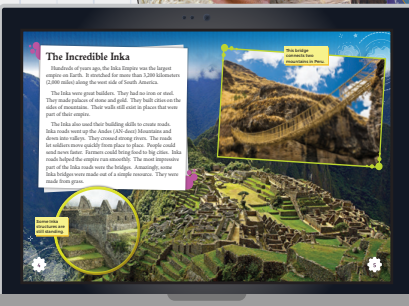
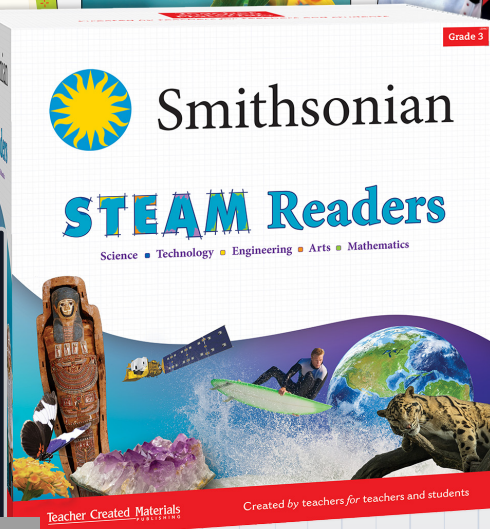
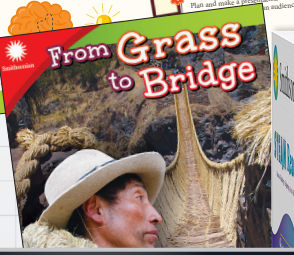
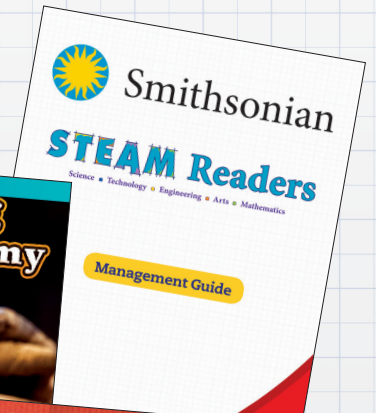


STEAM Readers

Science ■ Technology ■ Engineering ■ Arts ■ Mathematics



Inspire curiosity.



Inspire perseverance.



Inspire wonder.





Smithsonian STEAM Readers

Grades 3–5

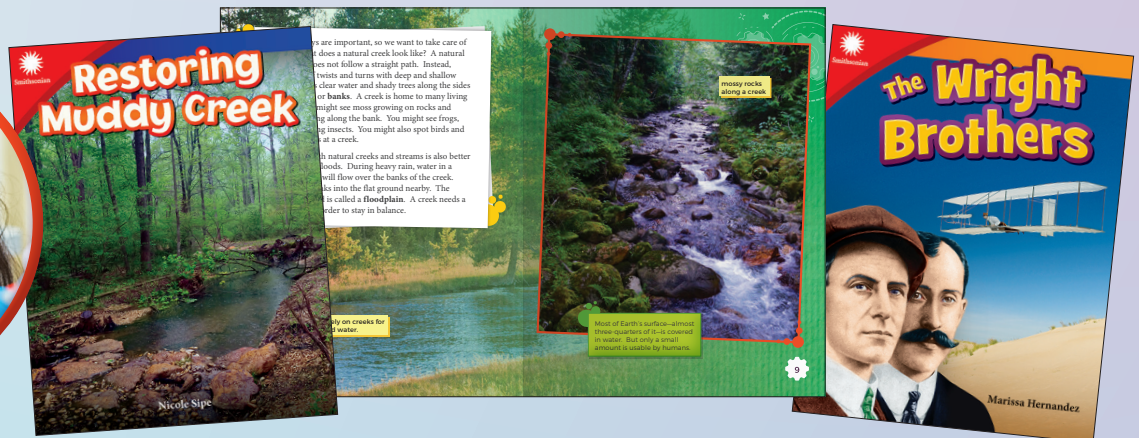
Inspire curiosity, perseverance, and wonder about the world!

Empower students to become independent learners and problem solvers, and engage them with high-interest readers that build literacy while fostering creativity and innovation.

