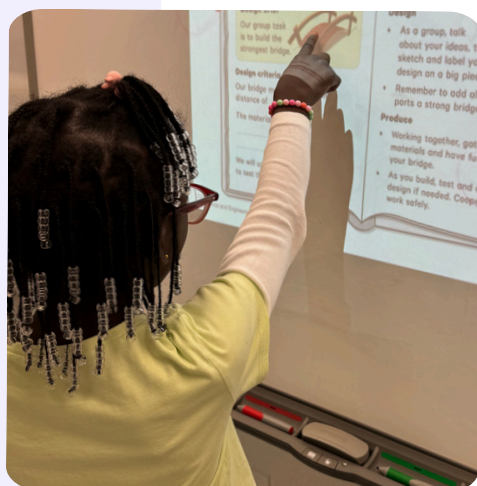
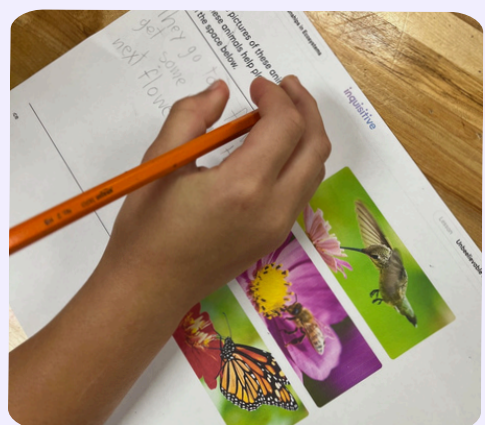




Kentucky Science Alignment Rubric.

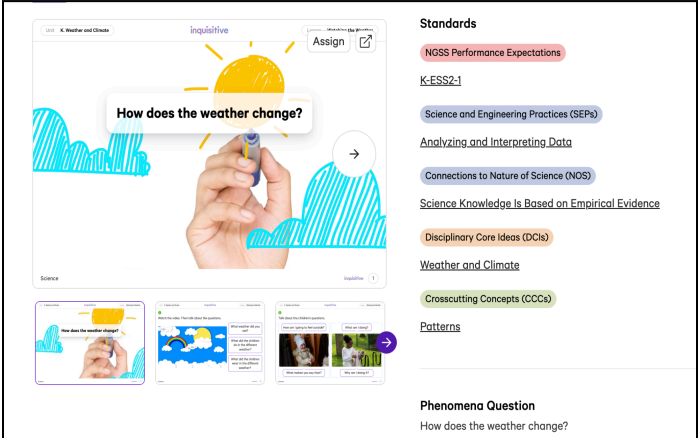
Completed for Inquisitive PreK-5 Science

inquisitive

A. Integrates the Three Dimensions

Indicator A1. Designed for three-dimensional learning (lesson, unit and program)

Instructional resources are designed to integrate the Science and Engineering Practices (SEPs), Disciplinary Core Ideas (DCIs) and Crosscutting Concepts (CCCs) into student learning. These dimensions are used to support meaningful sensemaking.

Evidence Identified:  Strong Evidence	Location
Inquisitive presents Disciplinary Core Ideas (DCIs), Science and Engineering Practices (SEPs), and Crosscutting Concepts (CCCs) through a three-dimensional, inquiry-based approach aligned to the Next Generation Science Standards (NGSS). Scientific accuracy is ensured by anchoring instruction in authentic, real-world phenomena that require students to use evidence, data, and reasoning to build understanding rather than memorize isolated facts. Each lesson is intentionally designed so the DCI, SEP, and CCC work together within a coherent instructional storyline, rather than as separate or disconnected activities. DCIs reflect current scientific consensus and are developed through carefully sequenced learning progressions that deepen conceptual understanding across units and grade levels. SEPs are embedded as authentic student actions, with students asking questions, planning and carrying out investigations, analyzing data, constructing explanations, and communicating findings using accurate scientific language and representations. CCCs are explicitly identified and repeatedly applied to help students recognize patterns, explain cause-and-effect relationships, understand systems, and transfer their learning across contexts.	Example: Kindergarten Weather and Climate Unit Lesson Watching the Weather. In this lesson students investigate changing weather through videos, images, and personal observations. They track daily weather, identify patterns, and learn symbols using an interactive eBook. Students create and analyze weather charts over time, then extend thinking by comparing data across months and making inferences based on observed patterns. 

A. Integrates the Three Dimensions

Through this integrated design, Inquisitive ensures that all three dimensions are presented accurately, consistently, and meaningfully supporting students in developing scientifically sound knowledge and practicing science as scientists and engineers do. Inquisitive embeds visible thinking routines and structured talk moves that require students to articulate reasoning, critique ideas respectfully, and refine explanations using evidence. Sensemaking becomes social and iterative. Students learn that scientific knowledge is built through discussion, testing, and revision.

Use the blank chart to keep your class record.

Day 1

Morning

Afternoon

Day 2

Morning

Afternoon

Day 3

Morning

Afternoon

- Color to show the weather this morning and then again this afternoon.
- Color two more days during the week.
- Can you see a **pattern**? What is the same?

7 Assign

Look at the weather chart. It shows the weather every day for one month.



Count how many days of each kind of weather there were.

Now write the number below the symbol.

☀

☁

☂

☔

⚡

Draw a symbol to match these sentences.

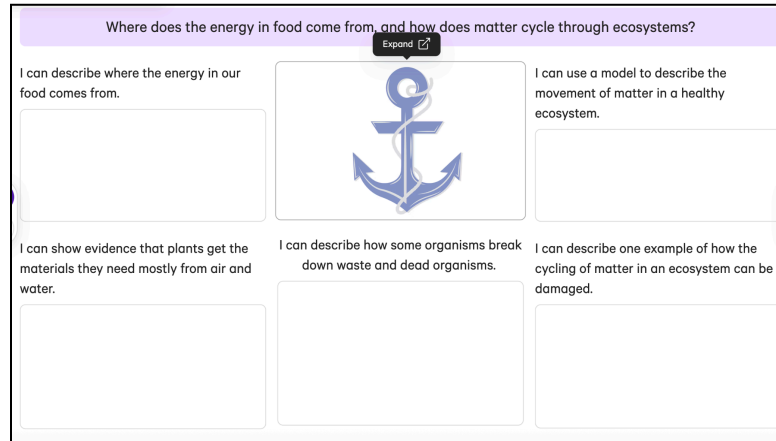
This weather happened the most

This weather happened the least

A. Integrates the Three Dimensions

Indicator A2. Designed for three-dimensional assessment (lesson, unit and program)

Materials are designed to elicit direct, observable evidence related to the three-dimensional learning in the instructional resources. The evidence is derived from assessments that are both formative and summative. Assessments are centered around a scenario based upon a phenomenon or problem to solve.

Evidence Identified:  Strong Evidence	Location
Inquisitive science identifies lesson-level learning objectives (learning performances) by breaking down unit-level standards into specific, measurable goals that integrate Science and Engineering Practices (SEPs), Disciplinary Core Ideas (DCIs), and Crosscutting Concepts (CCCs). These lesson-level objectives build towards 3D unit outcomes by creating a developmental progression. Inquisitive provides a comprehensive assessment system designed to measure student progress through embedded formative tools and summative assessments, such as Anchors and "I can" statements, which align with NGSS Performance Expectations. Throughout a unit, students respond to phenomena-driven prompts, data analysis tasks, models, and explanations that are aligned to the targeted grade-level standards, allowing teachers to observe progress toward full standard mastery. Lessons include multiple response types (drawings, models, written explanations, claims with evidence, and discussions) that collectively assess all elements of the standard, not just recall of content. 3-dimensional rubrics explicitly evaluate how well students integrate practices, concepts, and reasoning, providing clear evidence that the full intent of the standards has been met across the instructional series.	Example: In Grade 5 Matter and Energy in Organisms and Ecosystems, the unit level Anchor Map is a K-5 formative and summative assessment tool designed to help students document, organize, and share learning throughout a science unit. It functions as a visual, often student-created, roadmap that connects key concepts, allows for self-reflection via "I can" statements, and helps teachers make student thinking visible. 

A. Integrates the Three Dimensions

Each lesson has a formative assessment checkpoint performance task/question,(indicated by the gold star) with accompanying grading rubric and levels of attainment. A grading rubric is available for every lesson associated with the Checkpoint performance task

A checkpoint question is a specialized formative assessment tool marked by a yellow star in every lesson. It allows teachers to measure student progress against learning goals and assess understanding of key content, data interpretation, or skill application during the lesson. A lesson rubric is provided for teachers to identify those learning targets.

7

Part 1 of 2

Assign

Use a model to describe how energy in animals' food was once energy from the sun.

Research and choose a new food chain for your model.

Your model must show how energy is transferred from the sun and then along the food chain.

Label the producers and consumers in the food chain. Your chain should have at least two consumers (animals).

Describe how each part of the food chain uses energy.

Choice Board

- Diagram
- Flowchart
- Paper chain
- Digital animation

Look at the choice board for ideas about how you could make your food chain model.

```

graph LR
    Sun((Sun)) --> Grasses[Grasses and shrubs]
    Grasses --> Grasshopper[Grasshopper]
    Grasshopper --> Meerkat[Meerkat]
    Meerkat --> Hyena[Hyena]
            
```

Teaching Notes - Part 1 of 2

This checkpoint question (as indicated by the star icon) is an opportunity to formatively assess students' understanding of food chains, and their ability to create a model that shows how energy moves through a food chain.

Students first need to research a food chain. To help structure and guide their research, students could perhaps focus on finding one in a local environment, such as a lake, a forest, a desert, or a state or national park. Next, they need to represent that food chain accurately, using a mode of their choice. A list of suggestions is given on the Choice Board. Note that students should include at least two consumers in their food chains. Then they need to label or otherwise indicate the producer and the consumers. Students should state how each living thing in the food chain uses energy. Encourage students to think back to earlier in the lesson when they discussed the question, "Why do animals eat food?"

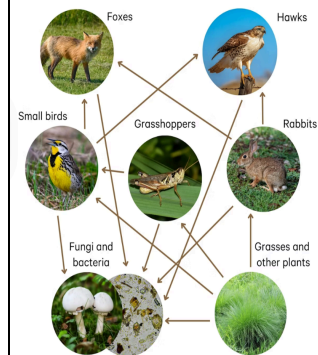
Topic: 5. Matter and Energy in Organisms and Ecosystems					
Formative Assessment Tool			Name: _____		Date: _____
NGSS PE	Criteria: NGSS These Dimensions	Steps to Success*	Checkpoint	L1	Recommendations for Support**
ORAL LANGUAGE 8-12	Science and Engineering Practices Developing and Using Models Use models to describe phenomena.	This Science and Engineering Practice is addressed and assessed in the Checkpoint Question described below.	Q7		
	Disciplinary Core Ideas PS3.D: Energy in Chemical Processes and Everyday Life The energy released from food was once energy from the sun that was captured by plants in the chemical process that forms plant matter (from air and water).	1. Lesson 1 Energy for Living Things Students show their understanding of food chains by creating a model that shows how energy moves from the sun, to producers and then consumers. Students firstly research a food chain, and then use a model to represent that food chain accurately. Students then need to label or otherwise indicate the producer and the consumers, stating how each living thing in the food chain uses energy.	Q7	Look at another food chain in the lesson with the student. Have students place a finger on the sun and trace along the food chain. Every time the student moves from one organism to the next, over an arrow, have them say, "The energy in this (first organism) goes to this (second organism)." Reread the information boxes on pages 4, 5, and 6. Identify what producers and consumers are, and explain how living things use energy. Reread the food chain question, asking students to describe the models they see.	
	LS1.C: Organization for Matter and Energy Flow in Organisms 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).				
	Crosscutting Concepts Energy and Matter Energy can be transferred in various ways and between objects.	This Crosscutting Concept is addressed and assessed in the Checkpoint Question described above.			

A. Integrates the Three Dimensions

[End-of-unit 3-dimensional performance tasks](#) require students to explain a phenomenon or solve a problem using appropriate practices, core ideas, and crosscutting concepts aligned to the grade-band expectations. The system offers ready-to-teach lessons, interactive, and digital resources that allow teachers to monitor learning through multiple methods, including observations and student work analysis, ensuring consistent, ongoing assessment including a self-graded summative assessment.

Summative Assessments in Inquisitive Science (K-5) evaluate student mastery of NGSS-aligned performance expectations at the end of a unit.

Look at the model again. Use it to answer questions 9 and 10.



9. Describe one complete path through the food web in the model. Use the words *producers*, *consumers*, and *decomposers* in your answer.

10. Suppose a new kind of insect starts living in the ecosystem. The new insects eat large amounts of grasses and other plants. Birds and other animals do not eat the new insects. Which sentence describes a likely effect of the new insects on the food web?

The foxes and hawks will learn to eat the new insects.

The decomposers will stop recycling nutrients into the soil.

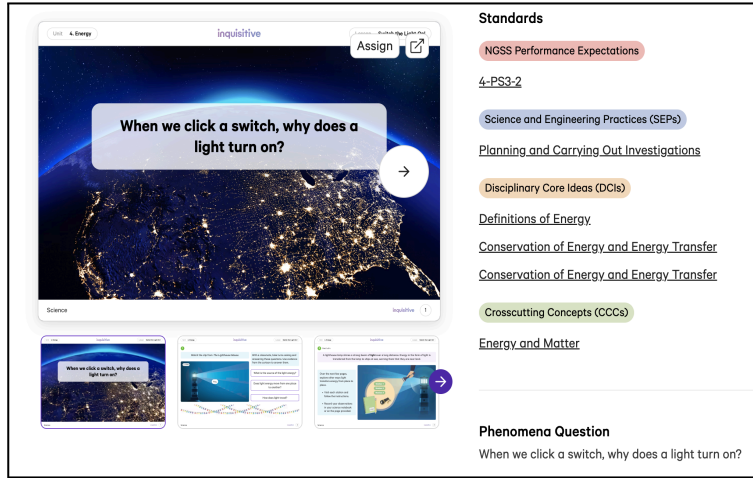
All the consumers except the new insects will have less food.

The rabbits will have less food, but the small birds will have more.

B. Phenomena and Problems

Indicator B1. Drive individual lessons (lesson)

Phenomena and/or problems drive individual lessons and learning experiences using key elements of the three dimensions. Students should be actively engaged using the three dimensions as they are also engaged with the phenomenon or problem.

Evidence Identified:  Strong Evidence	Location
Inquisitive Science K-5 drives learning by anchoring units in real-world, puzzling phenomena, engaging students to investigate "why" or "how" something happens, rather than just learning facts. It integrates 3D learning (NGSS) through hands-on investigations, collaborative inquiry, and visible thinking, encouraging students to act like scientists and solve authentic problems.	Grade 4 Energy Unit Lesson Switch the Light On. Students analyze why a light turns on or off and use evidence from investigations to support or revise their claims, allowing teachers to respond immediately to student thinking during instruction. 

