

NEW FOR THE 2026-27 SCHOOL YEAR

Grade 4 Science Scope and Sequence

COMPLETE PHENOMENA-BASED
SCIENCE CURRICULUM MADE EASY

- ✓ PHENOMENA-BASED
- ✓ OPEN-AND-GO LESSONS
- ✓ HANDS-ON INVESTIGATIONS
- ✓ AVAILABLE IN 50+ LANGUAGES
- ✓ ASSESSMENTS & PROGRESS MONITORING



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inquisitive

Ready to
teach lesson
slides

The screenshot shows the Inquisitive lesson interface for the unit '3. Inheritance and Variation of Traits'. The main content area displays a grid of eight dog faces with the question 'How are dogs the same and different?' overlaid. Below this grid are three smaller preview cards for the lesson slides. To the right, the 'Lesson Overview' section describes the lesson's focus on dog traits. Below that is a 'Lesson Materials Calculator' table with a class size of 30. Further down are sections for 'NGSS Performance Expectations' (3-LS3-1), 'Science and Engineering Practices (SEPs)' (Analyzing and Interpreting Data), 'Disciplinary Core Ideas (DCIs)' (Variation of Traits, Inheritance of Traits), 'Crosscutting Concepts (CCCs)' (Patterns), and 'Patterns'.

Lesson Overview

This lesson begins with a visit to the dog park—a virtual one. Students meet a variety of dogs, and note their common features and their distinct differences. They learn that these features are called traits, and that the differences between traits are called [Read More](#)

Lesson Materials Calculator

How many students are in your class?

30 Save Class Size

Apple	30
Knife - sharp	1
Recording sheet	30
Ruler	10
Toothpick	30

NGSS Performance Expectations

[3-LS3-1](#)

Science and Engineering Practices (SEPs)

[Analyzing and Interpreting Data](#)

Disciplinary Core Ideas (DCIs)

[Variation of Traits](#)

[Inheritance of Traits](#)

Crosscutting Concepts (CCCs)

[Patterns](#)

Phenomena-based Learning

Each lesson is anchored in a compelling phenomenon that gives students a meaningful reason to investigate, ask questions, and make sense of the world around them.

Designed for three-dimensional learning, students integrate Science and Engineering Practices, Disciplinary Core Ideas, and Crosscutting Concepts as they gather evidence, collaborate, develop explanations, and design solutions.

The result is science learning that is rigorous, relevant, and engaging for every learner.

The screenshot displays a lesson interface. On the left, a large image shows silhouettes of children playing tug-of-war against a sunset background. A white text box in the center of the image asks, "Can a game of tug-of-war end in a draw?". Below the image is a purple "Next" button. On the right, a sidebar contains several sections: "Lesson Overview" with a brief description and a "Read More" link; "Lesson Materials Calculator" with a form to input class size (set to 30) and a list of materials (Hair dryer: 8, Ping-pong ball: 8); and "Standards" with a list of curriculum standards including NGSS, Idaho, and various performance expectations and practices. Annotations with arrows point to these sections: "Digital slides with embedded stimuli & printables" points to the main image area; "Teacher guide" points to the Lesson Overview; "Materials calculator" points to the Lesson Materials Calculator; and "Standards alignment" points to the Standards section.

Digital slides with embedded stimuli & printables

Teacher guide

Materials calculator

Standards alignment

HQIM and Standards-aligned

Inquisitive provides coherent, standards-aligned instruction designed to build knowledge and skills. Comprehensive state-specific crosswalks provide lesson-by-lesson evidence of alignment, while embedded assessments, differentiation strategies, accessibility supports, and research-based instructional practices help every student access grade-level learning.

Every lesson includes ready-to-teach digital slides, embedded stimuli, printable resources, teacher guidance, modeled responses, background science, and a materials calculator. Everything teachers need to deliver high-quality science instruction, simply open and go.

