



**FLORIDA
STEAM Connections**

PRINTABLE
ACTIVITIES SAMPLER

SAVVAS SCIENCE
EXPLORATIONS™

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STEAM Activities

Printable Activities Sampler

A Note to Reviewers

Thank you for reviewing *Florida Savvas Science Explorations*, a new program developed for today's Florida science classroom. *Florida Savvas Science Explorations* is written specifically for Florida and meets 100% of the Florida State Academic Standards for Science. We are excited to partner with you to create an exceptional Elementary Science experience for your students and teachers.

This sampler contains one Topic's worth of the STEAM Activities that are available online via Savvas Realize®. These are the student pages; annotated teacher versions are available online.

The STEAM Activities are designed to boost hands-on, active inquiry and help you bring engagement into your science lessons. You'll notice dotted lines indicating where to cut if you would like to use them in science notebooks. Available as editable Google Docs™ and Microsoft Word™ documents, these activities are available to assign, edit, and or print directly from within Savvas Realize®.

Thank you, again, for your review of *Florida Savvas Science Explorations*!



Name _____

Classify Matter

Materials

- index cards
- art supplies
- research materials

Plan

1. You will make a game to classify objects by both common and unique properties. What are some physical properties you might use to classify the objects?

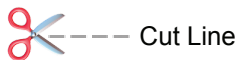
Classify

Step 1 Draw three different objects on three blank cards. Each card should have one object. The objects should have some properties in common. For example, you might draw a red ball, a red ice pop, and a red magnet. All three objects are red, but they have different properties, such as temperature and magnetism. Each person in your group should make two sets of three cards.

Step 2 Mix all the cards together.

Step 3 One group member should draw a card from the deck without showing it to the rest of the group.

Step 4 The other group members will ask three questions that must be answered before they are allowed to guess. Try asking questions about an object's physical properties, such as "Is it warm or cold?", "Will it float in water?", "Is it larger than a small book?", "Does it have a specific color or shape?"



----- Cut Line

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Matter: Properties of Matter

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Step 5 The group member who correctly guesses the identity of the object gets to keep that card.

Step 6 Keep playing so that a new group member draws a new card each round until all the cards are drawn.

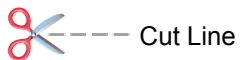
Step 7 The person with the most cards at the end of the game is the winner.

Describe

1. Which kind of questions gave you the most or least information about the object on the card?

2. Which items were the hardest to guess? Why do you think these objects were hard to guess?

3. How might a scientist ask similar questions to help classify unknown substances?



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Matter: Properties of Matter

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Name _____

Sound Energy and Dancing Salt

Materials

- empty cardboard box
- rubber bands of different sizes
- cup
- salt
- tissue paper

Sounds are all around us. Energy is transferred by these sounds, sometimes this energy can be seen.

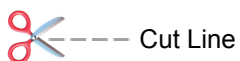
You are going to make an instrument to demonstrate how the transfer of sound energy can move salt.

Construct

1. Take an empty box and decorate it. This will be the base of your instrument.
2. Place four rubber bands of different sizes around the width of the box.
3. Put the instrument aside. Take a piece of tissue paper and cover the top of the cup. Secure the tissue paper to the top of the cup with a rubber band.

Investigate

- Step 1** Pluck one string at a time of your instrument. Listen carefully to the sound it makes. Record your observations in the table.
- Step 2** Strum all the rubber bands of your instrument. Record your observations in the table.
- Step 3** Put a pinch of salt on top of the tissue paper that is attached to the cup. Strum your instrument beside the cup and watch what happens to the cup and salt. Record your observations in the table.



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Energy: Transfer of Energy

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Record

4. For each strum of the instrument, record what you observed.

Action: What I Did	Observations: What I Noticed

Explain

5. Does each rubber band make the same sound when plucked? Explain your reasoning.

6. What form of energy do the rubber bands produce? What causes the salt to move when the instrument's strings are plucked?



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Energy: Transfer of Energy

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Moon Phase Model

Materials

- large clear plastic cups
- black permanent marker
- yellow construction paper
- black construction paper
- glue
- tape
- tape measure

If you ever looked up in the sky at night, you might have noticed the moon. Have you wondered why it appears as different shapes at different times during the month? Building a model will help you to understand why it seems as though the moon changes appearance as it goes through different phases.

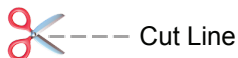
Design

1. Draw a model to represent the phases of the moon. Label what materials would be needed to construct your model.

Develop a Model

Follow the procedure to develop your model.

- Step 1** Measure the height and circumference at the top of the plastic cup.
- Step 2** Using your ruler, measure and cut out a rectangle with the black piece of paper to the same height and circumference of the plastic cup.
- Step 3** Using yellow construction paper, cut out a 2 cm circle.
- Step 4** Paste the yellow circle on the center of the black construction paper.
- Step 5** Roll the black paper with the yellow circle facing out into one of the plastic cups. Secure the paper with tape.



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Earth and Space: Moon Phases

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Name _____

Step 6 Put the cup with the black paper and yellow circle into the second plastic cup. Locate the yellow circle and write the name “full moon” under the yellow circle.

Step 7 Spin the inside cup until the yellow dot is exactly opposite the full moon, and write “new moon” under the yellow circle. Now, using a black permanent marker, draw a circle around the yellow circle and shade it in.

Step 8 Continue to shade in for the first and third quarter moon phases.

Use a Model

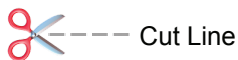
2. What patterns can you see on your constructed moon phase model?