- ▶ Students will immerse themselves in all aspects of STEAM – science, technology, engineering, the arts, and mathematics, and will engage in the engineering design process to solve problems.
- ▶ Students will learn about and experience examples of failure and persistence that lead to successful designs and innovation.
- ▶ Students will develop an appreciation of the power of perseverance, helping them see their true potential and how they can change the world around them.

Each kit includes:

Inspire curiosity.

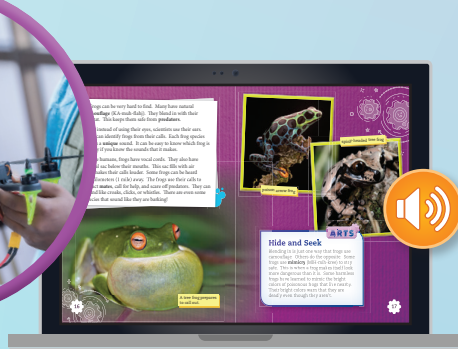


Books

Captivate students with rich text and vibrant images.

- ▶ Multiple reading levels
- ▶ 15 titles, 6 copies of each

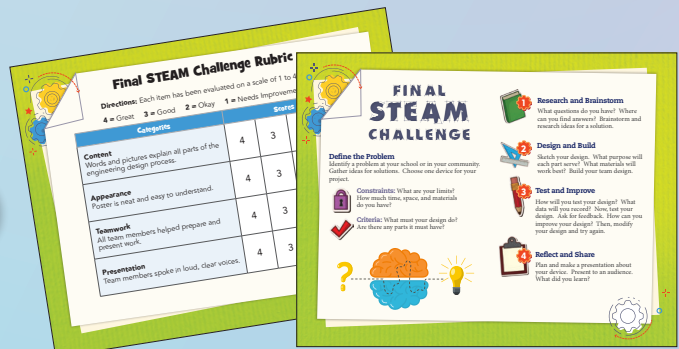
Inspire wonder.



Digital Resources

Extend the reading experience and build digital literacy.

- ▶ Interactiv-eBooks
- ▶ Professional audio recordings
- ▶ Student reproducibles



Culminating Activity

Challenge students to apply what they've learned in a Culminating Activity to solve real-world problems.

"The information in the Management Guide is well laid out and provides strong evidence and reasons why teachers would want to incorporate *Smithsonian STEAM Readers* in their curriculum...The 5E model facilitates teaching the lessons over a period of time... The format for all of the readers [and lesson plans] is very organized and easy for a teacher to follow and implement."

—Tamieka Grizzle, Ed.D.
K-5 STEM Lab Teacher



Inspire perseverance.



Lessons

Strengthen content-area literacy, critical thinking, and problem-solving skills.

- ▶ Standards-based lesson plans
- ▶ STEAM challenges that inspire students to be makers as they design, build, test, and improve solutions

Amphibian Rescue

Materials

- Amphibian Rescue books
- cup(s) of colored water (pages 9-10)
- string (page 1)

STEAM Challenge materials include but are not limited to:

- plastic storage bin with a lid
- plastic bottle
- plastic cups
- plastic straws
- plastic tubing
- plastic pipe
- plastic tubing
- plastic tubing
- plastic tubing
- plastic tubing

Learning Objectives

- Reading:** Use information gathered from illustrations (e.g., maps or photographs) and the words in a text to demonstrate understanding (e.g., "When, where, why and how key events occur?").
- Writing:** Recall information from experiences or gather information from print and digital sources; take brief notes on sources and cite evidence to support opinions.
- Speaking and Listening:** Engage effectively in a range of collaborative discussions with diverse partners on grade-appropriate topics and texts, building on and extending their ideas (clarify, add, and expand on what other speakers have said).
Engineering: Define an engineering problem, design and evaluate solutions, and optimize a design based on test results.

Phenomena

Nearly half of all amphibian species are at risk.

Lesson Timeline

Day 1	Day 2	Day 3	Day 4	Day 5-10
Introduction and Reading (page 1)	Reading and Thinking Reading Activities (pages 9-10)	Reading and Thinking Reading Activities (pages 9-10)	STEAM Challenge and Activities (pages 1-10)	STEAM Challenge and Activities (pages 1-10)

Make a Plan

Directions: Summarize the challenge on the lines. Brainstorm ideas and sketch two designs. Circle your favorite.

