The Next Level of Inquiry and Wonder

Motivate every student to reach higher and go further. *Elevate Science* is a complete K–5 science program, including a blended print and digital curriculum, that elevates thinking, learning, and teaching.

**TAKE SCIENCE TO THE NEXT LEVEL**

- Real-world, relevant, and interesting topics introduce the core ideas.
- Student-centered investigations utilize the science/engineering practices.
- Problem-based learning promotes application and student understanding.

PRINT, DIGITAL, OR BLENDED LEARNING
Promote Investigation, Critical Thinking, and Analysis

- **Phenomena-based** Quests
- **STEM and engineering activities**
- **Interdisciplinary connections**

Foster Three-dimensional Learning

- Encourages innovation, collaboration, and creativity
- Promotes understanding, application, and synthesis
- Fosters the use of claims, evidence, and reasoning

Transform Learning and Manage Changing Classrooms

- Scaffolded questions guide discussions and promote thinking
- ELD and Differentiated Instruction strategies
- Supports the 5E Learning Model
Promote Investigation, Critical Thinking, and Analysis

Exploration is the heart of science. The Quest problem-based activity anchors each topic. Students “figure out” the problem’s solution as they navigate the topic’s lessons. It’s real science with engaging phenomena. Students apply their knowledge and skills to master the new science standards.

**Phenomena-Based Learning**

**Quest Kickoff**

Find the Right Mix—and Step on It!

How can we mix ingredients to make a model stepping stone?

Hi, I’m Alice Greene, a materials scientist! Suppose a city is setting up a pirate habitat! In this problem-based learning activity, you will build a model stepping stone so that students can observe the habitat without damaging the plants.

Like a materials scientist, you will evaluate your design and learn how different combinations of materials can make your design solution more useful. And you can decorate your model stepping stone, too!

Follow the path to learn how you will complete the Quest. The Quest activities in the lesson will help you complete the Quest. Check off your progress for the path when you complete an activity with a

**Quest Check-In 1**

Lesson 1

Learn about the properties of matter and their application to help you create a list of materials and instructions to build your stepping stone.

**Quest Check-In Lab 1**

Lesson 2

Use what you learn about the properties of matter to create materials you might use to build your stepping stone.

**Quest Check-In Lab 2**

Lesson 3

Learn about the states of matter and their application to help you create a list of materials and instructions to build your stepping stone.

**Quest Check-In Lab 5**

Lesson 4

Apply what you learned about physical changes and how they affect the final product you will make.

**QUEST FOR IDEAS, ANSWERS, AND EVIDENCE**

“Find the right mix—and step on it!” In this Quest, students engineer a stepping stone. Each topic centers on a real-world, problem-based activity to make learning fun.
**QUEST CONNECTIONS**
Learning is structured and intentional. Students explore the Quest phenomenon throughout the lessons.

**QUEST CHECK-INS**
What materials are needed to solve the Quest? Check-Ins ask students to reflect on the problem as they design their solutions.

**QUEST FINDINGS**
At the close of each topic, students synthesize information and construct explanations as they complete their Quest.
**The Next Level of** STEM **Education**

*Elevate Science* connects Science, Technology, Engineering, and Mathematics in every topic, at every grade. STEM activities fuel innovation, problem solving, collaboration, and reasoning—skills for future careers.

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**STEM LABS**

Make STEM hands-on! STEM Labs let students experiment, model, design, and construct.

**STEM QUEST KICKOFF**

Students use STEM practices to solve the Quest problem in each topic.

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**Quest Kickoff**

Find the Right Mix—and Step on It!

How can we mix ingredients to make a model stepping stone?

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**STEM uConnect Lab**

What happens to mass when objects are mixed?

Materials scientists investigate how substances can mix together by performing experiments and collecting data. How can you investigate?

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**Quest Check-In Lab**

How can you compare the properties of matter?

The work of materials scientists involves understanding how the properties of materials vary. How can you learn about the properties of
STEM Connection

When a building is constructed, engineers and builders use different materials to put it together. Modern buildings over a few stories tall are often built using steel beams and concrete. These materials are strong and durable. Even if the materials are strong, people may want to remove a building. It may not be designed for modern uses. A taller or more modern building design may use the land better. When a building is knocked down using heavy equipment, the material it is made of does not change. The concrete is still concrete even though it is broken into small pieces. The beams are still made of steel even if they are bent and crumpled. The materials do not change, but their uses change.

STEM ENGINEERING READER

Share engineering experiences with young students using these leveled readers.

ENGINEERING Connection

Salt is a natural resource that people need in their diets. The salt that you use in your kitchen may come from a salt deposit. In these deposits, the salt is often a large solid mass, like rock. People use tools to break it apart into smaller pieces. Even these small chunks are too big to use on your food. Sometimes the salt is crushed small enough to pour from a saltshaker. Another way to break the salt into smaller pieces is by using a salt grinder.