The screenshot shows a digital interface for a science activity. On the left, a purple sidebar contains a '2 Assign' button and navigation arrows. The main content area is divided into sections. The top section has a purple box with text: 'All materials are made of something called **matter**. Matter is anything that takes up space.' To its right, text states 'Milk is one kind of material.' next to an image of a glass pitcher, and 'A glass pitcher is another kind of material.' Below this, a central box contains images of various materials: a bundle of spaghetti, a blue bucket of soil, a water bottle, a paperclip, and several colored pencils. To the left of this box, text says 'Your teacher will give you some different materials to explore. Touch and feel each material. Then talk about the questions.' Below this text are two input boxes: 'How are the materials the same?' and 'How are they different?'. On the right side of the interface, a sidebar contains a 'Core Activity' section with a link 'Learn about Differentiation with Inquisitive', a 'Time' field set to '20 mins', 'Teaching Notes' (with a scrollable text area), 'Answers', 'Se Pedagogical Model', and 'Activity Materials'. At the bottom right, there are buttons for 'Next' and 'Exit', along with icons for 'Give us Feedback', 'Settings', and 'Download'.

Hands-On Science That Builds Sensemaking

Hands-on investigations combine easy-to-source materials with engaging digital interactives, helping teachers spend less time preparing and more time teaching.

Students ask questions, make observations, gather evidence, test ideas, and develop explanations as they make sense of real-world phenomena. They learn science by thinking and acting like scientists and engineers, not simply watching science happen. Optional grade-level kits and refill kits make implementation even easier. Each kit is designed to support a class of up to 30 students.

The screenshot displays the Inquisitive app interface. On the left, a lesson titled "6 Assigned" explains that all matter is composed of tiny particles. It features three panels illustrating the states of matter: Solid (Sólido), Liquid (Líquido), and Gas (Gas). Each panel includes an illustration and a description in Spanish. Below the panels, a text box states: "Toda la materia está compuesta de diminutos **partículas**. Son demasiado pequeños para ser vistos excepto con un microscopio muy potente. Incluso el grano de arena más diminuto está compuesto de partículas aún más diminutas." The right sidebar shows a "Translate" menu with a list of languages including English, Spanish, Arabic, Armenian, Bengali, and Chinese (Simplified). A black arrow points to the "Translate" icon in the sidebar, with the word "Translate" written next to it.

6 Assigned

Toda la materia está compuesta de diminutos **partículas**. Son demasiado pequeños para ser vistos excepto con un microscopio muy potente. Incluso el grano de arena más diminuto está compuesto de partículas aún más diminutas.

Sólido Líquido Gas

En un sólido, las partículas están muy unidas. Viben, pero no pueden moverse de su lugar.

En un líquido, las partículas son no tan apretado como en un sólido. Pueden deslizarse uno al lado del otro.

En un gas, las partículas están mucho más separadas que en un sólido o un líquido. Pueden moverse con libertad y rapidez.

Translate

Available in 50+ Languages

Equity, Access, and Differentiation

Built-in scaffolds, differentiation strategies, and culturally responsive content help reduce barriers to rigorous science learning while keeping students engaged in shared phenomena, investigations, and evidence-based thinking.

Language and accessibility supports are embedded directly into lessons, including text-to-speech, assistive technology compatibility, WCAG compliance, and translation into 50+ languages. These integrated supports help more students access grade-level science while giving teachers practical tools to respond to diverse learning needs.

Assign activities as you teach

Materials in water and soil can change the traits of plants. Weather can also affect their traits.

Read about the examples below. Then draw and label a picture to answer each *What if?* question.

Strong wind has caused this tree to grow sideways.

Lack of rainfall has caused parts of these plants to become brown.

What if the wind was less strong? What would the tree look like?

What if enough rain did fall? What would the corn plants look like?

Responses

Responses

Core Activity ①

[Learn about Differentiation with Inquisitive](#)

Time 10 mins

Teaching Notes

Answers

5e Pedagogical Model

Level of student attainment & observations of student performance

Recommendations for Support

Next

Real-time student responses

Student performance expectations and recommendations for support

Check for Understanding in Real-Time

Live student responses provide immediate insights into student thinking, enabling teachers to identify misconceptions, adjust instruction, and facilitate meaningful student discussions and collaborations.

For instructional leaders, this means formative data is captured in the moment, supporting evidence-based decisions at the classroom and grade level, not just at the end of a unit.

Assign digitally or print in 50+ languages.

The screenshot displays the Inquisitive assessment interface. The main content area shows a question: "9. Which of these are light sources? Choose all correct answers." Below the question are four options: Sun, Lamp, Eye, and Water. The Sun and Lamp options are marked with green checkmarks, indicating they are correct. The Eye and Water options are marked with red X's, indicating they are incorrect. Below the question is a text box for question 10: "10. A person shines a flashlight into a dark closet to find a pair of shoes. Describe the path of light that lets the person see the shoes. Use the word **reflect** in your answer."

