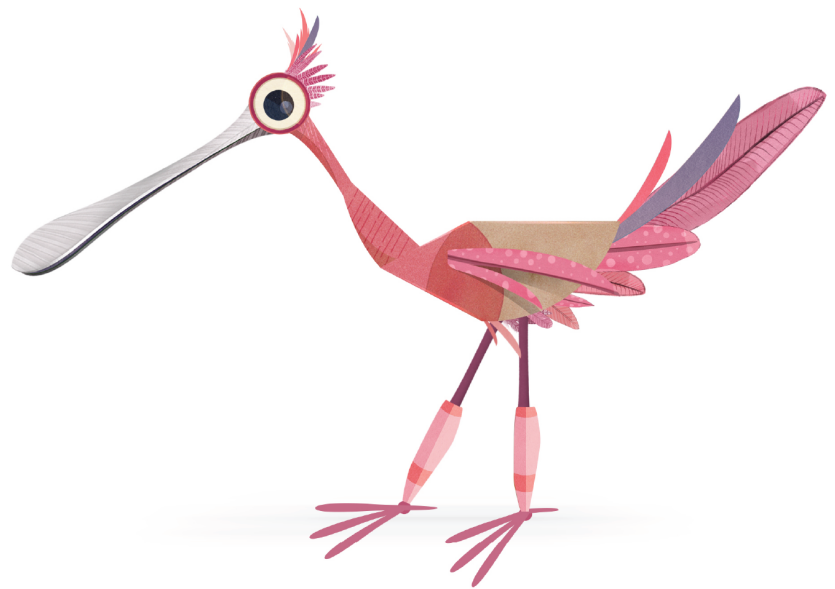




River of Grass

Grades Pre-K-K



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Questions? Ready to book your field trip? | Please visit: www.frostscience.org/fieldtrips



Overview

Exploration and discovery are at the heart of this highly interactive and fully immersive experience of the Everglades, as children engage with and make an impact in the virtual environment filled with the animated animals that live there. They'll discover how wildlife behavior changes during the day and night. Children will learn how water moves naturally through the "River of Grass" by manipulating the Everglades landscape and controlling water levels. After playing in the digital environment, students will move outside to further explore concepts related to the physics of water and how changes in water flow can impact the Everglades. The exhibition offers foundational and environmental science content, drawing from the complex interactions in the Everglades between plants, animals, habitats and water.

Educational Standards

Pre-K (FLORIDA EARLY LEARNING AND DEVELOPMENTAL STANDARDS FOR FOUR-YEAR-OLDS)

V. COGNITIVE DEVELOPMENT AND GENERAL KNOWLEDGE

Big Idea B - Scientific Inquiry

- ✔ B.d.2. Discovers and explores objects that are naturally found in the environment.
- ✔ B.c.2. Identifies the characteristics of living things.
- ✔ B.a.1. Demonstrates the use of simple tools and equipment for observing and investigating.

Kindergarten

Big Idea 14 – Organization and Development of Living Organisms

- ✔ SC.K.L.14.3 Observe plants and animals, describe how they are alike and how they are different in the way they look and in the things they do.

Big Idea 5: Earth in Space and Time

- ✔ SC.K.E.5.2: Recognize the repeating pattern of day and night.

Big Idea 12: Motion of Objects

- ✔ SC.K.P.12.1: Investigate that things move in different ways, such as fast, slow, etc.

Background Information

River of Grass, a Child's Interactive Tour of the Florida Everglades

River of Grass is an immersive indoor and outdoor exhibit space. The content of this engaging experience revolves around ecology and hydrology. The exhibition is comprised of indoor and outdoor experiences:

- ✔ In the interactive digital tour of the Everglades, children immerse themselves in this unique habitat, interacting with active wildlife and its slowly changing water levels. Children divert, route or dam water flow, and witness how lack of water or an overabundance of water can directly affect animal population.
- ✔ At the Everglades water table, children explore changing the landscape with props, such as roads and bridges, simulating walls that inevitably change the environment by changing the natural water flow. They observe how humans can affect the environment.
- ✔ At the physics water table, children interact with water as it flows. A variety of elements encourage experimentation and observation of the fundamental properties of water.
- ✔ In the alligator hole, children explore an example of how habitats provide animals with shelter and a place to keep their young safe.

River of Grass Key Questions

- ✔ What animals live in the Everglades?
- ✔ Why is water flow so important in the Everglades?
- ✔ What are some ways scientists and engineers are trying to restore water flow in the Everglades?

