education MosaMac Program NEWSELA MS-PS3 Energy Teacher Resource (2016 unit of Study)

Science Student Learning Objectives Covered in this Unit
• Construct and interpret graphical displays of data to describe the relationships of kinetic energy to the mass of an object and to the speed of an object. *[Clarification Statement: Emphasis is on descriptive relationships between kinetic energy and mass separately from kinetic energy and speed. Examples could include riding a bicycle at different speeds, rolling different sizes of rocks downhill, and getting hit by a wiffle ball versus a tennis ball.]* (MS-PS3-1) • Develop a model to describe that when the arrangement of objects interacting at a distance changes, different amounts of potential energy are stored in the system. *[Clarification Statement: Emphasis is on relative amounts of potential energy, not on calculations of potential energy. Examples of objects within systems interacting at varying distances could include: the Earth and either a roller coaster cart at varying positions on a hill or objects at varying heights on shelves, changing the direction/orientation of a magnet, and a balloon with static electrical charge being brought closer to a classmate's hair. Examples of models could include representations, diagrams, pictures, and written descriptions of systems.]* [Assessment Boundary: Assessment is limited to two objects and electric, magnetic, and gravitational interactions.] (MS-PS3-2) • Construct, use, and present arguments to support the claim that when the kinetic energy of an object changes, energy is transferred to or from the object. *[Clarification Statement: Examples of empirical evidence used in arguments could include an inventory or other representation of the energy before and after the transfer in the form of temperature changes or motion of objects.] [Assessment Boundary: Assessment does not include calculations of energy.]* (MS-PS3-5)
ELA Student Learning Objectives Covered in this Unit

- Cite specific textual evidence to support analysis of science and technical texts that describe the relationships of kinetic energy to the mass of an object and to the speed of an object, attending to the precise details of explanations or descriptions.
- Integrate quantitative or technical information that describes the relationship of kinetic energy to the mass of an object and to the speed of object that is expressed in words with a version of that information expressed visually in a flowchart, diagram, model, graph, or table.
- Integrate multimedia and visual displays into presentations that describe that when the arrangement of objects interacting at a distance changes, different amounts of potential energy are stored in the system to clarify information, strengthen claims and evidence, and add interest.
- Cite specific textual evidence to support analysis of science and technical texts to support the claim that when the kinetic energy of an object changes, energy is transferred to or from the object, attending to the precise details of explanations or descriptions.
- Write arguments to support the claim that when the kinetic energy of an object changes, energy is transferred to or from the object.

Math Student Learning Objectives Covered in this Unit

- Reason abstractly and quantitatively by interpreting numerical, graphical displays of data to describe the relationships of kinetic energy to the mass of an object and to the speed of an object.
- Describe a ratio relationship between kinetic energy and mass separately from kinetic energy and speed. Understand the concept of a unit rate a/b associated with a ratio a:b with b≠, and use rate language in the context of a ratio relationship between kinetic energy and mass separately from kinetic energy and speed.
- Recognize and represent proportional relationships between kinetic energy and mass separately from kinetic energy and speed. Know and apply the properties of integer exponents to generate equivalent numerical expressions when describing the relationships between kinetic energy and mass separately from kinetic energy and speed. When constructing and interpreting graphical displays of data to describe the relationships of kinetic energy to the mass of an object and to the speed of an object, use square root and cube root symbols to represent solutions to equations of the form x2 =p and x3 =p, where p is a positive rational number.
- Evaluate square roots of small perfect squares and cube roots of small perfect cubes. Know that √2 is irrational. When constructing and interpreting graphical displays of data to describe the relationships of kinetic energy to the mass of an object and to the speed of an object, interpret the equation y = mx + b as defining a linear function whose graph is a straight line; give examples of functions that are not linear.
- Reason abstractly and quantitatively when analyzing data to support the claim that when the kinetic energy of an object changes, energy is transferred to or from the object. Understand the concept of ratio and use ratio language to describe the ratio relationships between the change in the kinetic energy of an object and the energy transferred to or from the object.
- Recognize and represent proportional relationships between the change in the kinetic energy of an object and the energy transferred to or from the object. Interpret the equation y = mx + b as defining a linear function whose graph is a straight line; give examples of functions that are not linear when describing the change in the kinetic energy of an object and the energy transferred to or from the object.

