Beach Haven School District

Science Curriculum

Grade 3

Original Adoption: September 12, 2016
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Recommended Pacing Guide	
Unit 1: Engineering	**40 days- ongoing**
Unit 2: Forces & Motion	**30 days- ongoing**
Unit 3: Life Cycles & Inherited Traits	**40 days- ongoing**
Unit 4: Organisms and Their Environments	**40 days- ongoing**
Unit 5: Weather & Patterns	**30 days- ongoing**

Suggested Accommodations

English Language Learners:
- Provide pictures and well labeled models
- Speak slowly and gesture when necessary
- Pre-teach vocabulary words
- Extended time on assessments
- Small group for assessment
- Review Vocabulary
- Allow for alternate responses during activities and assessments

Special Education/Students with Disabilities:
- Follow specific IEP accommodations and modifications
- Strategic grouping
- Pre-teach concepts
- Small group for assessments
- Check in's during experiments to help refocus
- Allow alternate assignments and assessments

504 Plans:
- Follow specific 504 accommodations and modifications
- Strategic grouping
- Pre-teach concepts
- Small group for assessments
- Check in's during experiments to help refocus
- Allow alternate assignments and assessments

Gifted and Talented:
- Open ended questions to activate higher level thinking
- Higher level texts
- Alternative modes of communication
- Student developed extension activities

- Plan self directed inquiry
- Student created rubrics
- Curriculum compacting
- Opportunities to push assessment/activity boundaries

Students at Risk of Failure:

- Strategic grouping
- Pre-teach concepts
- Small group for assessments
- Check in's during experiments to help refocus
- Incorporate social/emotional discussions
- Encourage and monitor positive peer collaboration
- Provide academic resources for both home and school use
- Provide incentives to increase motivation and collaboration

Economically Disadvantaged:

- Provide clear, achievable expectation, do not lower academic requirements for them.
- Build a safe and nurturing atmosphere
- Be flexible with assignments
- Offer several alternatives from which all students can choose.
- Allow students to finish assignments independently, or give them the opportunity to complete tasks at their own pace.
- Use real-world examples and create mental models for abstract idea
- Provide increased knowledge base and vocabulary use about real world experiences.
- Share the decision making in class.
- Maintain expectations while offering choice and soliciting input

Culturally Diverse:

- Involve families in student learning
- Provide social/emotional support
- Respect cultural traditions
- Build in more group work to encourage interaction with peers
- Show photos, videos, and definitions when possible for culturally unique vocabulary
- Teach study skills
- Provided students with necessary academic resources and materials
- Allow for alternative assignments
- Provide visuals
- Assign peer tutor
- Support verbal explanations with non verbal cues: Gestures/ facial expressions Props, realia, manipulatives, concrete materials Visuals, graphs, pictures, maps
- Provide positive praise to increase motivation
- Provide real world connections and emphasize the value of education
- Communicate high expectations for the success of all students

Unit 1: Engineering	**Duration: September-October**
Standards/Learning Targets	

New Jersey Student Learning Standards:

- 3-5-ETS1-1 Engineering Design Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.
- 3-5-ETS1-2 Engineering Design

  Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.

- 3-5-ETS1-3 Engineering Design
  Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.

Correlation Chart
EDI

Performance Expectation	
K-2- ETS1-1. Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.	
Science and Engineering Practices	**Disciplinary Core Ideas**
Asking Questions and Defining Problems- ● Ask questions based on observations to find more information about the natural and/or designed world(s). ● Define a simple problem that can be solved through the development of a new or improved object or tool.	**ETS1.A: Defining and Delimiting Engineering Problems-** ● A situation that people want to change or create can be approached as a problem to be solved through engineering. ● Asking questions, making observations, and gathering information are helpful in thinking about problems. ● Before beginning to design a solution, it is important to clearly understand the problem.
Crosscutting Concepts	**Learning Objectives**
Structure and Function ● The shape and stability of structures of natural and designed objects are related to their function(s).	● Students ask questions and make observations to gather information about a situation that people want to change. Students' questions, observations, and information gathering are focused on: ○ A given situation that people wish to change. ○ Why people want the situation to change. ○ The desired outcome of changing the situation. ● Students' questions are based on observations and information gathered about scientific phenomena that are important to the situation. ● Students use the information they have gathered, including the answers to their questions, observations they have made, and scientific information, to describe the situation people want to change in terms of a simple problem that can be solved with the development of a new or improved object or

	tool. ● With guidance, students describe the desired features of the tool or object that would solve the problem, based on scientific information, materials available, and potential related benefits to people and other living things.

Performance Expectation	
K-2- ETS1-2- Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.	
Science and Engineering Practices	**Disciplinary Core Ideas**
Developing and Using Models- ● Develop a simple model based on evidence to represent a proposed object or tool.	**ETS1.B: Developing Possible Solutions** ● Designs can be conveyed through sketches, drawings, or physical models. These representations are useful in communicating ideas for a problem's
Crosscutting Concepts	**Learning Objectives**
Structure and Function ● The shape and stability of structures of natural and designed objects are related to their function(s).	● Students develop a representation of an object and the problem it is intended to solve. In their representation, students include the following components: ○ The object ○ The relevant shape(s) of the object. ○ The function of the object. ● Students use sketches, drawings, or physical models to convey their representations. ● Students identify relationships between the components in their representation, including: ○ The shape(s) of the object and the object's function. ○ The object and the problem is it designed to solve. ● Students use their representation (simple sketch, drawing, or physical model) to communicate the connections between the shape(s) of an object, and how the object could solve the problem.

Performance Expectation
K-2- ETS1-3- Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.

Science and Engineering Practices	Disciplinary Core Ideas
Analyzing and Interpreting Data- ● Analyze data from tests of an object or tool to determine if it works as intended.	**ETS1.C: Optimizing the Design Solution-** ● Because there is always more than one possible solution to a problem, it is useful to compare and test designs.
Crosscutting Concepts	**Learning Objectives**
Patterns- ● Patterns of change can be used to make predictions.	● With guidance, students use graphical displays (e.g., tables, pictographs, line plots) to organize given data from tests of two objects, including data about the features and relative performance of each solution. ● Students use their organization of the data to find patterns in the data, including: ○ How each of the objects performed, relative to: ■ The other object. ■ The intended performance ○ How various features of the objects relate to their performance ● Students use the patterns they found in object performance to describe: ○ The way each object will solve the problem ○ The strengths and weaknesses of each design. ○ Which object is better suited to the desired function, if both solve the problem.

