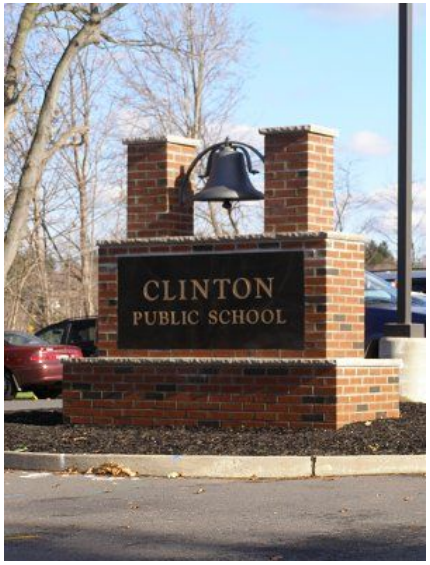
Clinton-Glen Gardner School District



Curriculum Management System

SCIENCE

Grade: K

*** For adoption by all regular education programs as specified and for adoption or adaptation by all Special Education Programs in accordance with Board of Education Policy #2200.**

Board Approved: August 23, 2017

CLINTON-GLEN GARDNER SCHOOL DISTRICT

ADMINISTRATION

Dr. Seth Cohen, Superintendent/Principal
Mrs. Lisa J. Craft, Business Administrator
Mrs. Jacqueline Turner, Assistant Principal/Curriculum Coordinator
Mrs. Jenine Kastner, Director of Special Services

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Acknowledgments

The following individuals are acknowledged for their assistance in the preparation of this Curriculum Management System:

Writers' Names: **Jamie Friedel**

Clinton-Glen Gardner School District

Mission

The Clinton-Glen Gardner School District is a community who values traditions. Our MISSION is to nurture and cultivate each child to be a compassionate, curious, and creative thinker, entrusted and empowered to build and lead the future.

Philosophy

Science, engineering, and technology influence and permeate every aspect of modern life. Some knowledge of science and engineering is required to engage with the major public policy issues of today as well as to make informed everyday decisions, such as selecting among alternative medical treatments or determining how to invest public funds for water supply options. In addition, understanding science and the extraordinary insights it has produced can be meaningful and relevant on a personal level, opening new worlds to explore and offering lifelong opportunities for enriching people's lives. In these contexts, learning science is important for everyone, even those who eventually choose careers in fields other than science or engineering.

The Next Generation Science Standards (NGSS) are K–12 science content standards. Standards set the expectations for what students should know and be able to do. The NGSS were developed by states to improve science education for all students.

A goal for developing the NGSS was to create a set of research-based, up-to-date K–12 science standards. These standards give local educators the flexibility to design classroom learning experiences that stimulate students' interests in science and prepares them for college, careers, and citizenship. The CPS Science Curriculum is designed to address the goals and philosophy of the New Jersey Next Generation Science Standards.

Grade K
Science
Scope and Sequence

<table>
<tr><th colspan="2">Quarter I</th></tr>
<tr><td>Unit 1: Weather
This unit is based on K-ESS2-1, K-ESS3-2, and K-2-ETS1-1.
What is the weather like today and how is it different from yesterday?
How can someone predict what the weather will be tomorrow?
How does weather forecasting help us to prepare for dangerous weather?</td><td>Unit 2: Push and Pull
This unit is based on K-PS2-1, K-PS2-2, and K-2-ETS1-3
What happens if you push or pull an object harder?
How can you design a simple way to change the speed or direction of an object using a push or pull from another object?</td></tr>
<tr><td>(The ones that apply for these units are in bold)

<u>21st Century Skills</u>
1. Creativity & Innovation
2. Critical Thinking & Problem Solving
3. Communication & Collaboration
4. Media Literacy
5. Information Literacy
6. Information, Communication & Technology</td><td><u>Cross Cutting Concepts</u>
1. Patterns
2. Cause and Effect
3. Scale, Proportion and Quantity
4. System and System Models
5. Energy and Matter: flows, cycles and conservation
6. Structure and Function
7. Stability and Change</td></tr>
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1. Global Awareness
2. Financial, Economic, Business and Entrepreneurial Literacy
3. Civic Literacy
4. Health Literacy
5. Environmental Literacy</td><td><u>Scientific and Engineering Practices</u>
1. Asking questions or defining a problem
2. Developing and using models
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4. Analyzing and interpreting data
5. Using mathematics and computational thinking
6. Constructing explanations or designing a solution
7. Engaging in an argument from evidence
8. Obtaining, evaluating and communicating information</td></tr>
</table>

