



Smithsonian

STEAM Readers

Science ■ Technology ■ Engineering ■ Arts ■ Mathematics

Created in collaboration with the Smithsonian Institution, this dynamic series engages students with **high-interest readers** that **highlight all aspects of STEAM**: science, technology, engineering, the arts, and mathematics. Through **hands-on STEAM activities**, students will learn how the engineering design process is used to **solve real-world problems**.

The series:

- ▶ Strengthen **literacy skills** and **content-area knowledge** with high-interest readers and easy-to-implement lessons
- ▶ Apply the engineering design process to **solve real-world problems**
- ▶ Engage in **student-centered activities** that support makerspaces and project- or problem-based learning objectives
- ▶ **Promote the 4 Cs**: communication, collaboration, critical thinking, and creativity
- ▶ Make **career connections** with career advice from Smithsonian employees working in STEAM fields
- ▶ Support English language learners and model fluency with professional **audio recordings**
- ▶ Most titles are available as **Digital Books** (PDF and MP3 audio files)



SCAN to watch

An Introduction Video
<https://youtu.be/4rjb1rDNRBs>



Electric Vehicles

The History of EVs

The main mode of transport in the early 1800s had four legs, a mane, and a tail. It was a horse! Horses carried riders. They pulled carts. Horses were strong, but they had their limits. They also needed to be fed and cared for. People knew there had to be a way to power a cart without using a horse.

In 1800, batteries were invented. They created power in the form of an electrical current. Scientists thought that battery power could be used to replace horsepower.

Robert Anderson, a Scottish inventor, built one of the first EVs in the 1830s. He attached a battery to a motor. The motor turned the wheels of a cart.

Anderson's "horseless carriage" was **crude**. It rolled just a few feet. The battery could only be used once. But his work inspired many inventors who heard of his work.

One of the first successful American EVs was built in 1890. A chemist named William Morrison designed it. It ran on 24 batteries that could be recharged. Morrison showed the car at the 1893 World's Fair in Chicago. He used it to give rides to VIPs. It was a big hit with the crowds.

Lead-Acid Batteries

Gaston Planté (gas-TAHN plan-TAY) was a physics professor in France. He invented an electric storage battery in 1859. His battery could be recharged. He separated two sheets of lead with rubber. The lead was rolled into spirals. He connected the spirals to metal terminals. Then, he put the spirals into a glass container with sulfuric acid. The battery made a charge of two volts.

ENGINEERING

Lighten Up

Gas-powered cars weigh a lot because they are made with heavy steel. Engineers did not want to use steel to make EVs. They already had large, heavy battery packs weighing them down. The lighter the EV, the longer it could drive on a single charge. Today's EVs use lightweight aluminum to make parts like the **chassis** (CHA-see), hood, and doors.

TECHNOLOGY

Hybrid Vehicles

Hybrid vehicles are powered by both gasoline and electricity. A hybrid's main engine is powered by gas. It is used for higher speeds. A hybrid also has an electric motor attached to the engine. It is used for lower speeds. When the car needs extra power to go up hills, it uses both engines. Hybrids use less fuel than regular cars. They produce fewer emissions, too.

ARTS

EV Artists

Elon Musk, manufacturer of the Tesla EV, once posted a sketch of a unicorn online. He drew it on the touchpad of his EV. All Tesla touchpads have this hidden feature. Tap the T on the Tesla logo three times and the screen turns into a sketchpad. When you finish, the car asks, "Are you sure you want Tesla to critique your artistic masterpiece?" Then, you can publish your work.

SCIENCE

Lead-Acid Batteries

Gaston Planté (gas-TAHN plan-TAY) was a physics professor in France. He invented an electric storage battery in 1859. His battery could be recharged. He separated two sheets of lead with rubber. The lead was rolled into spirals. He connected the spirals to metal terminals. Then, he put the spirals into a glass container with sulfuric acid. The battery made a charge of two volts.

MATHEMATICS

Range Calculators

A range calculator is an app that tells how far you can drive an EV. Before a trip, enter data into the app. This data includes your starting point and destination, the EV model, and the speed limit. The app estimates the amount of energy that will be used on the trip. It then gives you the best route for the least amount of energy used.

Integrating STEAM and Literacy Instruction

Each reader highlights components of STEAM—science, technology, engineering, the arts, and mathematics.

