

5th Grade Science

Link Community Charter School

UNITS (7/7 SELECTED)

	SUGGESTED DURATION
<input type="checkbox"/> Unit 1: Properties of Matter	12 lessons
<input type="checkbox"/> Unit 2: Changes in Matter	14 lessons
<input type="checkbox"/> Unit 3: Earth's Systems	12 lessons
<input type="checkbox"/> Unit 4: Earth's Water	12 lessons
<input type="checkbox"/> Unit 5: Human Impact on Earth's Systems	14 lessons
<input type="checkbox"/> Unit 6: Energy and Food	12 lessons
<input type="checkbox"/> Unit 7: Matter and Energy in Ecosystems	14 lessons

Unit 1: Properties of Matter

5th Grade Science - Last Updated on August 25, 2021

STANDARDS ADDRESSED

New Jersey (NJSLS) - Grade 5 - Science (2020)
5-PS1-1
Develop a model to describe that matter is made of particles too small to be seen.
5-PS1-3
Make observations and measurements to identify materials based on their properties.
Next Generation Science (NGSS) - Grades 3-5 - Science and Engineering Practices
3.3
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.
6.1
Construct an explanation of observed relationships (e.g., the distribution of plants in the back yard).
Next Generation Science (NGSS) - Grade 5 - Disciplinary Core Ideas
PS1.A.3
Measurements of a variety of properties can be used to identify materials. (Boundary: At this grade level, mass and weight are not distinguished, and no attempt is made to define the unseen particles or explain the atomic-scale mechanism of evaporation and condensation.) (5-PS1-3)
Next Generation Science (NGSS) - Grade 3-5 - Crosscutting Concepts
3.2
Standard units are used to measure and describe physical quantities such as weight, time, temperature, and volume.

Unit 1: Properties of Matter

5th Grade Science - Last Updated on August 25, 2021

DESIRED RESULTS

Established Goals

In this topic, students will learn that there are different states of matter, and matter has different properties in each of these states. As they study matter more closely, they will also perform investigations that demonstrate how properties of matter either change or remain the same after certain types of reactions

Transfer

Students will be able to independently use their learning to observe and measure properties of matter, explain that matter is made of tiny particles too small to be seen, and identify materials based on their properties.

Meaning

Big Ideas & Understandings

- Students will understand that...
- that matter is all around us.
 - matter is made up of elements.
 - there are three states of matter.

Essential Questions

- Students will keep considering...
- How do we describe matter?
 - What makes up matter all around us?
 - What are the elements found in matter?
 - What are the three states of matter?
 - What are the differences between the states of matter?

Acquisition

Knowledge

- Students will know the meanings for the following terms...
- observe, measure, solubility
 - atom, atomic theory, compound, molecule
 - temperature, mass, volume

Skills

- Students will be skilled at...
- making observations and/or measurements to produce data to serve as the basis for evidence for an explanation of a phenomenon.
 - constructing an explanation of observed relationships.

Unit 1: Properties of Matter

5th Grade Science - Last Updated on August 25, 2021

Acquisition

- recognizing that matter exists as particles that are too small to see, and so matter is always conserved even if it seems to disappear.
- identifying and testing causal relationships that can be used to explain change.
- recognizing natural objects and observable phenomena that exist from very small to the immensely large.

Unit 1: Properties of Matter

5th Grade Science - Last Updated on August 25, 2021

ASSESSMENT EVIDENCE (DIAGNOSTIC / FORMATIVE / SUMMATIVE)

Assessments

Evaluation Criteria	Assessment Evidence
<p>Rubrics/Checklists:</p> <p>Depth of Knowledge Rubric</p> <p>Assessment Rubric</p>	<p>Performance Task(s):</p> <ul style="list-style-type: none">• uConnect Labs• uDemonstrate Labs• Interactivities• Hands-On Labs• uInvestigate Labs• Lesson Check• Lesson Quiz• Quest Check-In• Case Study• Topic Review and Assess• Topic Test• Quest Findings
	<p>Other Evidence:</p> <ul style="list-style-type: none">• Reading Checks• Checking for Understanding Figures• Model It!• Math Toolbox• Connect It!• Plan it!