3. Look at your design of a moon phase model and the one you constructed. What similarities do you see?

Describe

4. How did constructing the model of the moon phases help you to understand them?

5. How could you improve your design of your moon phase model that you drew?



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Name _____

Reduce Erosion

Materials

- foil pan
- sand dirt mix
- research materials
- water bottle
- pebbles
- toothpicks
- craft sticks
- tissue

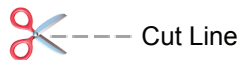
Erosion is a natural process in which material is worn away and transported to another area, usually by water or wind. Sometimes this process is destructive and needs to be slowed down or stopped. In this activity, you will design a structure to reduce the effects of erosion.

Define a Problem

Follow the steps to investigate the problem.

- Place a mixture of sand and dirt in a foil pan so that one half of the pan has a sloping land mass.
- Pack the sand and dirt so that the land mass stays in place.
- Use the water bottle to pour water over the top of the land mass.

Use your observations to explain why erosion can be a problem.



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Patterns on Earth: Natural Resources and Conservation

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Design a Solution

Follow the steps to design your solution.

Step 1 Research ways the problem of erosion is solved in everyday life.

Step 2 Use a sloping land mass in the foil pan as a starting point for your investigation.

Step 3 Use the provided materials to design a structure that reduces the amount of material that moves along with the water.

Test

Using the water bottle, pour water over the top of the land mass. Describe how well the structure prevents erosion.

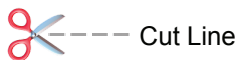
Evaluate

Use the test results to improve your design. Continue to retest and improve the design until it successfully reduces erosion.

Communicate

1. Describe a real-life situation in which your design could be used to reduce erosion.

2. Imagine that you scaled up your design for the situation you described. How would the scaled-up design differ from the model in terms of its size and materials? Discuss your answer with a partner.



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Name _____

Reuse Classroom Materials

Materials

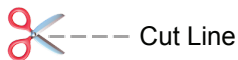
- used art supplies
- paper towel tubes
- plastic bottles
- empty tissue boxes
- paint
- glue
- tape
- scissors

Your school has determined that it produces too much trash. To reduce this problem, you have been asked to design a product made from classroom materials that would usually be disposed of or thrown away. The product could be used as decoration or to perform a task.

Define

In your group, identify available materials. Then brainstorm ideas about products that you could design.

Classroom Materials	Product Idea



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Patterns on Earth: Conservation

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Design

Select materials and a product from the ideas your team brainstormed. Draw your design, and then build a prototype based on your drawing.

Evaluate Designs

Test your design prototype. Determine whether the design works well for a certain purpose. Then improve the design based on the results of your testing.

Communicate

Explain how making a product out of reused materials reduces environmental impacts of using natural resources.



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Name _____

STEM Careers in Ecology

Materials

- reference materials
- art supplies

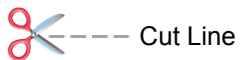
If you pay close attention while on a nature hike, you may find evidence of organisms interacting in the environment. Ecologists are scientists who study how organisms interact with each other and their environment. They often use technology, engineering, and math while they work. In this activity, you will research and make a slide presentation about careers in ecology.

Ask Questions

1. Write three questions you have about this career. _____

Conduct

2. As you conduct research, write information about each topic in the table. Then write the sources you used so you can list them in your final presentation.



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Interactions in Ecosystems: Energy in Ecosystems

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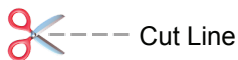
Topic Prompts	Information	Sources
Questions and issues ecologists study		
Different kinds of ecologists		
What a day in the life of an ecologist is like		
How ecologists might use math, technology, and engineering		

Design

3. Follow the steps to make your slide presentation. You may use a computer or art supplies to make your presentation.
 1. Make at least one slide about each topic in the table.
 2. Make one or more slides to show other interesting information you found.
 3. Add pictures, sounds, or video to make the presentation interesting and easy to understand.
 4. Put a list of the sources you used on the last slide.
 5. Share your presentation.

Explain

4. Describe how the information you learned in class helped you understand the work ecologists do. _____



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Name _____

Artificial Limb Design

Materials

- foam
- rubber, vinyl or flexible plastic
- cardboard
- clay
- wood dowels
- fabric
- tape
- textbooks

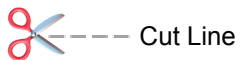
You have been hired to build an artificial limb for an elephant that lost the lower part of its leg. Elephants are very heavy, so the model limb should keep its shape when two textbooks are placed on top of it. It should also have a way of attaching to the elephant's upper leg. Last, it should allow the elephant to walk.

Define

Summarize the problem you are designing a solution for in this activity.

Plan

Draw a design for your artificial elephant limb. Label the materials in the design and write short descriptions of how the structure of the materials will help the design work correctly.



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Organisms: Physical Traits

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Test

Test your limb to see whether it keeps its shape when two textbooks are placed on it. If the limb does not keep its shape, change the design and retest it. Write the changes you make and the results of your tests in the table.

Change in Design	Results

Communicate

Prepare a presentation that answers the questions below. Then share your presentation with your classmates. As you listen to other presentations, notice how other designs are different from yours.

- How did you change your design based on your test results?
- How will your artificial limb help an elephant survive in its environment?
- How would you improve your design if you had more time and resources?



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Organisms: Physical Traits

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A small population of panthers lives in the Florida Everglades National Park today. Even though this species once thrived throughout the southern United States, biologists estimate that fewer than 100 panthers remain. Florida panthers prefer to live and hunt in upland habitats, but they have demonstrated incredible resilience by learning to thrive in Florida's lower, wetland areas. How are animal behaviors influenced by their habitats? Explore animal behaviors in Topic 6, as well as other phenomena from our living world in *Savvas Science Explorations!*

GRADE 4

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