Modifications
(Note: Teachers identify the modifications that they will use in the unit. See NGSS Appendix D: All Standards, All Students/Case Studies for vignettes and explanations of the modifications.) ● Structure lessons around questions that are authentic, relate to students' interests, social/family background and knowledge of their community. ● Provide students with multiple choices for how they can represent their understandings (e.g. multisensory techniques-auditory/visual aids; pictures, illustrations, graphs, charts, data tables, multimedia, modeling). ● Provide opportunities for students to connect with people of similar backgrounds (e.g. conversations via digital tool such as SKYPE, experts from the community helping with a project, journal articles, and biographies). ● Provide multiple grouping opportunities for students to share their ideas and to encourage work among various backgrounds and cultures (e.g. multiple representation and multimodal experiences). ● Engage students with a variety of Science and Engineering practices to provide students with multiple entry points and multiple ways to demonstrate their understandings. • Use project-based science learning to connect science with observable phenomena. ● Structure the learning around explaining or solving a social or community-based issue. ● Provide ELL students with multiple literacy strategies. • Collaborate with after-school programs or clubs to extend learning opportunities. ● Restructure lesson using UDL principles (http://www.cast.org/our-work/about-udl.html#.VXmoXcfD_UA)

Unit Sequence/Essential Question: Part A: Is it better to have an aluminum (baseball/softball) bat or a wooden bat?	
Concepts	**Formative Assessments**
● Kinetic energy is related to the mass of an object and to the speed of an object. ● Kinetic energy has a relationship to mass separate from its relationship to speed. ● Motion energy is properly called kinetic energy; it is proportional to the mass of the moving object and grows with the square of the object's speed. ● Proportional relationships among different types of quantities provide information about the magnitude of properties and processes.	● Students who understand the concepts can: ● Construct and interpret graphical displays of data to identify linear and nonlinear relationships of kinetic energy to the mass of an object and to the speed of an object.

Unit Sequence/Essential Question: Part B: What would give you a better chance of winning a bowling match, using a basketball that you can roll really fast, or a bowling ball that you can only roll slowly?	
Concepts	**Formative Assessments**
● When the arrangement of objects interacting at a distance changes, different amounts of potential energy are stored in the system. ● A system of objects may contain stored (potential) energy, depending on the objects' relative positions. ● When two objects interact, each one exerts a force on the other that can cause energy to be transferred to or from the objects. ● Models that could include representations, diagrams, pictures, and written descriptions of systems can be used to represent systems and their interactions, such as inputs, processes, and outputs, and energy and matter flows within systems.	● Students who understand the concepts can: ● Develop a model to describe what happens to the amount of potential energy stored in the system when the arrangement of objects interacting at a distance changes ● Use models to represent systems and their interactions, such as inputs, processes, and outputs, and energy and matter flows within systems. Models could include representations, diagrams, pictures, and written descriptions.
Unit Sequence/Essential Question: Part C: Who can design the best roller coaster?	
Concepts	**Formative Assessments**
● When the kinetic energy of an object changes, energy is transferred to or from the object. ● When the motion energy of an object changes, there is inevitably some other change in energy at the same time. ● Kinetic energy may take different forms (e.g., energy in fields, thermal energy, energy of motion).	● Students who understand the concepts can: ● Construct, use, and present oral and written arguments supported by empirical evidence and scientific reasoning to support the claim that when the kinetic energy of an object changes, energy is transferred to or from the object. ● Conduct an inventory or other representation of the energy before and after the transfer in the form of temperature changes or motion of an object. Do not include calculations of energy

District/School Summative Assessment Plan

Summative assessment is an opportunity for students to demonstrate mastery of the skills taught during a particular unit.