The right sidebar shows the "Unit Quiz 1" activity. It includes a "Teaching Sequence" section with icons for Activities, Teaching Sequence, Students (0/20), and Translate. Below this is the "Answers" section, which displays the question and the correct answers (Sun and Lamp). A "Show Answers" button is visible. At the bottom of the sidebar, there are links for "Give us Feedback" and "Settings".

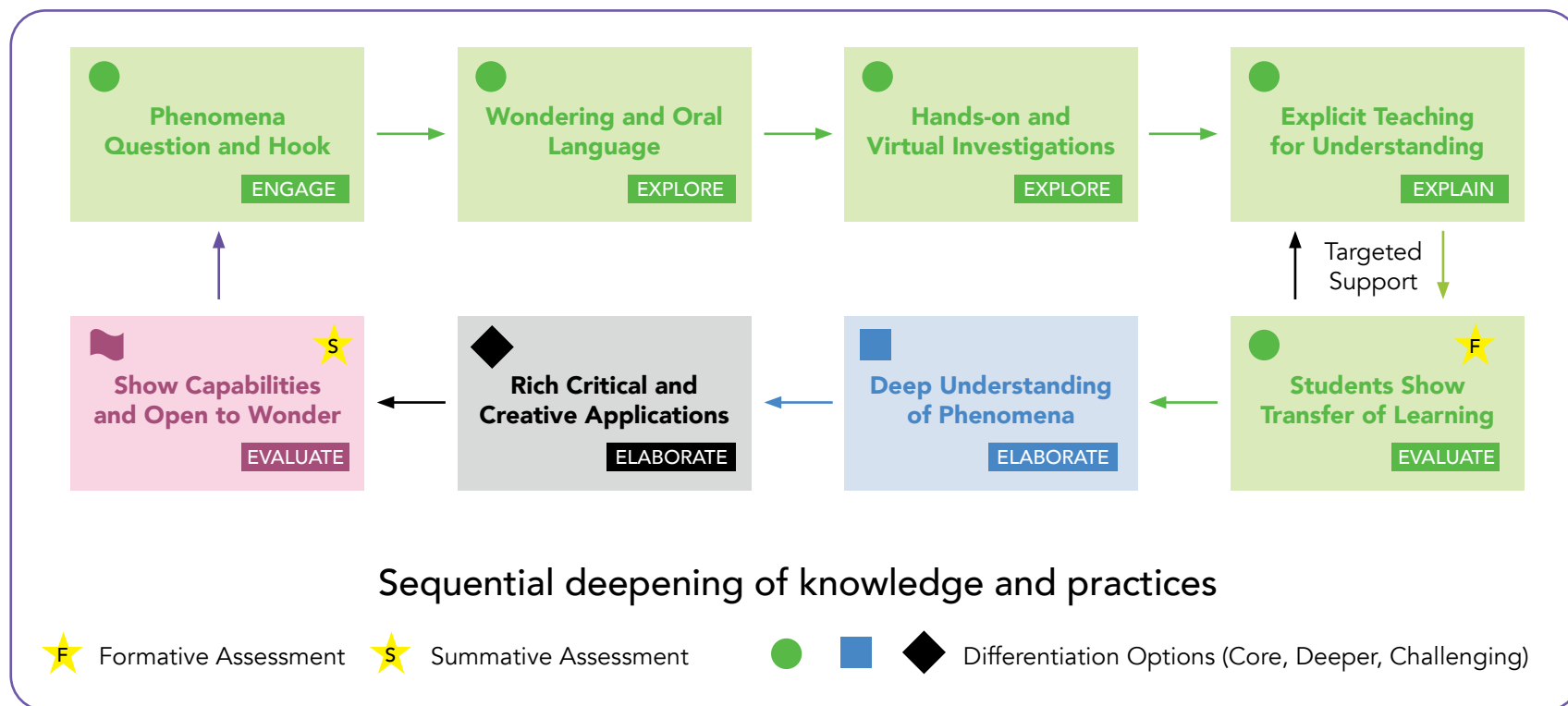
Auto-graded assessment data is displayed in a digital grade book.

Assessment and Standards Mastery

Formative and summative assessments include 3D performance tasks and auto-graded end-of-unit assessments.

Results are summarized in a digital grade book with recommendations for support, giving teachers clear next steps for instruction.