Pre-Activity

See pages 5 - 13 pre-activity teacher guide and presentation.

Field Trip Experience

All Museum field trips are a three-hour experience offered Monday through Friday beginning at 9:30 a.m. or 10:00 a.m. Each field trip includes three experiences of the teacher's choice at Frost Science and time for lunch. Upon arrival, the teacher will be provided with a specific schedule for his/her visit based on the three chosen experiences. Additional information regarding field trip logistics is provided in the field trip package that each teacher will receive upon booking of a field trip.

During the field trip, students will encounter a variety of experiences. To enhance these learning opportunities, facilitator cards are provided at arrival for all teachers and chaperones who would like to use them (please see pages 21 - 24 for a sample). The facilitator cards include prompting questions, additional content, and exhibition location maps which show where in the exhibit one can find content related to that card. Additionally, a student guide that corresponds to the same prompting questions of the exhibition are available in this document on pages 19 - 20. Please print a student guide for each

student in advance of your arrival to the museum, and bring pencils; student guides and pencils will not be provided by Frost Science.

Post-Activity

See pages 14 - 18 post-activity teacher guide and presentation.

Select Recommended Extensions:

Pre-K: Gar, Gar, Gator

<https://www.nps.gov/ever/learn/education/upload/gargargatork.pdf>

Grade K: Nature Hunt

<https://www.nps.gov/ever/learn/education/upload/naturehuntk.pdf>

Pre-Field Trip Activity: Step Inside (A Visual Thinking Routine)

Overview:

To prime their curiosity and imagination about the *River of Grass* exhibition, children will engage with a Visual Thinking Routine called Step Inside. This initial activity will help children explore different perspectives and viewpoints as they try to imagine being one of the animals that lives in the Everglades. Children will make observations as they take on the role of one of the animals they see in an illustration and then answer questions.

Objective:

Children will build empathy with the animals and their habitat and realize how the animals' needs are similar to our human needs.

Materials:

- Computer, white board and projector
- *Optional: poster/chart paper*
- *River of Grass Grades Pre-K - K Pre-Field Trip Presentation (pages 6 – 13)*
- *Stick puppets from presentation (need to make ahead of time, pages 10 - 12)*

Activity Steps:

1. Test the presentation on your computer: open the document, go to "View" on the menu bar, then click the full screen option ("Enter Full Screen" or "Full Screen Mode").
2. Use the presentation to guide the activity.
3. Facilitate the discussion with the pre-made character stick puppets.
4. Use the complementary thinking routine "What Makes You Say That" to encourage a robust class discussion to support their interpretation with evidence. This routine is simply using the phrase and can be found in the Step Inside chart.
5. Record student answers using the chart in the presentation (page 8) or use the poster/chart paper or a white board.
6. During the field trip, link student observations back to this activity to encourage a closer look and a more meaningful experience.

Helpful Information:

Use the character puppets on pages 10 - 12 to help identify the various animals.



Frost Science | River of Grass Pre-Field Trip Activity | Pre-K - K Grade

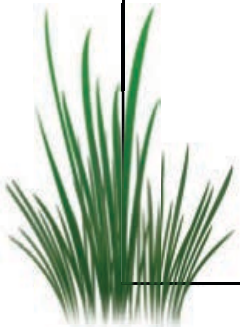
STEP INSIDE

Step Inside
and pick an animal you would like to be.



Hold the puppet of your animal in the Everglades to tell us ...