B. Phenomena and Problems

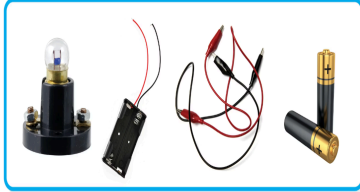
The different lights you saw were all produced by energy in another form: electricity moving as **electric currents**. Chemicals in a battery store energy. In a **circuit**, that energy moves as an electric current.

Can electric currents transfer energy from place to place?

Work with a classmate or small group to make an electric circuit.
Gather the materials you will need. Use the materials to find a way to light the bulb.

Materials

- Light bulb and holder
- 2 electric wires
- Batteries
- Battery holder (optional)



Time 25 mins

Teaching Notes - Part 1 of 2

Read the information box at the top of the page. Tell students that they will be building an electric circuit—a circular path for electrical energy (electricity) to travel around. Divide students into groups of two or three, give a set of equipment to each group, and describe the challenge to the students: to build a circuit using the battery and the light bulb so that energy can be transferred from the battery to the light bulb and light it up.

Teaching Notes - Part 2 of 2

Se Pedagogical Model

Practical tips for hands-on activities

Activity Materials

Assign

Show how you made the bulb light up. Draw and label a diagram of your complete circuit.

Then use evidence from your investigation to complete the following statement:
Energy can be transferred from place to place by electric currents. **Expand** because ...

Teaching Notes

This checkpoint question (as indicated by the star icon) is an opportunity to formatively assess a student's skills in representing an electric circuit in diagram form and using it as evidence of energy being transferred from one place to another.

Students need to draw a diagram of their completed, successful circuit and label the parts. They then need to use their observations from the investigation to provide evidence to complete the following statement:

- Energy can be transferred from place to place by electric circuits. I know this because ...

~Possible lesson break~

Answers

Se Pedagogical Model

B. Phenomena and Problems

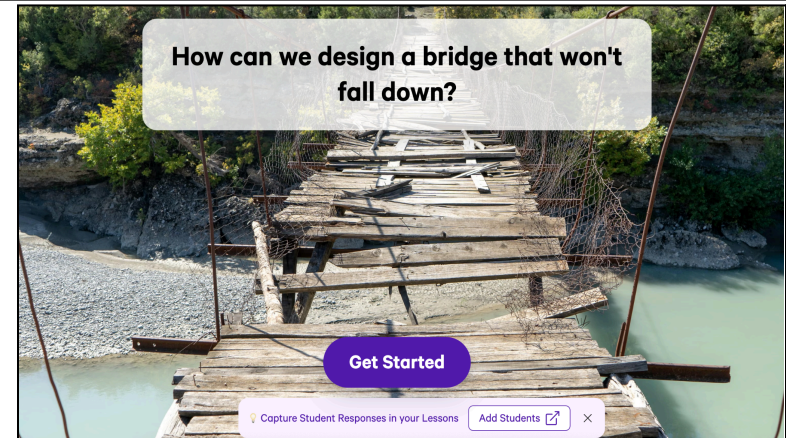
Indicator B2: Drive multiple lessons (unit and/or program)

Phenomena/problems drive multiple lessons for students to use and build knowledge of all three dimensions.

Units, chapters or learning modules designed to engage students in making sense of natural phenomena or solving design problems in meaningful ways, across multiple lessons. Students should be actively engaged using the three dimensions as they are also engaged with the phenomenon or problem.

Evidence Identified:  Strong Evidence	Location
Inquisitive is intentionally designed to help students build, connect, and deepen their understanding of the three dimensions: Disciplinary Core Ideas (DCIs), Science and Engineering Practices (SEPs), and Crosscutting Concepts (CCCs) across the full instructional series. Across units and grade levels, students clearly see how the dimensions connect and evolve. Each unit revisits and extends prior learning through related phenomena, shared practices, and recurring crosscutting concepts, making learning progressions visible to students rather than isolated to individual lessons. Explicit prompts, reflection opportunities, and teacher guidance support students in recognizing how new investigations build on previous learning, strengthening coherence from unit to unit.	In Grade 3 the Engineering Unit Forces, complements science skills and core ideas developed in the Physical Sciences unit. Students investigate how different forces and the properties of materials affect the behavior of systems and products. Students identify that the understanding of forces is used in the designing of systems such as bridges, and products such as airplanes and boats. In the unit, students collaborate to plan, design and build a bridge that can withstand a downward force. They then go on to investigate how designed products use forces to move people. Students follow the design process to plan and build a model as a solution to a defined problem; how to move a mini figure a specified distance.

B. Phenomena and Problems



How can we design a bridge that won't fall down?

Standards

- NGSS Performance Expectations
- 3-5-ETS1-2
- Science and Engineering Practices (SEPs)
- Constructing Explanations and Designing Solutions
- Disciplinary Core Ideas (DCIs)
- Developing Possible Solutions
- Developing Possible Solutions
- Connections to Engineering... (ENG)
- Influence of Science, Engineering, and Technology on Society and the Natural World

Phenomena Question

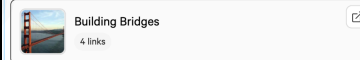
How can we design a bridge that won't fall down?

B. Phenomena and Problems

Your group task is to build the strongest bridge you can.

Investigate

Use these websites and books, and then record in your science notebook what you find out about building bridges.



Think about:

- How bridges are built
- What parts are important
- What makes a bridge strong



A bridge is a type of system designed to cross an obstacle, like a river. Most bridges are made up of different parts. When designing and building bridges, engineers make sure all these parts work together as a system to build a safe and strong structure.

B. Phenomena and Problems

Indicator B3. Leverage prior knowledge (lesson, unit and/or program)

Resources elicit students' prior knowledge and experience about phenomena and/or problems. This elicited knowledge should then be leveraged as students make sense of phenomena and/or solve problems.

Evidence Identified:  Strong Evidence	Location
Inquisitive Science K-5 elicits prior knowledge by engaging students with rich, real-world phenomena, anchoring questions, and hands-on observations at the start of units, encouraging them to share, discuss, and model their initial thinking, often through tools like sticky notes or digital platforms. This knowledge is leveraged through an "Activity Before Concept" approach, where student questions and initial models drive investigations, allowing them to test, refine, and build scientific understanding from their own ideas.	Grade 2 Structure and Properties of Matter Unit, Lesson Changes from Heating and Cooling, students use examples from everyday life. This lesson uses the phenomena of common kitchen activities to introduce the idea that matter can change when being heated or cooled. Students observe videos of freezing fruit, melting butter, baking cookies, and the freezing of soap bubbles outside in the winter, and then think about why these changes occur. They place different substances into a freezer to observe if and how they change. Students also observe how chocolate and eggs change when they are heated and then cooled. Students learn that heating and cooling change objects. Some of these changes can be undone (reversible changes), while other changes cannot (irreversible changes).

B. Phenomena and Problems

Some changes made by heating and cooling can be undone.
Some materials can go back to how they were before.



Read the information. Then talk about the questions on the next page.



Chocolate is a solid.



Heating chocolate turns
it into a liquid.



Cooling chocolate turns
it back into a solid.
The change was undone.

3. Structure and Properties of Matter

inquisitive

Assign

Part 1 of 2

Some changes made by heating and cooling can be undone.
Some materials can go back to how they were before.

Read the information. Then talk about the questions on the next page.



Chocolate is a solid.



Heating chocolate turns
it into a liquid.



Cooling chocolate turns
it back into a solid.
The change was undone.



Teaching Notes

Part 1 of 2

Read the information box about changes that can be undone and the process of melting chocolate. Use the images to present students with the idea that turning a solid into a liquid is a change that can be undone. Chocolate can be melted into a liquid, but cooling turns it back into a solid.

Ask students to think about the activity they did in Activity 3. Ask the following questions:

- Did the shape of the chocolate change when it was melted? (Yes)
- Did it go back to the same shape when we cooled it? (No)

To return the chocolate to its original shape, we would need to pour the liquid chocolate into a mold.

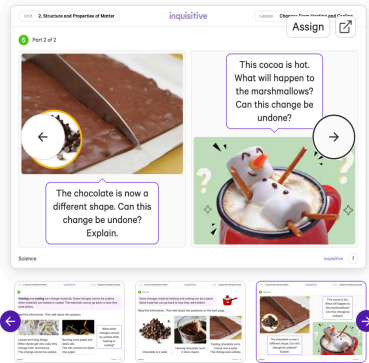
Part 2 of 2

Have students look at the picture of the hardened chocolate. Explain to students that the chocolate is now a different shape. Ask:

- Can this change be undone?

Encourage students to think about how you might change the flat chocolate back into its original shape of choc chips.

B. Phenomena and Problems



Part 2 of 2

Have students look at the picture of the hardened chocolate. Explain to students that the chocolate is now a different shape. Ask:

- Can this change be undone?

Encourage students to think about how you might change the flat chocolate back into its original shape of choc chips.

Have students look at the picture of hot cocoa. Ask the following questions:

- What will happen to the marshmallows?

Encourage students to think about how the marshmallows will change, and ask:

- Can this change be undone?

Students can draw on any experiences they have of placing marshmallows into hot cocoa to help them answer.

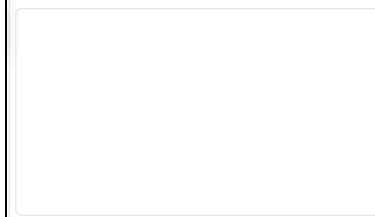
—Possible Lesson Break—

Draw and label one example to match each claim.

Claim

Some changes to things that have been heated or cooled can be undone.

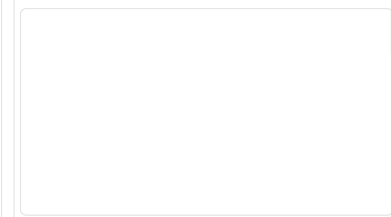
Evidence



Claim

Some changes to things that have been heated or cooled cannot be undone.

Evidence



B. Phenomena and Problems

Indicator B4: Connected to grade band/grade level Disciplinary Core Ideas (lesson, unit and/or program)

Phenomena and/or problems are used to connect student sense-making to one or more DCIs within the appropriate grade band/grade level.

Evidence Identified:  Strong Evidence	Location
Inquisitive was developed from the ground up to meet the requirements of the Next Generation Science Standards (NGSS) and to ensure that scientific content remains strictly within grade-level Disciplinary Core Ideas (DCIs). All instruction is anchored in the NGSS three-dimensional learning framework, with each lesson intentionally aligned to specific grade-level expectations. Rather than introducing an expansive range of facts or concepts beyond student readiness, Inquisitive prioritizes depth over breadth. Students develop a deep, scaffolded understanding of age-appropriate scientific ideas through carefully selected phenomena and investigations that align precisely to the targeted DCIs. Content progression is deliberately controlled so that complexity increases through sensemaking, application, and reasoning, not through the premature introduction of advanced concepts. Teacher guidance, lesson objectives, and student tasks are designed to reinforce grade-level boundaries, ensuring that instruction remains focused, accurate, and developmentally appropriate. As a result, students engage in rigorous scientific thinking while districts can be confident that materials fully meet NGSS expectations without introducing content outside the intended grade-level scope.	For example, in kindergarten physical science, Pushes and Pulls students investigate how the motion of an object can be changed by pushes and pulls. Lessons focus exclusively on the grade-level DCI by having students observe everyday phenomena such as balls changing direction on a mini-golf course or in a homemade pinball machine. Students describe patterns in motion and use evidence from investigations to explain changes in direction or speed. Importantly, materials do not introduce advanced concepts such as forces, or Newton's Laws, which are intentionally reserved for later grades.

B. Phenomena and Problems

Rather than introducing a broad range of facts or terminology, Inquisitive prioritizes depth over breadth. Students develop a scaffolded, age-appropriate understanding of core ideas through repeated sensemaking opportunities aligned to the targeted DCIs.

Teacher guidance, lesson objectives, and student tasks reinforce clear grade-level boundaries, ensuring instruction remains focused, scientifically accurate, and developmentally appropriate. As a result, students engage in rigorous three-dimensional learning while districts can be confident that materials fully meet NGSS expectations without including scientific content outside the intended grade-level scope.

The screenshot displays the Inquisitive interface for a lesson titled "K. Forces and Interactions: Pushes and Pulls". A "Standards" pop-up window is open, highlighting "PS2.A: Forces and Motion" with the text "Pushes and pulls can have different strengths and directions." The main content area features a video of a baseball being hit, with a question "How does a ball move?" overlaid. To the right, a sidebar lists various topics including "Connections to Nature of Science (NOS)", "Scientific Investigations Use a Variety of Methods", "Disciplinary Core Ideas (DCIs)", "Types of Interactions", "Forces and Motion", "Crosscutting Concepts (CCCs)", and "Cause and Effect". At the bottom, a "Phenomena Question" is posed: "How does a ball move?"

The screenshot shows a lesson titled "Playing mini-golf is so much fun! A player has to try to hit a ball into the hole. Look at the pictures of some mini-golf holes. Then talk to a classmate about the questions." The main content area displays four images of different mini-golf holes. Below the images are two questions: "What things could a ball hit?" and "What could happen to a ball if it hit something else?". On the right, a sidebar provides additional information, including a "Core Activity" section with the text "Learn about Differentiation with Inquisitive", a "Time" section indicating "5 mins", and a "Teaching Notes" section with instructions for students to discuss the images and answer the questions. The "Answers" section is also visible, indicating that answers will vary and guiding students toward the idea that the ball could change direction and not go into or near the hole.

C. Coherence

Indicator C1: Build and connect student learning (unit and/or program)

Science concepts are built coherently across a grade band/grade level. Resources provide opportunities for students to connect their learning and use of the three dimensions within or between units/chapters/learning modules.

Evidence Identified:  Strong Evidence	Location
Inquisitive Science builds conceptual coherence across grades K-5 through phenomena-based, NGSS-aligned units that explicitly connect three-dimensional learning through disciplinary core ideas, science and engineering practices, and crosscutting concepts within each lesson. Coherence is achieved by anchoring units in real-world problems and spiraling concepts, allowing students to apply, review, and deepen understanding over time through hands-on investigations. Key ways Inquisitive connects learning and drives coherence: ● Structured Progression: The curriculum is organized by discipline and topic, utilizing "Anchor Questions" and related phenomena that build upon previous experiences. ● Three-Dimensional Focus: Each lesson is built for 3D learning, integrating content with inquiry-based skills rather than treating them separately. ● Cohesive Resources: Lessons include digital slides, interactive content, ebooks, and hands-on activities that explicitly connect learning within units and reinforce concepts across chapters.	In the Grade 3 Lesson Weather Patterns and Predictions, students consider the types of people who need to know about the weather, and how weather data from previous months and years are used to predict future weather. They graph and analyze temperature and rainfall data in order to decide when to hold a given outdoor event. Students then choose their own outdoor event to plan; they select the weather data necessary to help them decide which month would be the best in which to hold the event. Students use the data as evidence to support their decision and to make predictions of weather for the next year.