Brainstorming

Design 1

Design 2

Frog Catching Test Results

Directions: Write the materials each team used. Mark results of each test by circling yes or no. Then, answer the questions.

Materials	Did the tool catch both frogs?
	Yes/No
	Yes/No
	Yes/No
	Yes/No
	Yes/No

Which tool you think was most successful.

What ideas will you use from this tool to improve your own?

Management Guide

Integrate STEAM education into literacy instruction.

- ▶ Research based
- ▶ Includes differentiation tips, standards correlations, and additional support

Smithsonian STEAM Readers

Science • Technology • Engineering • Arts • Mathematics

Management Guide

Teacher Created Materials

STEAM Education and the Makers Movement

The Engineering Design Process

Define the Problem

Research and Brainstorm

Design and Build

Test and Improve

Reflect and Share

STEAM Education and the Makers Movement

5 Informational texts

STEAM Challenges

Consent and Images

Smithsonian STEAM Readers



Grade 3

GR Levels Q–W • Lexile® 600L–700L

Reading Levels 3.0–3.9 • Interest Grade Levels 2–5

Each kit includes:

- ▶ **Books**—15 titles, 6 copies each
- ▶ **Lessons** that strengthen content-area literacy skills and provide activities that support hands-on, minds-on learning
- ▶ **Management Guide**
- ▶ A **Culminating Activity** that challenges students to apply what they've learned about the engineering design process
- ▶ **Digital Resources** including Interactiv-eBooks, professional audio recordings, and student reproducibles

Integrating STEAM and Literacy Instruction

The readers highlight components of STEAM—science, technology, engineering, the arts, and mathematics.

SCIENCE

Viking Sunstones
Vikings sailed the sea long ago. They visited many lands and traded for what they needed. They traded some places, too. Vikings were known for their factories and skills at sea. Vikings developed tools and methods to help them navigate. They were experts at using the sun to find direction. This was hard to do when they lived. The skies were often overcast and foggy. They found a solution with sunstones. Sunstones are crystals that polarize, or control, light. They helped Vikings find the sun when there were clouds in the sky. At least they had some idea of their direction.
But "some idea" was not good enough. They needed a more precise way to know where they were headed. They soon found it.
A Viking at sea

SCIENCE

The direction of light polarization in the sunstone matches the polarization of the sunlight.
The atmosphere polarizes light in a circular pattern.
The sun is hidden behind clouds.
1 The navigator points a sunstone at a patch of sky that appears brighter than the rest.
2 The navigator separates the pieces from the problem. The intersection of the two readings shows the way forward.

TECHNOLOGY

Gimbal
Scientists needed to find a way to keep instruments steady on moving ships. They turned to gimbals. A gimbal is a set of rings in which an object can be mounted. Each ring pivots on its own. The object is mounted to the center ring by a center **axis**. Each outer ring is mounted to another by two axis points. The gimbals pivot, but the object stays steady.

ENGINEERING

Go, Boat, Go!
Like GPS, different instruments have been made to tell sailors where they are and where to go. But sailors still need to be able to make their boats move. Engineers design boats using basic tools. Some boats have sails, so wind can power them. Some have motors or engines. Some even have paddle wheels.

ARTS

Mapping the Way
A common navigation tool is a map. For most of history, maps were drawn by hand. They were a true art form. Usually made by hand, they are now made by computer. In this way they are now more science than art.

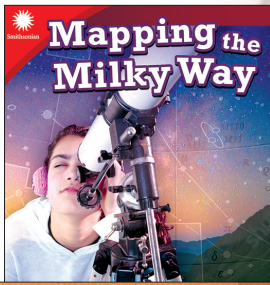
MATHEMATICS

Measuring Degrees
One degree of latitude is 111 kilometers (69 miles). To use a sextant, angles are compared to tables with degrees of latitude. Without the tables, location would remain a mystery.

ART

Mapping the Way
A common navigation tool is a map. For most of history, maps were drawn by hand. They were a true art form. Usually made by hand, they are now made by computer. In this way they are now more science than art.