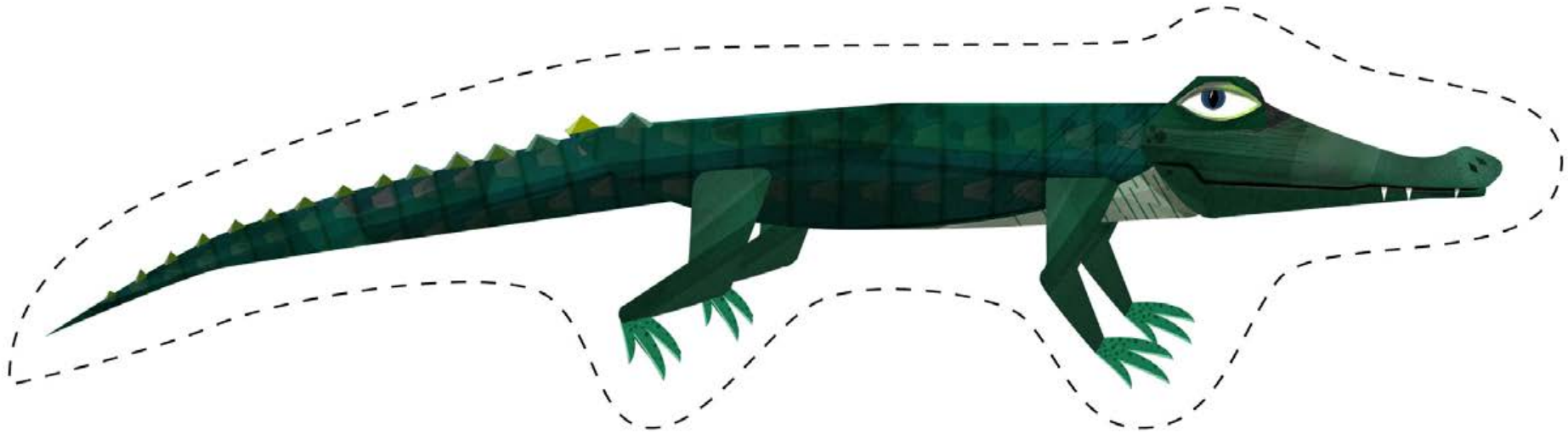
What does this animal see, observe or notice?	What makes you say that?
What questions does your animal ask? What might your animal know?	What makes you say that?
What matters to your animal? What scares your animal?	What makes you say that?



Everglades Animal Puppet Collection



Alice the Alligator puppet



Classroom Puppet instructions:

Teachers, you will only need one puppet of each animal.

1. Print each puppet page using either a color or black/white printer.
2. Cut out the puppet along the dotted lines.
3. Laminate for durability.
4. Glue or tape a popsicle stick on the back of the puppet.

Woodrow the Wooduck puppet



Classroom Puppet instructions:

Teachers, you will only need one puppet of each animal.

1. Print each puppet page using either a color or black/white printer.
2. Cut out the puppet along the dotted lines.
3. Laminate for durability.
4. Glue or tape a popsicle stick on the back of the puppet.

Rosy the Spoonbill puppet



Classroom Puppet instructions:

Teachers, you will only need one puppet of each animal.


1. Print each puppet page using either a color or black/white printer.
2. Cut out the puppet along the dotted lines.
3. Laminate for durability.
4. Glue or tape a popsicle stick on the back of the puppet.

Sample Pre-Field Trip Activity

Spoon bill

Hold the puppet of your animal animal in the Everglades to tell us ...


What does this animal see, observe or notice? Spoon bill sees The alligator	What makes you say that? alligator is sneaky
What questions does your animal ask? What might your animal know? Will the alligator EAT ME?	What makes you say that? Spoon bill flies away from alligator.
What matters to your animal? What scares your animal? staying alive scared of being eaten.	What makes you say that? alligator tries to get me.



Alligator

Hold the puppet of your animal animal in the Everglades to tell us ...


What does this animal see, observe or notice? prey → small animal	What makes you say that? The gator is watching them.
What questions does your animal ask? What might your animal know? When is nap time?	What makes you say that? He looks sleepy.
What matters to your animal? What scares your animal? Food other humans	What makes you say that? Gators are always hungry



duck

Hold the puppet of your animal animal in the Everglades to tell us ...

What does this animal see, observe or notice? this animal sees fish	What makes you say that? it swims through the water
What questions does your animal ask? What might your animal know? where can I sleep tonight?	What makes you say that? They need a dry place to sleep
What matters to your animal? What scares your animal? Food and a house	What makes you say that? House is important so that other animals don't eat the duck.



Post-Field Trip Activity: "I Used to Think... But Now I Think..." (A Visual Thinking Routine)

Overview

After the field trip, children reflect on what they have observed, explored and learned. They complete the "I Used to Think... But Now I Think..." Visual Thinking Routine. This activity helps children think about how their initial thoughts, opinions, or beliefs might have changed or expanded as a result of the field trip experience. Children also share and explain shifts in thinking with the whole class to expand the learning opportunity.

Objective

Children reflect on their experience at Frost Science and how their thinking about the Everglades has changed.