Technology Infusion http://www.state.nj.us/education/, Internet, Web Quests, content-related websites, wireless laptop computers, Chromebooks, computer laboratory, classroom computers, SMART Boards, CDs, DVDs, webinars, video streaming, podcasting	
Differentiation 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)	
Assessment Various opportunities during lab investigations for formative assessment and anecdotal notes. Foss Kit I-Investigations at the end of each investigation as benchmark. Review of student documentation of learning process in Science notebook and observations of approach to investigations as formative assessment. **During Work Period adjust lessons for individual students and small groups of students based on formative and summative data (Go back and re-teach for those that did not meet standard on benchmark and plan accordingly for those that exceeded benchmark)**	

<table>
<tr><th colspan="2">Quarter II</th></tr>
<tr><td>Unit 3: Effects of the Sun
This unit is based on K-PS3-1, K-PS3-2, K-2 ETS1-1, K-2-ETS1-2, and K-2-ETS1-3.
How can we use science to keep a playground cool in the summertime?
How does sunlight affect the playground?
Imagine we have been asked to design a new playground. How would we keep the sand, soil, rocks, and water found on the playground cool during the summer?</td><td></td></tr>
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Quarter III

Unit 4: Traits: Basic Needs of Living Things

This unit is based on K-LS1-1, K-ESS3-1, and K-ESS2-2

- How can you tell if something is alive?
- What do animals and plants need to survive?
- Where do organisms live and why do they live there?

(The ones that apply for these units are in bold)

21st Century Skills

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2. **Critical Thinking & Problem Solving**
3. **Communication & Collaboration**
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21st Century Themes

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Quarter IV

Unit 5: Basic Needs of Humans **This unit is based on K-ESS3-3 and K-2 ETS1-1.** **How do people impact the environment as they gather and use what they need to live and grow?**	

<table>
<tr><td>

- How can humans reduce their impact on the land, water, air, and other living things in the local environment?

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Grade K	**Topic: Weather**
Sept./Oct.	
Essential Questions	What are the parts of trees? What do trees need to grow? What can we observe about leaves? How are leaves different How can we measure the air temperature? What does a wind sock tell us about the wind? How do trees change throughout the seasons?
Disciplinary Core Concepts:	**ESS2.D: Weather and Climate** • Weather is the combination of sunlight, wind, snow or rain, and temperature in a particular region at a particular time. People measure these conditions to describe and record the weather and to notice patterns over time. (K-ESS2-1) **ESS3.B: Natural Hazards** • Some kinds of severe weather are more likely than others in a given region. Weather scientists forecast severe weather so that the communities can prepare for and respond to these events. (K-ESS3-2) **ETS1.A: Defining and Delimiting an Engineering Problem** • A situation that people want to change or create can be approached as a problem to be solved through engineering. (K-2-ETS1-1) • Asking questions, making observations, and gathering information are helpful in thinking about problems. (K-2-ETS1-1) • Before beginning to design a solution, it is important to clearly understand the problem. (K-2-ETS1-1)

How will they learn it? Learning Activities:	**Investigation 3: Observing Weather** Students share what they know about weather and how it relates to air. A class weather monitor begins recording daily weather observations on a class calendar. Students use weather pictures to indicate five basic types of weather. They use a thermometer to measure relative temperature (how hot or cold it is) and make a wind sock to observe the wind direction and speed. Students observe and compare objects in the sky during the day and at night.
Resource	**<u>Foss Resources</u>** **Foss Kit Investigation 3** **Science Resource Book:** “Up in the Sky” “Weather” **Foss Kit Videos:** *Summer*, *Once There Was a Tree*