Primary Interdisciplinary Connections:

- ELA: SL.3.3. Ask and answer questions about information from a speaker, offering appropriate elaboration and detail.
- Engineering Units are embedding throughout

Technology Standards:

- 8.1.2.A.1 Identify the basic features of a digital device and explain its purpose.
- 8.1.2.A.4 Demonstrate developmentally appropriate navigation skills in virtual environments (i.e. games, museums).
- 8.2.2.C.1 Brainstorm ideas on how to solve a problem or build a product
- 8.1.2.E.1 Use digital tools and online resources to explore a problem or issue.
- 8.2.2.E.1 List and demonstrate the steps to an everyday task

Career Ready Practices:

- CRP1. Act as a responsible and contributing citizen and employee.
- CRP4. Communicate clearly and effectively and with reason.
- CRP12. Work productively in teams while using cultural global competence.

21st Century Life and Career Standards:

- 9.1.4.A.1- Explain the difference between a career and a job, and identify various jobs in the

community and the related earnings.

Evidence of Student Learning

Formative Tasks:
- Cooperative group learning
- Exit slips
- Analysis of student work
- Teacher observations
- Self-reflection
- Science journals

Alternative Assessments:
- 3-D Performance Tasks
- Student created models
- draw/verbal explanations
- Self-assessment
- Critical Juncture Assessments

Summative Assessments:
- End of the unit assessment

Benchmark Assessments:
- Pre-Unit Assessments
- On-the-fly Assessments

Knowledge & Skills

Enduring Understandings:
- A situation that people want to change or create can be approached as a problem to be solved through engineering.
- Asking questions, making observations, and gathering information are helpful in thinking about problems.
- The shape and stability of structures of natural and designed objects are related to their function(s)

Essential Questions:
- How are asking questions, gathering information, and making observation helpful when thinking about problems?
- How does sketching or creating a model to illustrate its shape help solve a given problem?
- How does testing a model determine its strengths and weaknesses in solving a given problem?

Core Instructional & Supplemental Materials

Suggested Activities/Resources:
- Hands on activities embedded in HMH Science Dimensions

Varied Levels of Text:
- Goldilocks and the Three Engineers by Sue Fliess, illustrated by Petros Bouloubasis
- Gus's Garage by Leo Timmers
- What Do You Do With an Idea? by Kobi Yamada

Unit 2: Forces & Motion	**Duration: 30 days- ongoing**

Standards/Learning Targets

New Jersey Student Learning Standards:

• **3-PS2-1** Plan and conduct an investigation to provide evidence of the effects of balanced and unbalanced forces on the motion of an object.[Clarification Statement: Examples could include an unbalanced force on one side of a ball can make it start moving; and, balanced forces pushing on a box from both sides will not produce any motion at all. Qualitative and conceptual, but not quantitative addition of forces, are used at this level. [Assessment Boundary: Assessment is limited to one variable at a time: number, size, or direction of forces. Assessment does not include quantitative force size, only qualitative and relative. Assessment is limited to gravity being addressed as a force that pulls objects down.]

• **3-PS2-2** Make observations and/or measurements of an object's motion to provide evidence that a pattern can be used to predict future motion.[Clarification Statement: Examples of motion with a predictable pattern could include a child swinging in a swing, a ball rolling back and forth in a bowl, and two children on a see-saw.] [Assessment Boundary: Assessment does not include technical terms such as period and frequency.]

• **3-PS2-3** Ask questions to determine cause and effect relationships of electric or magnetic interactions between two objects not in contact with each other.[Clarification Statement: Examples of an electric force could include the force on hair from an electrically charged balloon and the electrical forces between a charged rod and pieces of paper; examples of a magnetic force could include the force between two permanent magnets, the force between an electromagnet and steel paperclips, and the force exerted by one magnet versus the force exerted by two magnets. Examples of cause and effect relationships could include how the distance between objects affects strength of the force and how the orientation of magnets affects the direction of the magnetic force.] [Assessment Boundary: Assessment is limited to forces produced by objects that can be manipulated by students, and electrical interactions are limited to static electricity.]

• **3-PS2-4** Define a simple design problem that can be solved by applying scientific ideas about magnets.[Clarification Statement: Examples of problems could include constructing a latch to keep a door shut and creating a device to keep two moving objects from touching each other.]

Performance Expectation	
3-PS2-1- Plan and conduct an investigation to provide evidence of the effects of balanced and unbalanced forces on the motion of an object. [Clarification Statement: Examples could include an unbalanced force on one side of a ball can make it start moving; and, balanced forces pushing on a box from both sides will not produce any motion at all.] [Assessment Boundary: Assessment is limited to one variable at a time: number, size, or direction of forces. Assessment does not include quantitative force size, only qualitative and relative. Assessment is limited to gravity being addressed as a force that pulls objects down.]	
Science and Engineering Practices	**Disciplinary Core Ideas**
Planning and Carrying Out Investigations- ● Plan and conduct an investigation collaboratively to produce data to serve as the basis for evidence, using fair tests in which variables are controlled and the number of trials considered. **Scientific Investigations Use a Variety of Methods-** ● Science investigations use a variety of methods, tools, and techniques.	**PS2.A: Forces and Motion-** ● Each force acts on one particular object and has both strength and a direction. An object at rest typically has multiple forces acting on it, but they add to give zero net force on the object. Forces that do not sum to zero can cause changes in the object's speed or direction of motion. (Boundary: Qualitative and conceptual, but not quantitative addition of forces are used at this level.) **PS2.B: Types of Interactions-** ● Objects in contact exert forces on each other.
Crosscutting Concepts	**Learning Objectives**
Cause and Effect- ● Cause and effect relationships are routinely	● Students identify and describe the phenomenon under investigation, which

identified.	includes the effects of different forces on an object's motion (e.g., starting, stopping, or changing direction). ● Students describe the purpose of the investigation, which includes producing data to serve as the basis for evidence for how balanced and unbalanced forces determine an object's motion. ● Students collaboratively develop an investigation plan. In the investigation plan, students describe the data to be collected. ● Students individually describe how the evidence to be collected will be relevant to determining the effects of balanced and unbalanced forces on an object's motion. ● In the collaboratively developed investigation plan, students describe how the motion of the object will be observed and recorded