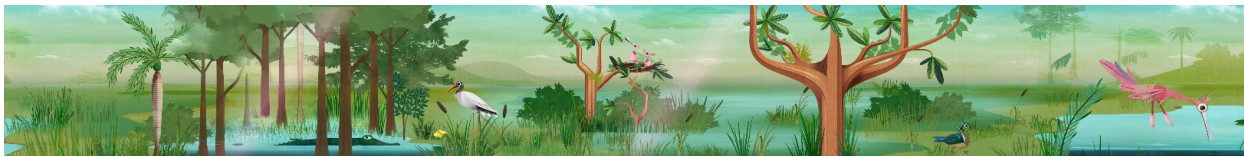
Materials

- Computer, white board and projector
- *Optional: poster/chart paper*
- Sticky notes – provide two different colors, if possible
- *River of Grass Grades Pre K-K Post-Field Trip Presentation (pages 16 - 18)*

Activity Steps

1. Draw a chart on the white board or poster/chart paper for students to post their ideas.
2. Test the presentation on your computer.
3. Give each student several sticky notes, or the facilitator can write down the answers for the students.
4. Use the presentation to guide the activity.
5. Conclude with a class discussion about the completed chart and their experience at Frost Science.

Helpful Hints



The first illustration is a balanced and healthy Everglades environment where the animals are curious and happy.



The second and third illustrations are showing a process that humans can do to take action to preserve and restore the Everglades to a balanced and healthy environment.

Step one shows humans removing the dams that are currently in place. Step two shows how high bridges can then be put in place of the dams to allow water to flow naturally.



Frost Science | River of Grass Post-Field Trip Activity | Pre-K - K Grade
I USED TO THINK... BUT NOW I THINK...



River of Grass

Before learning about the Everglades I used to think...



Now I think...



Sample Post-Field Trip Chart

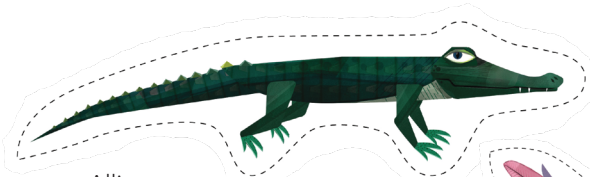
I used to think...	Now I think...
it was scary	birds can swim and fly
the Everglades was healthy	water comes and goes
Mosquitoes and snakes live there	The Everglades needs our help
Alligators live there	THE RIVER IS AWESOME! AND THERE ARE LOTS OF ANIMALS WHICH IS COOL!
I DIDN'T KNOW ABOUT THE RIVER	lots of animals live there birds + fish
birds only flew	Now the animals are not safe because of humans
it's yucky	Bridges can be good
... Alligators were bad	There are slugs there
it was dirty	panthers
The animals that live there were alligators and snakes	There are many animals birds, panthers, otters, ducks
The Everglades was a magical forest	Baby animals are cute
The animals were dangerous	Animals are friendly
I thought the animals were safe	lots of animals live there together
alligators were dangerous	alligators are good

RIVER OF GRASS

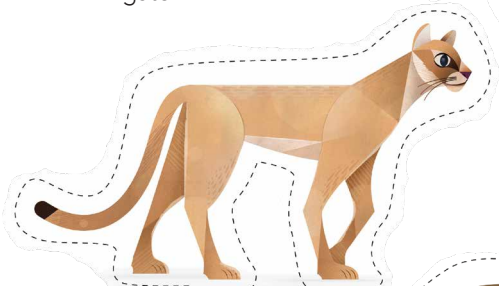
Pre K - 2ND Student Guide

Design-A-Collage!

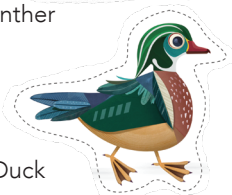
Cut out and paste your selection of animals and objects to create a healthy habitat.