C. Coherence

- Connecting Learning: Students connect their learning by tackling real-world problems that relate to their own lives, facilitating a deeper, more meaningful grasp of scientific concepts.

The screenshot displays the Inquisitive Science platform interface. The main content area features a lesson titled "3. Weather and Climate" with a "Assign" button. The lesson text describes a scenario where Jayden wants to hold a skateboarding contest and needs to find the best weather. It includes two data tables: "Average High Temperatures (°C)" and "Average Number of Days with Precipitation".

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
39	42	49	59	69	78	83	82	75	65	55	45

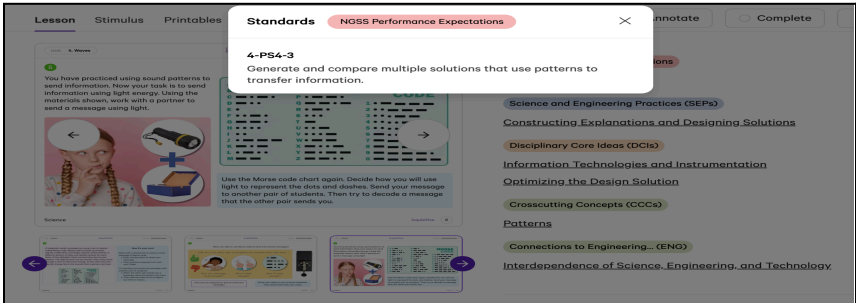
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
7	7	8	9	10	10	10	10	8	7	6	5

Below the tables, there are instructions for students to help Jayden make the data clearer by organizing it in graphs. The interface also includes a "Standards" section on the right, listing NGSS Performance Expectations (3-ESS2-1), Science and Engineering Practices (SEPs), Analyzing and Interpreting Data, Disciplinary Core Ideas (DCIs), Weather and Climate, and Crosscutting Concepts (CCCs). At the bottom, there is a "Phenomena Question" section with the text "Why do you need to know about the weather?"

C. Coherence

Indicator C2. Scientifically Accurate (lesson, unit and/or program)

Instruction, assessments and supplemental resources present DCIs, SEPs and CCCs that are scientifically accurate as students make sense of phenomena and solve problems.

Evidence Identified:  Strong Evidence	Location
Inquisitive presents Disciplinary Core Ideas (DCIs), Science and Engineering Practices (SEPs), and Crosscutting Concepts (CCCs) through a three-dimensional, inquiry-based approach aligned to the Next Generation Science Standards (NGSS). Scientific accuracy is ensured by anchoring instruction in authentic, real-world phenomena that require students to use evidence, data, and reasoning to build understanding rather than memorize isolated facts. Each lesson is intentionally designed so the DCI, SEP, and CCC work together within a coherent instructional storyline, rather than as separate or disconnected activities. DCIs reflect current scientific consensus and are developed through carefully sequenced learning progressions that deepen conceptual understanding across units and grade levels. SEPs are embedded as authentic student actions, with students asking questions, planning and carrying out investigations, analyzing data, constructing explanations, and communicating findings using accurate scientific language and representations.	Every lesson begins with a real-world phenomena question, while clearly calling out NGSS standards covered in each lesson. All phenomena relate directly to the Performance Expectations. In Grade 4 Lesson Sending Information, students try using Morse code to send and receive their own messages, first using sound (tapping) and then using light (flashing). They compare the two methods and use feedback to improve the clarity of the message. Students compare the challenges of sending messages in this manner with the more efficient and effective modern technologies in use today. 

C. Coherence

CCCs are explicitly identified and repeatedly applied to help students recognize patterns, explain cause-and-effect relationships, understand systems, and transfer their learning across contexts.

Through this integrated design, Inquisitive ensures that all three dimensions are presented accurately, consistently, and meaningfully supporting students in developing scientifically sound knowledge and practicing science as scientists and engineers do.

Assign

A telegraph sends messages by using a set of signals called Morse code. Morse code is made up of short signals called dots, and longer signals called dashes. A different pattern of dots and dashes stands for each letter of the alphabet. Each numeral also has its own pattern. The signals start out as sounds. Then they travel through a wire as electrical energy. At the other end, the signals change back into sounds that a person can hear.

Expand

A	• —	N	• — •
B	• — • —	O	— — —
C	• — • — •	P	• — • —
D	• — • —	Q	• — — •
E	•	R	• — • — •
F	• — • — •	S	• — • —
G	• — • —	T	— • —
H	• — • — •	U	• — • —
I	• —	V	• — • — •
J	• — • —	W	• — — •
K	• — • —	X	• — • — •
L	• — • —	Y	• — • — •
M	— —	Z	• — • — •
		1	• — — —
		2	• — • — —
		3	• — • — • —
		4	• — • — • —
		5	• — • — • —
		6	• — • — • —
		7	• — • — • —
		8	• — • — • —
		9	• — • — • —
		0	• — • — • —

Now it's your turn!

Work with a classmate to create a short message in Morse code.

- First, use the chart to draw your message.
- Then practice tapping it out with your finger.

Try sending and receiving messages with another pair of students.

- When the other pair sends you a message, draw the pattern you hear.
- Then use the chart to try to figure out what it means.

C. Coherence

Indicator C3. Grade appropriate dimensions

Each of the three dimensions must encompass and build toward grade-level/grade-band understanding and their components. While some lessons may include some off-grade components, these should be included as supports or scaffolds and not the focus of the learning.

The dimensions may be reviewed at the lesson and unit level. However, materials should be reviewed across the entire program to ensure completeness of all components of the dimensions.

C3i. Disciplinary Core Ideas

Physical Sciences, Life Sciences, Earth and Space Sciences, Engineering, Technology and Applications of Science

PHYSICAL SCIENCE

Evidence Identified:  Strong Evidence	Location
Inquisitive Science is designed as a complete K-5 phenomena-based curriculum fully aligned with the Next Generation Science Standards (NGSS), intentionally integrating the three dimensions—Disciplinary Core Ideas (DCIs), Science and Engineering Practices (SEPs), and Crosscutting Concepts (CCCs)—to ensure students build toward grade-level understanding. The program ensures that while some lessons may include off-grade components as scaffolding, the focus remains on grade-appropriate learning.	For example, in Kindergarten Unit Pushes and Pulls all the standards are outlined. K. Forces and Interactions: Pushes and Pulls Unit 4 ▾ Unit Overview In this kindergarten unit, students will engage in a range of stimulating activities to develop their understanding of forces and motion. They will explore real world phenomena, such as using pushes and pulls to make funny faces, observing an elephant's power, and analyzing the effectiveness of a homemade toy car launcher. Read More Anchor Question What happens if you push or pull an object? 

C. Coherence

Program-Level Review

- **Comprehensive Coverage:** Inquisitive materials are designed to be reviewed as a whole program to ensure full coverage of all NGSS components across the year.
- **Flexible Application:** While units are designed in a specific sequence, the modular nature allows teachers to adapt them to their district's curriculum while maintaining the integrity of the 3D approach.

Standards		
NGSS Performance Expectations (PE)		
K-PS2-1		
K-PS2-2		
Science and Engineering Practices (SEPs)	Disciplinary Core Ideas (DCIs)	Crosscutting Concepts (CCCs)
Analyzing and Interpreting Data	Defining and Delimiting Engineering Problems	Cause and Effect
Planning and Carrying Out Investigations	Forces and Motion	
Connections to Nature of Science (NOS)	Forces and Motion	
Scientific Investigations Use a Variety of Methods	Types of Interactions	
	Relationship Between Energy and Forces	

A comprehensive list of all the Physical Science units organized by grade level is available.

Units			
	PK. Light and Shadows	Digital Slides	Add to Planner
Unit 1 Pre-Kindergarten Science			
	PK. Exploring Changes in Objects and Materials	Digital Slides	Add to Planner
Unit 2 Pre-Kindergarten Science			
	PK. Ready, Set, Move!	Digital Slides	Add to Planner
Unit 3 Pre-Kindergarten Science			
	K. Forces and Interactions: Pushes and Pulls	Digital Slides	Add to Planner
Unit 4 Kindergarten Science			

C. Coherence



1. Waves: Light and Sound

Unit 5 Grade 1 Science

[+ Digital Slides](#)

[Add to Planner](#)

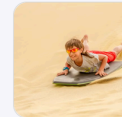


2. Structure and Properties of Matter

Unit 6 Grade 2 Science

[+ Digital Slides](#)

[Add to Planner](#)



3. Forces and Interactions

Unit 7 Grade 3 Science

[+ Digital Slides](#)

[Add to Planner](#)



4. Energy

Unit 8 Grade 4 Science

[+ Digital Slides](#)

[Add to Planner](#)



4. Waves

Unit 9 Grade 4 Science

[+ Digital Slides](#)

[Add to Planner](#)



5. Structure and Properties of Matter

Unit 10 Grade 5 Science

[+ Digital Slides](#)

[Add to Planner](#)

C. Coherence

LIFE SCIENCE

Evidence Identified: Strong Evidence	Location
Inquisitive Science is designed as a complete K-5 phenomena-based curriculum fully aligned with the Next Generation Science Standards (NGSS), intentionally integrating the three dimensions—Disciplinary Core Ideas (DCIs), Science and Engineering Practices (SEPs), and Crosscutting Concepts (CCCs)—to ensure students build toward grade-level understanding. The program ensures that while some lessons may include off-grade components as scaffolding, the focus remains on grade-appropriate learning. Program-Level Review - Comprehensive Coverage: Inquisitive materials are designed to be reviewed as a whole program to ensure full coverage of all NGSS components across the year. - Flexible Application: While units are designed in a specific sequence, the modular nature allows teachers to adapt them to their district’s curriculum while maintaining the integrity of the 3D approach.	For example, in the Grade 4 Unit Structure, Function and Information Processing all standards are outlined. Science > Grade 4 > Life Sciences > 4. Structure, Function, and Information Processing 4. Structure, Function, and Information Processing Unit 8 ▾ Unit Overview In this Fourth Grade, Life Sciences unit, students will engage in a range of stimulating activities to develop their understanding of the structure and function of the external and internal features of animals and plants. Students will also learn that animals have different sense receptors that are specialized for particular kinds of information, and Read More Anchor Question How do plant and animal structures help them survive? Annotate Download Teacher Guide Add to Planner  Standards NGSS Performance Expectations (PE) 4-LS1-1 4-LS1-2 4-PS4-2 Science and Engineering Practices (SEPs) Engaging in Argument from Evidence Developing and Using Models Developing and Using Models Disciplinary Core Ideas (DCIs) Structure and Function Information Processing Electromagnetic Radiation Crosscutting Concepts (CCCs) Cause and Effect Systems and System Models

C. Coherence

A comprehensive list of all the Life Science units organized by grade level is available.

**PK. Living Things**
Unit 1 Pre-Kindergarten Science [Digital Slides](#) [Add to Planner](#)

**PK. Observing and Sorting Living Things**
Unit 2 Pre-Kindergarten Science [Digital Slides](#) [Add to Planner](#)

**K. Interdependent Relationships in Ecosystems**
Unit 3 Kindergarten Science [Digital Slides](#) [Add to Planner](#)

**1. Structure, Function, and Information Processing**
Unit 4 Grade 1 Science [Digital Slides](#) [Add to Planner](#)

**2. Interdependent Relationships in Ecosystems**
Unit 5 Grade 2 Science [Digital Slides](#) [Add to Planner](#)

**3. Interdependent Relationships in Ecosystems**
Unit 6 Grade 3 Science [Digital Slides](#) [Add to Planner](#)

**3. Inheritance and Variation of Traits**
Unit 7 Grade 3 Science [Digital Slides](#) [Add to Planner](#)

**4. Structure, Function, and Information Processing**
Unit 8 Grade 4 Science [Digital Slides](#) [Add to Planner](#)

**5. Matter and Energy in Organisms and Ecosystems**
Unit 9 Grade 5 Science [Digital Slides](#) [Add to Planner](#)

C. Coherence

EARTH AND SPACE SCIENCE

Evidence Identified: Strong Evidence	Location
Inquisitive Science is designed as a complete K-5 phenomena-based curriculum fully aligned with the Next Generation Science Standards (NGSS), intentionally integrating the three dimensions—Disciplinary Core Ideas (DCIs), Science and Engineering Practices (SEPs), and Crosscutting Concepts (CCCs)—to ensure students build toward grade-level understanding. The program ensures that while some lessons may include off-grade components as scaffolding, the focus remains on grade-appropriate learning. Program-Level Review - Comprehensive Coverage: Inquisitive materials are designed to be reviewed as a whole program to ensure full coverage of all NGSS components across the year. - Flexible Application: While units are designed in a specific sequence, the modular nature allows teachers to adapt them to their district’s curriculum while maintaining the integrity of the 3D approach.	For example, in Grade 2 Earth's Systems Unit, all standards taught within the unit are outlined. 2. Earth's Systems: Processes that Shape the Earth Unit 4 Unit Overview In this Second Grade unit, students will engage in a range of stimulating activities to develop their understanding of processes that shape the Earth. They will explore phenomena such as the Grand Canyon, an erupting volcano, the eroding power of wind and water, and virtual reality landforms. Read More Anchor Question How does the Earth change over time? Annotate Download Teacher Guide Add to Planner  Standards NGSS Performance Expectations (PE) 2-ESS1-1 2-ESS2-1 2-ESS2-2 2-ESS2-3 Science and Engineering Practices (SEPs) Constructing Explanations and Designing Solutions Constructing Explanations and Designing Solutions Obtaining, Evaluating, and Communicating Information Developing and Using Models Connections to Nature of Science (NOS) Science Addresses Questions About the Natural and Material World Disciplinary Core Ideas (DCIs) The History of Planet Earth Earth Materials and Systems Plate Tectonics and Large-Scale System Interactions The Roles of Water in Earth's Surface Processes Optimizing the Design Solution Crosscutting Concepts (CCCs) Patterns Stability and Change Connections to Engineering... (ENG) Influence of Science, Engineering, and Technology on Society and the Natural World

C. Coherence

A comprehensive list of all the Earth and Space Science units organized by grade level is available.