Unit 1: Properties of Matter

5th Grade Science - Last Updated on August 25, 2021

LEARNING PLAN

Summary of Key Learning Events and Instruction:

Lesson 1 - Observe Matter

- Observing properties
- Measuring properties
- Conductors of heat and electricity
- Magnetic Materials
- Solubility

Lesson 2 - Model Matter

- Atoms
- Molecules
- Same atoms, different matter

Lesson 3 - Properties of Matter

- States of matter
- Temperature
- Mass and volume
- Color
- Texture and Hardness

SUPPORTING MATERIALS/RESOURCES/STRATEGIES FOR DIFFERENTIATION

[Click here to view all possible modifications](#)

Unit 2: Changes in Matter

5th Grade Science - Last Updated on August 25, 2021

STANDARDS ADDRESSED

New Jersey (NJSL) - Grade 5 - Science (2020)
5-PS1-2
Measure and graph quantities to provide evidence that regardless of the type of change that occurs when heating, cooling, or mixing substances, the total weight of matter is conserved.
5-PS1-4
Conduct an investigation to determine whether the mixing of two or more substances results in new substances.
Next Generation Science (NGSS) - Grades 3-5 - Science and Engineering Practices
3.3
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.
5.3
Describe, measure, estimate, and/or graph quantities (e.g., area, volume, weight, time) to address scientific and engineering questions and problems.
6.5
Generate and compare multiple solutions to a problem based on how well they meet the criteria and constraints of the design solution.
2.4
Develop and/or use models to describe and/or predict phenomena.
3.1
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.
Next Generation Science (NGSS) - Grade 5 - Disciplinary Core Ideas
PS1.A.2
The amount (weight) of matter is conserved when it changes form, even in transitions in which it seems to vanish. (5-PS1-2)
PS1.B.2

Unit 2: Changes in Matter

5th Grade Science - Last Updated on August 25, 2021

No matter what reaction or change in properties occurs, the total weight of the substances does not change.
(Boundary: Mass and weight are not distinguished at this grade level.) (5-PS1-2)

Next Generation Science (NGSS) - Grade 3-5 - Crosscutting Concepts

3.2

Standard units are used to measure and describe physical quantities such as weight, time, temperature, and volume.

2.1

Cause and effect relationships are routinely identified, tested, and used to explain change.

Unit 2: Changes in Matter

5th Grade Science - Last Updated on August 25, 2021

DESIRED RESULTS

Established Goals

In this topic, students will learn how to identify chemical changes. As they study how matter changes, they will also investigate the principle of matter conservation. They will discover that although matter might change, the amount of matter does not.

Transfer

Students will be able to independently use their learning to examine evidence that shows how matter changes.

Meaning

Big Ideas & Understandings	Essential Questions
<p>Students will understand that...</p> <ul style="list-style-type: none">• there are three states of matter• there are a variety of physical changes including changes in states and the dissolving process• there are a variety of chemical changes• properties of substance are retained upon mixing to form mixtures and solutions.	<p>Students will keep considering...</p> <ul style="list-style-type: none">• What are the differences between the three states of matter?• How is matter conserved during a physical change?• How does temperature affect a physical change?• How is matter conserved during a chemical change?• What are the types of chemical changes?• What happens when different substances are mixed?• How can you slow down or speed up the dissolving process when mixing materials in water?• How can mixtures of solids be separated?

Acquisition

Knowledge	Skills
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Unit 2: Changes in Matter

5th Grade Science - Last Updated on August 25, 2021

Acquisition

Students will know the meanings for the following terms...

- solid, liquid, gas
- physical change
- chemical change, conservation of matter, chemical reaction
- mixture, solution

Students will be skilled at...