Performance Expectation	
3-PS2-2- Make observations and/or measurements of an object's motion to provide evidence that a pattern can be used to predict future motion. [Clarification Statement: Examples of motion with a predictable pattern could include a child swinging in a swing, a ball rolling back and forth in a bowl, and two children on a seesaw.] [Assessment Boundary: Assessment does not include technical terms such as period and frequency.]	
Science and Engineering Practices	**Disciplinary Core Ideas**
Planning and Carrying Out Investigations- ● Make observations and/or measurements to produce data to serve as the basis for evidence for an explanation of a phenomenon or test a design solution. **Science Knowledge is Based on Empirical Evidence-** ● Science findings are based on recognizing patterns.	**PS2.A: Forces and Motion-** ● The patterns of an object's motion in various situations can be observed and measured; when that past motion exhibits a regular pattern, future motion can be predicted from it. (Boundary: Technical terms, such as magnitude, velocity, momentum, and vector quantity, are not introduced at this level, but the concept that some quantities need both size and direction to be described is developed
Crosscutting Concepts	**Learning Objectives**
Patterns- ● Patterns of change can be used to make predictions.	● From the given investigation plan, students identify and describe the phenomenon under investigation, which includes observable patterns in the motion of an object. ● Students identify and describe the purpose of the investigation, which includes providing evidence for an explanation of the phenomenon that includes the idea that

	patterns of motion can be used to predict future motion of an object. ● Based on a given investigation plan, students identify and describe the data to be collected through observations and/or measurements, including data on the motion of the object as it repeats a pattern over time (e.g., a pendulum swinging, a ball moving on a curved track, a magnet repelling another magnet). ● Students describe how the data will serve as evidence of a pattern in the motion of an object and how that pattern can be used to predict future motion. ● From the given investigation plan, students identify and describe how the data will be collected

Performance Expectation	
3-PS2-3- Ask questions to determine cause and effect relationships of electric or magnetic interactions between two objects not in contact with each other. [Clarification Statement: Examples of an electric force could include the force on hair from an electrically charged balloon and the electrical forces between a charged rod and pieces of paper; examples of a magnetic force could include the force between two permanent magnets, the force between an electromagnet and steel paper clips, and the force exerted by one magnet versus the force exerted by two magnets. Examples of cause and effect relationships could include how the distance between objects affects strength of the force and how the orientation of magnets affects the direction of the magnetic force.] [Assessment Boundary: Assessment is limited to forces produced by objects that can be manipulated by students, and electrical interactions are limited to static electricity.]	
Science and Engineering Practices	**Disciplinary Core Ideas**
Asking Questions and Defining Problems- ● Ask questions that can be investigated based on patterns such as cause and effect relationships.	**PS2.B: Types of Interactions-** ● Electric and magnetic forces between a pair of objects do not require that the objects be in contact. The sizes of the forces in each situation depend on the properties of the objects and their distances apart and, for forces between two magnets, on their orientation relative to each other.
Crosscutting Concepts	**Learning Objectives**
Cause and Effect- ● Cause and effect relationships are routinely identified, tested, and used to explain change.	● Students ask questions that arise from observations of two objects not in contact with each other interacting through electric or magnetic forces, the answers to which would clarify the cause and effect relationships between: ○ The sizes of the forces on the two

	interacting objects due to the distance between the two objects. ○ The relative orientation of two magnets and whether the force between the magnets is attractive or repulsive. ○ The presence of a magnet and the force the magnet exerts on other objects. ○ Electrically charged objects and an electric force. ● Students' questions can be investigated within the scope of the classroom.

Performance Expectation	
3-PS2-4- Define a simple design problem that can be solved by applying scientific ideas about magnets.* [Clarification Statement: Examples of problems could include constructing a latch to keep a door shut and creating a device to keep two moving objects from touching each other.]	
Science and Engineering Practices	**Disciplinary Core Ideas**
Asking Questions and Defining Problems- ● Define a simple problem that can be solved through the development of a new or improved object or tool.	**PS2.B: Types of Interactions-** ● Electric and magnetic forces between a pair of objects do not require that the objects be in contact. The sizes of the forces in each situation depend on the properties of the objects and their distances apart and, for forces between two magnets, on their orientation relative to each other.
Crosscutting Concepts	**Learning Objectives**
Interdependence of Science, Engineering, and Technology- ● Scientific discoveries about the natural world can often lead to new and improved technologies, which are developed through the engineering design process.	● Students identify and describe a simple design problem that can be solved by applying a scientific understanding of the forces between interacting magnets. ● Students identify and describe the scientific ideas necessary for solving the problem, including: ○ Force between objects do not require that those objects be in contact with each other ○ The size of the force depends on the properties of objects, distance between the objects, and orientation of magnetic objects relative to one another. ● Students identify and describe the criteria (desirable features) for a successful solution to the problem.

	• Students identify and describe the constraints.

Primary Interdisciplinary Connections:
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Suggested Accommodations

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- Provide real world connections and emphasize the value of education
- Communicate high expectations for the success of all students

Evidence of Student Learning	
Formative Tasks: ● Embedded Formative Tasks	**Alternative Assessments:** ● Student Self-Assessment
Summative Assessments: ● End of the unit assessment: Students End of unit explanations ● Investigative assessments	**Benchmark Assessments:** ● Group Work/Class Discussion ● Rubric Guided Observations ● Question Starters

• Critical Juncture Assessments • Graphic Organizers & Guided Note Taking • Cooperative Group Learning	• Modified Tests/Quizzes/Classwork

Knowledge & Skills

Enduring Understandings:

- The effect of unbalanced forces on an object results in a change of motion.
- Patterns of motion can be used to predict future motion. Some forces act through contact, some forces act even when objects are not in contact.
- The gravitational force of Earth acting on an object near Earth's surface pulls that object toward the planet's center.
- The effect of unbalanced forces on an object results in a change of motion.
- Patterns of motion can be used to predict future motion.
- Some forces act through contact, some forces act even when objects are not in contact.

Essential Questions:

- What are the effects of balanced and unbalanced forces on the motion of an object?
- How can you utilize a pattern to predict future motion?
- What is the relationship between electric or magnetic interactions between two objects not in contact?
- How can I solve a design problem using what I have learned about magnet?
- What are the effects of balanced and unbalanced forces on the motion of an object?
- How can you utilize a pattern to predict future motion?
- What is the relationship between electric or magnetic interactions between two objects not in contact?
- How can I solve a design problem using what I have learned about magnets?

Core Instructional & Supplemental Materials

Suggested Activities/Resources:

- Hands on activities embedded in HMH Science Dimensions
- Students will explore motion by simulating a push with a golf ball and pencil. Using a graphic organizer, students will record their data on a table and relay the information to class table by the end of the experiment. Students will observe forces and motion, as well as how much force is required to move an object.
- https://betterlesson.com/lesson/632779/force-and-motioninvestigation8
- Students will rub a balloon against shirt which builds up negative charges on the surface of the balloon. These charges attract to the positive charges on the static ghost, causing the ghost to move. *great activity to teach around Halloween.
- http://www.hookedonscience.org/files/2015_Experiment_Archive_STATIC_ELECTRICITY_GHOST.pdf
- Students will add blocks to a structure which allows the center of gravity, of your structure, to

Varied Levels of Text:

- Forces All Around
- Handbook of Forces
- What My Sister Taught Me About Magnets
- Hoverboard
- Schoolwide mentor texts "Forces and Motion" unit
- Forces Make Things Move-Kimberly Bradley
- Gravity is a Mystery-Franklyn Branley
- Waking Upside Down-Phillip Heckman
- Move It! Motion, Forces, and You-Adrienne Mason

shift from right to left. Once you remove the bottom vertical block, your structure perfectly balances over the bottom left block. Students can also demonstrate this idea with “Jenga” blocks. ● http://www.hookedonscience.org/files/2017_Experiment_Ar chive_Block_Balance.pdf	

Unit 3: Life Cycles & Inherited Traits	**Duration: 40 days- ongoing**

Standards/Learning Targets

New Jersey Student Learning Standards:

- **3-LS1-1-** Develop models to describe that organisms have unique and diverse life cycles but all have in common birth, growth, reproduction, and death.