**PK. Weather**
Unit 1 Pre-Kindergarten Science [Digital Slides](#) [Add to Planner](#)

**K. Weather and Climate**
Unit 2 Kindergarten Science [Digital Slides](#) [Add to Planner](#)

**1. Space Systems: Patterns and Cycles**
Unit 3 Grade 1 Science [Digital Slides](#) [Add to Planner](#)

**2. Earth's Systems: Processes that Shape the Earth**
Unit 4 Grade 2 Science [Digital Slides](#) [Add to Planner](#)

**3. Weather and Climate**
Unit 5 Grade 3 Science [Digital Slides](#) [Add to Planner](#)

**4. Earth's Systems: Processes that Shape the Earth**
Unit 6 Grade 4 Science [Digital Slides](#) [Add to Planner](#)

**5. Space Systems: Stars and the Solar System**
Unit 7 Grade 5 Science [Digital Slides](#) [Add to Planner](#)

**5. Earth's Systems**
Unit 8 Grade 5 Science [Digital Slides](#) [Add to Planner](#)

C. Coherence

ENGINEERING, TECHNOLOGY AND APPLICATION OF SCIENCE

Evidence Identified: ● Strong Evidence	Location
Inquisitive Science is designed as a complete K-5 phenomena-based curriculum fully aligned with the Next Generation Science Standards (NGSS), intentionally integrating the three dimensions—Disciplinary Core Ideas (DCIs), Science and Engineering Practices (SEPs), and Crosscutting Concepts (CCCs)—to ensure students build toward grade-level understanding. The program ensures that while some lessons may include off-grade components as scaffolding, the focus remains on grade-appropriate learning. Program-Level Review ● Comprehensive Coverage: Inquisitive materials are designed to be reviewed as a whole program to ensure full coverage of all NGSS components across the year. ● Flexible Application: While units are designed in a specific sequence, the modular nature allows teachers to adapt them to their district’s curriculum while maintaining the integrity of the 3D approach.	For example, in Grade 5 Material Matters, all standards taught within the unit are outlined. Material Matters Unit 6 ▾ Unit Overview This supplementary Fifth Grade Engineering Design unit complements science skills and core ideas developed in the Grade 5 Physical Sciences unit "Structure and Properties of Matter". The lessons in the unit develop an understanding that materials have different properties that make them suited for different products; however, the Read More Anchor Question Can we design and use materials that reduce our impact on the environment? Standards NGSS Performance Expectations (PE) 3-5-ETS1-2 3-5-ETS1-3 Science and Engineering Practices (SEPs) Constructing Explanations and Designing Solutions Planning and Carrying Out Investigations Disciplinary Core Ideas (DCIs) Developing Possible Solutions Developing Possible Solutions Developing Possible Solutions Optimizing the Design Solution Connections to Engineering... (ENG) Influence of Science, Engineering, and Technology on Society and the Natural World

C. Coherence

A comprehensive list of all the Engineering, Technology and Application of Science units organized by grade level is available.

Units



Build Me A House

Unit 1 Kindergarten Science

[Digital Slides](#)

[Add to Planner](#)



Farm To Family

Unit 2 Grade 1 Science

[Digital Slides](#)

[Add to Planner](#)



Test Kitchen

Unit 3 Grade 2 Science

[Digital Slides](#)

[Add to Planner](#)



Forces

Unit 4 Grade 3 Science

[Digital Slides](#)

[Add to Planner](#)



Helping Nature

Unit 5 Grade 4 Science

[Digital Slides](#)

[Add to Planner](#)



Material Matters

Unit 6 Grade 5 Science

[Digital Slides](#)

[Add to Planner](#)

C. Coherence

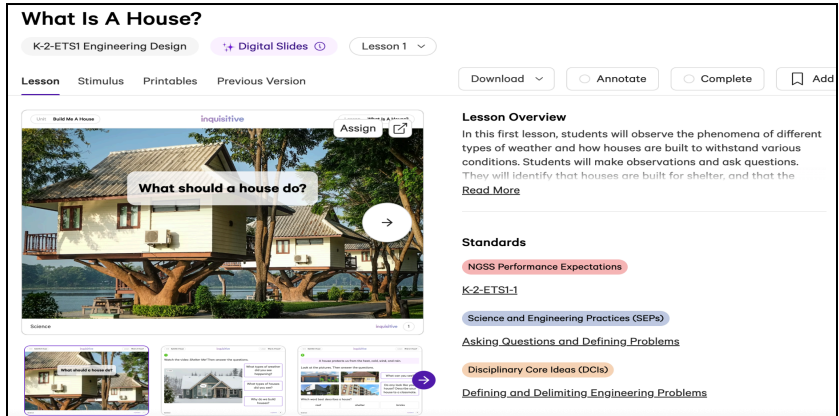
Indicator C3. Grade appropriate dimensions

Each of the three dimensions must encompass and build toward grade-level/grade-band understanding and their components. While some lessons may include some off-grade components, these should be included as supports or scaffolds and not the focus of the learning.

The dimensions may be reviewed at the lesson and unit level. However, materials should be reviewed across the entire program to ensure completeness of all components of the dimensions.

C3ii. Science and Engineering Practices

Asking Questions and Defining Problems, Developing and Using Models, Planning and Carrying Out Investigations, Using Mathematics and Computational Thinking, Constructing Explanations and Designing Solutions, Engaging in Argument from Evidence, and Obtaining, Evaluating and Communicating Information

Evidence Identified:  Strong Evidence	Location
Inquisitive science builds grade-level mastery by treating the Next Generation Science Standards (NGSS) not as a checklist, but as a scaffolded journey. It ensures that while students explore specific phenomena, they are consistently hitting the specific performance expectations for their grade band. Materials are designed so that every lesson integrates the three dimensions at a grade-appropriate level: • Disciplinary Core Ideas (DCIs): The "content" is tiered. For example, a K-2 unit might focus on the visible parts of a plant, while a 3-5 unit builds on that to explore internal structures and energy processing. • Science and Engineering Practices (SEPs): The "doing" becomes more • complex. Younger students might observe and describe, while older students model and analyze data using math.	Asking Questions and Defining Problems: Kindergarten What is a House? 

C. Coherence

- **Crosscutting Concepts (CCCs):** These provide the "lens." Concepts like **Cause and Effect** or **Systems** are revisited across units to help students connect different scientific fields

Strategic Scaffolding

When "off-grade" components (concepts from earlier or later years) appear, they serve a specific purpose:

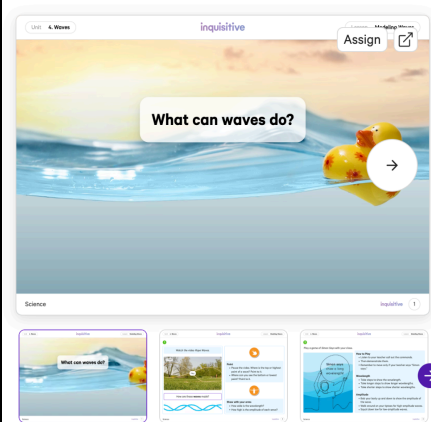
- **Prior Knowledge:** Briefly revisiting a lower-grade DCI to remind students of what they already know.
- **Front-loading:** Introducing a simplified version of a future concept to provide a "hook," without making it the basis of the assessment.
- **The Focus:** The "heavy lifting" and the formal assessments always remain tethered to the specific **Performance Expectations (PEs)** of the current grade.

Program-Wide Coherence

A high-quality program ensures "completeness" by mapping the standards across the entire year:

- **Unit Level:** A single unit might master one or two PEs.
- **Program Level:** By the end of the year/band, the program "sweeps" all required standards, ensuring no gaps are left in the foundational knowledge needed for the next grade.
- **Spiral Learning:** Dimensions are revisited in different contexts (e.g., using "Energy" in both a physical science and a life science unit) to deepen understanding without being repetitive.

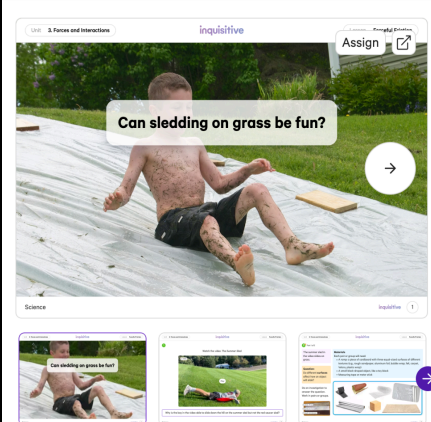
Developing and Using Models: Grade 4 [Modeling Waves](#)



Standards

- NGSS Performance Expectations
- 4-PS4-1
- Science and Engineering Practices (SEPs)
- Developing and Using Models
- Connections to Nature of Science (NOS)
- Science Knowledge Is Based on Empirical Evidence
- Disciplinary Core Ideas (DCIs)
- Wave Properties
- Wave Properties
- Crosscutting Concepts (CCCs)
- Patterns

Planning and Carrying Out Investigations: Grade 3 [Forceful Friction](#)



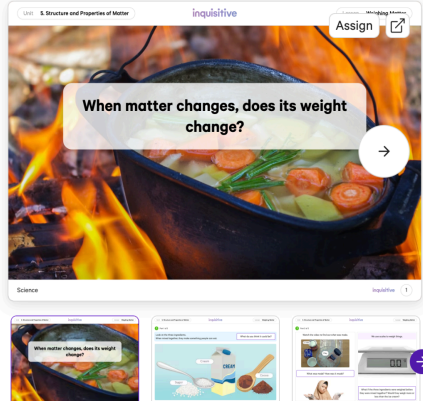
Standards

- NGSS Performance Expectations
- 3-PS2-1
- Science and Engineering Practices (SEPs)
- Planning and Carrying Out Investigations
- Connections to Nature of Science (NOS)
- Scientific Investigations Use a Variety of Methods
- Disciplinary Core Ideas (DCIs)
- Forces and Motion
- Types of Interactions
- Crosscutting Concepts (CCCs)
- Cause and Effect

C. Coherence

Using Mathematics and Computational Thinking: Grade 5

Weighing Matter

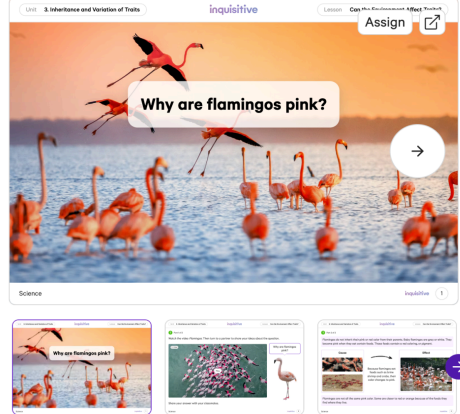


Standards

- NGSS Performance Expectations
 - 5-PS1-2
- Science and Engineering Practices (SEPs)
 - Using Mathematics and Computational Thinking
- Connections to Nature of Science (NOS)
 - Scientific Knowledge Assumes an Order and Consistency in Natural Systems
- Disciplinary Core Ideas (DCIs)
 - Structure and Properties of Matter
 - Chemical Reactions
- Crosscutting Concepts (CCCs)
 - Scale, Proportion, and Quantity

Constructing Explanations and Designing Solutions: Grade 3

Can the Environment Affect Traits



Standards

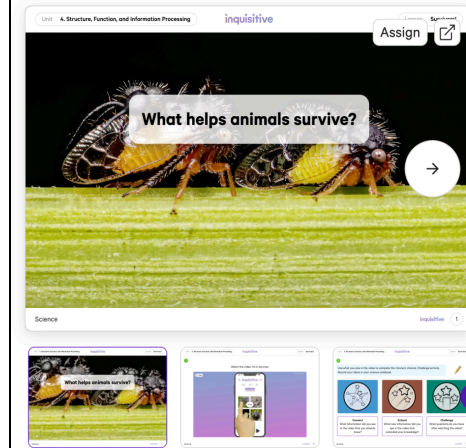
- NGSS Performance Expectations
 - 3-LS3-2
- Science and Engineering Practices (SEPs)
 - Constructing Explanations and Designing Solutions
- Disciplinary Core Ideas (DCIs)
 - Inheritance of Traits
 - Variation of Traits
- Crosscutting Concepts (CCCs)
 - Cause and Effect

Phenomena Question

Why are flamingos pink?

C. Coherence

Engaging in Argument from Evidence: Grade 4 [Survivors](#)



Standards

NGSS Performance Expectations

4-LS1-1

Science and Engineering Practices (SEPs)

Engaging in Argument from Evidence

Disciplinary Core Ideas (DCIs)

Structure and Function

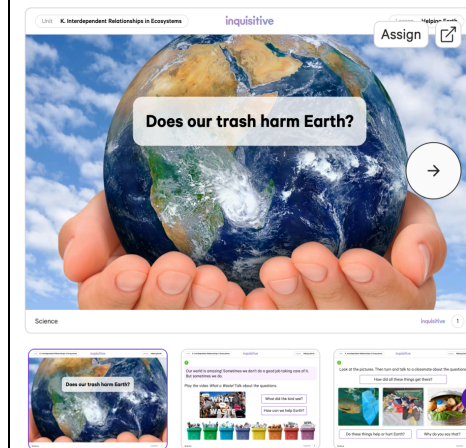
Crosscutting Concepts (CCCs)

Systems and System Models

Phenomena Question

What helps animals survive?

Obtaining, Evaluating and Communicating Information: Kindergarten [Helping Earth](#)



Standards

NGSS Performance Expectations

K-ESS3-3

Science and Engineering Practices (SEPs)

Obtaining, Evaluating, and Communicating Information

Disciplinary Core Ideas (DCIs)

Human Impacts on Earth Systems

Developing Possible Solutions

Crosscutting Concepts (CCCs)

Cause and Effect

Phenomena Question

Does our trash harm Earth?

C. Coherence

Indicator C3. Grade appropriate dimensions

Each of the three dimensions must encompass and build toward grade-level/grade-band understanding and their components. While some lessons may include some off-grade components, these should be included as supports or scaffolds and not the focus of the learning.

The dimensions may be reviewed at the lesson and unit level. However, materials should be reviewed across the entire program to ensure completeness of all components of the dimensions.

C3iii. Crosscutting Concepts

Patterns, Cause and Effect, Scale, Proportion and Quantity, Systems and System Models, Energy and Matter, Structure and Function, Stability and Change

Evidence Identified:  **Strong Evidence**

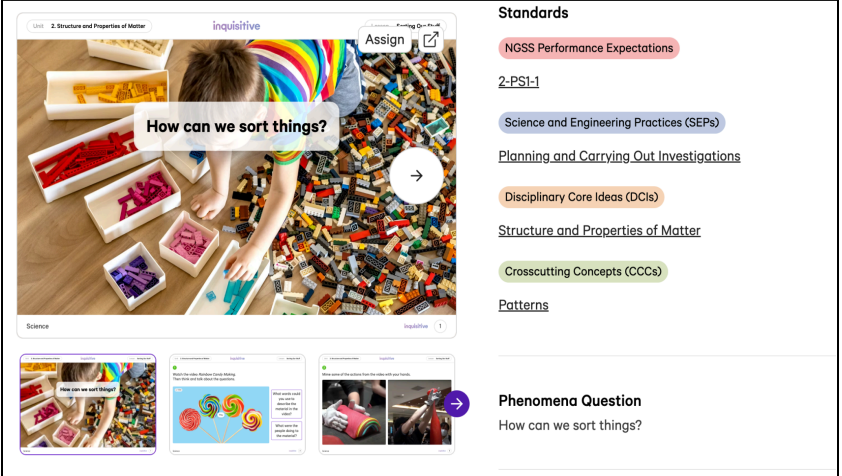
Location

Inquisitive science builds grade-level mastery by treating the **Next Generation Science Standards (NGSS)** not as a checklist, but as a scaffolded journey. It ensures that while students explore specific phenomena, they are consistently hitting the specific performance expectations for their grade band.