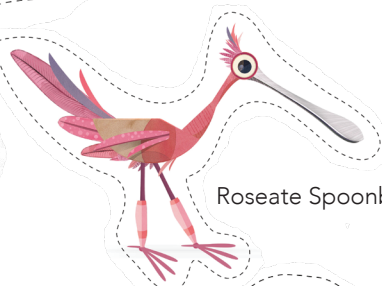
Alligator



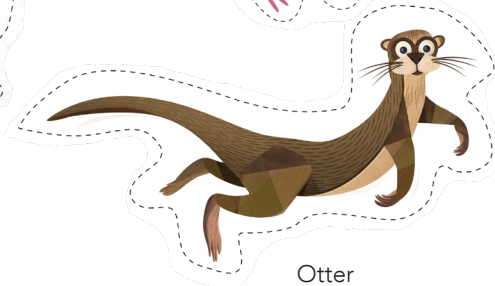
Florida Panther



Wood Duck



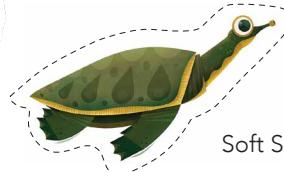
Roseate Spoonbill



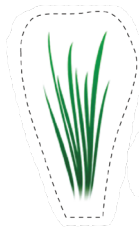
Otter



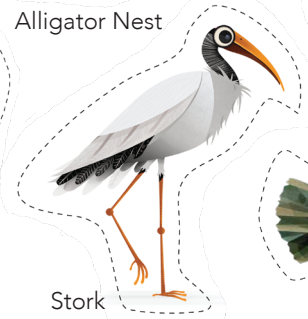
White Tail Deer



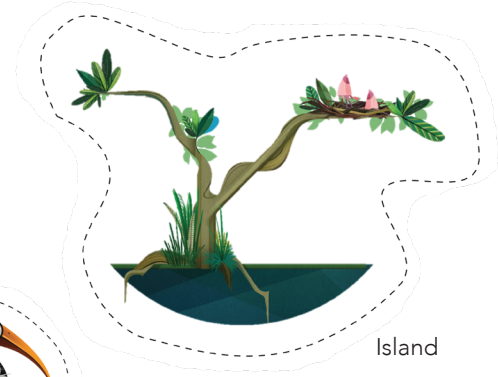
Soft Shell Turtle



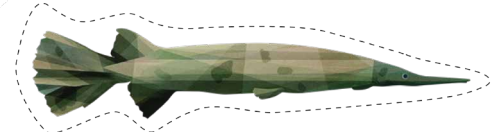
Alligator Nest



Stork



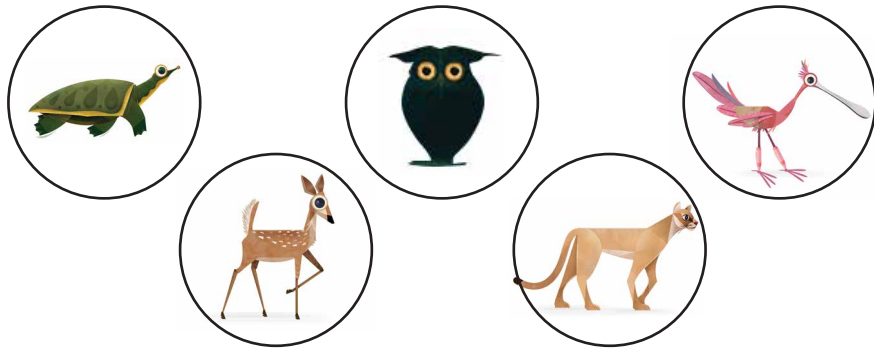
Island



Gar

A

In the Everglades some animals are more active during the day and some are more active at night. Use **blue** to color the circles with night animals. Use **yellow** for day animals.



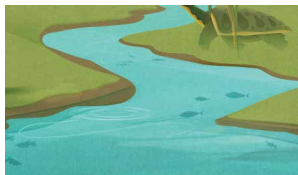
C

Draw a happy face on the picture that shows humans respecting this habitat. Draw a sad face on the picture that shows one way humans hurt this habitat.



B

Can you help the animal go to the habitat where it lives? Draw a line.



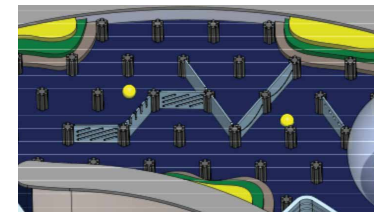
Wet Land



Dry Land

D

Color the square next to the item that can be moved by water **Green** ■. Color the square next to the item that can stop the water from moving **Red** ■.



CHECK IN

Virtual Environment

Say:

"We are about to enter the River of Grass and interact with some of the animals that live there. We will discover how these animals act and react when we are in their home, the Everglades. We will need to be quiet to be able to find the animals. If we are really quiet the animals may find us!"

Explore and use the Student Guide

Identify some animals that you find in the Everglades.

Discuss:

Which animals do you think might be playful or curious?