K



A Den for Bei Bei ^
RRL: 1



Folding Paper ^
RRL: 1



Lighting the Night ^
RRL: 1



Making Shade ^
RRL: 1



Garden Life ^
RRL: 3

P1



What Toys Can Do ^
RRL: 3



Finding the Right Container ^
RRL: 4



Staying Afloat ^
RRL: 4



Playing with Wind ^
RRL: 5

P2



Being a Beaver Lodge ^
RRL: 6



Learning about Sharks ^
RRL: 6

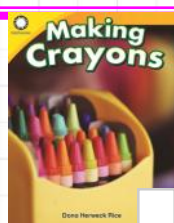


Taking Food To Go ^
RRL: 6

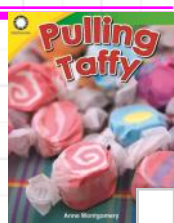


Making More Doughnuts ^
RRL: 7-8

P3



Making Crayons ^
RRL: 9-10



Pulling Taffy ^
RRL: 9-10

P4

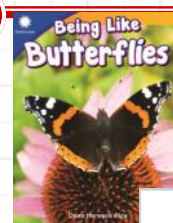


Cooling Off ^
RRL: 15-16



Staying Warm ^
RRL: 15-16

P5



Being Like Butterflies ^
RRL: 17



Building Sandcastles ^
RRL: 17



Making Music ^
RRL: 18

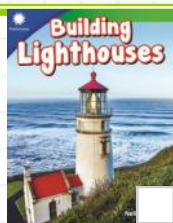


Making Water Safe ^
RRL: 18

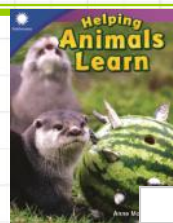


Seeing More Stars ^
RRL: 18

P6



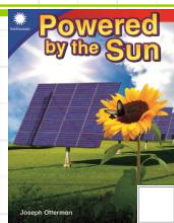
Building Lighthouses ^
RRL: 19-20



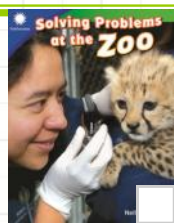
Helping Animals Learn ^
RRL: 19-20



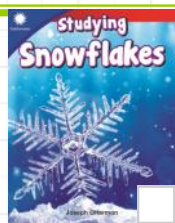
Helping Injured Animals ^
RRL: 19-20



Powered by the Sun ^
RRL: 19-20



Solving Problems at the Zoo ^
RRL: 19-20



Studying Snowflakes ^
RRL: 19-20



The Art of Shadow Puppets ^
RRL: 19-20

S1



Raising Silkworms ^
RRL: 22



Creating a Habitat ^
RRL: 23



Creative Machines ^
RRL: 23



Living in Sunlight Extremes ^
RRL: 23



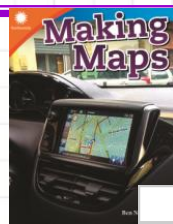
Piecing Art Together ^
RRL: 23



Staying Dry ^
RRL: 23



Cooking Innovations ^
RRL: 24



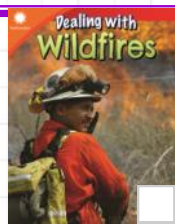
Making Maps ^
RRL: 24



Safe Cycling ^
RRL: 24



Bones on Display ^
RRL: 25



Dealing with Wildfires ^
RRL: 25



Growing Plants in Space ^
RRL: 25

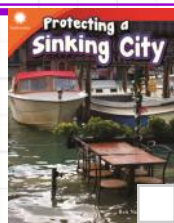


Hatching a Chick ^
RRL: 25

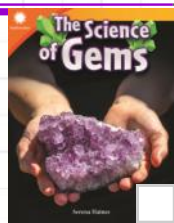
S2



Mimicking Nature ^
RRL: 25



Protecting a Sinking City ^
RRL: 25



The Science of Gems ^
RRL: 25



Amphibian Rescue ^
RRL: 26



Blue Crab Comeback ^
