

GET THE MOST OUT OF After-school STEM Learning

In years past, most students headed home after the sound of the school bell, and after-school programming wasn't a top priority. But due to the impacts of the pandemic, more and more districts have begun using this valuable time to extend students' learning and help teachers expand their instructional skill sets.

After-school programs offer the perfect opportunity for teachers to experiment with unfamiliar instructional practices, and for students to explore various enrichment activities that may not be available during the school day. Here we share how students and teachers can get the most out of after-school learning programs through our flexible STEM resources.

Encourage Student Exploration

After-school learning is a time for exploration and enrichment, and the best programs reflect that philosophy. When students are offered activities that promote a variety of skills like literacy, math, coding, art, and hands-on learning, they can experience new content, build a foundation of engagement for their core classwork, and perhaps even discover a newfound passion.

Expand Teacher Skill Sets

During the school day, teachers must stick to a tight schedule in order to cover all of the necessary standards, and typically have little time to explore new instructional practices with their students. Without the stressors of the regular school day, teachers have the opportunity to expand their skill set and practice strategies like integrating science, ELA, math, and computer science into their lessons in creative ways.

On the next page, we dive into specific STEMscopes resources you can use to achieve all these goals.

ENRICH

STEMscopes Science

Your students will learn from exciting real-world phenomena, hands-on experiments, and challenging engineering problems, an immersive approach to scientific learning. Our science curriculum supports STEM discovery in every type of after-school learning environment through elements like:

Digital platform with assignable activities

Hands-on kits for real-world scientific learning

Exploratory activities, inquiry-based investigations, engineering projects, digital simulations, TUVA data literacy, and more

Vocabulary development activities and leveled math and reading connections for differentiation

Cross-Curricular Resources and Extension Activities

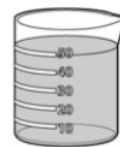
Do your students need Math or ELA support? Want to give your students an enriching art experience while they learn science? Have avid readers who enjoy scientific topics?

The STEMscopes Science curriculum covers all of that and more, by supporting cross-curricular connections through exciting activities that will have your students exploring STEM in a whole new way.

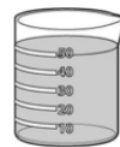
MATH

Leveled Math Connections relate to each scope's content.

7. The containers below contain liquid measured in milliliters. (Milliliters can be shown by the abbreviation mL, such as in 50 mL.) What is the total amount of liquid in milliliters in containers A and B together?



A



B

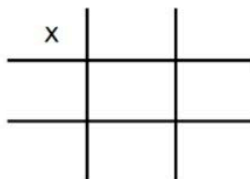
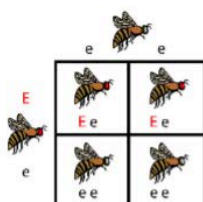
← → B / x² x₂ Aa A↑ Ω ¼

Question 1

In the 1800's, scientist Gregor Mendel used pea plants to determine the dominance of certain traits. In one of his experiments, he looked at the inheritance of pod color. Construct a Punnett square for a pea plant with YY phenotype for a yellow pod that is cross-pollinated with a pea plant with yy phenotype for a green pod.

Brush: 5 ▾ Arial ▾

Punnett Square Example:



Grade 3 Physical Science

Objects and Motion
Math Connections

Middle School Life Science
Inheritance and Genetic Variation
Math Connections

ELA

We provide ELA reading, writing, and speaking activities within each scope to give students opportunities they need to express learning.

Parts of Plants

Reflect

What did you eat today? Did you eat any fruit? How about vegetables? If so, you ate some plant parts! Fruits and vegetables come from plants. What are other parts of plants? How do these parts help plants live and grow?

nutrients – substances that help plants grow

Plants have roots.

Roots are like tiny sponges. They soak up water from the soil. Roots anchor a plant. That means roots help keep a plant in one place so it does not fall over. Roots grow underground. Sometimes they also grow just above the ground. They also take in **nutrients** that help the plant grow.

Try Now

Look at the plants below. Circle the roots.