Materials are designed so that every lesson integrates the three dimensions at a grade-appropriate level:

- **Disciplinary Core Ideas (DCIs):** The "content" is tiered. For example, a K-2 unit might focus on the visible parts of a plant, while a 3-5 unit builds on that to explore internal structures and energy processing.
- **Science and Engineering Practices (SEPs):** The "doing" becomes more complex. Younger students might **observe** and **describe**, while older students **model** and **analyze data** using math.
- **Crosscutting Concepts (CCCs):** These provide the "lens." Concepts like

Patterns: Grade 2 [Sorting Our Stuff](#)



The screenshot displays the Inquisitive Science platform for Grade 2, Unit 2: Structure and Properties of Matter. The main visual is a child sorting colorful blocks into boxes, with a text overlay asking "How can we sort things?". The interface includes a sidebar with standards (NGSS Performance Expectations, Science and Engineering Practices (SEPs), Disciplinary Core Ideas (DCIs), Crosscutting Concepts (CCCs)) and a phenomena question "How can we sort things?".

C. Coherence

Cause and Effect or **Systems** are revisited across units to help students connect different scientific fields

Strategic Scaffolding

When "off-grade" components (concepts from earlier or later years) appear, they serve a specific purpose:

- **Prior Knowledge:** Briefly revisiting a lower-grade DCI to remind students of what they already know.
- **Front-loading:** Introducing a simplified version of a future concept to provide a "hook," without making it the basis of the assessment.
- **The Focus:** The "heavy lifting" and the formal assessments always remain tethered to the specific **Performance Expectations (PEs)** of the current grade.

Program-Wide Coherence

A high-quality program ensures "completeness" by mapping the standards across the entire year:

- **Unit Level:** A single unit might master one or two PEs.
- **Program Level:** By the end of the year/band, the program "sweeps" all required standards, ensuring no gaps are left in the foundational knowledge needed for the next grade.
- **Spiral Learning:** Dimensions are revisited in different contexts (e.g., using "Energy" in both a physical science and a life science unit) to deepen understanding without being repetitive.

Cause and Effect: Grade 3 [Weatherproof!](#)

Standards

- NGSS Performance Expectations
- 3-ESS3-1
- Science and Engineering Practices (SEPs)
- Engaging in Argument from Evidence
- Connections to Nature of Science (NOS)
- Science Is a Human Endeavor
- Disciplinary Core Ideas (DCIs)
- Natural Hazards
- Crosscutting Concepts (CCCs)
- Cause and Effect
- Connections to Engineering... (ENG)
- Influence of Science, Engineering, and Technology on Society and the Natural World

Scale, Proportion and Quantity: Grade 5 [Hello Sun!](#)

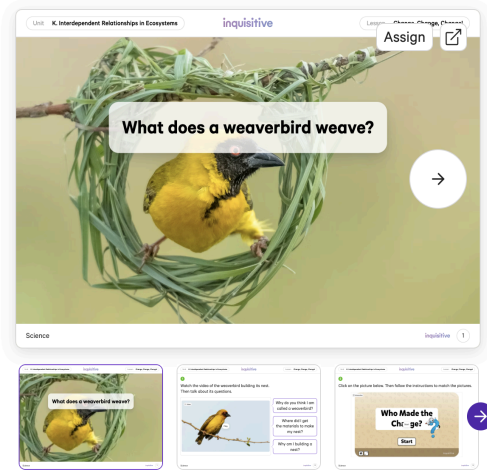
Standards

- NGSS Performance Expectations
- 5-ESS1-1
- Science and Engineering Practices (SEPs)
- Engaging in Argument from Evidence
- Disciplinary Core Ideas (DCIs)
- The Universe and Its Stars
- Crosscutting Concepts (CCCs)
- Scale, Proportion, and Quantity

Phenomena Question
How can we describe the sun?

C. Coherence

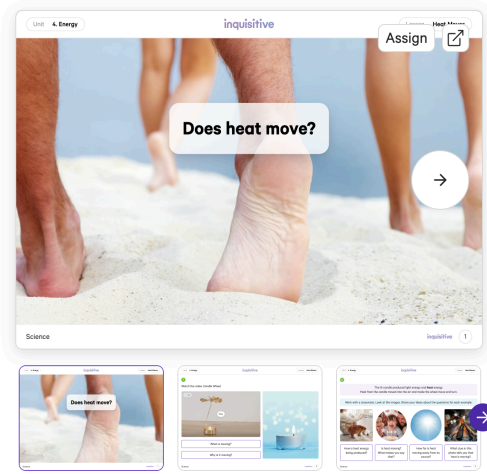
Systems and System Models: Kindergarten [Change, Change, Change](#)



Standards
NGSS Performance Expectations
K-ESS2-2
Science and Engineering Practices (SEPs)
[Engaging in Argument from Evidence](#)
Disciplinary Core Ideas (DCIs)
[Biogeology](#)
[Human Impacts on Earth Systems](#)
Crosscutting Concepts (CCCs)
[Systems and System Models](#)

Phenomena Question
What does a weaverbird weave?

Energy and Matter: Grade 4 [Heat Moves](#)

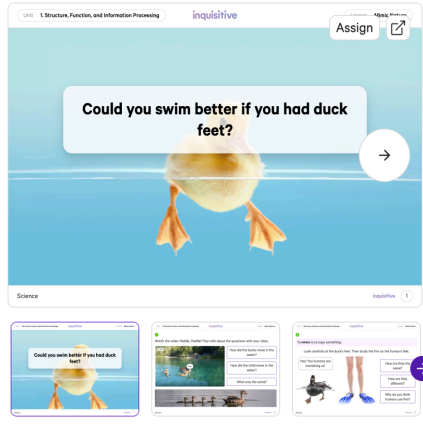


Standards
NGSS Performance Expectations
4-PS3-2
Science and Engineering Practices (SEPs)
[Planning and Carrying Out Investigations](#)
Disciplinary Core Ideas (DCIs)
[Conservation of Energy and Energy Transfer](#)
[Conservation of Energy and Energy Transfer](#)
Crosscutting Concepts (CCCs)
[Energy and Matter](#)

Phenomena Question
Does heat move?

C. Coherence

Structure and Function: Grade 1 [Mimic Nature](#)



1. Structure, Function, and Information Processing

Inquisitive

Assign

Could you swim better if you had duck feet?

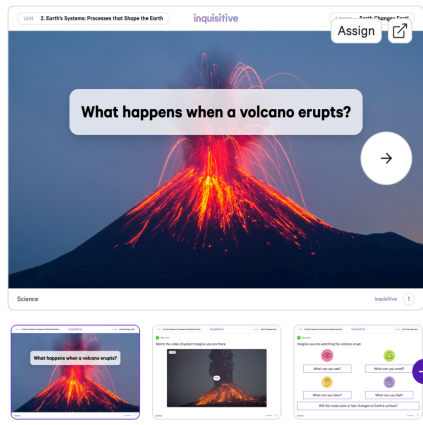
Science

1

Standards

- NGSS Performance Expectations
 - 1-LS1-1
- Science and Engineering Practices (SEPs)
 - Constructing Explanations and Designing Solutions
- Disciplinary Core Ideas (DCIs)
 - Structure and Function
 - Information Processing
- Crosscutting Concepts (CCCs)
 - Structure and Function
- Connections to Engineering... (ENG)
 - Influence of Science, Engineering, and Technology on Society and the Natural World

Stability and Change: Grade 2 [Earth Changes Fast!](#)



2. Earth's Systems: Processes that Shape the Earth

Inquisitive

Assign

What happens when a volcano erupts?

Science

1

Standards

- NGSS Performance Expectations
 - 2-ESS1-1
- Science and Engineering Practices (SEPs)
 - Constructing Explanations and Designing Solutions
- Disciplinary Core Ideas (DCIs)
 - The History of Planet Earth
- Crosscutting Concepts (CCCs)
 - Stability and Change

Phenomena Question

What happens when a volcano erupts?

D. Supports for All Students

Indicator D1. Diverse Backgrounds (unit and/or program)

Resources designed to leverage diverse cultural and social backgrounds of students.

Evidence Identified:  Strong Evidence	Location
Inquisitive Science provides leverage for diverse backgrounds by shifting from rote memorization to inquiry-based, culturally responsive pedagogy. It empowers students by valuing their lived experiences as intellectual assets, connecting academic concepts to local community issues, and promoting critical thinking that incorporates diverse perspectives. Inquisitive Science encourages interactive classroom environments, which require students to share and debate ideas. This enables students from diverse linguistic and social backgrounds to participate in discussions and explore alternative approaches to problem solving. Multimodal and Inclusive Support: Inquisitive supports diverse learning needs with resources in 50+ languages, text-to-speech, and both digital and print formats, making it compatible with various teaching environments and student demographics.	In Kindergarten the Engineering Design Lesson What is a House? fosters cultural sensitivity by exploring how homes, materials, and designs vary globally based on environment rather than a single standard. It encourages students to recognize that houses are designed for shelter, adapting structure to local contexts and needs.  Could you build this riverboat house anywhere? Explain your answer.  Could you build this ice block house anywhere? Explain your answer.

D. Supports for All Students

Lesson visuals, multimedia resources, and real-world phenomena feature diverse scientists, engineers, and community members representing different races, genders, abilities, cultures, and backgrounds. Students encounter images and information that portray people in authentic roles, conducting investigations, designing solutions, and applying science in everyday contexts, supporting inclusive participation and helping all learners see themselves represented in grade-level science and engineering learning.



D. Supports for All Students

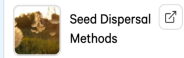
Indicator D2. Supports and accommodations for special populations (lessons, unit and/or programs)

Appropriate supports, accommodations and/or modifications for numerous special populations are suggested. These supports allow all students to actively participate in learning science and engineering.

Evidence Identified:  Strong Evidence	Location
Inquisitive provides intentional strategies and embedded supports that enable students in special populations to actively participate in grade-level science and engineering learning alongside their peers. Designed using Universal Design for Learning (UDL) principles, the materials include scaffolds, multimodal resources, and flexible instructional pathways that maintain grade-level rigor while addressing diverse learning needs, including students with disabilities, multilingual learners, and advanced learners. Supports are integrated directly into daily instruction and investigations so participation is continuous and meaningful, not separated or remedial	Lessons include scaffolded prompts, sentence stems, visual supports, chunked tasks, and multiple entry points that allow students in special populations to engage with the same phenomena and engineering challenges as their peers. Students can demonstrate understanding through drawings, models, oral explanations, or written responses, while teachers adjust pacing, grouping, or instructional approach as needed. Built-in differentiation pathways (core, deeper, and challenging) and multilingual supports, including 50+ language translations and text-to-speech, ensure students participate fully in grade-level science and engineering without reducing content expectations. In Grade 2 Lesson Animal Helpers, students learn about seed dispersal through interactive videos and games then share with a classmate before they engage in designing a seed dispersal method using materials provided by the teacher.

D. Supports for All Students

Play the *Seed Dispersal Methods* game with your class. Follow the instructions.



Expand



What did you learn about how seeds are spread? Share three things with a classmate.

You have explored how animals help move seeds from place to place. Now your task is to make a **model**. Your model should show how an animal helps spread seeds.



- A model can be a copy of a real thing. The model can show how the real thing works.
- You could move parts of your model to show how the animal and seeds move.

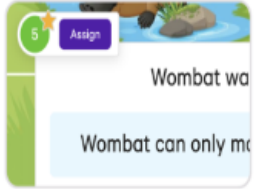
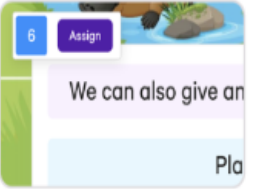
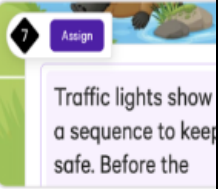
Here are some materials you could use:

- Hook and loop fastener
- Cotton balls
- Fuzzy pom-pom balls
- Sticky tape
- Scarf or knit gloves



D. Supports for All Students

At the lesson level, teachers are provided with flexible options such as differentiated tasks, investigation extensions, and varied discussion structures. These options allow educators to emphasize hands-on investigation, sensemaking discussion, or application based on student needs while addressing the same standards.

Core - ●	Deeper Learning - ■	Challenging - ◆
Central to the learning goal and accessible for all students	Extends thinking with additional time, effort, and sometimes research	Builds critical and creative thinking through higher-level tasks and independent work
 5 ★ Assign Wombat wa Wombat can only m	 6 ■ Assign We can also give an Pla	 7 ◆ Assign Traffic lights show a sequence to keep safe. Before the

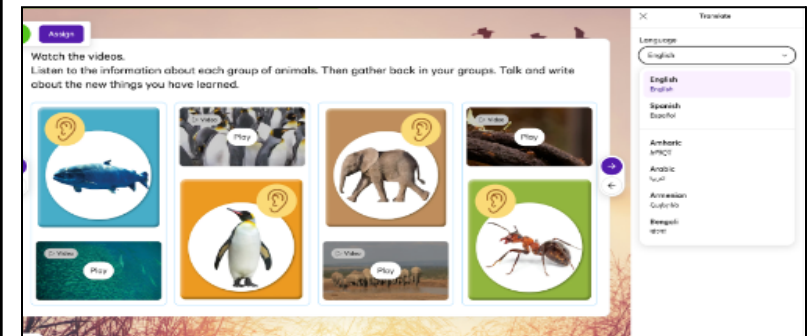
D. Supports for All Students

Indicator D3. Other supports (lessons and/or units)

Instruction should support all students. Resources should provide multiple access points for students at varying ability levels and backgrounds to make sense of phenomena and design solutions to problems, as well as those at different reading levels.

Evidence Identified:  Strong Evidence	Location
Inquisitive provides intentional strategies and embedded language support that enable students who read, write, and/or speak a language other than English to regularly participate in grade-level science and engineering learning. Lessons can be translated into 50+ languages and are adaptable to meet diverse learning needs, allowing students to engage with the same phenomena, practices, and expectations as their peers. Teachers can assign digital resources directly to student devices, supporting personalized access while maintaining grade-level rigor. All text can also be read-aloud with text-to-speech features across all 50+ languages.	Teachers and students can translate Inquisitive into 50+ languages for digital and print, allowing multilingual learners to access instructional content, investigations, and assessments in their home language while working toward the same learning goals. Visual supports, sentence stems, and multiple response options (drawings, oral explanations, or written responses) further ensure multilingual learners can actively demonstrate understanding of grade-level science and engineering concepts.

D. Supports for All Students



D. Supports for All Students

In Grade 3 [Balancing Forces](#), students are provided multiple ways to check for understanding, yet key vocabulary is required to demonstrate an understanding of the Performance Expectation.