RRL: 26



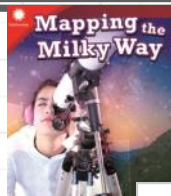
Botanical Illustration ^
RRL: 26



Designing Butterfly Exhibits ^ RRL: 26



Helping People See RRL: 26



Mapping the Milky Way ^ RRL: 26



Organic Farming ^ RRL: 26



Predicting Earthquakes ^ RRL: 26



Raising Clouded Leopards ^ RRL: 26



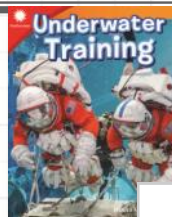
Restoring Muddy Creek ^ RRL: 26



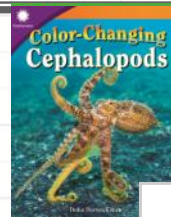
Saving Culture from Disaster ^ RRL: 26



Saving the Arctic ^ RRL: 26



Underwater Training ^ RRL: 26



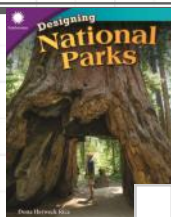
Color-Changing Cephalopods RRL: 27



Conserving an Aircraft ^ RRL: 27



Designing a Shuttle RRL: 27



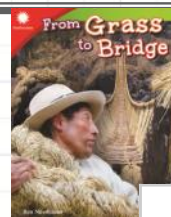
Designing National Parks ^ RRL: 27



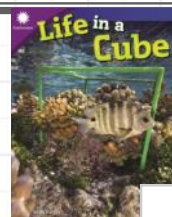
Digging Up Dinosaurs ^ RRL: 27



Exploring Volcanic Activity ^ RRL: 27



From Grass to Bridge ^ RRL: 27



Life in a Cube ^ RRL: 27



Living and Working in Space RRL: 27



Making a Mummy ^ RRL: 27



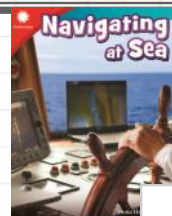
Making an Ocean Ecosystem ^ RRL: 27



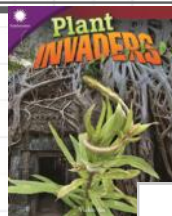
Making Movies in Technicolor ^ RRL: 27



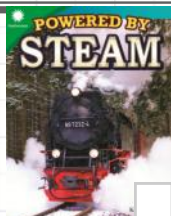
Making Music with Magnets ^ RRL: 27



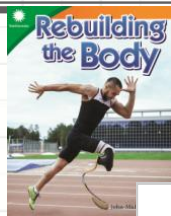
Navigating at Sea ^ RRL: 27



Plant Invaders ^ RRL: 27



Powered by STEAM ^ RRL: 27



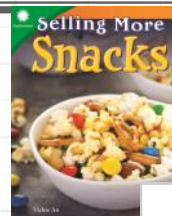
Rebuilding the Body ^ RRL: 27



Saving a Species RRL: 27



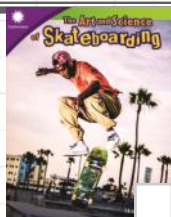
Saving Migratory Birds ^ RRL: 27



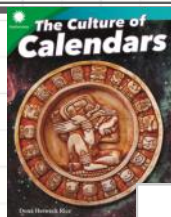
Selling More Snacks RRL: 27



Taking Photos from Space ^ RRL: 27



The Art and Science of Skateboarding ^ RRL: 27



The Culture of Calendars RRL: 27



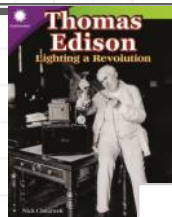
The Evolution of Space Suits ^ RRL: 27



The Science of Waves and Surfboards ^ RRL: 27



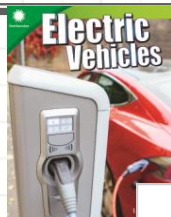
The Wright Brothers RRL: 27



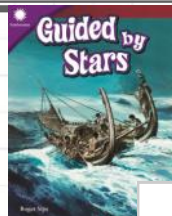
Thomas Edison: Lighting a Revolution ^ RRL: 27