- conducting collaborative investigations with controlled variables and numerous trials to produce data to use as evidence.
- measuring and graphing quantities to address questions and problems.
- understanding that matter is conserved when it changes form.
- identifying that when substances are mixed, a new substance with different properties may form.
- identifying and testing causal relationships and using these relationships to explain change.
- using standard units to measure and describe physical quantities such as weight, time, temperature, and volume.

Unit 2: Changes in Matter

5th Grade Science - Last Updated on August 25, 2021

ASSESSMENT EVIDENCE (DIAGNOSTIC / FORMATIVE / SUMMATIVE)

Assessments

Evaluation Criteria	Assessment Evidence
<p>Rubrics/Checklists: Depth of Knowledge Rubric Assessment Rubric</p>	<p>Performance Task(s):</p> <ul style="list-style-type: none">• uConnect Labs• uDemonstrate Labs• Interactivities• Hands-On Labs• uInvestigate Labs• Lesson Check• Lesson Quiz• Quest Check-In• Case Study• Topic Review and Assess• Topic Test• Quest Findings
	<p>Other Evidence:</p> <ul style="list-style-type: none">• Reading Checks• Checking for Understanding Figures• Model It!• Math Toolbox• Connect It!• Plan it!

Unit 2: Changes in Matter

5th Grade Science - Last Updated on August 25, 2021

LEARNING PLAN

Summary of Key Learning Events and Instruction:

Lesson 1 - States of Matter

- Solids
- Liquids
- Gases

Lesson 2 - Physical Changes

- Changes in Shape
- Changes in Temperature
- A Change of Physical State
- Particle Changes

Lesson 3 - Chemical Changes

- New Substances
- Particles and Chemical Changes
- Conservation of Matter
- Examples of Chemical Changes

Lesson 4 - Mixtures and Solutions

- Mixtures
- Solutions
- Separating Solutions
- Mixtures and Solutions

SUPPORTING MATERIALS/RESOURCES/STRATEGIES FOR DIFFERENTIATION

[Click here to view all possible modifications](#)

Unit 3: Earth's Systems

5th Grade Science - Last Updated on August 25, 2021

STANDARDS ADDRESSED

New Jersey (NJSLS) - Grade 5 - Science (2020)

5-ESS2-1

Develop a model using an example to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact.

Next Generation Science (NGSS) - Grade 5 - Disciplinary Core Ideas

ESS2.A.1

Earth's major systems are the geosphere (solid and molten rock, soil, and sediments), the hydrosphere (water and ice), the atmosphere (air), and the biosphere (living things, including humans). These systems interact in multiple ways to affect Earth's surface materials and processes. The ocean supports a variety of ecosystems and organisms, shapes landforms, and influences climate. Winds and clouds in the atmosphere interact with the landforms to determine patterns of weather. (5-ESS2-1)

Next Generation Science (NGSS) - Grades 3-5 - Science and Engineering Practices

2.3

Develop a model using an analogy, example, or abstract representation to describe a scientific principle or design solution.

6.1

Construct an explanation of observed relationships (e.g., the distribution of plants in the back yard).

Next Generation Science (NGSS) - Grade 3-5 - Crosscutting Concepts

4.2

A system can be described in terms of its components and their interactions.

Unit 3: Earth's Systems

5th Grade Science - Last Updated on August 25, 2021

DESIRED RESULTS

Established Goals

In this topic, students will learn how patterns in the natural world contribute to the interactions of Earth's four spheres. As they study how the geosphere, hydrosphere, atmosphere, and biosphere interact with one another, students will also conduct experiments that demonstrate the principles of developing and using models, constructing explanations, and designing solutions. By the end of the topic, students will understand how important it is for all four spheres to work together to sustain life on Earth.

Transfer

Students will be able to independently use their learning to model interactions among Earth's systems.

Meaning

Big Ideas & Understandings

- Students will understand...
- Earth's composition and how Earth can support life.
 - how water exists on and under Earth's surface and in the air.
 - the interdependent relationship between Earth's spheres and explore how Earth supports the existence of life.