The plant roots are circled in blue.

Linking Literacy

Parts of Plants
During-Reading Activity

Name: _____ Date: _____

Fill in the Diagram

WHILE you read:
Fill in the blanks at the bottom with the parts of the plant as they are described in the STEMscopedia. Cut the boxes on the dotted lines and place them on the correct part of the diagram.

The _____

- anchor the plant in soil and soak up water and nutrients.

The _____

- can have colorful petals and seeds;
- the seeds grow into new plants.

The _____

- use water, sunlight, and air to make food.

The _____

- brings things up and down and
- moves food and water to the rest of the plant.

Grade 1 Life Science
Parts of Plants
STEMscopedia and Linking Literacy

Reading Science A – Dan the Meteorologist

Lexile 680L

1. Hi! My name is Dan. I'm a meteorologist for Channel 12 News. Some people think that I study meteors, but I study the weather. It's an exciting job, because the weather is always changing. One thing I love about it is that I get to use lots of tools. I use the tools to collect data about the weather.

2. One tool I use is a rain gauge. A rain gauge measures how much rain has fallen. You might even have one of these in your school science lab. If so, you could put it outside to measure the amount of rain that falls at your school. That would give you one data point. But that's not always enough. Sometimes, it's raining in one part of the city, and it's not raining in another part! That's why I have rain gauges all over the city. Then, I can tell people about the weather in their neighborhood.

3. Another tool I use is a thermometer. Thermometers help me measure the temperature. I place them all over the city, as well. I also use wind socks. Wind socks tell me which way the wind is coming from. Other instruments measure the speed of the wind and the air pressure.

4. There are even some newer instruments. These go into the sky. For instance, there are some satellites that circle Earth. They take pictures from above and then send them back to us. These pictures are helpful. They let us look at storms out in the ocean. They can even help us predict when and where the storms will touch land.

5. We also have weather balloons that go up into the sky. They send back information about the weather from high up in the sky.

Grade 3 Earth & Space Science
Processes and Impacts of Natural Hazards
Leveled Reading Connections

Communicate Science

Characteristics of Chemical Reactions

Name: _____ Date: _____

Driving Question:
Why do fireworks all look different?

Socratic Circle Discussion Goals:

- Research to find evidence to support your position statement.
- Include information about:
 - Your firework topic
 - Types of reactions used

Topic:

Research:

Statement:

Middle School Physical Science
Characteristics of Chemical Reactions
Communicate Science and Content Connections Video

SCIENCE ART ACTIVITY EXAMPLES

Art activities are provided within each scope so students can express and enrich their understanding of scientific concepts.



Middle School Earth & Space Science

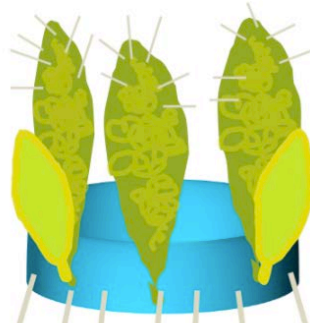
Influences of Weather and Climate
Trash Bag Kite

Students construct and decorate a kite from a plastic trash bag, wooden dowels, kite string, and tape so they can fly it on a windy day.

Final Product Requirements

Students' final product should include:

- list of environmental conditions rolled
- adaptations that accurately fit into their environmental conditions: short leaves in windy environment, waxy leaves in dry environment
- materials used to create the headdress are similar to the particular adaptation
- labeled with the title "Herbal Headdress"



Grade 4 Life Science

Plant and Animal Parts
Herbal Headdress

In this Science Art activity, students create a plant headdress that represents adaptations plants would need for a given environment.

PBL ACTIVITY EXAMPLES

Students engage in hands-on projects to further their understanding of the content.

Grade 5 Physical Science

Gravity

Parachute Drop

Students create a parachute that allows a hard-boiled egg to land without cracking. Students need to fully understand that without assistance, objects accelerate (speed up) as they fall to Earth. When a parachute is added, the rate of acceleration decreases, and in some cases the object will fall at a constant rate.