How do we know that they know it? Assessment	Benchmark assessments are short summative assessments given after each investigation. These I-Checks are actually hybrid tools: they provide summative information about students' achievement, and because they occur soon after teaching each investigation, they can be used diagnostically as well. Reviewing specific items on an I-Check with the class provides additional opportunities for students to clarify their thinking. The embedded assessments are based on authentic work produced by students during the course of participating in the FOSS activities. Students do their science, and teachers review their notebook entries. Bullet points in the Guiding the Investigation tell you specifically what students should know and be able to communicate. If student work is incorrect or incomplete, you know that there has been a breakdown in the learning/communicating process. The assessment system then provides a menu of next-step strategies to resolve the situation. Embedded assessment is assessment for learning, not assessment of learning.
Interdisciplinary Connections	**ELA:** Participate in shared research and writing projects (e.g., explore a number of books by a favorite author and express opinions about them). (K-ESS2-1) **W.K.7**, With prompting and support ask and answer questions about key details in a text. (K-ESS3-2) **RI.K.1**, Ask and answer questions in order to seek help, get information, or clarify something that is not understood. (K-ESS3-2) **SL.K.3** Ask and answer such questions as who, what, where, when, why, and how to demonstrate understanding of key details in a text. (K-2-ETS1-1) **RI.2.1** With guidance and support from adults, use a variety of digital tools to produce and publish writing, including in collaboration with peers. (K-2-ETS1-1) **W.2.6** Recall information from experiences or gather information from provided sources to answer a question. (K-2-ETS1-1) **W.2.8** **Math:** Reason abstractly and quantitatively. (K-ESS2-1),(K-2-ETS1-1) **MP.2,** Model with mathematics. (K-ESS2-1),(K-ESS3-2),(K-2-ETS1-1) **MP.4,** Use appropriate tools strategically. (K-2-ETS1-1) **MP.5,** Counting and Cardinality (K-ESS3-2) **K.CC,** Know number names and the count sequence. (K-ESS2-1) **K.CC.A,** Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object. (K-ESS2-1) **K.MD.A.1,** Classify objects into given categories; count the number of objects in each category and sort the categories by count. (K-ESS2-1) **K.MD.B.3,** Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart,

	and compare problems using information presented in a bar graph. (K-2-ETS1-1) **2.MD.D.10**
What will students be able to do as a result of the learning in this unit?	•Observe patterns in events generated by cause-and-effect relationships. •Read grade-appropriate texts and/or use media to obtain scientific information to describe patterns in the natural world. •Ask questions based on observations to find more information about the designed world. •Ask questions to obtain information about the purpose of weather forecasting to prepare for and respond to severe weather. (Emphasis is on local forms of severe weather.) •Define a simple problem that can be solved through the development of a new or improved object or tool. •Ask questions, make observations, and gather information about a situation people want to change in order to define a simple problem that can be

Grade K	**Topic: Push and Pull**
Dec./Jan.	
Essential Questions	What causes objects to move? What happens when objects collide? Where can balls roll in the schoolyard? How can we change how far a balloon rocket travels?
Disciplinary Core Concepts:	**PS2.A: Forces and Motion** •Pushes and pulls can have different strengths and directions. (K-PS2-1), (K-PS2-2) •Pushing or pulling on an object can change the speed or direction of its motion and can start or stop it. (K-PS2-1), (K-PS2-2) **PS2.B: Types of Interactions** •When objects touch or collide, they push on one another and can change motion. (K-PS2-1) **PS3.C: Relationship Between Energy and Forces** •A bigger push or pull makes things speed up or slow down more quickly. *(secondary to K-PS2-1)* **ETS1.A: Defining Engineering Problems** •A situation that people want to change or create can be approached as a problem to be solved through engineering. Such problems may have many acceptable solutions. *(secondary to K-PS2-2)* **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. (K-2-ETS1-1)

	•Asking questions, making observations, and gathering information are helpful in thinking about problems. (K-2-ETS1-1) •Before beginning to design a solution, it is important to clearly understand the problem. (K-2-ETS1-1)
How will they learn it? Learning Activities:	**Foss Kit Materials and Motion Module Investigation 4:** Getting Things to Move Students investigate the strength of pushes and pulls needed to move objects. They use gravity to pull balls down slopes to investigate collisions. Students find ways to change the strength and direction of the pull on a rolling ball to meet design challenges. Students change the strength of the push on a balloon rocket flying on a line to explore cause and effect. In this unit's progression of learning, kindergarteners need adult guidance to collaboratively plan and conduct simple investigations to discover and compare the effects of pushes and pulls on the motion of an object. Students will need opportunities to push and pull a variety of objects, such as balls, toy cars, pull toys, cans, tops, and boxes. Students should push/pull these objects first with varying strengths, and then in a variety of directions. They should also explore the effects of pushing objects into one another, as well as into walls and other stationary objects. Students should record their observations using pictures and words, and should participate in class discussions on the effects of varying the strength or direction of a push or pull on an object. To enhance students' experiences, teachers can schedule time for students to investigate these force and motion concepts using playground equipment, such as swings, seesaws, and slides. Teachers can also use trade books and multimedia resources to enrich students' understanding. As students participate in discussions, they should be encouraged to ask questions, share observations, and describe cause-and-effect relationships between forces (pushes and pulls) and the motion of objects.
Resource	**<u>Foss Resources</u>** **Foss Kit Materials and Motion Module Investigation 4**

