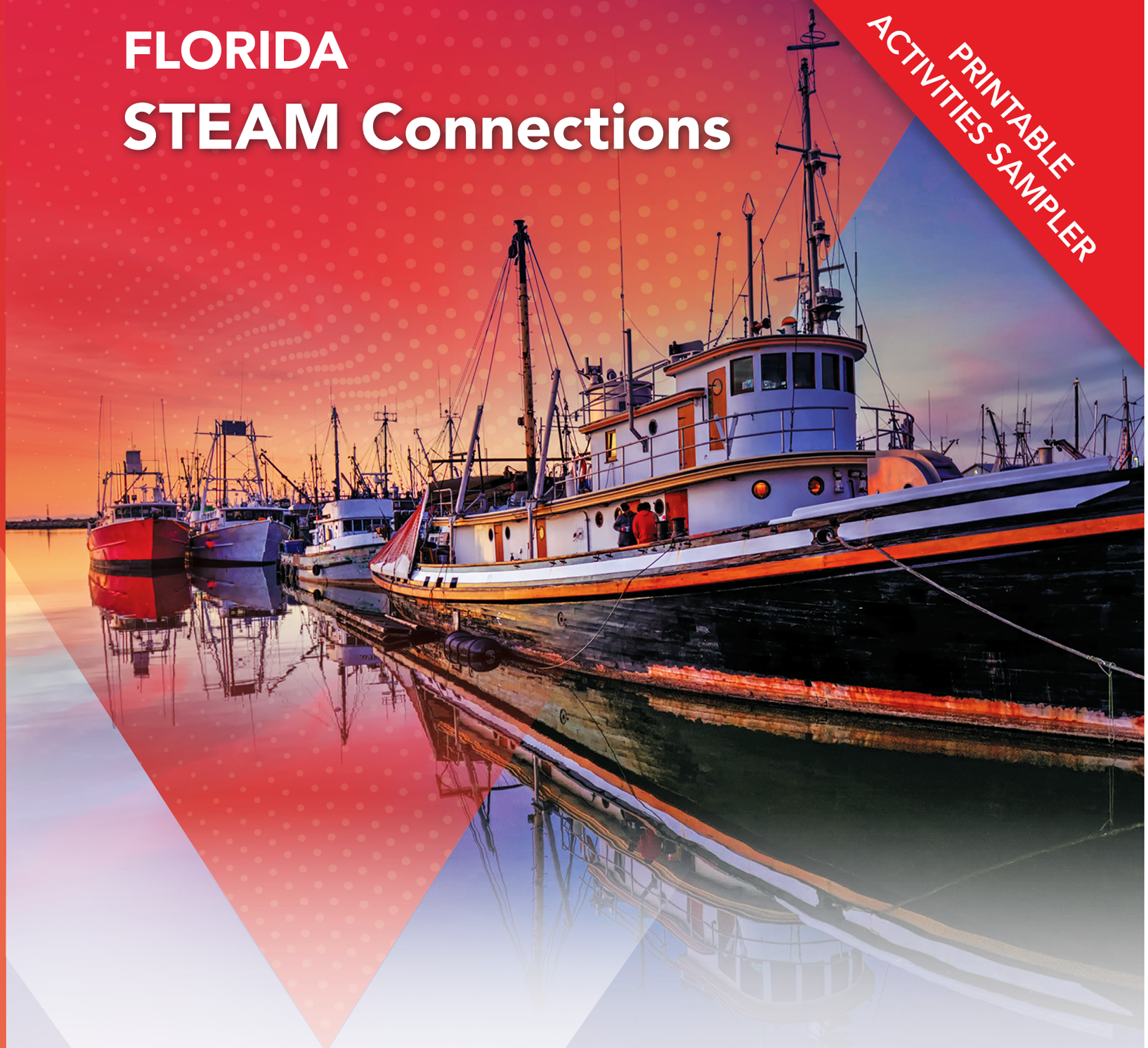
FLORIDA
STEAM Connections

PRINTABLE ACTIVITIES SAMPLER



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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 _____

Properties of Paint

Materials

- baking soda
- food coloring
- flour
- salt
- water
- cups
- spoons
- cotton swab

Identify

1. In this activity, you will use observations of different substances to make your own paint. You will observe the physical properties of substances before and after mixing them with water. You will also observe whether each substance dissolves in water. Write a plan for how you can make these observations.