Middle School Earth & Space Science

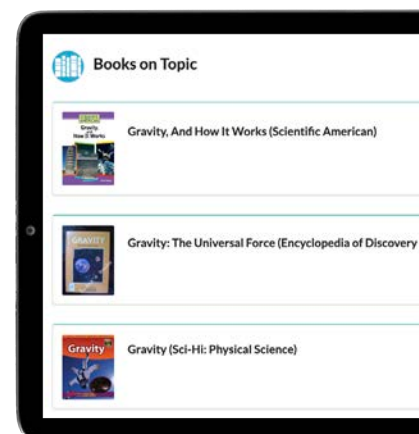
Weathering and Erosion

Cave and Cavern Expedition Travel Brochure

Students create a multi-media travel brochure planning a summer expedition to caves and caverns for students entering Earth Science courses. Students will research various caves and caverns across the United States, including locations of the caves, lodging options, and a scientific explanation of cave formation.

BOOKS ON TOPIC

Within each scope are relevant book recommendations for students who wish to further explore the lesson content. Each scope provides suggested book titles on the scope's topic for a student's additional reading and knowledge.



**For more information,
visit stemscores.com/science.**

STEMscopes Math

STEMscopes Math was designed to go beyond “just getting the right answer.” With a constructivist framework compatible with Guided Math, Math Workshop, and 3-Act Task, STEMscopes Math excels at scaffolded, hands-on, inquiry-based learning. Through the 5E+IA learning model plus CRA-powered lessons, students engage in productive struggle, intentional discourse, and real-world math exploration.

With BoY, MoY, and EoY customizable benchmark assessments, virtual manipulatives, literacy connections, multimedia project-based learning activities (and that’s just the tip of the iceberg), you’ll find everything you need in this one-stop-shop built to your state math standards.

Ready for a fresh take on math?
Start your preview at stemscopes.com/math.



Fluency Builder

Add and Subtract Fractions Baseball

Add and Subtract Fractions Baseball

Play this game with a partner.

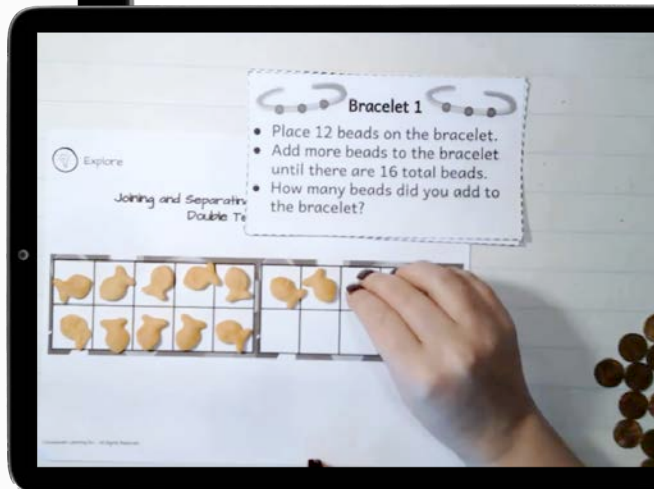
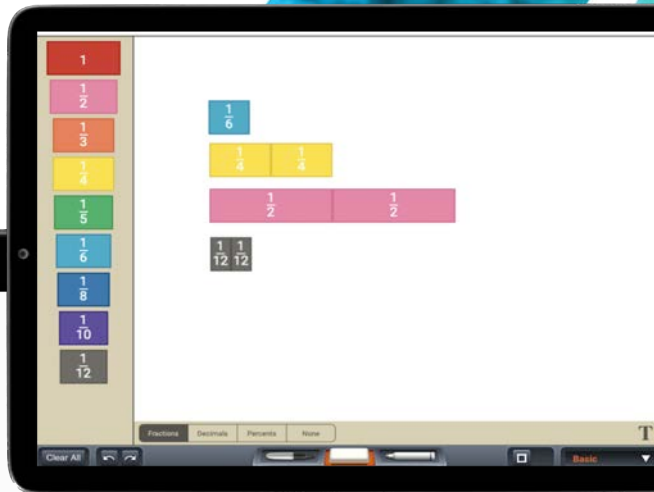
Materials Needed