- Unit Test Assessment (Relationships among Forms of Energy)
- Vocabulary Quiz 1/2/3
- Teacher constructed standards based quiz Part A, Part B, Part C
- Alternative Assessment Teacher Constructed 1

Unit 6 (Thermal Energy)	
Content Area	Science
Unit Title	Thermal Energy
Grade Level	Grade 8
Recommended Pacing	APX: 30 Days
Unit Summary	In this unit, students ask questions, plan and carry out investigations, engage in argument from evidence, analyze and interpret data, construct explanations, define problems and design solutions as they make sense of the difference between energy and temperature. They use the practices to make sense of how the total change of energy in any system is always equal to the total energy transferred into or out of the system. The crosscutting concepts of energy and matter, scale, proportion, and quantity, and influence of science, engineering, and technology on society and the natural world are the organizing concepts for these disciplinary core ideas. Students ask questions, plan and carry out investigations, engage in argument from evidence, analyze and interpret data, construct explanations, define problems and design solutions. Students are also expected to use these practices to demonstrate understanding of the core ideas.
Interdisciplinary Connections	Primary Interdisciplinary Connections: ELA/Math

Career Readiness, Life Literacies, and Key Skills Addressed	***Creativity and Innovation:*** Gathering and evaluating knowledge and information from a variety of sources, including global perspectives, fosters creativity and innovative thinking. ***Information and Media Literacy:*** Sources of information are evaluated for accuracy and relevance when considering the use of information.
Computer Science and Design Thinking	***Data & Analysis:*** People use digital devices and tools to automate the collection, use, and transformation of data.
Supplemental Class Resources	GSuite for Education MosaMac Program NEWSELA MS-PS3 Energy MS-ETS1 Engineering Design

Science Student Learning Objectives Covered in this Unit
● Apply scientific principles to design, construct, and test a device that either minimizes or maximizes thermal energy transfer. *[Clarification Statement: Examples of devices could include an insulated box, a solar cooker, and a Styrofoam cup.] [Assessment Boundary: Assessment does not include calculating the total amount of thermal energy transferred.]* (MS-PS3-3) ● Plan an investigation to determine the relationships among the energy transferred, the type of matter, the mass, and the change in the average kinetic energy of the particles as measured by the temperature of the sample. *[Clarification Statement: Examples of experiments could include comparing final water temperatures after different masses of ice melted in the same volume of water with the same initial temperature, the temperature change of samples of different materials with the same mass as they cool or heat in the environment, or the same material with different masses when a specific amount of energy is added.] [Assessment Boundary: Assessment does not include calculating the total amount of thermal energy transferred.]* (MS-PS3-4) ● Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions. (MS-ETS1-1) ● Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem. (MS-ETS1-2) ● 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-ETS1-3) ● 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. (MSETS1-4)

ELA Student Learning Objectives Covered in this Unit

- Follow precisely a multistep procedure for an investigation that has been planned individually and collaboratively to determine the relationships among the energy transferred, the type of matter, the mass, and the change in the average kinetic energy of the particles as measured by the temperature of the sample.
- Conduct short research projects to determine the relationships among the energy transferred, the type of matter, the mass, and the change in the average kinetic energy of particles as measured by the temperature of the sample, drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration.
- Follow precisely a multistep process for the design, construction, and testing of a device that either minimizes or maximizes thermal energy transfer.Conduct short research projects to apply scientific principles to design, construct, and test a device that either minimizes or maximizes thermal energy transfer, drawing on several sources and generating additional related, focused questions that allow for multiple avenue of exploration.
- Gather relevant information to inform the design, construction, and testing of a device that either minimizes or maximizes thermal energy transfer using multiple print and digital sources; assess the credibility of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and providing basic bibliographic information for sources.
- Draw evidence from informational texts to support analysis, reflection, and research that informs the design, construction, and testing of a device that either minimizes or maximizes thermal energy transfer.
- Cite specific textual evidence to support analysis of science and technical texts that provide information about the application of scientific principles to design, construct, and test a device that either minimizes or maximizes thermal energy transfer.
- Compare and contrast the information gained from experiments, simulations, or multimedia sources with that gained from reading text about devices that either minimize or maximize energy transfer.