Essential Questions

- Students will keep considering...
- What makes up the geosphere?
 - What makes up the biosphere?
 - What makes up the atmosphere?
 - What makes up the hydrosphere?
 - How do Earth's systems interact with each other?

Acquisition

Knowledge

- Students will know the meanings for the following terms...
- biosphere, geosphere, lithosphere
 - atmosphere, hydrosphere
 - greenhouse effect

Skills

- Students will be skilled at...
- using a model to test cause and effect relationships or interactions concerning the functioning of a natural or designed system.

Unit 3: Earth's Systems

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Acquisition

- constructing explanations of observed relationships.
- understanding that four major Earth systems interact.
- understanding that a system is a group of related parts that make up a whole and can carry functions its individual parts cannot.

Unit 3: Earth's Systems

5th Grade Science - Last Updated on August 25, 2021

ASSESSMENT EVIDENCE (DIAGNOSTIC / FORMATIVE / SUMMATIVE)

Assessments

Evaluation Criteria	Assessment Evidence
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Unit 3: Earth's Systems

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LEARNING PLAN

Summary of Key Learning Events and Instruction:

Lesson 1 - Geosphere and Biosphere

- Earth's Systems
- Geosphere and Biosphere
- Lithosphere

Lesson 2 - Hydrosphere and Atmosphere

- Atmosphere
- Hydrosphere and Atmosphere Together

Lesson 3 - Interactions Among Earth's Systems

- Interdependence of Earth's Systems
- Geosphere and Atmosphere
- Disrupting the Balance
- Natural Disruptions

SUPPORTING MATERIALS/RESOURCES/STRATEGIES FOR DIFFERENTIATION

[Click here to view all possible modifications](#)

Unit 4: Earth's Water

5th Grade Science - Last Updated on August 25, 2021

STANDARDS ADDRESSED

New Jersey (NJSLS) - Grade 5 - Science (2020)

5-ESS2-2

Describe and graph the amounts of salt water and fresh water in various reservoirs to provide evidence about the distribution of water on Earth.

Next Generation Science (NGSS) - Grade 5 - Disciplinary Core Ideas

ESS2.C.1

Nearly all of Earth's available water is in the ocean. Most fresh water is in glaciers or underground; only a tiny fraction is in streams, lakes, wetlands, and the atmosphere. (5-ESS2-2)

Next Generation Science (NGSS) - Grades 3-5 - Science and Engineering Practices

6.2

Use evidence (e.g., measurements, observations, patterns) to construct or support an explanation or design a solution to a problem.

2.5

Develop a diagram or simple physical prototype to convey a proposed object, tool, or process.

Next Generation Science (NGSS) - Grade 3-5 - Crosscutting Concepts

3.2

Standard units are used to measure and describe physical quantities such as weight, time, temperature, and volume.

Unit 4: Earth's Water

5th Grade Science - Last Updated on August 25, 2021

DESIRED RESULTS

Established Goals

In this topic, students will learn that water is in constant motion as part of the water cycle. Students will explore the interactions among water and land. They will also examine how water in lakes and rivers differs from ocean water.

Transfer

Students will be able to independently use their learning to relate how much water can be found in different places on Earth.

Meaning

Big Ideas & Understandings	Essential Questions
<p>Students will understand that...</p> <ul style="list-style-type: none"> • there are different parts of the water cycle and learn where solid, liquid, and water vapor can be found on Earth. • only a small percentage of water on Earth is freshwater, and most of this freshwater is found in glaciers and ice caps, and as groundwater. • there are different characteristics of the ocean such as temperature, salinity, and ocean currents. 	<p>Students will keep considering...</p> <ul style="list-style-type: none"> • What are the parts of the water cycle? • Why is the ocean an important part of the water cycle? • Where is most of Earth's freshwater found? • What bodies of water hold the rest of Earth's freshwater? • Where is most of Earth's water found?