Assessment items are mapped to specific Performance Expectations, so districts can track standards mastery and support MTSS and RTI documentation needs.



Pedagogical Model of Lessons

Every lesson is built around the research-based 5E instructional model, guiding students through engagement, exploration, explanation, elaboration, and evaluation.

High-impact teaching strategies and visible thinking activities support student-centered sensemaking, conceptual understanding, and knowledge transfer while helping all learners access rigorous science learning.

PreK

K

1

2

3

4

5

PHYSICAL SCIENCE



Pushes and Pulls
Explore pushes and pulls



Forces and Interactions
Compare strength and direction



Waves: Light and Sound
Make sound and light travel



Structure of Matter
Describe and change materials



Forces and Interactions
Balanced and unbalanced forces



Energy
Motion, collisions, and transfer



Gravity
Apply force ideas to earth and space

LIFE SCIENCE



Living Things
What makes something alive



What Living Things Need
Needs of plants and animals



Structure and Function
Parts that help survival



Interdependent Relationships
Habitats and food



Inheritance and Variation
Life cycles and traits



Structure and Function
Food energy & cycling through ecosystems



Matter and Energy
Internal systems and senses

EARTH & SPACE SCIENCE



Weather
Observe local weather



Weather and Climate
Describe weather patterns



Space Systems
Patterns of the sun, moon, and stars



Processes That Shape Earth
Fast and slow land change



Weather and Climate
Predict patterns and climate



Earth's Changing Surface
Weathering, erosion, and mapping



Earth's Systems
Interacting Earth systems

ENGINEERING DESIGN

Engineering design is integrated across all grades as students ask questions, design and test solutions, and use evidence to improve their ideas.

Knowledge Builds Year After Year

Across every discipline, students revisit core science ideas with increasing depth. They move from observing familiar phenomena to investigating patterns, developing models, using evidence, and explaining complex systems.

Grade 4

LIFE SCIENCE



Structure, Function, and Information Processing

How do internal and external structures support the survival, growth, behavior, and reproduction of plants and animals?

5 lessons + assessment

PHYSICAL SCIENCE



Energy

How can energy be transformed and changed?

7 lessons + assessment

PHYSICAL SCIENCE



Waves

How do waves demonstrate patterns and transmit information?

4 lessons + assessment

EARTH AND SPACE SCIENCE



Earth's Systems: Processes that Shape the Earth

How do natural processes shape the Earth?

5 lessons + assessment

ENGINEERING DESIGN



Helping Nature

How can we design and generate products to help plants and animals?

3 lessons + assessment

Anchor Question: How do plant and animal structures help them survive?

[View Unit Online](#)

Lesson 1


Plantific!

Lesson 2


Survivors!

Lesson 3


The Inside Story!

Lesson 4


Sensing Information

Phenomena & Learning Targets

How can vegetables be the same and different?

- Identify important external structures of a plant and describe their function.
- Identify an important internal structure of a plant and describe its function.
- Understand that plant structures work together as a connected system.

What helps animals survive?

- Identify different external structures of a variety of animals.
- Explain how an external structure helps an animal to survive.

What is under an animal's skin?

- Identify position and function of the heart, lungs, and brain in their body.
- Explain how these structures, along with the nerves, work together to aid growth and survival.
- Give examples of animals that have internal structures similar to and different from those in humans.

What does a service dog do?

- Describe the senses as the ways in which an animal's brain receives information about the environment.
- Use a model to identify each stage in the sequence of events, that begins with a change in an animal's environment, and ends with the brain directing the body to respond.

Performance Expectations

4-LS1-1 Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.

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4-LS1-1 Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.

4-LS1-2 Use a model to describe that animals receive different types of information through their senses, process the information in their brain, and respond to the information in different ways.

Science & Engineering Practices

Engaging in Argument from Evidence

Engaging in Argument from Evidence

Engaging in Argument from Evidence

Developing and Using Models

Disciplinary Core Ideas

LS1.A: Structure and Function

LS1.A: Structure and Function

LS1.A: Structure and Function

LS1.D: Information Processing

Crosscutting Concepts

Systems and System Models

Systems and System Models

Systems and System Models

Systems and System Models

Anchor Question: What is energy and how is it transferred?

Lesson 5

Eye, Eye!