	Science Resource Book: “Are You an Engineer?” “Pushes and Pulls” “Collisions” **Foss Kit Videos:** **Online Activity:** “Build a Roller Coaster”
How do we know that they know it? Assessment	Benchmark assessments are short summative assessments given after each investigation. These I-Checks are actually hybrid tools: they provide summative information about students’ achievement, and because they occur soon after teaching each investigation, they can be used diagnostically as well. Reviewing specific items on an I-Check with the class provides additional opportunities for students to clarify their thinking. The embedded assessments are based on authentic work produced by students during the course of participating in the FOSS activities. Students do their science, and teachers review their notebook entries. Bullet points in the Guiding the Investigation tell you specifically what students should know and be able to communicate. If student work is incorrect or incomplete, you know that there has been a breakdown in the learning/communicating process. The assessment system then provides a menu of next-step strategies to resolve the situation. Embedded assessment is assessment for learning, not assessment of learning.
Interdisciplinary Connections	**ELA:** ● With prompting and support, ask and answer questions about key details in a text. (K-PS2-2) **RI.K.1** ● Participate in shared research and writing projects (e.g., explore a number of books by a favorite author and express opinions about them). (K-PS2-1) **W.K.7** ● Ask and answer questions in order to seek help, get information, or clarify something that is not understood. (K-PS2-2) **SL.K.3** **Math:** ● Reason abstractly and quantitatively. (K-PS2-1), (K-2-ETS1-1),(K-2-ETS1-3) **MP.2** ● Model with mathematics. (K-2-ETS1-1), (K-2-ETS1-3) **MP.4** ● Use appropriate tools strategically. (K-2-ETS1-1), (K-2-ETS1-3) **MP.5** ● Describe measurable attributes of objects, such as length or weight. Describe several measurable

	attributes of a single object. (K-PS2-1) **K.MD.A.1** ● Directly compare two objects with a measurable attribute in common, to see which object has “more of”/”less of” the attribute, and describe the difference. (K-PS2-1) **K.MD.A.2**
What will students be able to do as a result of the learning in this unit?	● With guidance, plan and conduct an investigation in collaboration with peers. ● With guidance, collaboratively plan and conduct an investigation to compare the effects of different strengths or different directions of pushes and pulls on the motion of an object. ● With guidance, design simple tests to gather evidence to support or refute ideas about cause-and-effect relationships. ● Analyze data from tests of an object or tool to determine if it works as intended. ● Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs. ● Analyze data to determine whether a design solution works as intended to change the speed or direction of an object with a push or a pull.

Grade K	**Topic: Effects of the Sun**
Feb/Mar	
Essential Questions	How can we use science to keep a playground cool in the summertime?
Disciplinary Core Concepts:	**PS3.B: Conservation of Energy and Energy Transfer** Sunlight warms Earth's surface. (K-PS3-1),(K-PS3-2) **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. (K-2-ETS1-1) Asking questions, making observations, and gathering information are helpful in thinking about problems. (K-2-ETS1-1) Before beginning to design a solution, it is important to clearly understand the problem. (K-2-ETS1-1) **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 solutions to other people. (K-2-ETS1-2) **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. (K-2-ETS1-3)