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6-packs with lesson plans	(See ISBNs on next page.)	\$43.99 ea
School Site License Includes 15 Interactiv-eBooks for school-wide use	978-1-4938-6736-3	\$3,200.00



X-ray and gamma ray telescopes study the hottest objects in space. They are usually the sun and some stars. These tools are placed on very tall mountains.

Infrared telescopes are used to look at things that give off heat. These tools help people see into the centers of galaxies. They also look into clouds of gas and dust in space, where stars are born. To work best, they must be kept cold. So they are usually placed in space.

The Hubble Telescope is an example of a reflecting telescope. It uses mirrors to make an image. It is the biggest space telescope. It is part of the Hubble Spacecraft. The Hubble spacecraft is about the size of a school bus! It has been orbiting Earth at about 6 kilometers (3 miles) per second since 1990.

The Hubble takes pictures of space. It faces away from Earth. This lets it see deep into the universe. It has taken pictures of planets, stars, comets, and more. Scientists have learned a lot about the Milky Way from this tool.

TECHNOLOGY

Cool Tool
Embalming on earth gives off heat. Even things that are very cold, such as ice, give off some heat. That's why it can be hard to use infrared telescopes on Earth. They pick up the heat of their surroundings.



The Hubble Spacecraft orbits Earth.

TECHNOLOGY
Cool Tool
Embalming on earth gives off heat. Even things that are very cold, such as ice, give off some heat. That's why it can be hard to use infrared telescopes on Earth. They pick up the heat of their surroundings.

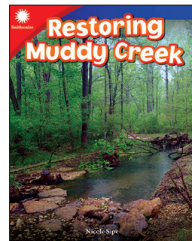
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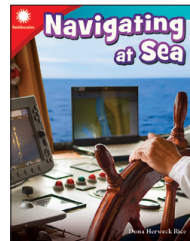
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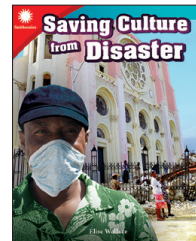
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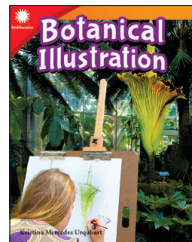
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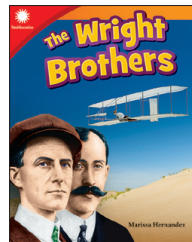
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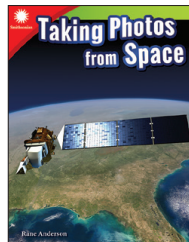
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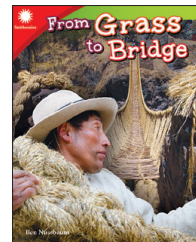
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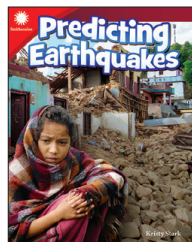
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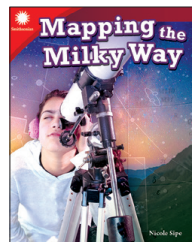
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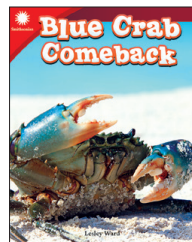
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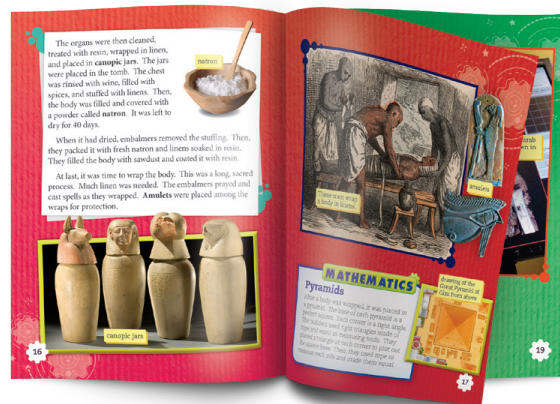
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Making a Mummy

Smithsonian STEAM Readers



Grade 4

Reading Levels 4.0–4.9

Interest Grade Levels 3–6

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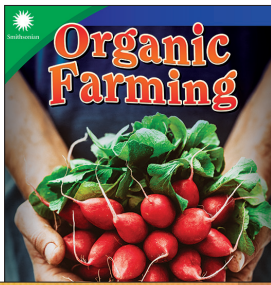
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- ▶ **Management Guide**
- ▶ A **Culminating Activity** that challenges students to apply what they've learned about the engineering design process.
- ▶ **Digital Resources** including Interactiv-eBooks, professional audio recordings, and student reproducibles.