Acquisition

Knowledge	Skills
<p>Students will know the meanings for the following terms...</p> <ul style="list-style-type: none"> • water cycle, evaporation, condensation, precipitation • glacier, aquifer, reservoir • circulation, tides, salinity 	<p>Students will be skilled at...</p> <ul style="list-style-type: none"> • developing a diagram or simple physical prototype to convey a proposed object, tool, or process. • using evidence (e.g. measurements, observations, patterns) to construct or support an explanation or design a solution to a problem.

Unit 4: Earth's Water

5th Grade Science - Last Updated on August 25, 2021

Acquisition

- understanding that most of Earth's water is in the ocean and much of the Earth's freshwater is in glaciers or underground.
- using standard units to measure and describe physical quantities such as weight, time, temperature, and volume.

Unit 4: Earth's Water

5th Grade Science - Last Updated on August 25, 2021

ASSESSMENT EVIDENCE (DIAGNOSTIC / FORMATIVE / SUMMATIVE)

Assessments

Evaluation Criteria	Assessment Evidence
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Unit 4: Earth's Water

5th Grade Science - Last Updated on August 25, 2021

LEARNING PLAN

Summary of Key Learning Events and Instruction:

Lesson 1 - Water Cycle

- Water on Earth
- Movement of Earth's Water
- Energy and the Water Cycle

Lesson 2 - Earth's Freshwater

- How is Freshwater Distributed across Earth?
- Freshwater Shortages

Lesson 3 - Earth's Ocean

- Where is Water?
- Ocean Temperatures
- Threats to the Shoreline

SUPPORTING MATERIALS/RESOURCES/STRATEGIES FOR DIFFERENTIATION

[Click here to view all possible modifications](#)

Unit 5: Human Impact on Earth's Systems

5th Grade Science - Last Updated on August 25, 2021

STANDARDS ADDRESSED

New Jersey (NJSLS) - Grade 5 - Science (2020)

5-ESS3-1

Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources, environment, and address climate change issues.

Next Generation Science (NGSS) - Grade 5 - Disciplinary Core Ideas

ESS3.C.1

Human activities in agriculture, industry, and everyday life have had major effects on the land, vegetation, streams, ocean, air, and even outer space. But individuals and communities are doing things to help protect Earth's resources and environments. (5-ESS3-1)

Next Generation Science (NGSS) - Grades 3-5 - Science and Engineering Practices

6.5

Generate and compare multiple solutions to a problem based on how well they meet the criteria and constraints of the design solution.

8.4

Obtain and combine information from books and/or other reliable media to explain phenomena or solutions to a design problem.

4.2

Analyze and interpret data to make sense of phenomena, using logical reasoning, mathematics, and/or computation.

3.1

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.

Next Generation Science (NGSS) - Grade 3-5 - Crosscutting Concepts

4.2

A system can be described in terms of its components and their interactions.

Unit 5: Human Impact on Earth's Systems

5th Grade Science - Last Updated on August 25, 2021

DESIRED RESULTS

Established Goals

In this topic, students will learn about renewable and non-renewable resources on Earth. They will explore how these resources are used for energy, food, and building materials. They will examine how human use of resources impacts Earth's systems and propose solutions for protecting Earth's resources and environments.

Transfer

Students will be able to independently use their learning to develop ways to protect Earth's resources and environments.

Meaning

Big Ideas & Understandings

Students will understand that...

- there are natural renewable and nonrenewable resources
- humans use coal, natural gas, and petroleum and the impacts of energy production
- human activities affects Earth's systems
- there are environmental conservation methods like recycling, reducing, and reusing resources

Essential Questions

Students will keep considering...

- How do we describe Earth's natural resources?
- Where does the energy on Earth come from?
- How do human activities affect Earth's resources and environments?
- How can we protect Earth's resources and environments?

Acquisition

Knowledge

Students will know the meanings for the following terms...

- natural resource, nonrenewable resource, renewable resource, mineral, rock
- natural gas, hydroelectric energy
- pollution
- conservation

Skills

Students will be skilled at...