Lesson 1

Fast Energy

Lesson 2

When Objects Collide

Lesson 3

Sound Moves**Phenomena & Learning Targets****Why do we see things?**

- State that light travels in straight lines called rays.
- Explain that we see objects when light rays reflect off them and into our eyes.
- Describe how mirrors change the path of light and help us to see things we cannot look at directly.

Would you ride a roller coaster?

- Identify that moving objects have energy.
- Use evidence to construct an argument that the faster an object moves, the more energy it possesses.

How does a Rube Goldberg machine work?

- Ask questions and predict outcomes regarding changes in energy when objects collide.
- Demonstrate energy is transferred from objects that collide which also changes the motion
- Explain colliding objects transfer some energy to the air producing heat and light.

Why are sounds different?

- Explain how sound is produced
- State that sound travels from one place to another, and cite practical observations as evidence.

Performance Expectations**4-PS4-2** Develop a model to describe that light reflecting from objects and entering the eye allows objects to be seen.**4-PS3-1** Use evidence to construct an explanation relating the speed of an object to the energy of that object.**4-PS3-3** Ask questions and predict outcomes about the changes in energy that occur when objects collide.**4-PS3-2** Make observations to provide evidence that energy can be transferred from place to place by sound, light, heat, and electric currents.**Science & Engineering Practices**

Developing and Using Models

Constructing Explanations and Designing Solutions

Asking Questions and Defining Problems

Planning and Carrying Out Investigations

Disciplinary Core Ideas

PS4.B: Electromagnetic Radiation

Constructing Explanations and Designing Solutions

PS3.A: Definitions of Energy PS3.B: Conservation of Energy / Energy Transfer PS3.C: Relationship - Energy and Forces

PS3.A: Definitions of Energy PS3.B: Conservation of Energy and Energy Transfer

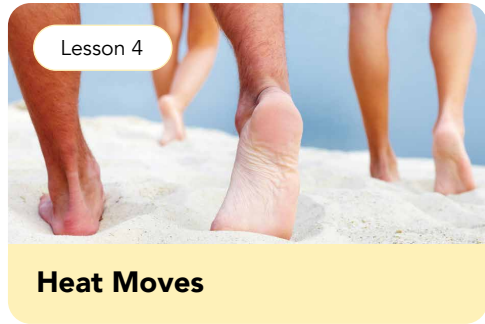
Crosscutting Concepts

Cause and Effect

Energy and Matter

Energy and Matter

Energy and Matter



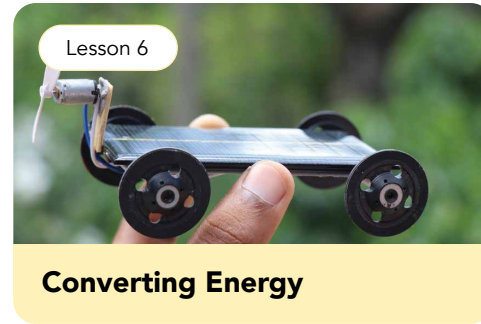
Lesson 4

Heat Moves



Lesson 5

Switch on the Light



Lesson 6

Converting Energy



Lesson 7

Energy Resources

Phenomena & Learning Targets

Does heat move?

- Identify that energy comes in different forms, including heat.
- Make observations to provide evidence that energy can be transferred from place to place.
- Understand that energy can be transferred from one form to another.

When we click a switch, why does a light turn on?

- Describe how light energy travels from one place to another.
- Describe how to build a circuit that changes electrical energy into light energy.

How can wind power help charge a cell phone?

- Identify that energy can be transformed or changed from one form to another.
- Demonstrate that electrical energy can be transformed into motion, sound, light or heat energy.

What gives us energy?

- Explain the difference between a renewable and a nonrenewable energy resource.
- Describe the effects of a particular energy resource on the environment.

Performance Expectations

4-PS3-2 Make observations to provide evidence that energy can be transferred from place to place by sound, light, heat, and electric currents.

4-PS3-2 Make observations to provide evidence that energy can be transferred from place to place by sound, light, heat, and electric currents.

4-PS3-4 Apply scientific ideas to design, test, and refine a device that converts energy from one form to another

4-ESS3-1 Obtain and combine information to describe that energy and fuels are derived from natural resources and their uses affect the environment.