A Focus on Engineering

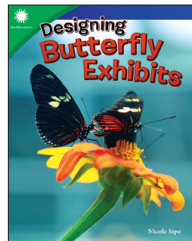
Through hands-on STEAM activities, students engage in the engineering design process to design, test, and improve solutions.



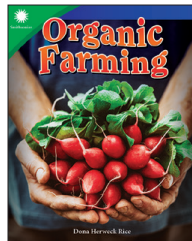
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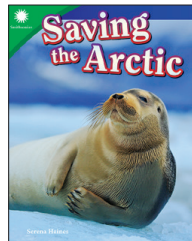
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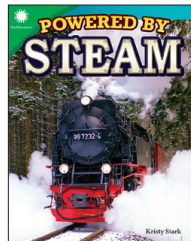
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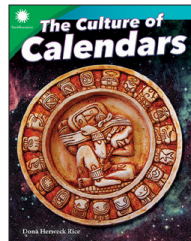
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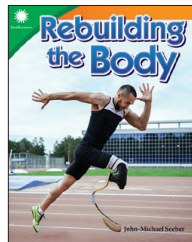
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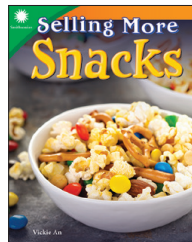
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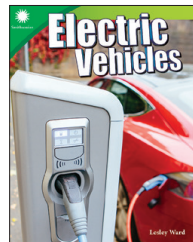
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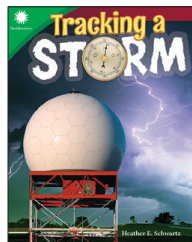
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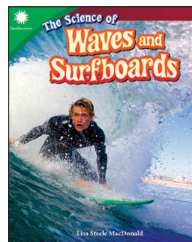
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The Science of Waves and Surfboards