- comparing multiple solutions to a problem based on how well they meet the criteria of the design solution.
- reading and comprehending grade-appropriate complex texts to summarize and obtain scientific

Unit 5: Human Impact on Earth's Systems

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Acquisition

ideas and describe how they are supported by evidence.

- understanding that human activities have had major effects on the land, ocean, atmosphere and that human activities can also help protect Earth's resources and environments.
- describing a system in terms of its components and their interactions.

Unit 5: Human Impact on Earth's Systems

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ASSESSMENT EVIDENCE (DIAGNOSTIC / FORMATIVE / SUMMATIVE)

Assessments

Evaluation Criteria	Assessment Evidence
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	<p>Other Evidence:</p> <ul style="list-style-type: none">• Reading Checks• Checking for Understanding Figures• Model It!• Math Toolbox• Connect It!• Plan it!

Unit 5: Human Impact on Earth's Systems

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LEARNING PLAN

Summary of Key Learning Events and Instruction:

Lesson 1 - Earth's Natural Resources

- Natural Resources
- Land and Forest Resources
- Minerals and Rocks
- Water Resources
- Air Resources

Lesson 2 - Earth's Energy Resources

- Human Uses of Energy
- Energy from Fuels
- Energy from Nonfuel Sources
- Impacts of Energy Production

Lesson 3 - Human Activity and Earth's Systems

- Human Resource Use and Pollution
- Reduce Human Impacts

Lesson 4 - Protection of Earth's Resources and Environments

- Resource Protection
- Environmental Conservation
- Reduce and Reuse
- Resource Use

SUPPORTING MATERIALS/RESOURCES/STRATEGIES FOR DIFFERENTIATION

[Click here to view all possible modifications](#)

Unit 6: Energy and Food

5th Grade Science - Last Updated on August 25, 2021

STANDARDS ADDRESSED

New Jersey (NJSLS) - Grade 5 - Science (2020)

5-PS3-1

Use models to describe that energy in animals' food (used for body repair, growth, motion, and to maintain body warmth) was once energy from the sun.

5-LS1-1

Support an argument that plants get the materials they need for growth chiefly from air and water.

5-LS2-1

Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment.

Next Generation Science (NGSS) - Grades 3-5 - Science and Engineering Practices

2.3

Develop a model using an analogy, example, or abstract representation to describe a scientific principle or design solution.

2.4

Develop and/or use models to describe and/or predict phenomena.

Next Generation Science (NGSS) - Grade 5 - Disciplinary Core Ideas

LS1.C.1

Food provides animals with the materials they need for body repair and growth and the energy they need to maintain body warmth and for motion. (secondary to 5-PS3-1)

LS1.C.2

Plants acquire their material for growth chiefly from air and water. (5-LS1-1)

LS2.A.1

The food of almost any kind of animal can be traced back to plants. Organisms are related in food webs in which some animals eat plants for food and other animals eat the animals that eat plants. Some organisms, such as fungi and bacteria, break down dead organisms (both plants or plants parts and animals) and therefore operate as "decomposers." Decomposition eventually restores (recycles) some materials back to the soil. Organisms can survive only in environments in which their particular needs are met. A healthy ecosystem is one in which multiple species of different types are each able to meet their needs in a relatively stable web of life. Newly introduced species can damage the balance of an ecosystem. (5-LS2-1)

Unit 6: Energy and Food

5th Grade Science - Last Updated on August 25, 2021

LS2.B.1

Matter cycles between the air and soil and among plants, animals, and microbes as these organisms live and die. Organisms obtain gases, and water, from the environment, and release waste matter (gas, liquid, or solid) back into the environment. (5-LS2-1)

Next Generation Science (NGSS) - Grade 3-5 - Crosscutting Concepts

5.3

Energy can be transferred in various ways and between objects.

5.2

Matter flows and cycles can be tracked in terms of the weight of the substances before and after a process occurs. The total weight of the substances does not change. This is what is meant by conservation of matter. Matter is transported into, out of, and within systems.