The screenshot shows a Grade 3 checkpoint question interface. At the top, it says "Assign" and "7". The main instruction is "Use what you have learned to answer the question below. Use the following words in your answer:". Below this, there are five buttons: "air resistance", "balanced forces", "gravity", "push", and "pull". The question is "Why does the Ping-Pong ball float in midair instead of falling to the ground?". To the right of the question is a large text area for the answer, with the instruction "Draw a labeled diagram, or you can write or talk about your answer." Below the question is a small image of a boy and a girl looking at a phone. On the right side, there is a "Teaching Notes" section with a star icon, indicating it's a checkpoint question. The notes explain that this is an opportunity to formatively assess a student's understanding of balanced forces and their ability to use observations as evidence. It also provides a direct instruction to students: "Direct students' attention to the image of the Ping-Pong ball hovering above the hairdryer, and then to the question above the image." Below the notes is a list of bullet points: "• Why does the Ping-Pong ball float in midair instead of falling to the ground?" and "Students can draw a labeled diagram, write an explanation or give a spoken answer, but they must use the following words in their answer: air resistance, balanced forces, gravity, and push." At the bottom right, there is an "Answers" section.

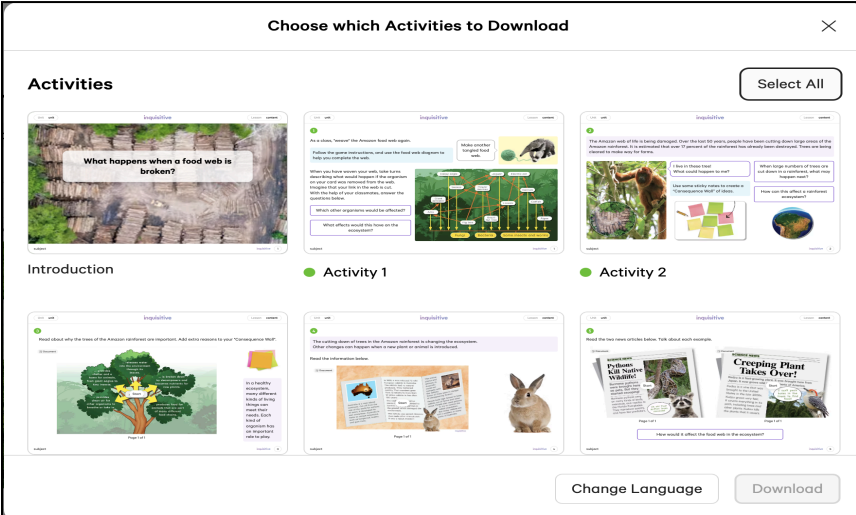
In Grade 5 [Star Patterns](#) students are given choice and organized and guided questions to demonstrate understanding of the PE.

The screenshot shows a Grade 5 checkpoint question interface. At the top, it says "Assign" and "8". The main instruction is "Choose one of these constellations from Activity 3." Below this, there is a button labeled "Leo or Taurus". The instruction is "Do some research using trusted websites or reference books." Below this is a large text area for the answer, with the instruction "Draw and label your constellation pattern." To the right of the question is a large text area for the answer, with the instruction "Find out how the way we see the constellation changes over the year, and then answer the question below." Below this is a list of bullet points: "• Can we see the constellation all year round or just at certain times? Describe when we can see it." and "Explain your answer. Use one of the words below. rotate expand orbits". On the right side, there is a "Teaching Notes" section with a star icon, indicating it's a checkpoint activity. The notes explain that this is an opportunity to formatively assess whether students are able to describe patterns of change in the night sky locations of the stars and use the movement of Earth to explain those patterns. It also provides a direct instruction to students: "Students select either the constellation of Taurus or of Leo and draw the stars in their relative positions in the constellation. They then need to find out when the constellation is visible in the sky where they live and answer the question." Below the notes is a list of bullet points: "• Can we see the constellation all year round or just at certain times? Finally, they need to explain why they can see the constellation only during that period of time and correctly use a vocabulary word in their explanation." At the bottom right, there is an "Answers" section and a "See Pedagogical Model" link.

D. Supports for All Students

Indicator D4. Assessment (lessons and/or units)

Assessments are accessible to diverse learners regardless of gender identification, language, learning exceptionality, race/ethnicity or socioeconomic status.

Evidence Identified:  Strong Evidence	Location
Inquisitive assessments include built-in accommodations that remove access barriers without altering grade-level content or expectations. Assessments are designed using Universal Design for Learning (UDL) principles so all students can demonstrate their science knowledge and skills through flexible formats, language supports, and accessibility features while maintaining alignment to the same standards and performance expectations. These accommodations support diverse learners, including multilingual learners and students with disabilities (WCAG compliance), without modifying the content, expectations, or performance criteria of the assessment. Flexible Implementation Across Classroom Contexts Formative tasks are adaptable across instructional settings: • Whole-group sensemaking discussions • Small-group investigations • Independent student responses • Digital device-based submissions • Printable, offline formats Extension and enrichment opportunities within lessons allow teachers to deepen or broaden assessment without shifting the core learning goal. Students may	Based on the student population/diversity of learners, teachers can decide which activities would best support/enhance instruction. 

D. Supports for All Students

apply ideas in new contexts, strengthen reasoning, or revisit concepts while maintaining alignment to three-dimensional expectations.

Coherent Summative Measures

In addition to embedded formative checks, Inquisitive provides summative assessments, including auto-graded options, to measure student proficiency. These assessments maintain three-dimensional integrity, requiring students to use practices and crosscutting reasoning to demonstrate understanding of core ideas.

Equity and Accessibility by Design

Assessment flexibility is grounded in equity. Tasks incorporate built-in scaffolds that support English learners, students with disabilities, and students across varied language and literacy levels.

Students may demonstrate understanding through multiple modes of expression, including:

- Drawing and visual modeling
- Written explanation
- Structured discussion
- Data analysis

Digital materials meet accessibility standards and are available for both online and offline use, ensuring consistent access regardless of classroom technology context.

Inquisitive ensures that assessment is not an event at the end of instruction. It is an integrated, ongoing process that advances sensemaking.

Teachers gain actionable insight into how students are using SEPs, applying CCCs, and developing DCIs, while students experience assessment as a natural extension of authentic scientific inquiry

[Grade 3 Forces and Interactions Anchor Map](#). Across a unit, students engage in structured investigations, collaborative discussions, data analysis, modeling, and engineering design tasks, followed by opportunities to apply learning in open-ended explanations or performance tasks. Students demonstrate understanding through drawings, models, oral explanations, written responses, and digital submissions, aligned to the same learning goals. Each lesson includes anchor questions and anchor maps that visually track progress across the unit, allowing students to reflect on how their thinking has changed, assess whether they have met the learning objective, and identify next steps in their learning.



D. Supports for All Students

What makes things move?		
I can describe the pattern of an object's motion.		I can show how magnetic force can move an object without touching it.
I can show how a static electric force can move an object without touching it.		I can design a solution to a problem using magnets.

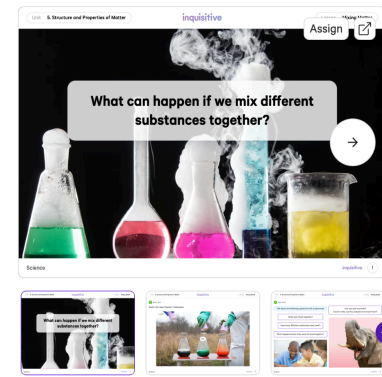
E. Teacher Supports

Indicator E1. Background (program)

Resources provide background information to help teachers support students in using the three dimensions to explain phenomena and solve problems.

Evidence Identified:  Strong Evidence	Location
Inquisitive Science provides comprehensive teacher support through "open-and-go" digital lessons, featuring pre-built, inquiry-based, and standards-aligned (NGSS) content designed to minimize planning time. It supports instruction with in-depth pedagogical notes, multimedia stimuli, and built-in differentiation, while providing essential background context to build teacher confidence.	To support effective instruction, every lesson includes contextual background information. This allows teachers to bridge prior knowledge with new, grade-level learning expectations, as well as address phenomena. Below is a sample from the Grade 5 Physical Science Lesson Mixing Matter

E. Teacher Supports

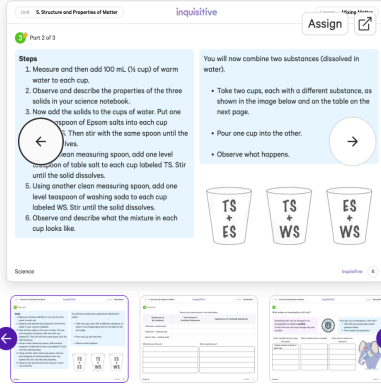


Teacher Reading

The branch of science concerned with the structure and properties of matter is called chemistry. Many chemists (scientists who study chemistry) work in the development of new substances. Their aim is to create new materials with specific, useful properties. They combine existing substances and see if these substances undergo a chemical change. Chemical changes, which are also called chemical reactions, occur where the atoms of the combined substances are rearranged into new substances.

Chemical changes are generally irreversible. One example that can be observed involves the bubbles of carbon dioxide gas that are produced when baking soda (sodium bicarbonate) reacts with vinegar. Carbon dioxide is also released when certain effervescent tablets, such as Alka-Seltzer®, dissolve in water. The famous elephant toothpaste experiment featured at the start of the lesson is a very fast chemical reaction in which hydrogen peroxide (H_2O_2) is decomposed (broken down) into water (H_2O) and oxygen (O_2). The oxygen produced is a gas that gets trapped in the detergent and dye, creating the foam that rises up and spills out of the reaction flasks. Because the reaction also releases a lot of heat energy, the water produced changes from liquid into water vapor (gaseous water), and is seen as the steam coming off the top of the foam. This elephant toothpaste reaction can be replicated safely in the classroom with hydrogen peroxide purchased from a drugstore, detergent, food dye, and some yeast mixed with warm water (in place of the potassium iodide). Instructions are readily available

In the “open-and-go” format, teachers have a built-in script and guide to facilitate all lessons. Suggestions are also provided to help manage activities and labs for students.



Part 3 of 3

Students should record their observations in the “Appearance of Combined Substances” column of the results table. They should also note the volume of each mixture in the column labeled “Total Volume of Combined Substances.” In each case, the total volume will be 200 mL (1 cup).

Students should also complete the two questions underneath the table:

- What did you find out?
- What surprised you?

Practical tips:

It is imperative that students use the marker pen in the first step to label the six cups clearly. Two cups should be labeled TS (table salt), two should be labeled ES (Epsom salts), and two should be labeled WS (washing soda). Each cup should have been previously marked at the 200 mL (1 cup) point by you. If a measuring cup is not available for each group, you should also mark the 100 mL (1/2 cup) point. This will assist students to measure out 100 mL (1/2 cup) of water for each solution and to observe that the combined volume of the mixed solutions is 200 mL (1 cup).

E. Teacher Supports

Indicator E2. Planning learning experiences (program)

Guidance is provided that supports teachers in planning and providing effective learning experiences to engage students in understanding phenomena and solving problems.

Evidence Identified:  Strong Evidence	Location
Inquisitive supports learning progressions by structuring content to build upon foundational understanding, allowing students to move from Inquisitive PreK–5 Science is intentionally structured around developmental learning progressions that move students from initial ideas toward increasingly sophisticated scientific reasoning. Rather than measuring understanding at a single endpoint, the platform makes growth visible across an instructional sequence. Supporting Teacher Interpretation Each lesson includes embedded teacher guidance to support interpretation of student responses. Educators are provided: • Look-fors aligned to learning intentions and performance expectations • Common misconception indicators • Suggested probing questions • Recommended next instructional moves This guidance informs decisions about pacing, differentiation, and targeted support. Teachers are equipped not only with data, but with clarity about what the data means instructionally.	Example: Grade 4 Energy Unit Lesson Heat Moves. Students engage in formative checkpoints during the lesson <i>Heat Moves</i> to explain how thermal energy transfers between objects. Students use observations from investigations and models to support their explanations and revise their thinking as new evidence is introduced. Teachers use student responses to monitor developing understanding of energy transfer in real time and adjust instruction to address misconceptions as learning progresses.

E. Teacher Supports

- Real time student responses are embedded throughout every lesson and provide teachers with immediate formative evidence to guide instruction. As students work, teachers can monitor responses in real time and offer targeted feedback that supports ongoing sensemaking rather than waiting until the end of a lesson or unit.
- These responses also support student voice and scientific discourse by creating structured opportunities for students to share, present, and discuss their thinking with peers. Making student ideas visible supports collective sensemaking and helps teachers identify patterns in reasoning across the class.
- Tasks can be assigned and reviewed digitally in addition to print, allowing teachers to efficiently examine student responses, revisit work samples, and use evidence for reflection, instructional planning, or documentation as needed. Streamlined digital workflows reduce classroom logistics such as printing and manual collection, enabling teachers to focus more time on instruction, feedback, and supporting student learning.

Lesson Stimulus Printables Previous Version Download Annotate Complete Add to Planner

Checkpoint ★

Teaching Notes

This checkpoint question (as indicated by the star icon) is an opportunity to formatively assess a student's understanding of balanced forces, and of their ability to use observations as the basis for the evidence for an explanation of a phenomenon.

Direct students' attention to the image of the Ping-Pong ball hovering above the hairdryer, and then to the question above the image:

- Why does the Ping-Pong ball float in midair instead of falling to the ground?

Students can draw a labeled diagram, write an explanation or give a spoken answer, but they must use the following words in their answer: air resistance, balanced forces, gravity, and push.

Level of student attainment & observations of student performance

Approaching grade-level expectation

The student's explanation (written, drawn, or spoken) uses some of the key words to describe how the ball is pushed up by the air from the hair dryer but does not identify that the forces on the ball are balanced.

Lesson Stimulus Printables Previous Version Download Annotate Complete Add to Planner

Checkpoint ★

Level of student attainment & observations of student performance

Approaching grade-level expectation

The student is able to draw the new substance that has formed but struggles to answer the questions or give reasons for their answers.

Meeting grade-level expectation

The student is able to draw the new substance and answer the questions. The student gives reasons for their answers that refer to the formation of a new substance.

Exceeding grade-level expectation

The student is able to draw the new substance and answer the questions. The student gives reasons for their answers that cite the experimental observations as evidence for the formation of a new substance.

Recommendations for support to assist students in meeting grade-level expectations

Use the student's results sheet to talk through each of the mixtures the student combined and what they saw with each of the three combinations. Determine which combination produced the new substance and what observation (the formation of the white solid) is the evidence.

E. Teacher Supports

Indicator E3. Using student materials (lessons, unit and/or programs)

Teacher guidance, with sufficient and useful annotations and suggestions for how to enact student materials, is provided. This may include guidance in the use of embedded technology to support student learning.