Conduct

Carry out the tests you planned and record your observations in a table in your Science Notebook. Use the template provided as a starting point. Record the physical properties of each substance, such as physical state, color, and texture, before and after mixing it with water. Then write whether the substance dissolves in water or not.

Substance	Physical Properties Before Mixing with Water	Physical Properties After Mixing with Water	Dissolves in Water?

Cut Line

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Name _____

Investigate

2. Design your paint material. Mix the substances you tested. Adjust the mixture until it has the properties you want. Use cotton swabs and paper to test your paint. Record each change you make to the mixture. Write how the changes affected the properties of the mixture, such as color or how it flows.

Change in Paint Mixture	Changes in Paint Properties

Communicate

3. Explain how you used observations of physical properties to adjust the mixture so it worked well for painting.

_____

_____

_____

4. An artist wants a paint that is very thick and has a very bright color. Explain how you could adjust your mixture to make a paint for this artist.

_____

_____

_____

Cut Line

Name _____

Design an Electrical Fan

Materials

- D-cell battery
- battery holder
- wires with alligator clips
- small motor
- propeller
- cardboard
- scissors
- tape

Fans are a great way to keep cool in the heat! Think of times when having your own personal fan would be useful. Today you will design and build your own portable electrical fan.

Identify

1. How will you know that your portable fan is successful?

_____

_____

_____

Design

Draw and label a plan for your design. Include all of the materials you will use in your plan.

Cut Line

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Name _____

Build

1. Use your plan to construct the circuit and cardboard fan.

Investigate

2. Test the portable fan to see if it works. If not, revise your plan and try again. Record the results of your tests and your design changes on a separate sheet of paper or in your Science Notebook.

Draw Conclusions

3. Identify the parts of the fan that form a complete circuit.

Material	Purpose
	change chemical energy to electrical energy
	change electrical energy to kinetic energy
	carry the electrical energy through the circuit

4. Explain if your fan was successful and how it could be improved.

_____

_____

_____

_____

5. Did you change your fan design? If so, how?

_____

_____

_____

_____

Cut Line

ELABORATE

Name _____

Design a Balloon Rocket

Materials

- balloon
- tape
- drinking straw
- meterstick
- small weights
- paper
- various types of string

Forces such as friction, gravity, and push all affect how a rocket moves through space. Potential and kinetic energy are also involved in a rocket's movement.

You will design a balloon rocket and then modify your design to make it travel the farthest possible distance.

Define a Problem

1. Write a statement describing your problem.

_____

_____

_____

_____

Design

2. Draw a model of the design for your balloon rocket on a separate sheet of paper or in your Science Notebook. Label which parts of your design you might change to make the rocket fly farther.

Cut Line

Name _____

Test

3. Test your design. Record your observations and how far the balloon rocket traveled in the table. Then, make a change to the design and record it in the table. Retest the rocket after each change you make.

Change	Observations	Distance (centimeters)
no change		

Communicate

4. Discuss the answers to these questions with your group:

- What changes made the rocket move the farthest?
- How are these changes related to forces on the rocket?

5. Compare your results with the results from another group. How did your rocket designs differ? How did these differences affect the distance the rocket traveled?

_____

_____

_____

_____

Cut Line

Name _____

Planet Exploration

Materials

- construction paper
- art supplies
- poster board
- research materials
- colored felt
- craft foam
- tape
- scissors

Develop an informative guide about a planet that includes information such as temperature and distance from the sun. The guide should include three facts and three features about the planet. It should also include things to see and do on the planet.

Research

A. What planet will you research?

_____

B. Use reliable resources to gather information about your planet.

Develop a Model

A. How will you design your informative guide? Why did you choose to make your guide in this way?

_____

_____

B. With the materials you chose, and the information from your research, construct your informative guide. Your guide should make people want to visit the planet! Be creative!

Cut Line

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Name _____

Collaborate

Find a group that explored a different planet. Actively listen to them as they use their guide to explain why you should visit their planet. Use your guide to explain why they should visit your planet!

Evaluate

1. What planet was the other group's informative guide about? What did you learn about the other group's planet?

_____

_____

_____

2. If you wanted to visit the other group's planet, could you? Why?

_____

_____

_____

3. Their planet is the _____ planet from the sun and ours is the _____ planet from the sun.

4. What is one similarity between your planet and their planet?

_____

_____

Cut Line

ELABORATE

Name _____

Measure Wind

Materials

- paper cups
- straws
- scissors
- string
- hole punch
- push pins
- pencil

Wind speed and direction are important parts of the weather. You will build a device to measure wind speed using the materials provided.