Predict What would happen if you could keep grinding the salt particles.
Focus on the NEW Standards and the Science/Engineering Practices

The new science standards emphasize the practice of scientific inquiry. *Elevate Science* helps shift the cognitive load from guided inquiry to student-initiated experiences. Explicit strategies vary the guidance based on student needs.

**uCONNECT LAB**

Students engage with the phenomena and connect it to the disciplinary core ideas.

**uINVESTIGATE LAB**

Students investigate the core ideas to build a strong understanding of the topic’s concepts.

**uENGINEER IT! LAB**

Students engage in engineering practices to design, build, and apply core ideas to new situations.

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**STEM uConnect Lab**

What happens to mass when objects are mixed?

Materials scientists investigate how substances can mix together by performing experiments and collecting data. How can you investigate the properties of a mixture of substances?

**Procedure**

1. Why will happen to the mass of the three sets of beads when you mix them together? Write a prediction.

2. Think of a procedure to test your prediction about mass. Use all of the mixed materials. Share your procedure with your teacher before you begin.

3. Make a bar graph to show your data. Label each bar on the y-label the units on your graph.

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**uINVESTIGATE LAB**

How can you detect matter without seeing it?

Material scientists study all kinds of matter. How can you show evidence of matter that you cannot see?

**Procedure**

- Fill the syringe with water up to the last mark on the syringe. Observe the description of what you think is in the syringe.

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**INTERACTIVITY**

**Define**

Assign the *Engineering Activity* after students complete the Define It exercise.

**What it is**

A highly interactive multi-page digital activity with engaging visuals

**What it does**

Allows students to practice using criteria to evaluate competing design solutions using a fun example

**How to use it**

- Students will click through the screens to complete the activity.
VIRTUAL LABS
Virtual science simulations engage digital learners. Plus nothing gets broken!

CLASSROOM MATERIALS KITS
Organized equipment kits provide the materials to support all of the program labs.

uENGINEER IT! MAKER CRATES
Encourage creative building and tinkering. These crates contain materials to support and extend the uEngineer It! Labs.

Materials are packaged to facilitate easy and efficient set-up

littleBits

littleBITS EXTENSION KITS
Inspire inventors! Students can make programmable robots, vehicles, and machines using simple, modular electronics.
The Next Level of Integration

Raise the bar on ELD/Literacy and Mathematics Standards. *Elevate Science* helps students think about, read about, write about, and talk about science. By integrating *phenomena* with these crucial skills, you’ll ‘elevate’ results in all disciplines.

**ELD/Literacy Standards**

**LITERACY CONNECTION**

Every topic targets a critical literacy skill, such as using evidence from texts to make well-defended claims.

**LITERACY TOOLBOX**

Reminders throughout the topic reinforce the target literacy skill and help students read closely.

**Use Evidence from Text**

When you read carefully, you look for evidence. Use these strategies to help you look for evidence.

- On a first read
- On a second read
- Underline important facts.

Read the text to find out how materials scientists can help remove oil pollution from the environment.

Oil Spills and Aerogels

Small amounts of oil end up in streams and threaten the environment. One way to clean up oil is with a material called aerogels. Aerogels are solids made from gels.

To make aerogels, materials scientists remove the liquid from the gel and replace it with gas. This process changes the physical properties of the gel. Aerogels are nicknamed ‘frozen smoke’ because they are too thin and are the world’s lightest solids. Some aerogels are very absorbent. Materials scientists tested the ability of these aerogels to clean up oil by mixing them with water and corn oil. In one investigation, the aerogel absorbed seven times its own weight in oil.

**用 evidence from text**

Why do you think aerogels could be used to clean up oil spills in your community? Underline the important facts from the text that support your claim with evidence.

**Literacy Toolbox**

Water is formed by the combination of atoms of two different elements—hydrogen and oxygen. Is the smallest particle of water an atom or a molecule? Why do you think so?
LEVELED READERS

The Phenomena Series leveled readers teach the same concepts at different Lexile levels. Also includes a STEM/Engineering reader for every topic.

MATH TOOLBOX

Bring math relevance and depth to science! Integrated math practices apply concepts to real situations.

MATH TOOLBOX

Use Models Models can help you represent thoughts or ideas. How can you use the blocks in the image below to explain the idea that particles rearrange when they form new substances?

ELD SUPPORT INSIDE!

READING CHECK

Have volunteers share the text evidence they used to support what they think would happen if their community used aerogels to treat an oil spill.

READING CHECK

Formative assessment opportunities help you provide feedback to improve students' learning.