How will they learn it? Learning Activities:	**Foss Kit Module Investigation :** With adult support, students will design and build a structure that will reduce the warming effect of sunlight, and then conduct tests to determine if the structure works as intended. Students work like scientists to investigate the warming effect of sunlight on the surface of the Earth. They will conduct simple investigations in order to make observations and collect data that can be used to make comparisons. Students should test a variety of materials that are found naturally on the surface of the Earth, including sand, soil, rocks, and water. Samples of each of these materials can be placed on two separate paper plates or shallow plastic containers; one container can be placed in direct sunlight, and the other can be placed out of direct sunlight. After a period of time, students should compare the relative temperature of each. Students should record their observations, then analyze and compare the data to determine if there is a pattern. They should draw the conclusion that the sun has the same warming effect on all the materials found on the surface of the Earth. Students are challenged to design and build a structure that will reduce the warming effects of the sun. Students brainstorm a list of objects that reduce the warming effects of the sun (e.g., shade trees, umbrellas, large hats, canopies). Groups of students then use simple drawings or diagrams to design a structure, and use given tools and materials to build their design. Groups should be given a predetermined amount of time to draw and build their designs. Groups share their designs with the class, using their drawings or diagrams, and then test their designs outside. (Groups can place their structures in a sunny area, then compare the relative temperature of the ground under the structure and the ground in direct sunlight.). Students make and use observations to determine if the designs worked as intended, then compare the strengths and weaknesses of how each design performed. While engaging in this process, students should use evidence from their observations to describe how their structures reduced the warming effect of sunlight. Through this process, students learn that the shape and stability of structures of designed objects are related to their function. They will use tools and materials to design and build their structures. Because there is always more than one possible solution to a problem, students will test and compare their designs, then analyze data to determine if their structures work as intended.
Resource	**http://camsp.kcusd.com/files/Documents/The_Sun_Classwork__Homework-2013-07-26.pdf**

How do we know that they know it? Assessment	Benchmark assessments are short summative assessments given after each investigation. These I-Checks are actually hybrid tools: they provide summative information about students' achievement, and because they occur soon after teaching each investigation, they can be used diagnostically as well. Reviewing specific items on an I-Check with the class provides additional opportunities for students to clarify their thinking. The embedded assessments are based on authentic work produced by students during the course of participating in the FOSS activities. Students do their science, and teachers review their notebook entries. Bullet points in the Guiding the Investigation tell you specifically what students should know and be able to communicate. If student work is incorrect or incomplete, you know that there has been a breakdown in the learning/communicating process. The assessment system then provides a menu of next-step strategies to resolve the situation. Embedded assessment is assessment for learning, not assessment of learning.
Interdisciplinary Connections	**ELA:** ● Participate in shared research and writing projects (e.g., explore a number of books by a favorite author and express opinions about them). **(K-PS3-1),(K-PS3-2) W.K.7** ● Ask and answer such questions as who, what, where, when, why, and how to demonstrate understanding of key details in a text. **(K-2-ETS1-1) RI.2.1** ● With guidance and support from adults, use a variety of digital tools to produce and publish writing, including in collaboration with peers. **(K-2-ETS1-1),(K-2-ETS1-3) W.2.6** ● Recall information from experiences or gather information from provided sources to answer a question. **(K-2-ETS1-1),(K-2-ETS1-3) W.2.8** ● Create audio recordings of stories or poems; add drawings or other visual displays to stories or recounts of experiences when appropriate to clarify ideas, thoughts, and feelings. **(K-2-ETS1-2) SL.2.5** **Math:** ● Directly compare two objects with a measurable attribute in common, to see which object has "more of"/"less of" the attribute, and describe the difference. **(K-PS3-2) K.MD.A.2** ● Reason abstractly and quantitatively. **(K-2-ETS1-1),(K-2-ETS1-3) MP.2** ● Model with mathematics. **(K-2-ETS1-1),(K-2-ETS1-3) MP.4** ● Use appropriate tools strategically. **(K-2-ETS1-1),(K-2-ETS1-3) MP.5** ● Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems using information presented in a bar graph. **(K-2-ETS1-1),(K-2-ETS1-3)**

	2.MD.D.10
What will students be able to do as a result of the learning in this unit?	Observe patterns in events generated by cause-and-effect relationships. Make observations (firsthand or from media) to collect data that can be used to make comparisons. Make observations to determine the effect of sunlight on Earth's surface. (Assessment of temperature is limited to relative measures such as warmer/cooler.) Describe how the shape and stability of structures are related to their function. Use tools and materials provided to design and build a device that solves a specific problem or a solution to a specific problem. Use tools and materials to design and build a structure (e.g., umbrellas, canopies, tents) that will reduce the warming effect of sunlight on an area. Develop a simple model based on evidence to represent a proposed object or tool. 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. Analyze data from tests of an object or tool to determine if it works as intended. Analyze data from tests of two objects designed to solve the same problem to compare the strengths.