Evidence Identified:  Strong Evidence	Location
Inquisitive provides clear, embedded teacher guidance for using technology to intentionally support and enhance student learning, when applicable. Designed for Grades K–5, Inquisitive integrates digital tools to strengthen inquiry, visualization, and sensemaking, not to replace hands-on investigations. Teacher notes explain when, why, and how to use embedded technology so digital tools serve a clear instructional purpose aligned to the learning goal and the three dimensions of science learning. Lessons are delivered in a ready-to-use digital slide format with embedded videos, interactive activities, and visual supports. This enables teachers to immediately present and explore scientific concepts without creating their own digital resources, while maintaining focus on student thinking, discussion, and evidence-based reasoning. When physical experiments are impractical, the curriculum guides teachers to use virtual simulations. These tools allow students to manipulate variables, observe hidden processes (like underground plant growth), and practice scientific skills in a controlled environment.	When physical experiments are impractical or limited, lessons guide teachers to use virtual simulations that allow students to manipulate variables, observe processes not easily seen in real life (such as underground plant growth or motion forces), and collect evidence. Teachers are supported with prompts and facilitation notes that explain how to integrate these tools into inquiry cycles, ensuring technology enhances conceptual understanding and scientific practices rather than functioning as passive media. For example: Changing Matter and exploring a forest in Whose Habitat Is This?

E. Teacher Supports

6

Assign

Explore the kitchen.
Follow the instructions to sort the changes you find.



Changing Matter
Kitchen Detectives

Start

START

Time15 mins

Teaching Notes

Students explore the interactive by dragging the magnifying glass all around the kitchen scene to find examples of changes. They then identify whether changes in the kitchen can or cannot be undone. This could be done as an individual, partner, or whole class activity, depending on the availability of devices.

In the second part of the interactive, students sort the examples into either changes that can be undone or changes that cannot be undone. Students may have competing explanations; allow them to discuss each example before attempting to sort them. Consider taking a class vote (thumbs-up or thumbs-down) to determine in which category each example should go.

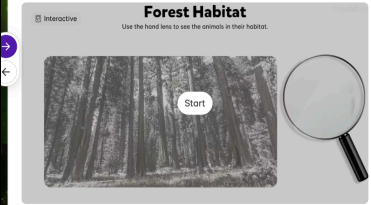
See Pedagogical Model

3

Assign

A habitat is a place where plants and animals get the things they need to live.

Explore this forest habitat. Use the hand lens to find living things.



Forest Habitat
Use the hand lens to see the animals in their habitat.

Start

- Record what you find.
- Then talk about the questions.

What animals live here?

What plants live here?

What other living things could live in this habitat?

Teaching Notes

Read the information in the purple box and ensure students understand that an animal's habitat is the place where it naturally lives (that is, where it can be found "in the wild"). There are many different kinds of habitats. Have students describe the forest habitat shown in the picture and talk about the kinds of animals and plants that might live there. Tell students that this type of forest habitat can have mildly warm summers and cold winters.

Have the students move the hand lens over the forest habitat to discover some of the animals that live there. Ask students the following questions:

- What animals live here?
- What plants live here?
- What other living things could live in this habitat?

While no plant species are highlighted, students can observe the tall trees, smaller shrubs and grass. The aim is to observe the diversity of life in a forest habitat. Other living things might include insects and worms.

F. Assessment Design and Supports

Indicator F1: Variety (lessons, units and/or programs)
Assessments include a variety of modalities and measures

Evidence Identified:  Strong Evidence	Location
Inquisitive PreK–5 Science does not rely on a traditional, disconnected test bank. Assessment is intentionally embedded within daily instruction, creating a coherent system aligned to each performance expectation. Teachers assign lessons knowing that meaningful formative assessment opportunities are woven directly into the learning sequence rather than offered as isolated items. Formative Assessment Within the Flow of Instruction Each lesson integrates structured opportunities for students to demonstrate sensemaking as they engage in Scientific and Engineering Practices (SEPs) to understand Disciplinary Core Ideas (DCIs) through Crosscutting Concepts (CCCs). Embedded assessment tasks include: ● Constructing evidence-based explanations ● Developing and revising models ● Analyzing investigation data ● Engaging in structured scientific discourse ● Applying crosscutting reasoning such as cause and effect, patterns, systems, and structure and function.	Grade 4 Waves Unit, students will engage in a range of stimulating activities to develop their understanding of the properties of waves, and the use of patterns to transfer information. Throughout the unit, student interest is engaged through the exploration of phenomena such as ocean waves, rope exercise waves, an old telegraph machine, and an intriguing alien seeking message. Together, the lessons develop relevant elements of the NGSS Grade 4 storyline. Each lesson interweaves the three dimensions of the NGSS through guided investigations and collaborative activities that form a coherent learning sequence. Student inquiry is focused on developing an understanding that waves are regular patterns of motion, and that waves of the same type can differ in amplitude and wavelength. Students develop their own models to describe patterns in terms of amplitude and wavelength, and that waves can cause objects to move. Students then generate and compare multiple solutions that use patterns to transfer information.

F. Assessment Design and Supports

Because assessment occurs within exploration and explanation phases, teachers evaluate not only what students know, but how they reason.

Flexible Implementation Across Classroom Contexts

Formative tasks are adaptable across instructional settings:

- Whole-group sensemaking discussions
- Small-group investigations
- Independent student responses
- Digital device-based submissions
- Printable, offline formats

Extension and enrichment opportunities within lessons allow teachers to deepen or broaden assessment without shifting the core learning goal. Students may apply ideas in new contexts, strengthen reasoning, or revisit concepts while maintaining alignment to three-dimensional expectations.

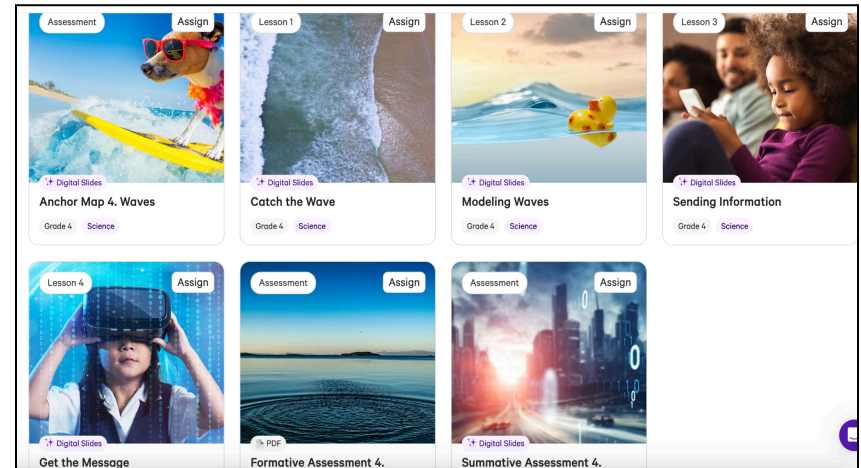
Equity and Accessibility by Design

Assessment flexibility is grounded in equity. Tasks incorporate built-in scaffolds that support English learners, students with disabilities, and students across varied language and literacy levels.

Students may demonstrate understanding through multiple modes of expression, including:

- Drawing and visual modeling
- Written explanation
- Structured discussion
- Data analysis

Digital materials meet accessibility standards and are available for both online and offline use, ensuring consistent access regardless of classroom technology context.



The unit includes a formative assessment tool—a grading rubric that aligns with the relevant checkpoint opportunities in each lesson. A Summative Assessment Anchor Map is also included on this unit page. It includes the end of lesson "I can ..." statements—a quick check-in activity to monitor individual student's understanding of the learning targets.

What are waves and what can they do?		
I can develop a model to describe the pattern of wave behavior.	Expand 	I can develop a model to explain that waves can cause objects to move.

F. Assessment Design and Supports

Inquisitive ensures that assessment is not an event at the end of instruction. It is an integrated, ongoing process that advances sensemaking. Teachers gain actionable insight into how students are using SEPs, applying CCCs, and developing DCIs, while students experience assessment as a natural extension of authentic scientific inquiry.

Topic 4. Waves

Formative Assessment Tool

Name: _____

Date: _____

NGSS PE	Criteria: NGSS Three Dimensions	Steps to Success*	Checkpoint 	Recommendations for Support**	Observations Approaching/Meeting/Exceeding grade-level expectations
4-PS-4-1	Science and Engineering Practices Developing and Using Models Develop a model using an analogy, example, or abstract representation to describe a scientific principle. Connections to Nature of Science Scientific Knowledge is Based on Empirical Evidence Science findings are based on recognizing patterns.	1. Lesson 1 Catch the Wave Students use ropes to model the pattern of motion of water waves. They identify the amplitude and wavelength of their modeled waves. 2. Lesson 2 Modeling Waves Students model the motion of ocean waves with a plastic toy and a tub of water. They use their model to describe that when waves move across the surface of deep water, the water goes up and down in place. Additional Assessment Opportunity Lesson 1 Catch the Wave, Question 3 Students create wave patterns with a dropper and a bowl of water. They infer the effect of dropping an object into the bowl or into a pond.	Q7 Q4	Recommendations for support suggestions for this checkpoint question are included in the DCI section below. Remove the duck from the water and allow the student to make wave patterns by dropping the heavy object in the water, if possible use a clear plastic or glass container and have the student observe the waves side on at water level, to see the horizontal motion of the wave energy and the vertical displacement of the water, before placing the duck back in the water.	
	Disciplinary Core Ideas PS4.A: Wave Properties Waves, which are regular patterns of motion, can be made in water by disturbing the surface. When waves move across the surface of deep water, the water goes up and down in place; there is no net motion in the direction of the wave except when the water meets a beach. Waves of the same type can differ in amplitude (height of the wave) and wavelength (spacing between wave peaks).	1. Lesson 1: Catch the Wave Students use their rope waves model to demonstrate their understanding that waves of the same type can differ. They identify the amplitude and wavelength. 2. Lesson 2 Modeling Waves Students state whether waves can make objects move. They use their model and other evidence to support their statement. Additional Assessment Opportunity Lesson 1 Catch the Wave, Question 3 Students create wave patterns with a dropper and a bowl of water. They infer the effect of dropping an object into the bowl or into a pond.	Q7 Q6	Construct a wave pattern from a jump rope, and allow the student to physically change it. Encourage them to keep the overall shape, but make the individual wave shapes flatter or higher or wider or more narrow. Have keyword cards with vertical and horizontal arrows that can be placed as labels. Read and clarify the question with the student. Re-watch their slow motion video and the Bobbing Boat video. Before watching, ask the student to look for any movement of the object when the wave passes underneath it.	
	Crosscutting Concepts Patterns Similarities and differences in patterns can be used to sort, classify, and analyze simple rates of change for natural phenomena.	1. Lesson 1 Catch the Wave Students create different types of rope waves and describe them in terms of their amplitude and wavelength. 2. Lesson 2 Modeling Waves Students use their model of a boat in the ocean to describe the pattern of ocean waves. Additional Assessment Opportunity Lesson 1 Catch the Wave, Question 3 Students create wave patterns with a dropper and a bowl of water. They infer the effect of dropping an object into the bowl or into a pond.	Q7 Q4	Recommendations for support suggestions for this checkpoint question are included in the DCI section above. Recommendations for support suggestions for this checkpoint question are included in the SEP section above.	

Science and Engineering Physical Sciences Grade 4

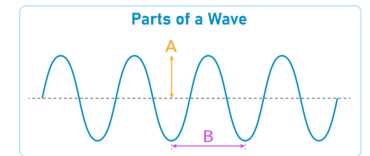
inquisitive 2

Unit and lesson teaching notes can be downloaded as an editable document. In addition to embedded formative checks, Inquisitive provides summative assessments, including auto-graded options, to measure student proficiency.

These assessments maintain three-dimensional integrity, requiring students to use practices and crosscutting reasoning to demonstrate understanding of core ideas. Students must construct written explanations and arguments, which are graded for inclusion of specific scientific evidence.

F. Assessment Design and Supports

The diagram is a model of a wave pattern. The model shows two measurements that help describe the pattern. Use the model to answer questions 4 and 5.



4. What is measurement A called? What does it describe? 5. What is measurement B called? What does it describe?

6. Think about a pebble falling into a pool of still water. The falling pebble has motion energy. Describe what will happen to the water when the pebble enters it. Then explain why it will happen.

F. Assessment Design and Supports

Indicator F2: Feedback (lessons and/or units)

Resources provide opportunities and guidance for oral and/or written peer and teacher feedback and self-reflection, allowing students to monitor and move their own learning.

Evidence Identified:  Strong Evidence	Location
Inquisitive science resources facilitate feedback and self-reflection by integrating real-time monitoring tools, collaborative inquiry, and structured metacognitive activities that empower students to take agency over their learning journey. Real-Time Monitoring and Teacher Feedback • Student Responses Feature: This tool allows teachers to view student work in real time, facilitating immediate checks for understanding and the ability to provide instant oral or written feedback. • Collaborative Discussion: Teachers can share and present student thinking or model answers to the entire class, promoting scientific discourse and collaborative learning. • Detailed Teaching Notes: Resources include teaching and learning sequences with suggested questioning and sample answers to guide teachers in providing effective oral feedback during hands-on activities.	Every unit for all grade levels has a Unit Anchor Map which acts as a visual summary of the key learning goals for the unit—presented as “I Can” statements developed from the science standards —and can serve as a formative and/or summative assessment tool. Teachers can use it to determine whether students have mastered the central concepts and practices tied to the anchor phenomenon or problem. This different approach to assessment also encourages students to reflect on their own learning progress and take responsibility for meeting the outlined goals. Example of 5th grade Earth Science Unit Anchor Map: Space Systems

F. Assessment Design and Supports

Opportunities for Self-Reflection

- "I Can" Statements: These first-person learning objectives help students self-assess their progress against specific goals after every lesson.
- Anchor Maps: Students use these frameworks to visually or orally express what they have learned, identifying their own gaps in knowledge and fostering self-evaluation skills.
- Visible Thinking Routines: Activities like the "I Used to Think... Now I Think..." routine encourages students to reflect on how their perspectives have changed and justify their reasoning.
- Self-Assessment Questions: Specific "purple questions" at the end of units are designed for students to consider their own strengths and areas for improvement.

Peer Feedback and Collaborative Inquiry

- Group Investigations: Hands-on activities and experiments are designed for students to work together, requiring them to communicate findings and discuss ideas with peers.
- Shared Portfolios: Digital features enable students to share and discuss their work, providing a platform for informal peer review of scientific ideas.
- Scientific Discourse: Lessons focus on developing the language necessary for students to talk about and challenge each other's ideas in a supportive environment.

What patterns are caused by the movement of Earth?

Expand 

I can explain why the sun seems brighter than other stars.		I can explain why different stars and constellations are visible at different times of the year.
I can explain why we experience day and night, and can describe patterns of change.	I can describe the changes in a shadow's length and direction during the day.	I can explain how the direction of Earth's gravitational force acts on objects.