• **3-LS3-1** Analyze and interpret data to provide evidence that plants and animals have traits inherited from parents and that variation of these traits exists in a group of similar organisms.[Clarification Statement: Patterns are the similarities and differences in traits shared between offspring and their parents, or among siblings. Emphasis is on organisms other than humans.] [Assessment Boundary: Assessment does not include genetic mechanisms of inheritance and prediction of traits. Assessment is limited to non-human examples.]
• **3-LS3-2** Use evidence to support the explanation that traits can be influenced by the environment. [Clarification Statement: Examples of the environment affecting a trait could include normally tall plants grown with insufficient water are stunted; and, a pet dog that is given too much food and little exercise may become overweight.].
3-LS4-2 - Use evidence to construct an explanation for how the variations in characteristics among individuals of the same species may provide advantages in surviving, finding mates, and reproducing

Performance Expectation	
3-LS1-1- Develop models to describe that organisms have unique and diverse life cycles but all have in common birth, growth, reproduction, and death. [Clarification Statement: Changes organisms go through during their life form a pattern.] [Assessment Boundary: Assessment of plant life cycles is limited to those of flowering plants. Assessment does not include details of human reproduction.]	
Science and Engineering Practices	**Disciplinary Core Ideas**
Developing and Using Models- ● Develop models to describe phenomena. **Scientific Knowledge is Based on Empirical Evidence-** ● Science findings are based on recognizing patterns.	**LS1.B: Growth and Development of Organisms-** ● Reproduction is essential to the continued existence of every kind of organism. Plants and animals have unique and diverse life cycles.
Crosscutting Concepts	**Learning Objectives**
Patterns- ● Patterns of change can be used to make predictions.	● Students develop models (e.g., conceptual, physical, drawing) to describe the phenomenon. In their models, students identify the relevant components of their

	models. ● In the models, students describe relationships between components. ● Students use the models to describe that although organisms can display life cycles that look different, they all follow the same pattern. ● Students use the models to make predictions related to the phenomenon, based on patterns identified among life cycles (e.g., prediction could include that if there are no births, deaths will continue and eventually there will be no more of that type of organism).

Performance Expectation	
3-LS3-1- Analyze and interpret data to provide evidence that plants and animals have traits inherited from parents and that variation of these traits exists in a group of similar organisms. [Clarification Statement: Patterns are the similarities and differences in traits shared between offspring and their parents, or among siblings. Emphasis is on organisms other than humans.] [Assessment Boundary: Assessment does not include genetic mechanisms of inheritance and prediction of traits. Assessment is limited to non-human examples.]	
Science and Engineering Practices	**Disciplinary Core Ideas**
Analyzing and Interpreting Data- ● Analyze and interpret data to make sense of phenomena using logical reasoning	**LS3.A: Inheritance of Traits-** ● Many characteristics of organisms are inherited from their parents. **LS3.B: Variation of Traits-** ● Different organisms vary in how they look and function because they have different inherited information.
Crosscutting Concepts	**Learning Objectives**
● **Patterns:** similarities and differences in patterns can be used to sort and classify natural phenomena.	● Students organize the data (e.g., from students' previous work, grade-appropriate existing datasets) using graphical displays (e.g., table, chart, graph). ● Students identify and describe patterns in the data. ● Students describe that the pattern of similarities in traits between parents and offspring, and between siblings, provides evidence that traits are inherited. ● Students describe that the pattern of differences in traits between parents and offspring, and between siblings, provides evidence that inherited traits can vary. ● Students describe that the variation in inherited traits results in a pattern of

	variation in traits in groups of organisms that are of a similar type.

Performance Expectation	
3-LS3-2- Use evidence to support the explanation that traits can be influenced by the environment. [Clarification Statement: Examples of the environment affecting a trait could include normally tall plants grown with insufficient water are stunted; and, a pet dog that is given too much food and little exercise may become overweight.]	
Science and Engineering Practices	**Disciplinary Core Ideas**
Constructing Explanations and Designing Solutions- ● Use evidence (e.g., observations, patterns) to support an explanation**.**	**LS3.A: Inheritance of Traits-** ● Other characteristics result from individuals' interactions with the environment, which can range from diet to learning. Many characteristics involve both inheritance and environment. **LS3.B: Variation of Traits-** ● The environment also affects the traits that an organism develops.
Crosscutting Concepts	**Learning Objectives**
Cause and Effect- ● Cause and effect relationships are routinely identified and used to explain change.	● Students identify the given explanation to be supported, including a statement that relates the phenomenon to a scientific idea, including that many inherited traits can be influenced by the environment. ● Students describe the given evidence that supports the explanation, including: ○ Environmental factors that vary for organisms of the same type (e.g., amount or food, amount of water, amount of exercise an animal gets, chemicals in the water) that may influence organisms' traits. ○ Inherited traits that vary between organisms of the same type (e.g., height or weight of a plant or animal, color or quantity of the flowers). ○ Observable inherited traits of organisms in varied environmental conditions ● Students use reasoning to connect the evidence and support an explanation about environmental influences on inherited traits in organisms. In their chain of reasoning, students describe a

	cause and effect relationship between a specific causal environmental factor and its effect of a given variation in a trait (e.g., not enough water produces plants that are shorter and have fewer flowers than plants that had more water available).

Performance Expectation	
3-LS4-2- Use evidence to construct an explanation for how the variations in characteristics among individuals of the same species may provide advantages in surviving, finding mates, and reproducing. [Clarification Statement: Examples of cause and effect relationships could be plants that have larger thorns than other plants may be less likely to be eaten by predators; and, animals that have better camouflage coloration than other animals may be more likely to survive and therefore more likely to leave offspring.]	
Science and Engineering Practices	**Disciplinary Core Ideas**
Constructing Explanations and Designing Solutions- ● Use evidence Use evidence (e.g., observations, patterns) to construct an explanation.	**LS4.B: Natural Selection-** ● Sometimes the differences in characteristics between individuals of the same species provide advantages in surviving, finding mates, and reproducing.
Crosscutting Concepts	**Learning Objectives**
Cause and Effect- ● Cause and effect relationships are routinely identified and used to explain change.	● Students articulate a statement that relates the given phenomenon to a scientific idea, including that variations in characteristics among individuals of the same species may provide advantages in surviving, finding mates, and reproducing. ● Students use evidence and reasoning to construct an explanation for the phenomenon. ● Students describe the given evidence necessary for the explanation. ● Students use reasoning to logically connect the evidence to support the explanation for the phenomenon. Students describe a chain of reasoning.