Math Student Learning Objectives Covered in this Unit

- Reason abstractly and quantitatively while collecting and analyzing numerical and symbolic data as part of an investigation that has been planned individually and collaboratively.
- Summarize numerical data sets in relation to the amount of energy transferred, the type of matter, the mass, and the change in the average kinetic energy of particles in the sample as measured by the temperature of the sample.
- Reason abstractly and quantitatively while collecting and analyzing numerical and symbolic data as part of a systematic process for evaluating solutions with respect to how well they meet criteria and constraints of a problem involving the design of a device that either minimizes or maximizes thermal energy transfer.

Modifications
(Note: Teachers identify the modifications that they will use in the unit. See NGSS Appendix D: All Standards, All Students/Case Studies for vignettes and explanations of the modifications.) ● Structure lessons around questions that are authentic, relate to students' interests, social/family background and knowledge of their community. ● Provide students with multiple choices for how they can represent their understandings (e.g. multisensory techniques-auditory/visual aids; pictures, illustrations, graphs, charts, data tables, multimedia, modeling). ● Provide opportunities for students to connect with people of similar backgrounds (e.g. conversations via digital tool such as SKYPE, experts from the community helping with a project, journal articles, and biographies). ● Provide multiple grouping opportunities for students to share their ideas and to encourage work among various backgrounds and cultures (e.g. multiple representation and multimodal experiences). ● Engage students with a variety of Science and Engineering practices to provide students with multiple entry points and multiple ways to demonstrate their understandings. • Use project-based science learning to connect science with observable phenomena. ● Structure the learning around explaining or solving a social or community-based issue. ● Provide ELL students with multiple literacy strategies. • Collaborate with after-school programs or clubs to extend learning opportunities. ● Restructure lesson using UDL principles (http://www.cast.org/our-work/about-udl.html#.VXmoXcfD_UA)

Unit Sequence/Essential Question: Part A: How can a standard thermometer be used to tell you how particles are behaving?	
Concepts	**Formative Assessments**
● There are relationships among the energy transferred, the type of matter, the mass, and the change in the average kinetic energy of particles as measured by the temperature of the sample. ● Temperature is a measure of the average kinetic energy of particles of matter. • The relationship between the temperature and the total energy of a system depends on the types, states, and amounts of matter present. ● The amount of energy transfer needed to change the temperature of a matter sample by a given amount depends on	● Students who understand the concepts can: ● Individually and collaboratively plan an investigation to determine the relationships among the energy transferred, the type of matter, the mass, and the change in the average kinetic energy of particles as measured by the temperature of the sample. ● As part of a planned investigation, identify independent and dependent variables and controls, what tools are needed to do the gathering, how measurements will be recorded, and how much data are needed to support a claim.

