

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 _____

Foil Boats

Materials

- aluminum foil
- marbles
- container of water
- paper
- art supplies
- scissors
- tape

You will design and build a foil boat to hold marbles. The boat needs to hold as many marbles as possible and continue to float.

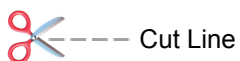
Plan

Find a picture of a boat using reliable sources. Notice the shape of the boat. Use the information you gather to design a model boat. Draw your design in your Science Notebook.

How will the shape of a boat affect how it will float? Write your prediction in your Science Notebook and discuss your reasoning with your group.

Build

Use a sheet of aluminum foil to build your boat.



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Matter: Properties of Matter

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Name _____

Test and Redesign

Step 1 Place the foil boat in a container of water.

Step 2 Add marbles to the boat one at a time. Count how many marbles the boat can hold before it sinks. Record the number of marbles your boat held.

My boat held _____ marbles.

Step 3 Make improvements to your design so that it can hold more marbles than it did in the first trial. Build and test the boat again. Record the number of marbles you added to the boat.

My redesigned boat held _____ marbles.

Evaluate

A. How does the shape of the boat affect the number of marbles it can hold?

B. What happens to the boat as more mass is added?



--- Cut Line

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Matter: Properties of Matter

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Name _____

Build a Roller Coaster

Materials

- posterboard
- cups
- paper plates
- cardboard tubes
- tape
- scissors
- marble
- stopwatch

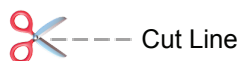
You are going to build a model roller coaster with at least two downhill drops, one uphill climb, and one unique feature, such as a loop or spiral. A marble will need to successfully complete the roller coaster course at least one time.

Plan

Discuss with your group the best way to design your roller coaster. Use what you learned about ramps, mechanical energy, and speed when planning your design.

Design and Build

1. Draw a design of your roller coaster in your Science Notebook.
2. Choose the materials you will use to make your roller coaster. In your Science Notebook, explain why your group selected them.
3. Construct your roller coaster using the supplies you chose.



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Energy: Mechanical Energy

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Name _____

Test

Step 1 Use a marble to test your roller coaster. Make adjustments where needed so the marble completes the course.

Step 2 Send the marble through the course. Measure and record the time it takes the marble to complete the course. Repeat this two more times.

Step 3 Describe what happened when the marble went through the roller coaster course. When did the marble change speed?

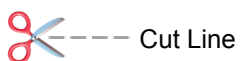
Trial	Time (seconds)	Observations about Speed
1		
2		
3		

Evaluate

A. How could you improve your roller coaster course?

B. Complete the sentence by filling in the blank.

To make sure the marble had enough mechanical energy for the uphill climb, I had to _____.



Cut Line

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Energy: Mechanical Energy

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Name _____

Investigate Relative Speed

Materials

- meterstick
- digital balance
- variety of different sized balls

Objects fall to Earth all the time. Some objects are big and some are small. How does the size of different items determine the speed at which they fall?

You will drop different objects from the same height to determine if objects of different weight fall at the same speed.

Predict

1. Examine the physical properties of each ball. Based on your observations, what properties might influence their speed?

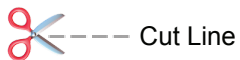
2. Predict the order in which the balls will fall from fastest to slowest.

Investigate

Step 1 Use the balance to find the mass in grams of each ball. In the data table, record the three different balls you are investigating and their masses.

Step 2 Put on safety goggles. From a height of one meter, drop two balls at the same time. Record your observations in the data table.

Step 3 Investigate different combinations of balls. Drop each combination of balls at least three times. Notice when each ball hits the floor. Add your observations to the data table.



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Force and Motion: Noncontact Forces

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Record

3. Record your results and observations in the data table.

Ball Used	Mass (g)	Observations

Analyze

4. What did you observe about the amount of time it took for the balls to fall to the ground?

5. Use what you have learned about forces to explain what happened in your investigation.



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Force and Motion: Noncontact Forces

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Name _____

Biomimicry Tool

Materials

- sketch paper
- art supplies
- research materials

Many plants and animals have structures that help them survive. You will research examples of biomimicry and design a tool or device that is inspired by a plant or animal structure.

Plan

1. Research examples of biomimicry.
2. List two examples you found.

Example 1 _____

Example 2 _____

3. How are their designs similar to animal or plant structures?

Define a Problem

4. Define a problem you could solve with biomimicry.



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Organisms: Structures and Functions

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Name _____

Design

- 5. Sketch your design in your Science Notebook.
- 6. Color in your design and add labels. Name your tool or device.

Evaluate

7. The structure I used for my design was _____

8. How does that structure help the organism survive?

9. How does your tool or device mimic this structure?

10. Explain some other ways biomimicry can help people.



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Organisms: Structures and Functions

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Model an Ecosystem

Materials

- shoebox
- construction paper
- art supplies
- tape
- scissors
- cotton balls
- clay
- multi-colored foam

You are going to build a model of an ecosystem with two parts. The first part will represent your initial ecosystem. The second part will represent the ecosystem after it is changed.

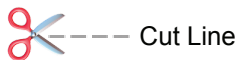
Plan

1. Research the plants and animals in your assigned ecosystem. Decide what change you will make to your ecosystem model.

I will change _____

Design

2. In your Science Notebook, draw a design for your model ecosystem that includes three animals and three plants.
3. Think of two obvious differences that would result from the change you made to the ecosystem. Draw a second design for your model ecosystem that includes those changes.



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Ecosystems: Organisms in Ecosystems

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Construct

Step 1: Choose materials that are a good fit for your model.

Step 2: Build your ecosystem model. Include both parts.

Evaluate

1. How do plants and animals interact in your ecosystem?

2. How did the change you made affect your ecosystem?

3. List two limitations of your ecosystem model.

4. What is an advantage of making ecosystem models?



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Ecosystems: Organisms in Ecosystems

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The American crocodile finds itself at home in the warm waters of coastal Florida. As a reptile, the American crocodile is cold-blooded and needs to live in warm habitats to survive. The crocodile uses the process of thermoregulation and manipulates its surroundings to control its internal body temperature. How do scientists use characteristics to classify living things? Explore the characteristics of animal classifications in Topic 5, as well as other phenomena from our living world in *Savvas Science Explorations!*

GRADE 3

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