Primary Interdisciplinary Connections:
- ELA: SL.3.3. Ask and answer questions about information from a speaker, offering appropriate elaboration and detail.
- Engineering Units are embedding throughout

Technology Standards:
- 8.1.2.A.1 Identify the basic features of a digital device and explain its purpose.
- 8.1.2.A.4 Demonstrate developmentally appropriate navigation skills in virtual environments (i.e.

games, museums).
- 8.2.2.C.1 Brainstorm ideas on how to solve a problem or build a product
- 8.1.2.E.1 Use digital tools and online resources to explore a problem or issue.
- 8.2.2.E.1 List and demonstrate the steps to an everyday task

Career Ready Practices:
- CRP1. Act as a responsible and contributing citizen and employee.
- CRP4. Communicate clearly and effectively and with reason.
- CRP12. Work productively in teams while using cultural global competence.

21st Century Life and Career Standards:
- 9.1.4.A.1- Explain the difference between a career and a job, and identify various jobs in the community and the related earnings.

Suggested Accommodations

English Language Learners:
- Provide pictures and well labeled models
- Speak slowly and gesture when necessary
- Pre-teach vocabulary words
- Extended time on assessments
- Small group for assessment
- Review Vocabulary
- Allow for alternate responses during activities and assessments

Special Education/Students with Disabilities:
- Follow specific IEP accommodations and modifications
- Strategic grouping
- Pre-teach concepts
- Small group for assessments
- Check in's during experiments to help refocus
- Allow alternate assignments and assessments

504 Plans:
- Follow specific 504 accommodations and modifications
- Strategic grouping
- Pre-teach concepts
- Small group for assessments
- Check in's during experiments to help refocus
- Allow alternate assignments and assessments

Gifted and Talented:
- Open ended questions to activate higher level thinking
- Higher level texts
- Alternative modes of communication
- Student developed extension activities
- Plan self directed inquiry
- Student created rubrics
- Curriculum compacting
- Opportunities to push assessment/activity boundaries

Students at Risk of Failure:
- Strategic grouping
- Pre-teach concepts
- Small group for assessments

- Check in's during experiments to help refocus
- Incorporate social/emotional discussions
- Encourage and monitor positive peer collaboration
- Provide academic resources for both home and school use
- Provide incentives to increase motivation and collaboration

Economically Disadvantaged:

- Provide clear, achievable expectation, do not lower academic requirements for them.
- Build a safe and nurturing atmosphere
- Be flexible with assignments
- Offer several alternatives from which all students can choose.
- Allow students to finish assignments independently, or give them the opportunity to complete tasks at their own pace.
- Use real-world examples and create mental models for abstract idea
- Provide increased knowledge base and vocabulary use about real world experiences.
- Share the decision making in class.
- Maintain expectations while offering choice and soliciting input

Culturally Diverse:

- Involve families in student learning
- Provide social/emotional support
- Respect cultural traditions
- Build in more group work to encourage interaction with peers
- Show photos, videos, and definitions when possible for culturally unique vocabulary
- Teach study skills
- Provided students with necessary academic resources and materials
- Allow for alternative assignments
- Provide visuals
- Assign peer tutor
- Support verbal explanations with non verbal cues: Gestures/ facial expressions Props, realia, manipulatives, concrete materials Visuals, graphs, pictures, maps
- Provide positive praise to increase motivation
- Provide real world connections and emphasize the value of education
- Communicate high expectations for the success of all students

Evidence of Student Learning	
Formative Tasks: ● Embedded Formative Tasks (Teacher references)	**Alternative Assessments:** ● Student Self-Assessment (teacher references)
Summative Assessments: ● End of the unit assessment: Students End of unit explanations ● Graphic Organizers & Guided Note Taking ● Cooperative Group Learning	**Benchmark Assessments:** ● Group Work/Class Discussion ● Rubric Guided Observations ● Question Starters ● Modified Tests/Quizzes/Classwork
Knowledge & Skills	
Enduring Understandings: ● Reproduction is essential to every kind of organism. ● Organisms have unique and diverse life cycles.	**Essential Questions:** ● What are the components of life cycles that all organisms share, and how do they differ?

• Different organisms vary in how they look and function because they have different inherited information. • The environment also affects the traits that an organism develops.	• Do all plant and animal offspring inherit the same traits? • How are traits influenced by the environment? • How do variations and characteristics provide advantages in nature?

Core Instructional & Supplemental Materials

Suggested Activities/Resources: • Hands on activities embedded in HMH Science Dimensions • Using the information given on the PowerPoint, students will compare and contrast the life cycles of butterflies and grasshoppers as well as illustrate each step of the life cycle in their notebooks or on the pages provided. • https://betterlesson.com/lesson/637832/life-cycle slesson-1-butterflies-and-grasshoppers • Just as scientists classify organisms based on specific criteria, during this introductory lesson on classifying, students classify seashells by the criteria they have agreed upon collaboratively. Start with a full bucket of various seashells and have students discuss different patterns within seashells. • https://betterlesson.com/lesson/614384/she-sorts seashells-by-the-seashore	**Varied Levels of Text:** • Sky Notebook • Seeing the World Through Numbers • What's going on with the Weather • Dangerous Weather Ahead • World Weather Handbook • Secrets of Animal Life Cycles- Andrew Solway • Life Cycles- Julian Sayarer • The Tiny Seed- Eric Carle • Tadpole's Promise- Jeanne Willis

Unit 4: Organisms and Their Environments	**Duration: 40 days- ongoing**

Standards/Learning Targets

New Jersey Student Learning Standards:

• 3-LS1-1 Develop models to describe that organisms have unique and diverse life cycles, but all have in common birth, growth, reproduction, and death.
[Clarification Statement: Changes organisms go through during their life form a pattern.] [Assessment Boundary: Assessment of plant life cycles is limited to those of flowering plants. Assessment does not include details of human reproduction.]

Performance Expectation

3-LS2-1- Construct an argument that some animals form groups that help members survive.