Tracking a Storm ^ RRL: 27



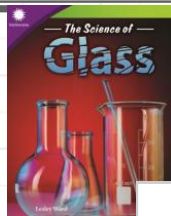
Electric Vehicles ^ RRL: 28



Guided by Stars ^ RRL: 28



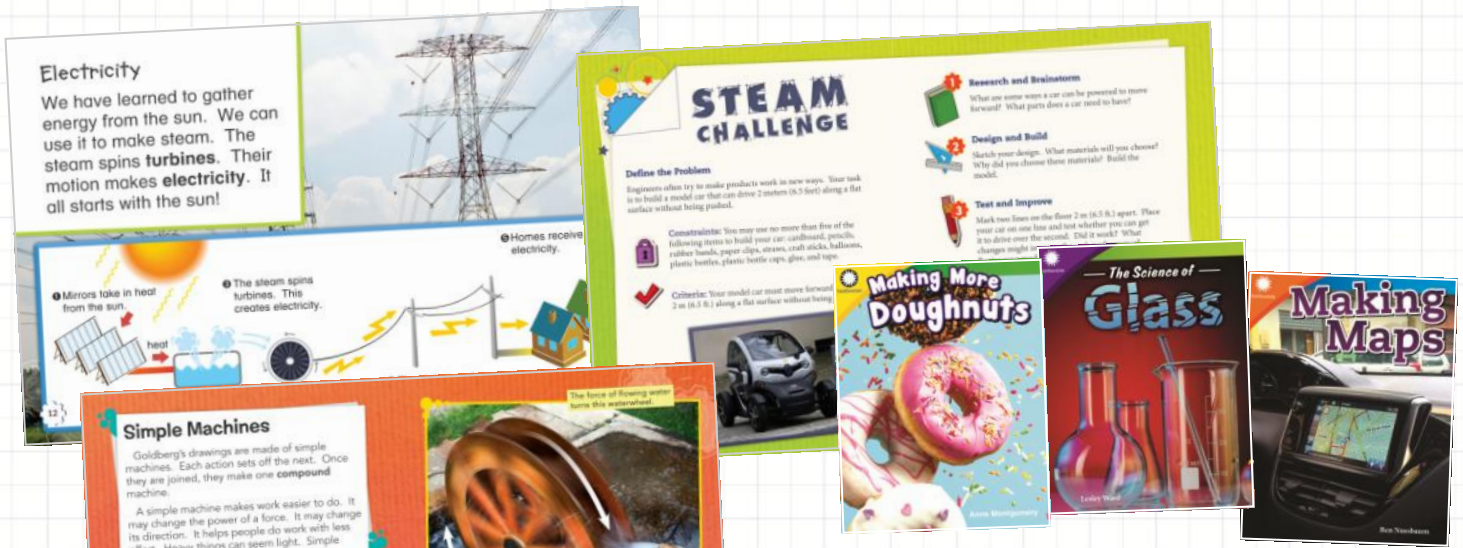
Inka Terraces ^ RRL: 28



The Science of Glass ^ RRL: 28



<https://bit.ly/3LxZZi5>

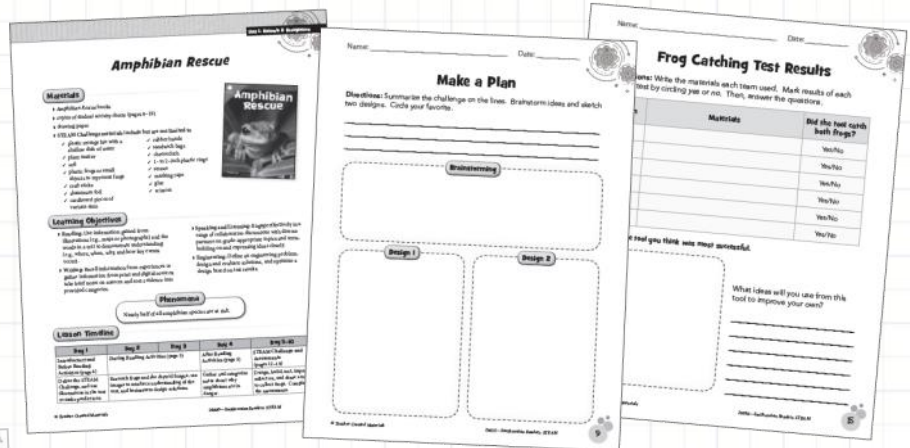


90 Levelled Readers

Each levelled reader features a high-interest topic based on Smithsonian content. The dynamic images and text features enhance the reading experience and build visual literacy. Each book includes a hands-on STEAM challenge.

Lessons Plans

Strengthen content-area literacy skills with research- and standards-based reading, writing, and STEAM lessons for every title.

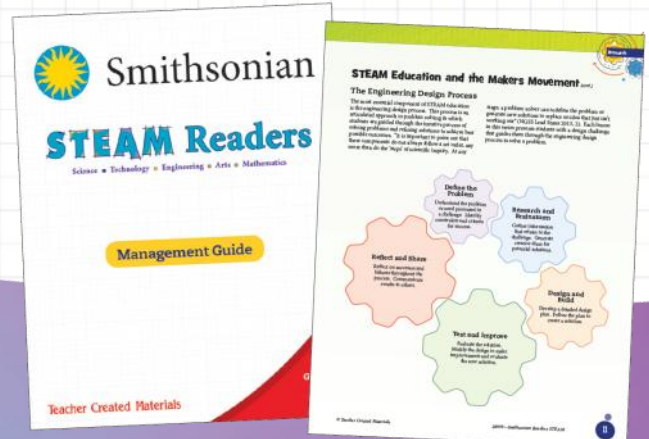
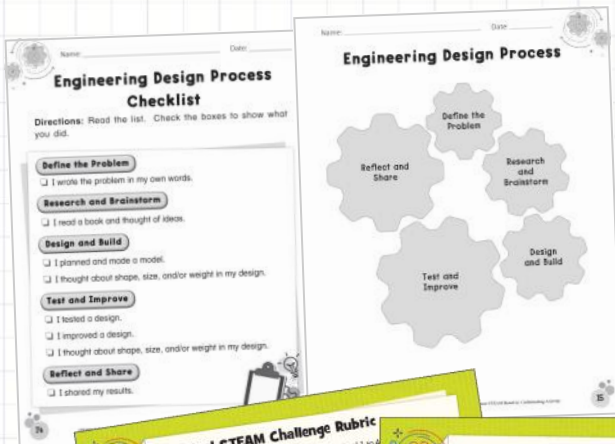


Hands-on Activities

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

Management Guide

Integrate STEAM education into literacy instruction.



Exclusive Distributor:



Stanford
House



2330 2533



info@stanfordhouse.com.hk