In Grade 5 [Goin' Down](#) students make a claim stating the reason why objects fall downward. They present evidence and reasoning to support their claim, as well as evaluate and provide feedback on a classmate's presentation.

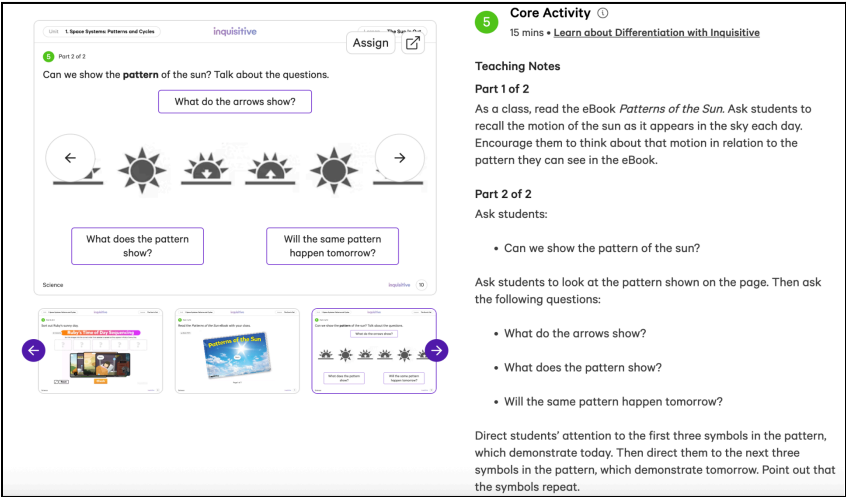
Evaluate a classmate's presentation by completing the page below.
Share your feedback with your classmate.

Whose presentation are you evaluating?	Did their evidence support their claim?
What evidence did they include?	Why do you say that?
Give your classmate some gold stars.	
	

F. Assessment Design and Supports

Indicator F3: Assessment Tools (lessons and/or units)

Tools are provided to scoring assessment items (sample student responses, rubrics, scoring guidelines, etc). The tools also incorporate guidance for interpreting a range of student understanding for relevant SEPs, CCCs and DCIs.

Evidence Identified:  Strong Evidence	Location
Inquisitive Science provides a suite of integrated tools designed to streamline the scoring and interpretation of three-dimensional science assessments. These tools focus on making student thinking visible and aligning evaluation directly with NGSS Performance Expectations. Scoring and Assessment Tools Inquisitive utilizes a tiered assessment model to capture varying depths of student understanding: ● Formative Assessment Tools: These are "working documents" that allow teachers to monitor real-time progress. They include specific Steps to Success—observable features of student performance that are directly linked to grade-level standards. ● Unit Rubrics: Comprehensive rubrics are provided for each unit to evaluate student performance against the three dimensions (SEPs, CCCs, and DCIs). These rubrics define expected language and depth of knowledge for different competency levels. ● Sample Responses: Teaching notes for each lesson include sample answers and suggested student responses to help teachers gauge the accuracy and depth of constructed responses.	Grade 1 Lesson The Sun is Out, provides teachers with guidance in open and go lessons and with scoring assessment rubrics to ensure alignment with NGSS Performance Expectations.  The screenshot displays the Inquisitive Science interface for a lesson titled "The Sun is Out". The interface includes a header with the lesson title and an "Assign" button. Below the header, there is a section titled "Part 2 of 2" with the question "Can we show the pattern of the sun? Talk about the questions." and a sub-question "What do the arrows show?". The main content area features a sequence of sun icons with arrows indicating their movement. Below the icons, there are two assessment questions: "What does the pattern show?" and "Will the same pattern happen tomorrow?". The interface also includes a sidebar with navigation options and a bottom section with "Teaching Notes" and "Core Activity" details.

F. Assessment Design and Supports

- Differentiated Tasks: Assessments are often color-coded by difficulty—Core (Green), Deeper (Blue), and Challenging (Black)—allowing students to demonstrate proficiency at different levels.

Level of student attainment & observations of student performance

Approaching grade-level expectation

The student can draw one part of the pattern correctly as the sun appears high in the sky or at sunset, and can draw one activity that corresponds.

Meeting grade-level expectation

The student can finish the pattern of the sun as the sun appears high in the sky and at sunset, and can draw corresponding activities.

Sample drawings at noon could include learning at school, eating lunch, or playing a sport.

Sample drawings at sunset could include eating dinner, putting on their pajamas, getting ready for bed, or listening to a bedtime story.

Exceeding grade-level expectation

The student may draw more than two kinds of activities for the same time of the day.

Recommendations for Support

Encourage students to recall their observations of the sun's movement in Activity 2. Prompt students to think about the physical activity they did for Activity 3, moving their arms to show how the

Topic 2. Earth's Place in the Universe: Space Systems: Patterns and Cycles								
Formative Assessment Tool				Name: _____		Date: _____		
NGSS PE	Criteria: NGSS Three Dimensions	Steps to Success*	Checkpoint ✨				Recommendations for Support**	Observations Approaching/Meeting/Exceeding grade-level expectations
			L1	L2	L3	L4		
PERFORMANCE EXPECTATION 1-ESS1-1	Science and Engineering Practices Use observations (firsthand or from media) to describe patterns in the natural world in order to answer scientific questions.	1. <i>Additional assessment opportunity:</i> Lesson 1 Question 4 Students demonstrate their understanding of patterns (sunrise to sunset) by sequencing Ruby's Day correctly. 2. Students observe the pattern of the sun and identify the motion of the sun in the sky at noon and at sunset. 3. Students observe the given pattern, then complete it with three more symbols, drawing the moon's apparent position across the sky. 4. <i>Additional assessment opportunity:</i> Lesson 3 Question 4 Students reflect on their observation of the stars and express what they have learnt about when stars appear. Students demonstrate their thinking, and what they wonder about in relation to the position of the stars. 5. Students express and draw their own understanding of the motion of the stars by creating a camping storyboard.						
	Disciplinary Core Ideas Patterns of the motion of the sun, moon, and stars in the sky can be observed, described, and predicted.	1. Students identify and predict the pattern of the motion of the sun and describe activities they undertake that correspond with the sun appearing to move across the sky everyday. 2. Students describe and predict the pattern of the moon in their own words, demonstrating their understanding of the motion of the moon as it appears in the sky. 3. Students draw what they see in the sky at sunset, nighttime and sunrise. They identify that stars only appear in the night sky.	Q6		Q6		Students recall the observations made in Lesson 1 Question 2. To get them started on the task, you might recap what a symbol is and how the crescent moon is used to symbolize the moon here, as visited in Lesson 2 Q5. To get them started on the task, you might like to recap what they saw in the video, as visited in Lesson 3 Question 1.	
			Recommendations for Support**					
			Observations Approaching/Meeting/Exceeding grade-level expectations					

G. Usability

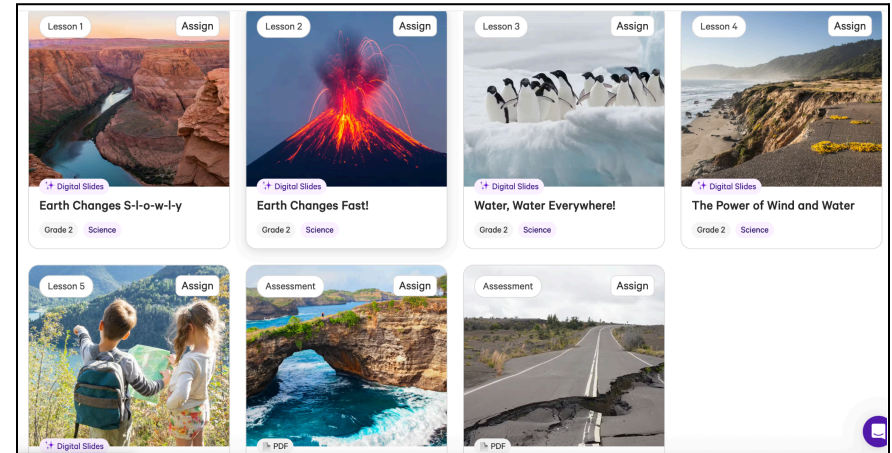
Indicator G1: Sequencing (program)

Resource provides a rationale for how units/chapters/learning modules are intentionally sequenced to build coherence and student understanding.

Evidence Identified:  Strong Evidence	Location
Inquisitive Science (K-5) provides a coherent, 3D-learning sequence by structuring units around Disciplinary Core Ideas (DCIs), crosscutting concepts, and hands-on investigations that progress logically from foundational knowledge to complex understanding. The curriculum ensures coherence through explicit connections in lesson overviews, adaptable plans for limited time, and a developmental, inquiry-based flow. Coherence and Sequencing Evidence: • Structured Progression: Units are designed as a, "scaffolded sequence of learning experiences," where each lesson connects to prior knowledge and builds toward a final, in-depth understanding of scientific concepts. • Conceptual Development: Content is organized to allow students to act like scientists, engaging in hands-on investigations, group discussions, and virtual activities that deepen understanding sequentially. • Unit/Lesson Overview: Inquisitive offers a K-5 Science Scope and Sequence that explicitly outlines how lessons within a module connect, providing a "storyline" approach that links previous, current, and upcoming scientific concepts.	For example, the Grade 2 Unit Earth's Systems: Processes that Shape the Earth, Students will engage in a range of stimulating activities to develop their understanding of processes that shape the Earth. They will explore phenomena such as the Grand Canyon, an erupting volcano, the eroding power of wind and water, and virtual reality landforms. Together, the lessons develop relevant elements of the NGSS Grade 2 storyline. Each lesson interweaves the three dimensions of the NGSS through guided investigations and collaborative activities that form a coherent learning sequence. Student inquiry is focused on the idea that both slow and sudden events can change the shape of the land. Students also explore sources of information and create models to identify and represent the shapes and kinds of land and bodies of water in an area, and identify where water is found on Earth.

G. Usability

- **Adaptable for Time Constraints:** Lessons are designed for flexibility, allowing teachers to adapt the materials to fit tight schedules without losing the, "3D learning". The curriculum supports this by encouraging the use of, "essential" activities to maintain the core, "conceptual" flow, ensuring that even shortened lessons provide, "rich, deep, and purposeful" learning.
- **Assessment-Driven Coherence:** At the end of each unit, students participate in a, "green core assessment" and deeper learning assessments, ensuring that instructional goals are met and, "3D learning" is measured.



G. Usability

Indicator G2: Other Instructional Supports (unit and/or program)

To support effective science instruction, teachers will need information about required materials.

Evidence Identified: ● **Strong Evidence**

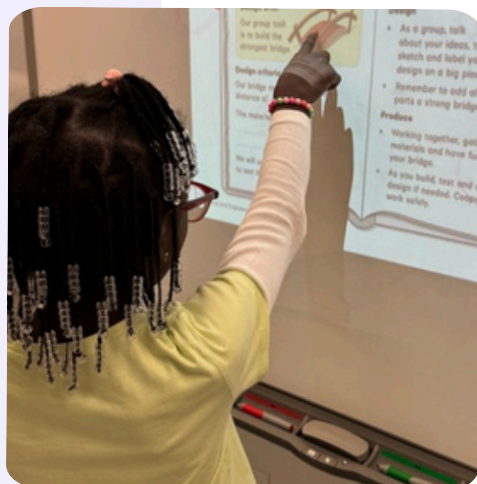
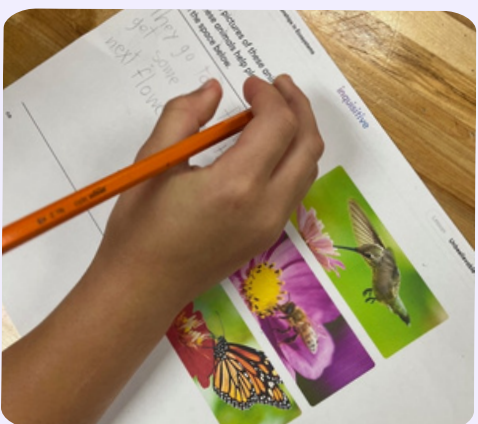
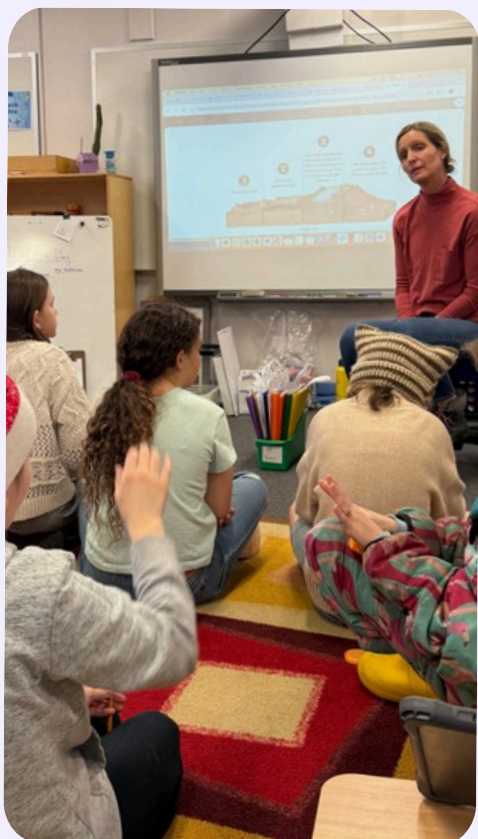
Inquisitive provides a comprehensive list of supplies by embedding detailed, actionable material requirements directly into each lesson and unit plan, often featuring affordable, everyday items. Instead of requiring complex, pre-purchased kits, the curriculum provides "Materials Calculators" and lists that allow teachers to prepare for hands-on investigations in advance. Materials required for investigations are everyday materials and commonly available in schools and/or affordably purchased. Inquisitive can provide a complete list by grade and also offer operational Kits which include reusable and consumable items for all the hands-on investigations by grade.

Location

Every lesson where materials are needed, is provided a Lesson Materials Calculator where teachers can identify the number of students and the amounts of materials needed is calculated for them. For example, Grade 3 Forces and Interactions [Lesson 4 Forceful Frictions](#)

The screenshot shows the Inquisitive interface for a lesson titled "Lesson 4: Forceful Frictions". On the left, there are "Steps" for an investigation, including setting up a ramp and measuring the height of a block. In the center, there is a video thumbnail showing a block on a ramp. On the right, the "Lesson Materials Calculator" is displayed, showing a class size of 30 students and a list of materials with their quantities.

Lesson Materials Calculator	
How many students are in your class?	
30	Save Class Size
Aluminium foil roll <i>Optional</i>	10
Block	10
Bubble wrap <i>Optional</i>	10
Cardboard - thick	10
Measuring tape	10
Alternative Materials: Meterstick	10
Paperback book	30
Piece of Carpet <i>Optional</i>	10
Plastic wrap <i>Optional</i>	10
Sandpaper <i>Optional</i>	10
Velcro <i>Optional</i>	10



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