Science and Engineering Practices	Disciplinary Core Ideas
Engaging in Argument from Evidence- • Construct an argument with evidence, data, and/or a model.	**LS2.D: Social Interactions and Group Behavior-** • Being part of a group helps animals obtain food, defend themselves, and cope with changes. Groups may serve different

	functions and vary dramatically in size
Crosscutting Concepts	**Learning Objectives**
Cause and Effect- ● Cause and effect relationships are routinely identified and used to explain change.	● Students make a claim to be supported about a phenomenon. In their claim, students include the idea that some animals form groups and that being a member of that group helps each member survive. ● Students describe the given evidence, data, and/or models necessary to support the claim. ● Students evaluate the evidence to determine its relevance, and whether it supports the claim that being a member of a group has a survival advantage. ● Students describe whether the given evidence is sufficient to support the claim and whether additional evidence is needed. ● Students use reasoning to construct an argument connecting the evidence, data and/or models to the claim.

Performance Expectation	
3-LS4-1- Analyze and interpret data from fossils to provide evidence of the organisms and the environments in which they lived long ago. [Clarification Statement: Examples of data could include type, size, and distributions of fossil organisms. Examples of fossils and environments could include marine fossils found on dry land, tropical plant fossils found in Arctic areas, and fossils of extinct organisms.] [*Assessment Boundary: Assessment does not include identification of specific fossils or present plants and animals. Assessment is limited to major fossil types and relative ages.*]	
Science and Engineering Practices	**Disciplinary Core Ideas**
Analyzing and Interpreting Data- ● Analyze and interpret data to make sense of phenomena using logical reasoning.	**LS4.A: Evidence of Common Ancestry and Diversity-** ● Some kinds of plants and animals that once lived on Earth are no longer found anywhere. (Note: moved from K-2) ● Fossils provide evidence about the types of organisms that lived long ago and also about the nature of their environments.
Crosscutting Concepts	**Learning Objectives**
Scale, Proportion, and Quantity- ● Observable phenomena exist from very short to very long time periods. **Scientific Knowledge Assumes an Order and Consistency in Natural Systems-** ● Science assumes consistent patterns in natural systems.	● Students use graphical displays (e.g., table, chart, graph) to organize the given data. ● Students identify and describe relationships in the data, including: ○ That fossils represent plants and animals that lived long ago. ○ The relationships between the

	fossils of organisms and the environments in which they lived (e.g., marine organisms, like fish, must have lived in water environments). ○ The relationships between types of fossils (e.g., those of marine animals) and the current environments where similar organisms are found. ○ That some fossils represent organisms that lived long ago and have no modern counterparts. ○ The relationships between fossils of organisms that lived long ago and their modern counterparts. ○ The relationships between existing animals and the environments in which they currently live.

Performance Expectation	
3-LS4-3- Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all. [Clarification Statement: Examples of evidence could include needs and characteristics of the organisms and habitats involved. The organisms and their habitat make up a system in which the parts depend on each other.]	
Science and Engineering Practices	**Disciplinary Core Ideas**
Engaging in Argument from Evidence- ● Construct an argument with evidence.	**LS4.C: Adaptation-** ● For any particular environment, some kinds of organisms survive well, some survive less well, and some cannot survive at all. (3-LS4-3)
Crosscutting Concepts	**Learning Objectives**
Cause and Effect- ● Cause and effect relationships are routinely identified and used to explain change	● Students make a claim to be supported about a phenomenon. In their claim, students include the idea that in a particular habitat, some organisms can survive well, some can survive less well, and some cannot survive at all. ● Students describe the given evidence necessary for supporting the claim. ● Students evaluate the evidence to determine: ○ The characteristics of organisms that might affect survival. ○ The similarities and differences in needs among at least three types of organisms. ○ How and what features of the habitat meet the needs of each of the organisms (i.e., the degree to which a habitat meets the needs of an organism).

	○ How and what features of the habitat do not meet the needs of each of the organisms (i.e., the degree to which a habitat does not meet the needs of an organism)

Performance Expectation	
3-LS4-4- Make a claim about the merit of a solution to a problem caused when the environment changes and the types of plants and animals that live there may change.* [Clarification Statement: Examples of environmental changes could include changes in land characteristics, water distribution, temperature, food, and other organisms.] [Assessment Boundary: Assessment is limited to a single environmental change. Assessment does not include the greenhouse effect or climate change.]	
Science and Engineering Practices	**Disciplinary Core Ideas**
Engaging in Argument from Evidence- ● Make a claim about the merit of a solution to a problem by citing relevant evidence about how it meets the criteria and constraints of the problem. (3-LS4-4)	**LS2.C: Ecosystem Dynamics, Functioning, and Resilience-** ● When the environment changes in ways that affect a place's physical characteristics, temperature, or availability of resources, some organisms survive and reproduce, others move to new locations, yet others move into the transformed environment, and some die. **LS4.D: Biodiversity and Humans-** ● Populations live in a variety of habitats, and change in those habitats affects the organisms living there.
Crosscutting Concepts	**Learning Objectives**
Systems and System Models- ● A system can be described in terms of its components and their interactions. **Interdependence of Engineering, Technology, and Science on Society and the Natural World-** ● Knowledge of relevant scientific concepts and research findings is important in engineering.	● Students make a claim about the merit of a given solution to a problem that is caused when the environment changes, which results in changes in the types of plants and animals that live there. ● Students describe the given evidence about how the solution meets the given criteria and constraints. This evidence includes: ○ A system of plants, animals, and a given environment within which they live before the given environmental change occurs. ○ A given change in the environment. ○ How the change in the given environment causes a problem for the existing plants and animals living within that area. ○ The effect of the solution on the plants and animals within the

	environment. ○ The resulting changes to plants and animals living within that changed environment, after the solution has been implemented.

Primary Interdisciplinary Connections:

- ELA: SL.3.3. Ask and answer questions about information from a speaker, offering appropriate elaboration and detail.
- Engineering Units are embedding throughout

Technology Standards:

- 8.1.2.A.1 Identify the basic features of a digital device and explain its purpose.
- 8.1.2.A.4 Demonstrate developmentally appropriate navigation skills in virtual environments (i.e. games, museums).
- 8.2.2.C.1 Brainstorm ideas on how to solve a problem or build a product
- 8.1.2.E.1 Use digital tools and online resources to explore a problem or issue.
- 8.2.2.E.1 List and demonstrate the steps to an everyday task

Career Ready Practices:

- CRP1. Act as a responsible and contributing citizen and employee.
- CRP4. Communicate clearly and effectively and with reason.
- CRP12. Work productively in teams while using cultural global competence.

21st Century Life and Career Standards:

- 9.1.4.A.1- Explain the difference between a career and a job, and identify various jobs in the community and the related earnings.