the nature of the matter, the size of the sample, and the environment. ● Proportional relationships among the amount of energy transferred, the mass, and the change in the average kinetic energy of particles as measured by temperature of the sample provide information about the magnitude of properties and processes.	● Make logical and conceptual connections between evidence and explanations.
Unit Sequence/Essential Question: Part B: You are an engineer working for NASA. In preparation for a manned space mission to the Moon, you are tasked with designing, constructing, and testing a device that will keep a hot beverage hot for the longest period of time. It costs approximately $10,000 per pound to take payload into orbit so the device must be lightweight and compact. The lack of atmosphere on the Moon produces temperature extremes that range from -157 degrees C in the dark to +121 degrees C in the light. Your device must operate on either side of the Moon (https://spaceflightsystems.grc.nasa.gov/education/rocket/moon.html).	
Concepts	**Formative Assessments**
● Temperature is a measure of the average kinetic energy of particles of matter. ● The relationship between the temperature and the total energy of a system depends on the types, states, and amounts of matter present. ● Energy is spontaneously transferred out of hotter regions or objects and into colder ones. ● The transfer of energy can be tracked as energy flows through a designed or natural system. • The more precisely a design task's criteria and constraints can be defined, the more likely it is that the designed solution will be successful. ● Specification of constraints includes consideration of scientific principles and other relevant knowledge that is likely to limit possible solutions. ● A solution needs to be tested and then modified on the basis of the test results in order to improve it. ● There are systematic processes for evaluating solutions with respect to how well they meet criteria and constraints of a	● Students who understand the concepts can: ● Apply scientific ideas or principles to design, construct, and test a design of a device that either minimizes or maximizes thermal energy transfer. ● Determine design criteria and constraints for a device that either minimizes or maximizes thermal energy transfer. ● Test design solutions and modify them on the basis of the test results in order to improve them. ● Use a systematic process for evaluating solutions with respect to how well they meet criteria and constraints.

problem.	

District/School Summative Assessment Plan
Summative assessment is an opportunity for students to demonstrate mastery of the skills taught during a particular unit. ● Unit Test Assessment (Thermal Energy) ● Vocabulary Quiz 1/2/3 ● Teacher constructed standards based quiz Part A, Part B, Part C ● Alternative Assessment Teacher Constructed 1

Unit 7 (The Electromagnetic Spectrum)	
Content Area	Science
Unit Title	The Electromagnetic Spectrum
Grade Level	Grade 8
Recommended Pacing	APX: 20 Days
Unit Summary	In this unit of study, students develop and use models, use mathematical thinking, and obtain, evaluate, and communicate information in order to describe and predict characteristic properties and behaviors of waves. Students also apply their understanding of waves as a means of sending digital information. The crosscutting concepts of patterns and structure and function are used as organizing concepts for these disciplinary core ideas. Students develop and use models, use mathematical thinking, and obtain, evaluate, and communicate information. Students are also expected to use these practices to demonstrate understanding of the core ideas.
Interdisciplinary Connections	Primary Interdisciplinary Connections: ELA/Math

Career Readiness, Life Literacies, and Key Skills Addressed	***Creativity and Innovation:*** Gathering and evaluating knowledge and information from a variety of sources, including global perspectives, fosters creativity and innovative thinking. ***Information and Media Literacy:*** Sources of information are evaluated for accuracy and relevance when considering the use of information.
Computer Science and Design Thinking	***Engineering and Design:*** The process includes generating ideas, choosing the best solution, and making, testing, and redesigning models or prototypes.
Supplemental Class Resources	GSuite for Education MosaMac Program NEWSELA MS-PS4 Waves and their Applications in Technologies for Information Transfer Teacher Resource (2016 unit of Study)

Science Student Learning Objectives Covered in this Unit
• 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. *[Clarification Statement: Emphasis is on describing waves with both qualitative and quantitative thinking.]* [Assessment Boundary: Assessment does not include electromagnetic waves and is limited to standard repeating waves.] (MS-PS4-1) • Develop and use a model to describe that waves are reflected, absorbed, or transmitted through various materials. *[Clarification Statement: Emphasis is on both light and mechanical waves. Examples of models could include drawings, simulations, and written descriptions.] [Assessment Boundary: Assessment is limited to qualitative applications pertaining to light and mechanical waves.]* (MS-PS4-2) • 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. *[Clarification Statement: Emphasis is on a basic understanding that waves can be used for communication purposes. Examples could include using fiber optic cable to transmit light pulses, radio wave pulses in wifi devices, and conversion of stored binary patterns to make sound or text on a computer screen.]* [Assessment Boundary: Assessment does not include binary counting. Assessment does not include the specific mechanism of any given device.] (MS-PS4-3)
ELA Student Learning Objectives Covered in this Unit
• Integrate multimedia and visual displays into presentations that describe a simple model for waves that includes how the amplitude of a wave is related to the energy in a wave, to clarify information.