Science & Engineering Practices

Planning and Carrying Out Investigations

Planning and Carrying Out Investigations

Constructing Explanations and Designing Solutions

Obtaining, Evaluating, and Communicating Information

Disciplinary Core Ideas

PS3.A: Definitions of Energy
PS3.B: Conservation of Energy and Energy Transfer

PS3.A: Definitions of Energy PS3.B:
Conservation of Energy / Energy Transfer
PS3.C: Relationship - Energy and Forces

ETS1.A: Defining Engineering Problems
PS3.B: Conservation & Transfer of Energy
PS3.D: Energy in Chemical Processes

ESS3.A: Natural Resources

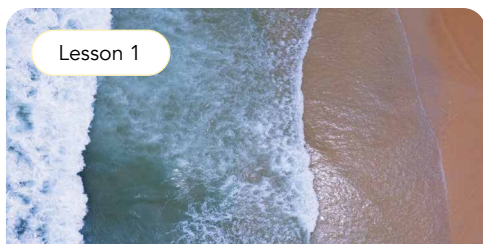
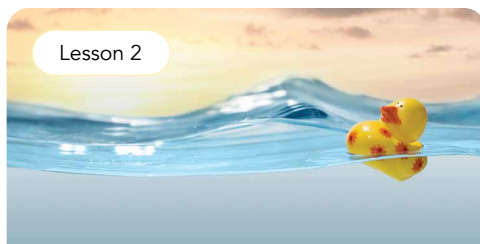
Crosscutting Concepts

Energy and Matter

Energy and Matter

Energy and Matter
Connections to Engineering

Energy and Matter
Connections to Engineering

Anchor Question: What are waves and what can they do?**Catch The Wave****Modeling Waves****Sending Information****Get the Message****Phenomena & Learning Targets****How are waves formed?**

- Describe wave patterns found in nature.
- Describe differences in wave patterns in terms of their wavelength and amplitude.

What can waves do?

- Use a physical model to observe and analyze the natural phenomenon of wave motion.
- Develop a model to explain that waves can cause objects to move.

How did people send messages before cell phones?

- Use a code to send and receive messages.
- Compare the effectiveness of different methods for sending and receiving encoded messages.
- Appreciate how today's technology is far more effective and efficient at sending and receiving information than a hundred years ago.

What was the Arecibo message?

- Send and receive simple messages using a visual form of binary code.
- Understand that binary code is used by modern communication technologies to send and receive information.

Performance Expectations

4-PS4-1 Develop a model of waves to describe patterns in terms of amplitude and wavelength and that waves can cause objects to move.

4-PS4-1 Develop a model of waves to describe patterns in terms of amplitude and wavelength and that waves can cause objects to move.

4-PS4-3 Generate and compare multiple solutions that use patterns to transfer information.

4-PS4-3 Generate and compare multiple solutions that use patterns to transfer information.

Science & Engineering Practices

Developing and Using Models

Developing and Using Models

Constructing Explanations and Designing Solutions

Constructing Explanations and Designing Solutions

Disciplinary Core Ideas

PS4.A: Wave Properties

PS4.A: Wave Properties

PS4.C: Information Technologies and Instrumentation. ETS1.C: Optimizing the Design Solution.

PS4.C: Information Technologies and Instrumentation. ETS1.C: Optimizing the Design Solution.

Crosscutting Concepts

Patterns

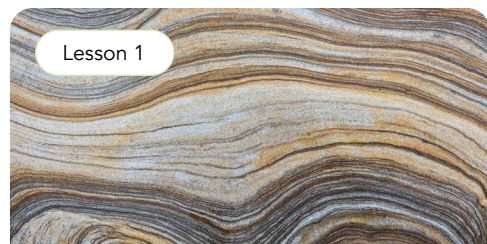
Patterns

Patterns

Patterns

Anchor Question: How does the Earth change over time?

[View Unit Online](#)



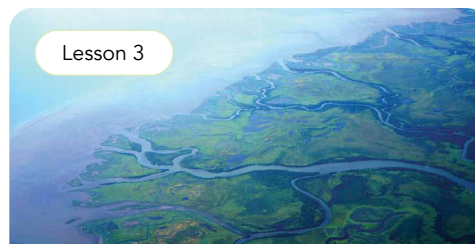
Lesson 1

Has Earth Changed?



Lesson 2

Weathering



Lesson 3

Erosion



Lesson 4

Mapping Patterns

Phenomena & Learning Targets

How can a slice of cake be like Earth's surface?

- Recognize that Earth's surface changes over time.
- Identify how patterns in rocks are evidence of Earth's changes.