Suggested Accommodations

English Language Learners:

- Provide pictures and well labeled models
- Speak slowly and gesture when necessary
- Pre-teach vocabulary words
- Extended time on assessments
- Small group for assessment
- Review Vocabulary
- Allow for alternate responses during activities and assessments

Special Education/Students with Disabilities:

- Follow specific IEP accommodations and modifications
- Strategic grouping
- Pre-teach concepts
- Small group for assessments
- Check in's during experiments to help refocus
- Allow alternate assignments and assessments

504 Plans:

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Gifted and Talented:

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Culturally Diverse:

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- Provide social/emotional support
- Respect cultural traditions
- Build in more group work to encourage interaction with peers
- Show photos, videos, and definitions when possible for culturally unique vocabulary
- Teach study skills
- Provided students with necessary academic resources and materials
- Allow for alternative assignments
- Provide visuals
- Assign peer tutor
- Support verbal explanations with non verbal cues: Gestures/ facial expressions Props, realia, manipulatives, concrete materials Visuals, graphs, pictures, maps
- Provide positive praise to increase motivation
- Provide real world connections and emphasize the value of education
- Communicate high expectations for the success of all students

Evidence of Student Learning	
Formative Tasks: ● Embedded Formative Tasks	**Alternative Assessments:** ● Student Self-Assessment
Summative Assessments:	**Benchmark Assessments:**

• End of the unit assessment: Students End of unit explanations • Graphic Organizers & Guided Note Taking • Cooperative Group Learning	• Group Work/Class Discussion • Rubric Guided Observations • Question Starters • Modified Tests/Quizzes/Classwork
Knowledge & Skills	
Enduring Understandings: • When the environment changes, some organisms survive and reproduce, some move to new locations, some move into the transformed environment, and some die. • Being part of a group helps animals obtain food, defend themselves, and cope with changes. • Some living organisms resemble organisms that once lived on Earth. Fossils provide evidence about the types of organisms and environments that existed long ago. • Differences in characteristics between individuals of the same species provide advantages in surviving and reproducing. • Particular organisms can only survive in particular environments. • Populations of organisms live in a variety of habitats. Change in those habitats affects the organisms living there.	**Essential Questions:** • Why do some animals form groups to help members survive? • How do fossils provide evidence of the organisms and the environments in which they lived long ago? • How does the chosen habitat affect the survival rate of its inhabitants? • Why do plants and animals change when their environment changes? • What are some solutions to some problems that are caused by environmental changes? • What is the impact of these changes up on plants and animals?
Core Instructional & Supplemental Materials	
Suggested Activities/Resources: • Hands on activities embedded in HMH Science Dimensions • Students use BrainPOP Jr. and/or BrainPOP resources to identify the roles that plants and animals play in various food chains during interactive game play. Students define vocabulary terms such as decomposer and producer and use those terms in class discussions and activities. https://educators.brainpop.com/lesson-plan/plantsanimals-lesson-plan-food-chain-game/?bptopic=ecosystems • Students use BrainPOP resources to explore the relationships between organisms within an ecosystem. Students then build a virtual food web to support a selected animal using online game play. https://educators.brainpop.com/lesson-plan/fo	**Varied Levels of Text:** • Earthworms Underground • Mystery Mouths • Environment News • Cockroach Robots • Biomimicry Handbook • Over and Under the Pond- Kate Messner • Seashore- Steve Parker • A Walk in the Rainforest- Rebecca L. Johnson • Swamp- Donald Silver

od-fightgame-food-chains/?bp-topic=ecosystems ● What is the growth and development of a plant? Each student has a lima bean and a hand lens. Have them make detailed diagrams and chart their observations of the lima bean. Soak Lima beans, hand lens, paper towels, graphic organizer for modeling diagram 26 the lima beans in water overnight. Have students take apart the lima bean. Again, create a detailed diagram of the parts. Goal: students to be able to identify the parts of the seed and determine the development of the seed into a plant. ● Using quick germinating seeds, have the students plant them. Have them plant and observe and measure the plant's in order to track the data of the plants. Students are able to create a graph of their plant growth. (Dixie cups, potting soil, quick germinating seeds, chart for tracking) ● Plant Dissection: Draw a detailed diagram of the entire plant. Students are to dissect the flower to have a better understanding of the parts. Have them record and label each part. Using a ruler, measure the exact length of the flower. (ex. daffodils, lilies, iris, tulips work best) Students can glue the pieces of the plant into their science journal. Tulips, lilies, daffodils, iris (or any other large-stemmed flower), plastic knife (for teacher-use only), rulers, charts.	

Unit 5: Weather and Climate	**Duration: 30 days- ongoing**

Standards/Learning Targets

New Jersey Student Learning Standards:

- **3-ESS2-1-** Represent data in tables and graphical displays to describe typical weather conditions expected during a particular season.
  [Clarification Statement: Examples of data could include average temperature, precipitation, and wind direction.] [Assessment Boundary: Assessment of graphical displays is limited to pictographs and bar graphs. Assessment does not include climate change.]

- **3-ESS2-2-** Obtain and combine information to describe climates in different regions of the world

Performance Expectation

3-ESS2-1- Represent data in tables and graphical displays to describe typical weather conditions expected during a particular season. [Clarification Statement: Examples of data could include average

temperature, precipitation, and wind direction.] [Assessment Boundary: Assessment of graphical displays is limited to pictographs and bar graphs. Assessment does not include climate change.]

Science and Engineering Practices	Disciplinary Core Ideas
Analyzing and Interpreting Data- ● Represent data in tables and various graphical displays (bar graphs and pictographs) to reveal patterns that indicate relationships	**ESS2.D: Weather and Climate-** ● Scientists record patterns of the weather across different times and areas so that they can make predictions about what kind of weather might happen next.
Crosscutting Concepts	Learning Objectives
Patterns- ● Patterns of change can be used to make predictions.	● Students use graphical displays (e.g., table, chart, graph) to organize the given data by season using tables, pictographs, and/or bar charts, including: ○ Weather condition data from the same area across multiple seasons (e.g., average temperature, precipitation, wind direction). ○ Weather condition data from different areas (e.g., hometown and nonlocal areas, such as a town in another state). ● Students identify and describe patterns of weather conditions across: ○ Different seasons (e.g., cold and dry in the winter, hot and wet in the summer; more or less wind in a particular season). ○ Different areas (e.g., certain areas (defined by location, such as a town in the Pacific Northwest), have high precipitation, while a different area (based on location or type, such as a town in the Southwest) have very little precipitation).

Performance Expectation	
3-ESS2-2- Obtain and combine information to describe climates in different regions of the world.	
Science and Engineering Practices	**Disciplinary Core Ideas**
Obtaining, Evaluating, and Communicating Information- ● Obtain and combine information from books and other reliable media to explain phenomena.	**Weather and Climate-** ● Climate describes a range of an area's typical weather conditions and the extent to which those conditions vary over years.
Crosscutting Concepts	**Learning Objectives**

Patterns- ● Patterns of change can be used to make predictions.	● Students use books and other reliable media to gather information about: ○ Climates in different regions of the world (e.g., equatorial, polar, coastal, mid-continental). ○ Variations in climates within different regions of the world (e.g., variations could include an area's average temperatures and precipitation during various months over several years or an area's average rainfall and temperatures during the rainy season over several years). ● Students combine obtained information to provide evidence about the climate pattern in a region that can be used to make predictions about typical weather conditions in that region.