- Integrate multimedia and visual displays into presentations of a model that describes that waves are reflected, absorbed, or transmitted through various materials to clarify information.
- Cite specific textual evidence to support the claim that digitized signals are a more reliable way to encode and transmit information than analog signals.
- Determine the central ideas or conclusions of a text; provide an accurate summary of the text to support the claim that digitized signals are a more reliable way to encode and transmit information than analog signals, distinct from prior knowledge or opinions.
- Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text to support the claim that digitized signals are a more reliable way to encode and transmit information than analog signals.
- Draw evidence from informational texts to support the analysis of digitized signals as a more reliable way to encode and transmit information than analog signals.
- Integrate multimedia and visual displays into presentations to strengthen claims and evidence showing that digitized signals as a more reliable way to encode and transmit information than analog signals.

Math Student Learning Objectives Covered in this Unit

- Include mathematical representations to describe a simple model for waves.
- Use mathematical representations to describe and/or support scientific conclusions about how the amplitude of a wave is related to the energy in a wave.
- Understand the concept of a ratio and use ratio language to describe the relationship between the amplitude of a wave and the energy in the wave.
- Use ratio and rate reasoning to solve problems showing the relationship between the amplitude of a wave and the energy of the wave.
- Recognize and represent proportional relationships when using mathematical representations to describe a simple model.
- When using mathematical representations to describe a simple model, interpret the equation y = mx + b as defining a linear function whose graph is a straight line and give examples of functions that are not linear.

Modifications

(Note: Teachers identify the modifications that they will use in the unit. See NGSS Appendix D: All Standards, All Students/Case Studies for vignettes and explanations of the modifications.)

- Structure lessons around questions that are authentic, relate to students' interests, social/family background and knowledge of their community.
- Provide students with multiple choices for how they can represent their understandings (e.g. multisensory techniques-auditory/visual aids; pictures, illustrations, graphs, charts, data tables, multimedia, modeling).

- Provide opportunities for students to connect with people of similar backgrounds (e.g. conversations via digital tool such as SKYPE, experts from the community helping with a project, journal articles, and biographies).
- Provide multiple grouping opportunities for students to share their ideas and to encourage work among various backgrounds and cultures (e.g. multiple representation and multimodal experiences).
- Engage students with a variety of Science and Engineering practices to provide students with multiple entry points and multiple ways to demonstrate their understandings. • Use project-based science learning to connect science with observable phenomena.
- Structure the learning around explaining or solving a social or community-based issue.
- Provide ELL students with multiple literacy strategies. • Collaborate with after-school programs or clubs to extend learning opportunities.
- Restructure lesson using UDL principles (http://www.cast.org/our-work/about-udl.html#.VXmoXcfD_UA)

Unit Sequence/Essential Question: Part A: Why do surfers love physicists?	
Concepts	**Formative Assessments**
• A simple wave has a repeating pattern with a specific wavelength, frequency, and amplitude. • Describe a simple model for waves that includes how the amplitude of a wave is related to the energy in a wave. • Graphs and charts can be used to identify patterns in data. • Waves can be described with both qualitative and quantitative thinking.	• Students who understand the concepts can: • Use mathematical representations to describe and/or support scientific conclusions about how the amplitude of a wave is related to the energy in a wave. • Use mathematical representations to describe a simple model
Unit Sequence/Essential Question: Part B: How do the light and sound system in the auditorium work?	
Concepts	**Formative Assessments**
• 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. • 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.	• Students who understand the concepts can: • Develop and use models to describe the movement of waves in various materials.