Grade K	**Topic: Basic Needs of Living Things**
April/May	
Essential Questions	How can you tell if something is alive? What do animals and plants need to survive? Where do organisms live and why do they live there?
Disciplinary Core Concepts:	**LS1.C: Organization for Matter and Energy Flow in Organisms** • All animals need food in order to live and grow. They obtain their food from plants or from other animals. Plants need water and light to live and grow. (K-LS1-1) **ESS3.A: Natural Resources** • Living things need water, air, and resources from the land, and they live in places that have the things they need. Humans use natural resources for everything they do. (K-ESS3-1) **ESS2.E: Biogeology** • Plants and animals can change their environment. (K-ESS2-2)
How will they learn it? Learning Activities:	To help students recognize the impact that humans have on the living and nonliving components of the local environment, they need opportunities to observe and think about the things that people do to live comfortably. Over a period of a few days, students can observe their families in their day -to-day lives, paying attention to what they eat, what they throw away, when and how they use water, how they warm or cool their home, what types of appliances and gadgets they use, how they maintain their home and yard, what resources are used to make the clothes they wear, how they travel from place to place, and how they communicate with others. During whole group discussions, students can share their observations and then discuss the concept of comfortable lifestyle. This list could include: •Plants and animals for food •Trees, rocks, sand, and other materials for building homes and schools •Local reserves of water for drinking, washing clothes, showering, washing dishes, watering lawns, and cooking •Gas and oil for cars and buses •Electricity to power the appliances in their homes Then the class can discuss how obtaining and using these types of resources affects the local environment. To

	help with these discussions, teachers can use books, multimedia resources, field trips, or even invite guest speakers to the classroom. As students participate in discussions, they should be encouraged to ask questions, share observations, and describe cause -and -effect relationships between human use of resources and human impact on the environment. As students come to understand that things people do to live comfortably can affect the world around them, they are ready to engage in the engineering design process. The process should include the following steps: As a class or in groups, students participate in shared research to find examples of ways that people solve some of the problems created by humans' use of resources from the environment. For example, people in the community might choose to: Recycle plastic, glass, paper, and other materials in order to reduce the amount of trash in landfills; Plant trees in areas where trees have been cut down for lumber to renew regional habitats for local wildlife; or Set up rainwater collection systems so that rainwater can be used to maintain landscaping instead of using water from local reserves. Groups of students then develop a simple sketch, drawing, diagram, or physical model to illustrate how the solution reduces the impact of humans on land, water, air and/or other living things in the local environment. Groups need the opportunity to communicate their solutions with the class in oral and/or written form, using their sketches, drawings, diagrams, or models to help explain how the solution reduces the human impact on the environment. While engaging in this process, students should learn that even though humans affect the environment in many ways, people can make choices that reduce their impacts on the land, water, air, and other living things in the environment.
Resource	NJ Model Curriculum http://www.state.nj.us/education/modelcurriculum/sci/ku5.pdf

How do we know that they know it? Assessment	Benchmark assessments are short summative assessments given after each investigation. These I-Checks are actually hybrid tools: they provide summative information about students' achievement, and because they occur soon after teaching each investigation, they can be used diagnostically as well. Reviewing specific items on an I-Check with the class provides additional opportunities for students to clarify their thinking. The embedded assessments are based on authentic work produced by students during the course of participating in the FOSS activities. Students do their science, and teachers review their notebook entries. Bullet points in the Guiding the Investigation tell you specifically what students should know and be able to communicate. If student work is incorrect or incomplete, you know that there has been a breakdown in the learning/communicating process. The assessment system then provides a menu of next-step strategies to resolve the situation. Embedded assessment is assessment for learning, not assessment of learning.
Interdisciplinary Connections	**ELA:** **R.K.1** Use a combination of drawing, dictating, and writing to compose opinion pieces in which they tell a reader the topic or the name of the book they are writing about and state an opinion or preference about the topic or book. (K-ESS2-2) **W.K.1** Use a combination of drawing, dictating, and writing to compose informative/explanatory texts in which they name what they are writing about and supply some information about the topic. (KESS2-2) **W.K.2** Participate in shared research and writing projects (e.g., explore a number of books by a favorite author and express opinions about them). (K-LS1-1) **W.K.7** Add drawings or other visual displays to descriptions as desired to provide additional detail. (K-ESS3-1) **SL.K.5** With prompting and support, ask and answer questions about key details in a text. (K-ESS2-2) **Math:** Directly compare two objects with a measurable attribute in common, to see which object has "more of"/"less of" the attribute, and describe the difference. (K-LS1-1) **K.MD.A.2** Reason abstractly and quantitatively. (K-ESS3-1) **MP.2** Model with mathematics. (K-ESS3-1)