Smithsonian STEAM Readers



Grade 5

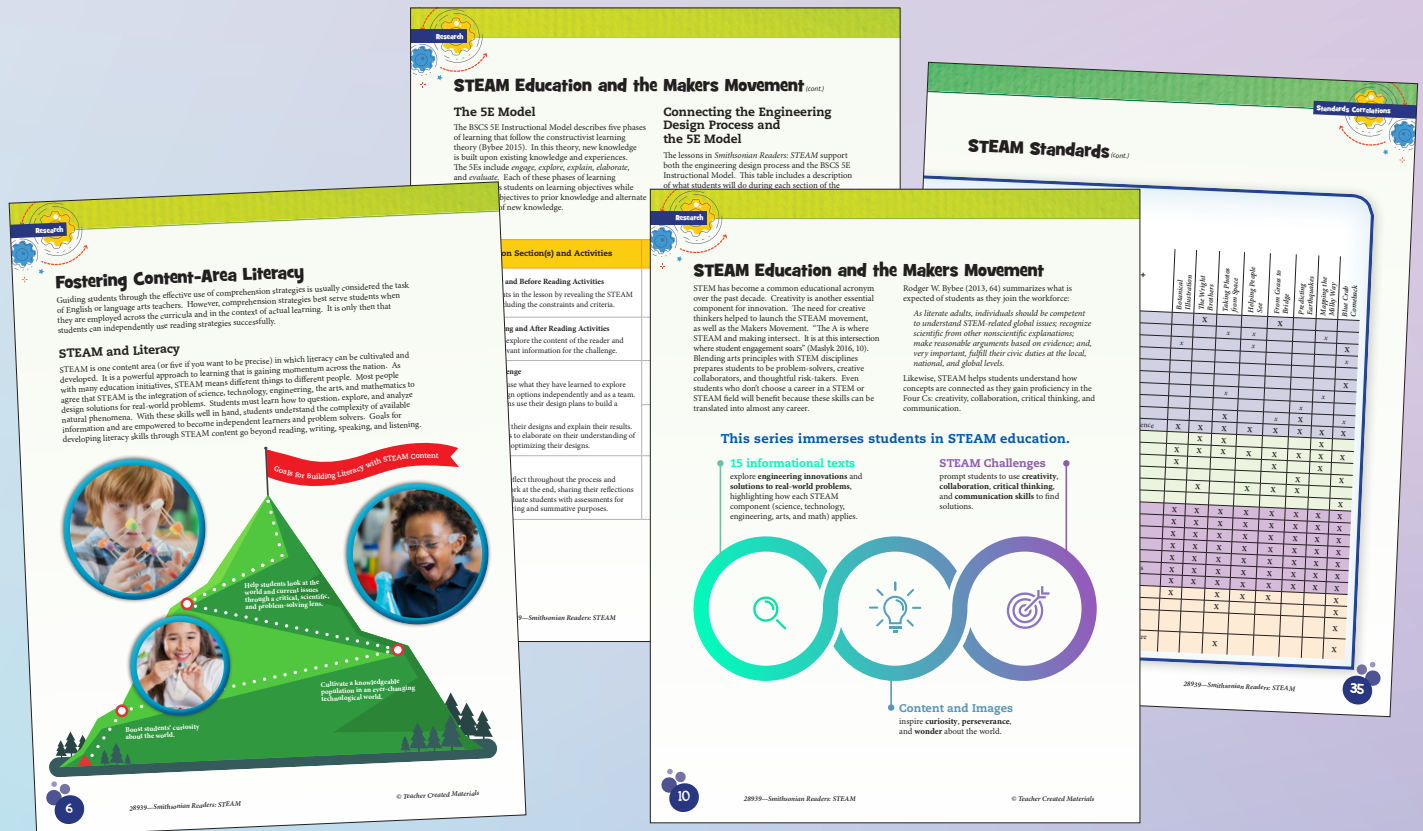
Reading Levels 5.0-5.9
Interest Grade Levels 4-7

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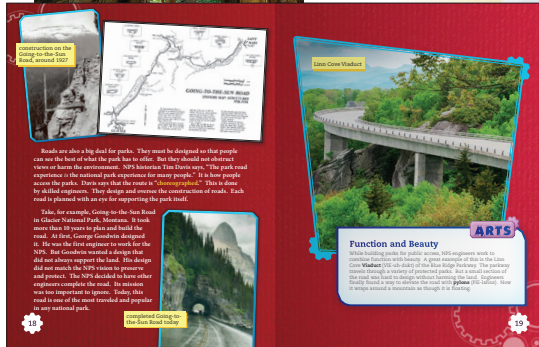
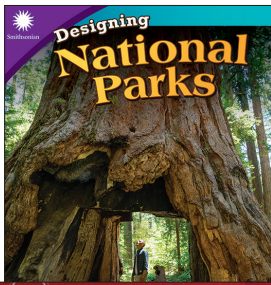
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- ▶ A **Culminating Activity** that challenges students to apply what they've learned about the engineering design process.
- ▶ **Digital Resources** including Interactiv-eBooks, professional audio recordings, and student reproducibles.

A Balanced Instructional Approach

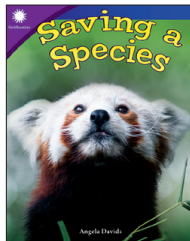
Merge literacy instruction with STEAM concepts and the 5E instructional model.