Performance Expectation	
3-ESS3-1- Make a claim about the merit of a design solution that reduces the impacts of a weather-related hazard.* [Clarification Statement: Examples of design solutions to weather-related hazards could include barriers to prevent flooding, wind resistant roofs, and lightning rods.]	
Science and Engineering Practices	**Disciplinary Core Ideas**
Engaging in Argument from Evidence- ● Make a claim about the merit of a solution to a problem by citing relevant evidence about how it meets the criteria and constraints of the problem.	**ESS3.B: Natural Hazards-** ● A variety of natural hazards result from natural processes. Humans cannot eliminate natural hazards but can take steps to reduce their impacts. (Note: This Disciplinary Core Idea is also addressed by 4- ESS3-2.)
Crosscutting Concepts	**Learning Objectives**
Cause and Effect- ● Cause and effect relationships are routinely identified, tested, and used to explain change. **Connections to Engineering, Technology, and Applications of Science-** ● Engineers improve existing technologies or develop new ones to increase their benefits (e.g., better artificial limbs), decrease known risks (e.g., seatbelts in cars), and meet societal demands (e.g., cell phones). **Connections to Nature of Science-** ● Science is a Human Endeavor Science affects everyday life.	● Students make a claim about the merit of a given design solution that reduces the impact of a weather-related hazard. ● Students describe the given evidence about the design solution, including evidence about: ○ The given weather-related hazard (e.g., heavy rain or snow, strong winds, lightning, flooding along river banks). ○ Problems caused by the weather related hazard (e.g., heavy rains cause flooding, lightning causes fires).

	○ How the proposed solution addresses the problem (e.g., dams and levees are designed to control flooding, lightning rods reduce the chance of fires) [note: mechanisms are limited to simple observable relationships that rely on logical reasoning]

Primary Interdisciplinary Connections:

- ELA: SL.3.3. Ask and answer questions about information from a speaker, offering appropriate elaboration and detail.
- Engineering Units are embedding throughout

Technology Standards:

- 8.1.2.A.1 Identify the basic features of a digital device and explain its purpose.
- 8.1.2.A.4 Demonstrate developmentally appropriate navigation skills in virtual environments (i.e. games, museums).
- 8.2.2.C.1 Brainstorm ideas on how to solve a problem or build a product
- 8.1.2.E.1 Use digital tools and online resources to explore a problem or issue.
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21st Century Life and Career Standards:

- 9.1.4.A.1- Explain the difference between a career and a job, and identify various jobs in the community and the related earnings.

Suggested Accommodations

English Language Learners:

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Special Education/Students with Disabilities:

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504 Plans:

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Gifted and Talented:
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- Use real-world examples and create mental models for abstract idea
- Provide increased knowledge base and vocabulary use about real world experiences.
- Share the decision making in class.
- Maintain expectations while offering choice and soliciting input

Culturally Diverse:
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- Provide social/emotional support
- Respect cultural traditions
- Build in more group work to encourage interaction with peers
- Show photos, videos, and definitions when possible for culturally unique vocabulary
- Teach study skills
- Provided students with necessary academic resources and materials
- Allow for alternative assignments
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- Assign peer tutor
- Support verbal explanations with non verbal cues: Gestures/ facial expressions Props, realia, manipulatives, concrete materials Visuals, graphs, pictures, maps
- Provide positive praise to increase motivation
- Provide real world connections and emphasize the value of education
- Communicate high expectations for the success of all students

Evidence of Student Learning	
Formative Tasks: ● Embedded Formative Tasks	**Alternative Assessments:** ● Student Self-Assessment

Summative Assessments: ● End of the unit assessment: Students End of unit explanations ● Graphic Organizers & Guided Note Taking ● Cooperative Group Learning	**Benchmark Assessments:** ● Group Work/Class Discussion ● Rubric Guided Observations ● Question Starters ● Modified Tests/Quizzes/Classwork
Knowledge & Skills	
Enduring Understandings: ● Climate describes patterns of typical weather conditions over different scales and variations. ● Data in tables and graphical displays to describe typical weather conditions. ● Weather patterns can be analyzed. ● Solutions can be designed to reduce the impact of a weather-related hazard.	**Essential Questions:** ● How do seasonal changes affect weather conditions? ● How can I use data in tables and graphical displays to describe typical weather conditions? ● How does the global location of a region determine the climate? ● How do engineers design a solution to reduce the impact of a weather-related hazard?
Core Instructional & Supplemental Materials	
Suggested Activities/Resources: ● Hands on activities embedded in HMH Science Dimensions ● Students will record the humidity for your location from www.weather.gov and whether the pinecone is open or closed each day. Represent your data in a table. After two weeks graph your data. What happens to the pinecone when the humidity is high? What happens to the pinecone when the humidity is low? Describe any weather patterns over the two weeks. Using the data describe the typical weather conditions expected during this time of the year. ● http://www.hookedonscience.org/files/2015_Experiment_Archive_PINECONE_HYGROMETER.pdf34 ● In this activity, students will conduct experiments or participate in demonstrations to answer questions about sky and weather phenomena. Students also will analyze and present data. ● http://www.earthsciweek.org/classroom-activities/skyand-cloud-windows ● As a citizen scientist, students can take their own air temperatures with an outdoor thermometer and compare their readings to the official ones from the National Weather Service. It is important that you follow the correct procedures, however, for placing your	**Varied Levels of Text:** ● Seeing the World Through Numbers ● What's Going On with the Weather? ● Dangerous Weather Ahead ● World Weather Handbook ● Snowflake Bentley- Jacqueline Briggs Martin ● Hurricanes- Gail Gibbons ● Come On, Rain!- Karen Hesse ● Albert- Donna Jo Napoli

thermometer. This activity will help students to do that, as well as find out what the normal yearly average temperature is for each day. http://www.earthsciweek.org/classroom-activities/stepstep-weather-observations ● This guide provides an overview of unit concepts, a spark activity, vocabulary list, Internet links, and extension activities. It describes unit resources and addresses misconceptions. Students will understand why it is clear one day and cloudy another day or why is it snowing in one location and sunny in another location. ● https://www.scienceaz.com/main/Download/resource/saz/id/326/unitId/13/format/single ● Measure the change in temperature of objects when placed under lamps or in the sunlight. (Lamps or sunlight, glass of water, thermometer, chart paper, timer)	