4.2

A system can be described in terms of its components and their interactions.

Unit 6: Energy and Food

5th Grade Science - Last Updated on August 25, 2021

DESIRED RESULTS

Established Goals

In this topic, students will learn how energy is used to make food and how energy is transferred throughout the environment. As they study the transfer of energy, students will also conduct investigations that demonstrate the principle of energy conservation. They will discover that, although energy changes and takes on different forms, the amount of energy does not change.

Transfer

Students will be able to independently use their learning to demonstrate where food's energy comes from and how food is used.

Meaning

Big Ideas & Understandings	Essential Questions
Students will understand that... <ul style="list-style-type: none"> energy exists in food plants make their own food through photosynthesis animal obtain energy from food 	Students will keep considering... <ul style="list-style-type: none"> How is energy in an animal's food once energy from the sun? How do plants make food? How do animals use the energy they get from food?

Acquisition

Knowledge	Skills
Students will know the meanings for the following terms... <ul style="list-style-type: none"> herbivore, carnivore, omnivore photosynthesis, chlorophyll endotherm, ectotherm, metabolism 	Students will be skilled at... <ul style="list-style-type: none"> developing and revising simple models based on evidence that shows the relationships among variables. constructing and/or supporting an argument with evidence, data, and/or a model.

Unit 6: Energy and Food

5th Grade Science - Last Updated on August 25, 2021

Acquisition

- recognizing that energy can be "produced", "used", or "released" by converting stored energy.
- understanding that food provides animals with the materials and energy they need for body repair, growth, warmth, and motion.
- identifying that matter is made of particles and energy can be transferred in various ways and between objects.

Unit 6: Energy and Food

5th Grade Science - Last Updated on August 25, 2021

ASSESSMENT EVIDENCE (DIAGNOSTIC / FORMATIVE / SUMMATIVE)

Assessments

Evaluation Criteria	Assessment Evidence
<p>Rubrics/Checklists: Depth of Knowledge Rubric Assessment Rubric</p>	<p>Performance Task(s):</p> <ul style="list-style-type: none">• uConnect Labs• uDemonstrate Labs• Interactivities• Hands-On Labs• uInvestigate Labs• Lesson Check• Lesson Quiz• Quest Check-In• Case Study• Topic Review and Assess• Topic Test• Quest Findings
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Unit 6: Energy and Food

5th Grade Science - Last Updated on August 25, 2021

LEARNING PLAN

Summary of Key Learning Events and Instruction:

Lesson 1 - Energy in Food

- Plants and Energy
- Animals and Energy
- Energy Paths to the Sun

Lesson 2 - How Plants Make Food

- Photosynthesis
- How Plants Gain Mass
- Photosynthesis and Temperatures
- Nutrients from Soil

Lesson 3 - How Animals Use Food

- Energy and Body Heat
- Energy and Metabolism
- Energy and Movement
- Internal Uses of Energy

SUPPORTING MATERIALS/RESOURCES/STRATEGIES FOR DIFFERENTIATION

[Click here to view all possible modifications](#)

Unit 7: Matter and Energy in Ecosystems

5th Grade Science - Last Updated on August 25, 2021

STANDARDS ADDRESSED

New Jersey (NJSLS) - Grade 5 - Science (2020)
5-LS2-1
Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment.
Next Generation Science (NGSS) - Grades 3-5 - Science and Engineering Practices
2.4
Develop and/or use models to describe and/or predict phenomena.
3.1
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.
4.2
Analyze and interpret data to make sense of phenomena, using logical reasoning, mathematics, and/or computation.
Next Generation Science (NGSS) - Grade 5 - Disciplinary Core Ideas
LS2.A.1
The food of almost any kind of animal can be traced back to plants. Organisms are related in food webs in which some animals eat plants for food and other animals eat the animals that eat plants. Some organisms, such as fungi and bacteria, break down dead organisms (both plants or plants parts and animals) and therefore operate as “decomposers.” Decomposition eventually restores (recycles) some materials back to the soil. Organisms can survive only in environments in which their particular needs are met. A healthy ecosystem is one in which multiple species of different types are each able to meet their needs in a relatively stable web of life. Newly introduced species can damage the balance of an ecosystem. (5-LS2-1)
LS2.B.1
Matter cycles between the air and soil and among plants, animals, and microbes as these organisms live and die. Organisms obtain gases, and water, from the environment, and release waste matter (gas, liquid, or solid) back into the environment. (5-LS2-1)
Next Generation Science (NGSS) - Grade 3-5 - Crosscutting Concepts
4.2
A system can be described in terms of its components and their interactions.