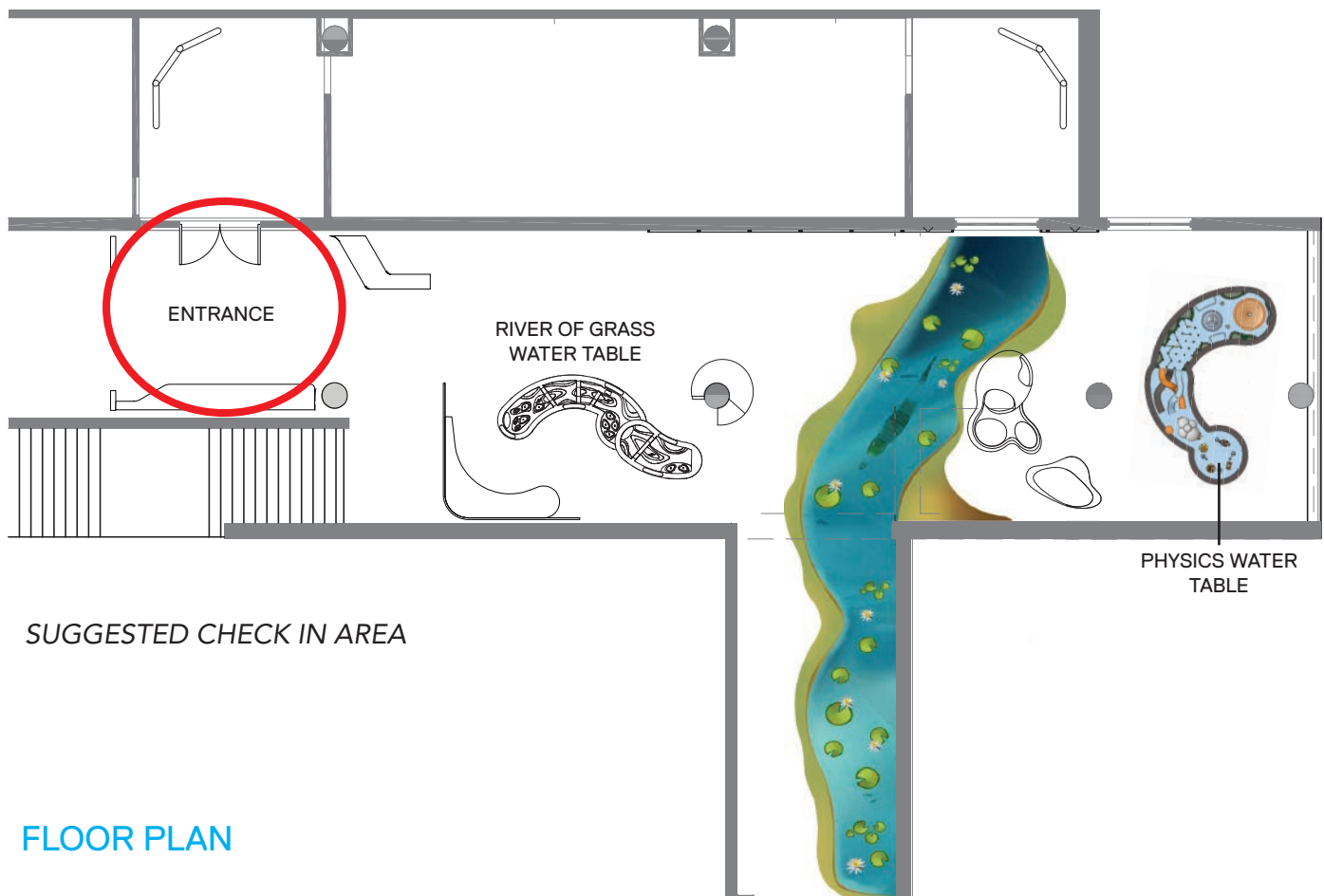
Which animals are shy? Which animals prefer to come out at night?

Some possible answers include...

- Owls will come out at night.
- Otters like to play.
- Ducks are curious.



FROST SCIENCE | River of Grass



FLOOR PLAN

CHECK IN

Habitats

Say:

"The Everglades is home to many animals. This special habitat has the components that animals need to survive."

Habitat Definition: The place or environment where a plant or animal naturally or normally lives and grows.

Explore and use the Student Guide

Discover the basic components that both humans and animals need.