	MP.4 Counting and Cardinality (K-ESS3-1) K.CC
What will students be able to do as a result of the learning in this unit?	● Plants do not need to take in food, but do need water and light to live and grow. ● All animals need food in order to live and grow, that they obtain their food from plants or from other animals, that different kinds of food are needed by different kinds of animals, and that all animals need water.

Grade K	**Topic: Basic Needs of Humans**
May/June	
Essential Questions	How do people impact the environment as they gather and use what they need to live and grow?
Disciplinary Core Concepts:	**ESS3.C:** Human Impacts on Earth Systems • Things that people do to live comfortably can affect the world around them. But they can make choices that reduce their impacts on the land, water, air, and other living things. (K-ESS3-3) **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 solutions to other people.(secondary) (K-ESS3-3) **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. (K-2-ETS1-1) • Asking questions, making observations, and gathering information are helpful in thinking about problems. (K-2-ETS1-1) • Before beginning to design a solution, it is important to clearly understand the problem. (K- 2-ETS1-1)
How will they learn it? Learning Activities:	Watch the PBS video "Is It Alive?" Stop after each picture and ask students if it's alive or not. Ask them to explain how they can tell. (This activity will also provide an opportunity to pre-assess students' understandings and/or misconceptions. It will also provide an opportunity for students to think about what having life means.) Watch the TeacherTube video "Living or Non-Living?" (This activity provides similar experiences for students as the PBS video. The difference is that after each picture and question, the narrator provides the answer with reasoning.) In this unit's progression of learning, students first learn that scientists look for patterns and order when making observations about the world and those patterns in the natural world can be observed and used as evidence. Students

	conduct firsthand and media-based observations of a variety living things and use their observations as evidence to support the concepts.
Resource	PBS Video *Living or Non Living* *NJ Model Curriculum*
How do we know that they know it? Assessment	Benchmark assessments are short summative assessments given after each investigation. These I-Checks are actually hybrid tools: they provide summative information about students' achievement, and because they occur soon after teaching each investigation, they can be used diagnostically as well. Reviewing specific items on an I-Check with the class provides additional opportunities for students to clarify their thinking. The embedded assessments are based on authentic work produced by students during the course of participating in the FOSS activities. Students do their science, and teachers review their notebook entries. Bullet points in the Guiding the Investigation tell you specifically what students should know and be able to communicate. If student work is incorrect or incomplete, you know that there has been a breakdown in the learning/communicating process. The assessment system then provides a menu of next-step strategies to resolve the situation. Embedded assessment is assessment for learning, not assessment of learning.
Interdisciplinary Connections	**ELA:** Use a combination of drawing, dictating, and writing to compose informative/explanatory texts in which they name what they are writing about and supply some information about the topic. **(K-ESS3-3) W.K.2** Ask and answer such questions as who, what, where, when, why, and how to demonstrate understanding of key details in a text. **(K-2-ETS1-1) RI.2.1** With guidance and support from adults, use a variety of digital tools to produce and publish writing, including in collaboration with peers. **(K-2-ETS1-1) W.2.6** Recall information from experiences or gather information from provided sources to answer a question. **(K-2-ETS1-1) W.2.8**

	Math: Reason abstractly and quantitatively. **(K-2-ETS1-1) MP.2** Model with mathematics. **(K-2-ETS1-1) MP.4** Use appropriate tools strategically. **(K-2-ETS1-1) MP.5** Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems using information presented in a bar graph. **(K-2-ETS1-1) 2.MD.D.10**
What will students be able to do as a result of the learning in this unit?	Students will develop an understanding of the impact that humans have on the land, water, air, and other living things in the local environment and engage in a portion of the engineering design process in order to communicate solutions that can reduce these impacts. Students should learn that even though humans affect the environment in many ways, people can make choices that reduce their impacts on the land, water, air, and other living things in the environment.