Unit 7: Matter and Energy in Ecosystems

5th Grade Science - Last Updated on August 25, 2021

DESIRED RESULTS

Established Goals

In this topic, students will learn how the living and nonliving components of an ecosystem interact. As they study how changes and cycles occur in ecosystems, they will use models to describe how matter and energy move in ecosystems. They will discover that changes to part of an ecosystem affect the system as a whole.

Transfer

Students will be able to independently use their learning to model the interaction of living things in an ecosystem.

Meaning

Big Ideas & Understandings

- Students will understand that...
- living and nonliving components interact in an ecosystem.
 - producers, consumers, and decomposers all play a role in their ecosystem and can be modelled using food webs.
 - ecosystems undergo changes and a stable ecosystem can recover from a disturbance.
 - matter and energy are transferred in an ecosystem

Essential Questions

- Students will keep considering...
- How can you describe the components of an ecosystem?
 - How do organisms use matter?
 - What are some of the relationships between organisms in an environment?
 - What are the characteristics of a healthy ecosystem?
 - How do changes affect an ecosystem?
 - How can you model the movement of matter among organisms and the environment?

Acquisition

Knowledge

- Students will know the meanings for the following terms...
- ecosystem, abiotic, biotic, community
 - producer, decomposer, microbe, consumer, food

Skills

- Students will be skilled at...
- developing and using a model to predict and/or describe phenomena.

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Acquisition

<p>chain, food web</p> <ul style="list-style-type: none">• succession, competition• cycle	<ul style="list-style-type: none">• analyzing and interpreting data to make sense of phenomena, using logical reasoning, mathematics, and/or computation.• recognizing that the food of almost any animal can be traced back to plants• identifying how matter cycles between the air and soil and among organisms as they live and die.• describing a system in terms of its components and their interactions.
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ASSESSMENT EVIDENCE (DIAGNOSTIC / FORMATIVE / SUMMATIVE)

Assessments

Evaluation Criteria	Assessment Evidence
<p>Rubrics/Checklists: Depth of Knowledge Rubric Assessment Rubric</p>	<p>Performance Task(s):</p> <ul style="list-style-type: none">• uConnect Labs• uDemonstrate Labs• Interactivities• Hands-On Labs• uInvestigate Labs• Lesson Check• Lesson Quiz• Quest Check-In• Case Study• Topic Review and Assess• Topic Test• Quest Findings
	<p>Other Evidence:</p> <ul style="list-style-type: none">• Reading Checks• Checking for Understanding Figures• Model It!• Math Toolbox• Connect It!• Plan it!

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LEARNING PLAN

Summary of Key Learning Events and Instruction:

Lesson 1 - Ecosystems

- Ecosystems
- Parts of an Ecosystem
- Ecosystem Size

Lesson 2 - Organisms Within Ecosystems

- Producers
- Decomposers
- Food Chain
- Food Webs

Lesson 3 - Change Within Ecosystems

- Stable Ecosystems
- Threats to Ecosystems

Lesson 4 - Matter and Energy Transfer Within Ecosystems

- Flow of Matter in Ecosystems
- Energy Flow in Ecosystems
- Cycles of Matter

SUPPORTING MATERIALS/RESOURCES/STRATEGIES FOR DIFFERENTIATION

[Click here to view all possible modifications](#)