- 1 Game board (per pair)
- 1 Set of game cards (per pair)
- 4 Counters of one color (per pair)
- 4 Counters of another color (per pair)
- 1 Die (per pair)
- 1 Dry-erase marker (per pair)
- 1 Student Recording Sheet (per student)



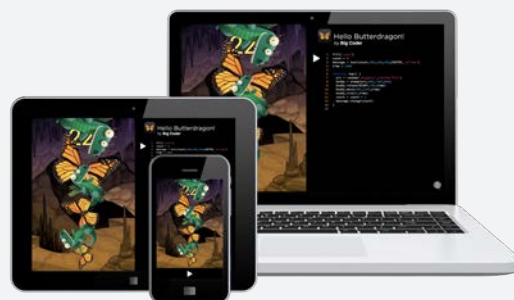
How to Play

1. Place the cards facedown in a pile on the designated spot on the game board.
2. Each player takes four counters of the same color. Roll the die to see who is at bat. The player who rolled the higher number is batter first. The other player is the pitcher.
3. The batter should line up his or her four counters behind home plate.
4. The pitcher will draw a card from the pile and read it to the batter. The batter can use scratch paper to solve. The batter will tell the pitcher his or her answer. The correct answer is in red at the bottom of the card.
5. If the batter gets the answer correct, the batter will roll the die to see where to move his or her first counter.
 - a. Roll a 1 or 3: move to first base.
 - b. Roll a 2 or 4: move to second base.
 - c. Roll a 5: move to third base.
 - d. Roll a 6: home run!
6. If the batter gets the answer incorrect, this is an out. The pitcher should use the dry-erase marker to put a tally mark in the *Outs* section on the game board.
7. The batter will keep track of his or her runs using the dry-erase marker to put tally marks in the *Runs* section on the game board.
8. Place the game card to the side. Cards will only be used once during the game.
9. Repeat steps 4–6 until the batter has either gotten three outs or moved all his or her counters home. When either of these things happens, players will switch roles and begin a new inning.
10. Play four innings and count up the runs to determine the winner.
11. Each player completes the Student Recording Sheet. Share your responses with your partner.





POWERED BY
bitsbox



STEMscopes Coding Virtual Academy

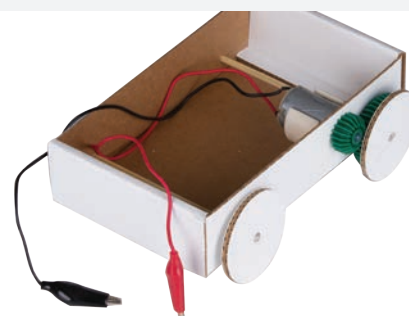
STEMscopes Coding Virtual Academy is an asynchronous virtual coding camp where students learn to build, customize, and share their own apps using typed JavaScript code.

With video tutorials and how-to instructions, students can access everything they need to complete the virtual camp from their home or school computer, and have a blast while creating their own real-world apps.

For more information, visit stemscores.com/coding.



STEMscopes
DIVE-IN
3-8 ENGINEERING



STEMscopes DIVE-in Engineering

Unleash your students' creativity with DIVE-in Engineering, where makerspace meets engineering design and being an engineer becomes a reality. Through our hands-on engineering projects that follow the DIVE method, students have the opportunity to do what real-world engineers do every day.

New! We're now offering individually packaged engineering kits so your students can follow you virtually and engage in hands-on exploration at home. Each kit contains everything needed for students to transform their homes into an interactive makerspace, where they can build their own hovercrafts, air conditioners, motor boats, and more.

For more information, visit stemscores.com/dive-in.

Ready to get started? Click here!

STEMscopes
THE LEADER IN STEM EDUCATION

info.stemscores.com/stem-resources

© 2021 Accelerate Learning Inc. - All Rights Reserved | 08.26.21