How does the weather affect Earth?

- Recognize that water, ice, wind, living organisms, and gravity break rocks, soils, and sediments into smaller particles and move them around.
- Make and record observations for a given investigation to provide evidence for the effects of weathering.

Why is the land always changing?

- Give an example of an erosion process and explain how it moves weathered rock.
- Use practical observations as evidence for an explanation of how the slope of the land can affect the rate of erosion.

Where are the highest and lowest points on Earth?

- Locate land and water features on maps.
- Analyze map data to describe patterns of Earth's features.
- Interpret map data to describe patterns of Earth's features.

Performance Expectations

4-ESS1-1 Identify evidence from patterns in rock formations and fossils in rock layers to support an explanation for changes in a landscape over time.

4-ESS2-1 Make observations and/or measurements to provide evidence of the effects of weathering or the rate of erosion by water, ice, wind, or vegetation.

4-ESS2-1 Make observations and/or measurements to provide evidence of the effects of weathering or the rate of erosion by water, ice, wind, or vegetation.

4-ESS2-2 Analyze and interpret data from maps to describe patterns of Earth's features.

Science & Engineering Practices

Constructing Explanations and Designing Solutions

Planning and Carrying Out Investigations

Planning and Carrying Out Investigations

Analyzing and Interpreting Data

Disciplinary Core Ideas

ESS1.C: The History of Planet Earth

ESS2.E: Biogeology
ESS2.A: Earth Materials and Systems

ESS2.A: Earth Materials and Systems

ESS2.B: Plate Tectonics and Large-Scale System Interactions

Crosscutting Concepts

Patterns

Cause and Effect

Cause and Effect

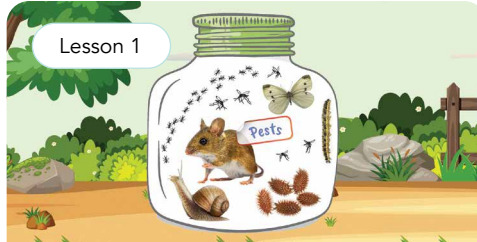
Patterns

Anchor Question: What things can we design to help living things survive and grow?



Lesson 5

Living With Earth's Hazards



Lesson 1

What A Pest!



Lesson 2

How Can We Help?



Lesson 3

Water Transporter

Phenomena & Learning Targets

How can we keep safe when natural disasters happen?

- Describe some natural hazards that cause problems for humans.
- Design and evaluate a potential solution to reduce harm caused by a natural hazard.

What is a pest?

- Understand that a pest can be a plant or animal in the wrong place.
- Collaborate to develop possible solutions by modifying a bike.

How can we help animals?

- Explore and define design opportunities.
- Develop and communicate design ideas through describing, drawing and modeling a sequence of steps.
- Use given components and equipment to safely make a solution.

How can we move water easily?

- Design, plan, produce, test and evaluate a model of a water irrigation system that could be used to water a vegetable garden.

Performance Expectations

4-ESS3-2 Generate and compare multiple solutions to reduce the impacts of natural Earth processes on humans.

3-5-ETS1-2 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-ETS1-1 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-ETS1-3 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.

Science & Engineering Practices

Constructing Explanations and Designing Solutions

Constructing Explanations and Designing Solutions

Asking Questions and Defining Problems

Planning and Carrying Out Investigations

Disciplinary Core Ideas

ESS3.B: Natural Hazards
ETS1.B: Developing Possible Solutions

ETS1.B: Developing Possible Solutions
ETS1.B: Developing Possible Solutions

ETS1.A: Defining and Delimiting Engineering Problems

ETS1.B: Developing Possible Solutions
ETS1.C: Optimizing the Design Solution

Crosscutting Concepts

Cause and Effect

N/A

N/A

N/A



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SCHOOL QUOTE**
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inquisitive

Our commitment is simple: universal access for all students, with thoughtfully designed lessons that save teachers time.

Inquisitive is a complete, phenomena-based PreK–5 science curriculum, aligned to the NGSS and state standards.

It's designed to delight and engage students while supporting all learners with 50+ languages in digital, print, and text-to-speech formats.

Teachers save time with open-and-go lessons, built-in guidance, rich stimuli, hands-on and virtual investigations, and auto-graded assessments.

Affordable and accessible, Inquisitive brings high-quality science learning to every school.

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