Mathematics Standards
The Next Level of Assessment and Differentiation

In a differentiated classroom, all learners have a better chance of mastering the new science standards. *Elevate Science* helps teachers make strong connections between assessment and differentiated instruction.

Assessment for Three-Dimensional Learning

**LESSON CHECK**
Formative assessment in every lesson helps you monitor and support student progress.

**Lesson 1 Check**

**Question 1**
If students do not understand how to read the table, then review the properties of each substance individually. Help students identify similarities and differences among the three substances.

**Question 2**
This question assesses student understanding of the lesson objective: Explain that matter is made of tiny particles too small to be seen.

If students have difficulty explaining atomic theory, then remind students to think about what they learned about atoms and molecules. Remind students that matter is made of particles too small to be seen, and that scientists use special tools to observe this matter.

**END-OF-TOPIC ASSESSMENT**
Summative assessment at the end of each topic helps to refine teaching practices.

**EVIDENCE-BASED ASSESSMENT**
Put students on the path to success with practice aligned towards demonstrating their mastery of science concepts.

**PERFORMANCE-BASED ASSESSMENT**
End-of-topic performance assessments allow students to demonstrate mastery of the new science standards.
FOCUS ON MASTERY
Help students achieve mastery by focusing on the Science and Engineering Practices.

ELD Support

**ELD Support**
Integrate English language development for varying proficiency levels.

**SCAFFOLDED QUESTIONS**
Reduce student frustration and help them focus on Depth of Knowledge (DOK).

**DEPTH OF KNOWLEDGE (DOK)**
Multiple DOK level questions help students focus on the “Big Ideas.”

**DIFFERENTIATED INSTRUCTION**
On-the-spot strategies help support struggling students and advanced learners.

**GUIDING INQUIRY**
Find useful procedures to guide inquiry when more support is needed.

**FOCUS ON MASTERY**
Help students achieve mastery by focusing on the Science and Engineering Practices.

**Scaffolded Questions**
Use the following questions to assess students’ Depth of Knowledge levels of understanding.

**Define** What is the atomic theory? DOK1 (The atomic theory is the idea that everything is made of small particles.)

**Compare** How does the sand castle compare to the matter that makes it up? DOK2 (The castle looks like one large object, but it is actually made up of lots of smaller pieces. Even the smallest grain of sand is made up of smaller particles that cannot be seen without special tools.)

**Assess** How does the atomic theory apply to other matter around us? DOK3 (All matter is made up of particles that are too small to be seen.)

**Support Struggling Students**
Have students complete four vocabulary maps, one for each of the highlighted terms: atoms, atomic theory, compound, molecule. For each map, have students write a term in a circle and add rays out from the circle for writing definitions and examples. Then have students explain how all four words are related to each other.

**Support Advanced Learners**
Challenge advanced students to explore how elements are arranged on the Periodic Table of Elements. Have students predict why the periodic table is arranged in the way that it is. With a partner, encourage students to discuss if they are familiar with any of the elements on the table.
Transform Learning and Manage Changing Classrooms

Feel confident teaching science! *Elevate Science* helps teachers create a learning culture that’s nimble, personalized, and student-centered. The curriculum includes all needed resources to implement new science standards identified at point of use.

Inquiry-Based Teaching

*Elevate Science* integrates 5E learning in a new CISD Instructional Model (Connect, Investigate, Synthesize, Demonstrate) and provides an instructional plan designed for today’s blended learning environment. Students expand their current thinking as they investigate real problems, synthesize their knowledge in new situations, and demonstrate their understanding of core ideas.

5E Learning Intersects with 21st Century Competencies

- **CONNECT**
  - **ENGAGE** the mind with phenomena, linking what students know to their own personal experiences.

- **INVESTIGATE**
  - **EXPLORE** concepts and ideas while constructing knowledge and building meaning.

- **SYNTHESIZE**
  - **EXPLAIN** and **ELABORATE** understanding by formulating ideas, arguments, and solutions using evidence.

- **DEMONSTRATE**
  - **ELABORATE** and **EVALUATE** arguments by applying newly formed understandings and transferring knowledge to new situations.
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**TEACH THE STANDARDS**
Search by Standard or keyword. It’s simple and easy to access lessons, assignments, and tools.

**ACCESS STUDENT DATA**
Check students’ mastery of the new science standards. View progress, time spent on task, and assignments.

**MAKE IT YOUR OWN**
Add Google docs and OpenEd resources! Modify content and assignments. Easily integrate your class rosters.

**WORK OFFLINE OR ONLINE**
The Realize™ Reader eText lets students work offline. Everything stays in sync when reconnected to the web.

For a full description of our online resources, visit PearsonSchool.com/ElevateSci
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TRY THE ONLINE PROGRAM!
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