• A wave model of light is useful for explaining brightness, color, and the frequency-dependent bending of light at a surface between media. • Waves are reflected, absorbed, or transmitted through various materials. • A sound wave needs a medium through which it is transmitted. • Because light can travel through space, it cannot be a matter wave, like sound or water waves. • The structure of a wave can be modified to serve particular functions by taking into account properties of different materials and how materials can be shaped and used.	
Unit Sequence/Essential Question: Part C: If rotary phones worked for my grandparents, why did they invent cell phones?	
Concepts	**Formative Assessments**
• Structures can be designed to use properties of waves to serve particular functions. • Waves can be used for communication purposes. • Digitized signals (sent as wave pulses) are a more reliable way to encode and transmit information than are analog signals. • Wave-related technologies extend the measurement, exploration, modeling, and computational capacity of scientific investigations.	• Students who understand the concepts can: • Integrate qualitative scientific and technical information in written text with that contained in media and visual displays to clarify claims that digitized signals are a more reliable way to encode and transmit information than analog signals are.

District/School Summative Assessment Plan
Summative assessment is an opportunity for students to demonstrate mastery of the skills taught during a particular unit. • Unit Test Assessment (The Electromagnetic Spectrum) • Vocabulary Quiz 1/2/3 • Teacher constructed standards based quiz Part A, Part B, Part C

- Alternative Assessment Teacher Constructed 1

OpenSciEd:

A multistate effort to develop freely accessible and open science course materials for grades 6-8.

Modifications for SpEd/ESL/Students at Risk/Gifted

● Complete fewer or different homework problems than peers
● Write shorter papers
● Supports, Accommodations, and Modifications must be provided as stated in IEP, 504 Plan, or IR&S Intervention Plan, and may include (but are not limited to) the following:

Presentation accommodations:
● Listen to audio recordings instead of reading text
● Learn content from audio books, movies, videos and digital media instead of reading print versions
● Use alternate texts at lower readability level
● Work with fewer items per page or line and/or materials in a larger print size
● Use magnification device, screen reader, or Braille / Nemeth Code
● Use audio amplification device (e.g., hearing aid(s), auditory trainer, sound-field system (which may require teacher use of microphone)
● Be given a written list of instructions
● Record a lesson, instead of taking notes
● Have another student share class notes with him
● Be given an outline of a lesson
● Be given a copy of teacher's lecture notes
● Be given a study guide to assist in preparing for assessments
● Use visual presentations of verbal material, such as word webs and visual organizers
● Use manipulatives to teach or demonstrate concepts
● Have curriculum materials translated into native language

Response accommodations:

- Use sign language, a communication device, Braille, other technology, or native language other than English
- Dictate answers to a scribe
- Capture responses on an audio recorder
- Use a spelling dictionary or electronic spell-checker
- Use a word processor to type notes or give responses in class
- Use a calculator or table of “math facts”
- Respond directly in the test booklet rather than on an answer sheet. Setting accommodations:
- Work or take a test in a different setting, such as a quiet room with few distractions
- Sit where he learns best (for example, near the teacher, away from distractions)
- Use special lighting or acoustics
- Take a test in small group setting
- Use sensory tools such as an exercise band that can be looped around a chair’s legs (so fidgety kids can kick it and quietly get their energy out)
- Use noise buffers such as headphones, earphones, or earplugs

Timing accommodations:

- Take more time to complete a task or a test
- Have extra time to process oral information and directions
- Take frequent breaks, such as after completing a task

Scheduling accommodations:

- Take more time to complete a project
- Take a test in several timed sessions or over several days
- Take sections of a test in a different order
- Take a test at a specific time of day

Organization skills accommodations:

- Use an alarm to help with time management
- Mark texts with a highlighter
- Have help coordinating assignments in a book or planner

● Receive study skills instruction

Assignment modifications:
● Answer fewer or different test questions
● Create alternate projects or assignments

Curriculum modifications:
● Learn different material
● Get graded or assessed using a different standard than the one for classmates