Discuss:

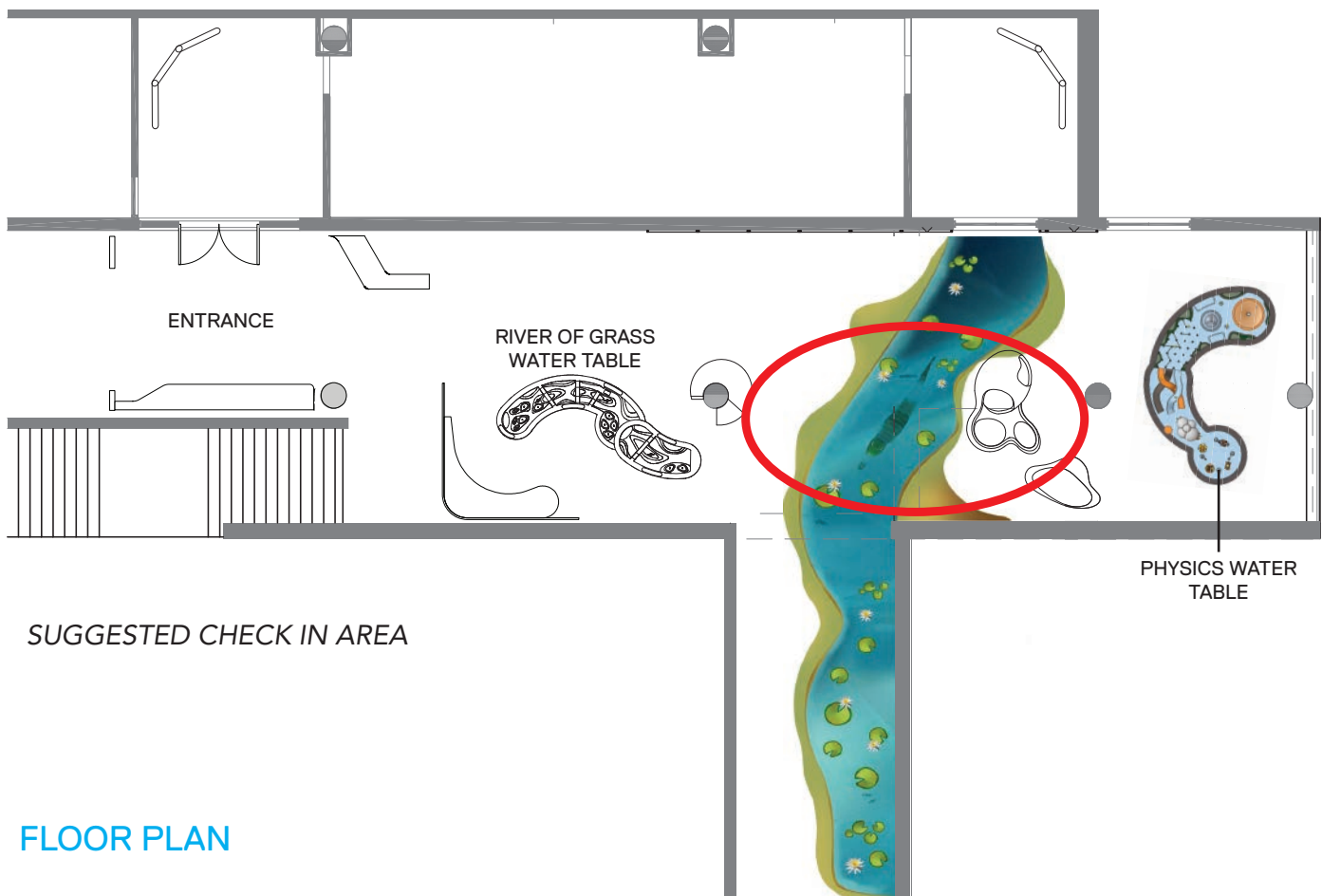
What makes a habitat good for an animal? What kinds of things do animals need to survive in their habitat?

Some possible answers include...

- ✓ There is plenty of **food** for the animal.
- ✓ Animals can **camouflage** in the habitat.
- ✓ There is **shelter** to take care of its babies.
- ✓ There is plenty of **water** for the animal to swim and drink.

Optional Extension: What human needs are similar to animal needs? What are the differences?

FROST SCIENCE | River of Grass



FLOOR PLAN

CHECK IN

Everglades Water Table

Say:

"Many animals live in the Everglades habitat. Some like dry land. Some thrive in wetland."

Explore

Explore the River of Grass water table. Try to use dams, bridges and walls to explore how you can change the water flow in this environment.