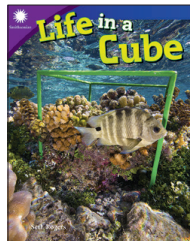
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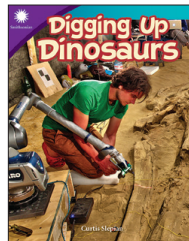
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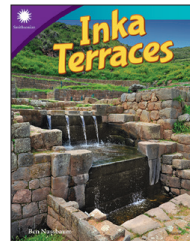
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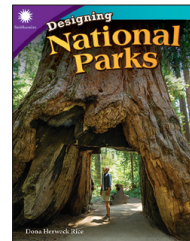
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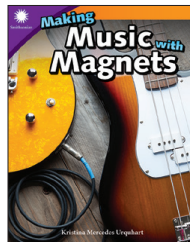
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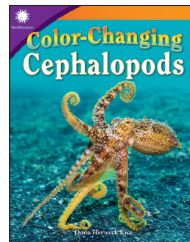
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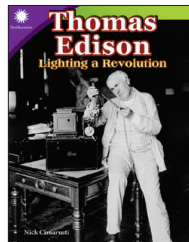
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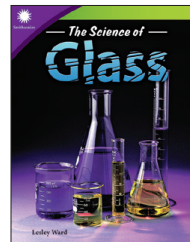
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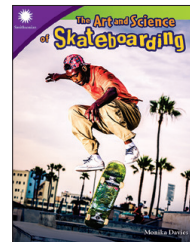
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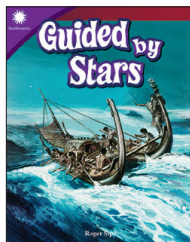
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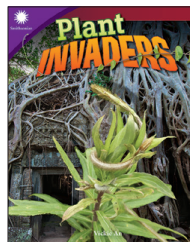
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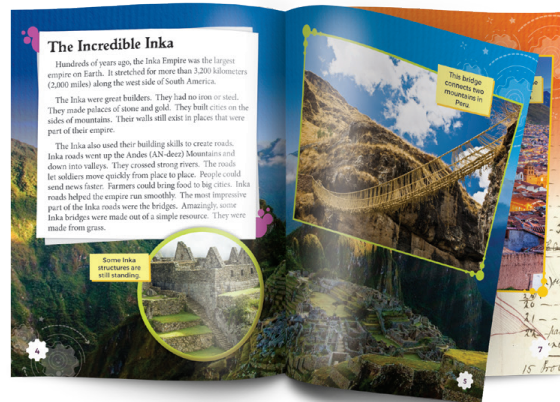
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Inka Terraces

Extend the Reading Experience

Interactiv-eBooks immerse students in the content and build digital literacy.

Bolded words indicate **content vocabulary** with definitions in the Glossary.

Embedded audio allows students to hear examples of fluent reading.

Recording tools help students **practice fluency** and allow teachers to **assess fluency**.

Embedded videos increase **student engagement**.

Text-to-speech highlighting **supports struggling readers**.

Digital annotation tools **support close reading** and **build comprehension skills**.

The screenshot shows an interactive eBook page with a blue border and a wooden-textured background. At the top left is a book icon, and at the top right are icons for play, list, settings, and close. The main content area is divided into two sections. The left section, labeled '6', is titled 'Meet Clouded Leopards' and contains text about their size, appearance, and traits. Below the text is a close-up image of a clouded leopard paw with the caption 'pads on a clouded leopard paw'. The right section, labeled '7', is titled 'Open Wide' under a 'SCIENCE' header. It features a photo of a clouded leopard yawning with the caption 'clouded leopard yawning'. A text box next to the photo explains that clouded leopards have hinged jaws that can open to 100-degree angles, four times wider than humans. At the bottom of the page is a toolbar with icons for grid, list, font settings, eraser, undo, redo, search, and zoom.

Professional Development

Our professional development options embed best practices with hands-on applications.

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- ▶ Integrating STEAM Across the Content Areas
- ▶ Discovering Science through Inquiry-Based Learning
- ▶ Active Learning in the Content Areas
- ▶ Getting to the Heart of Teaching Problem Solving



Supporting professional resources available at www.tcmpub.com.

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“This opportunity to design, fail, redesign, and improve helps learners build a set of invaluable life skills. It is so exciting to see students developing and refining these skills over time. These young students will be the people who change the world as we know it. It is our job to provide them with the skills to do so!”

—Sally Creel, Ed.D.
STEM & Innovation Supervisor
Professional Development Consultant



“The difference between science and the arts is not that they are different sides of the same coin...or even different parts of the same continuum, but rather, they are manifestations of the same thing.... The arts and sciences are avatars of human creativity.”

— **Dr. Mae Jemison**, astronaut, engineer, entrepreneur, physician, and educator

(excerpt taken from “Teach Arts and Sciences Together”)