Design

Examine the materials and design a device that will measure wind speed. Label the parts of your design.

Build

Use your design to build your device.

Cut Line

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Name _____

Test

Use either wind or a fan to test your design.

Was your design successful? Why?

_____

_____

_____

Redesign

How could you make your model stronger?

_____

_____

_____

Explain

1. Compare the data collected from your device with weather data from a reliable resource. Explain if the results are similar.

_____

_____

_____

2. How could you use your device to compare the wind day-to-day?

_____

_____

_____

Cut Line

ELABORATE

Name _____

Tools Inspired by Nature

Materials

- research materials

The extreme conditions in the deep ocean make it difficult to survive there. These conditions also make it challenging to observe this environment. In this activity, you will design a robot inspired by deep-sea organisms. The robot should be able to collect information about the deep ocean by carrying out these functions:

- move easily through water
- record video in an environment with no light
- filter small particles out of water

Define a Problem

1. Summarize the challenge for this activity. What is the problem, and how will you solve the problem?

_____

_____

_____

_____

2. Write some starting ideas for how your robot might complete the functions listed above.

_____

_____

_____

_____

Cut Line

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Name _____

Conduct

3. Research body structures of deep-sea organisms that help them carry out the functions your robot needs to have. Use the table to organize information and record ideas for how you could use each structure or function in your robot.

Organism	Structure	Function	Ideas for Robot

Design a Solution

4. Draw a design for your robot in your Science Notebook. Draw and label at least one structure that completes each function your robot should have. Then write a few words next to each structure explaining its function.

5. Trade designs with a partner and share ideas about how your designs could be improved. Then use your partner's feedback to improve your design.

Cut Line

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Name _____

Design a Space Habitat

Materials

- paper
- art supplies
- pencil
- research materials

Define

1. One day, humans may live in space, and they may bring plants and animals with them. Some animals that have been to space are fruit flies, American bullfrogs, Russian steppe tortoises, European garden spiders, and Japanese rice fish. Choose one of these animals and imagine you are designing a space habitat for it. Write the animal you chose and write some questions you would ask before designing its habitat.

_____

_____

_____

Investigate

2. Use the questions you wrote to conduct research about the animal you chose. Write all the living and nonliving resources that animal needs to survive.

_____

_____

_____

_____

_____

Cut Line

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Model

3. Use your research to draw a model of your animal's space habitat. Label all the parts of the habitat. Next to each label, write how the animal will use that resource to survive. If you have time, make a physical or computer model.

Explain

4. Write a description for how you could build and test your model.

Test Describe the materials you would use to build a prototype of the habitat.

_____

_____

_____

_____

_____

Analyze Describe data you would collect to measure the animal's health and understand how it interacts with its environment.

_____

_____

_____

_____

Cut Line

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Notes

Notes

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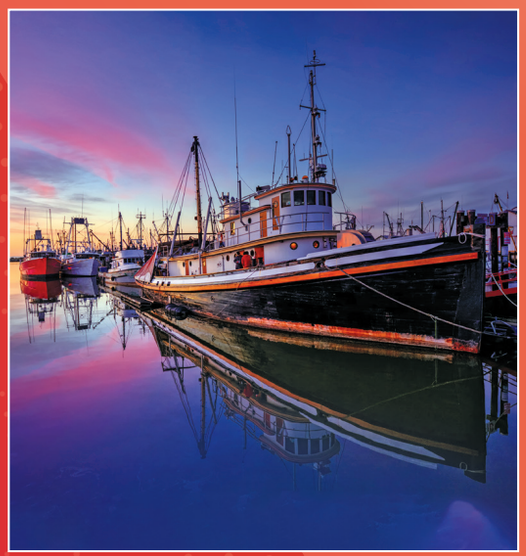

The state of Florida consists of a long peninsula surrounded by water. Therefore, it is no secret that boating has played an important role in Florida's history of industry, tourism, and recreation. Incredibly, these boats must float with hundreds or thousands of pounds of additional cargo. How are these boats designed to take on cargo without sinking? Explore balanced forces in Topic 3, as well as other phenomena that shape tools that we use on a daily basis in *Savvas Science Explorations!*

GRADE 5

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