Discuss:

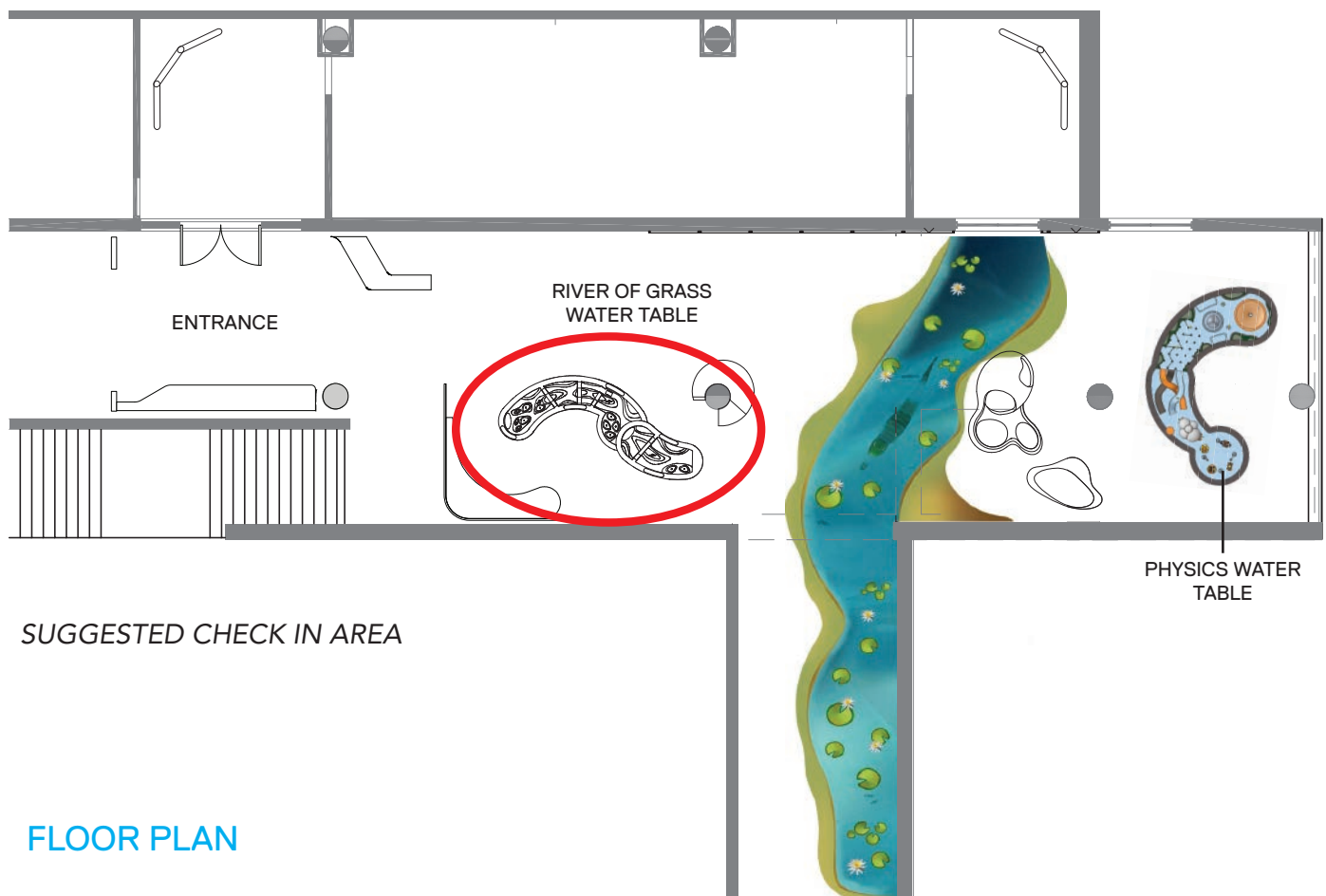
How do different amounts of water affect how animals thrive and do well in their habitat?

What will happen if there is too much water in the animals' habitat? Too little water?

Some possible answers include...

- ✓ Yes because ... Or no ...
- ✓ Birds eat fish. Fish die if there is not enough water.
- ✓ Alligators cool off in the water.
- ✓ Too much water will destroy animal homes.

FROST SCIENCE | River of Grass



FLOOR PLAN

CHECK IN

Physics Water Table

Say:

"It's time for water play exploration and to investigate how water moves. Dive in!"

Explore

Investigate the properties of water by using a variety of different fun objects and tools such as pipes, pumps, and water wheels to move and direct water flow.

Discuss:

How does the use of different tools affect water flow?

How fast is the water moving? Can you make it go faster or slower? Can you stop the water?

How strong is water? Can the water make things move?

Some possible answers include...

- The water wheel is making the water flow faster.
- I can block the water and make it go another direction.
- I can see the ball at the top of the water spout.

FROST SCIENCE | River of Grass

