

## 5E Lesson Plan

**Center: The River Center**

**Title: Fish Morphology**

**Date Offered: Year-round**

**Subject /Grade level: Science/K-1**

### **Materials:**

- A book about fish. Suggested list below:
  - *The Rainbow Fish* by Marcus Pfister
  - *Big Al* by Andrew Clements
  - *Fisheyes: A Book You Can Count on* by Lois Ehlert
  - *Fish is Fish or Swimmy* by Leo Lionni
- Construction Paper
- Paint
- Colored markers or crayons
- STEM Connections:
  - Class set of realistic laminated fish pictures (suggested 10 different species)
  - Sorting space in the classroom
  - String/yarn
  - Paper clips
  - Tape
  - Magnets
  - Rulers – one per student
  - Blue backdrop - sheet, tablecloth, posterboard, kiddie pool

### **NGSSS Benchmark:**

#### Kindergarten Science Standards:

SC.K.L.14.1: Recognize the five senses and related body parts

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.

SC.K.N.1.2: Make observations of the natural world and know that they are descriptors collected using the five senses.

SC.K.N.1.4: Observe and create a visual representation of an object which includes its major features.

#### Grade 1 Science Standards:

SC.1.L.14.1: Make observations of living things and their environment using the five senses.

SC.1.L.17.1: Through observation, recognize that all plants and animals, including humans, need the basic necessities of air, water, food, and space.

SC.1.P.12.1: Demonstrate and describe the various ways that objects can move, such as in a straight line, zigzag, back-and-forth, round-and-round, fast, and slow.

SC.1.N.1.1: Raise questions about the natural world, investigate them in teams through free exploration, and generate appropriate explanations based on those explorations.

SC.1.N.1.2: Using the five senses as tools, make careful observations, describe objects in terms of number, shape, texture, size, weight, color, and motion, and compare their observations with others.

SC.1.N.1.4: Ask "how do you know?" in appropriate situations.

## 5E Lesson Plan

### Mathematics and Language Arts Standards:

LAFS.K.SL.1.1, LAFS.K.SL.2.5, LAFS.1.SL.1.1, LAFS.1.SL.2.5; MAFS.K.G.1.1, MAFS.K.G.2.5

### **Vocabulary:**

River, estuary, ocean, lagoon, observation, dorsal fin, pectoral fin, tail/caudal fin, scales, vertebrate, camouflage, brackish water, saltwater, freshwater, reef, predator, prey, herbivore, carnivore, omnivore, species, habitat, nocturnal, diurnal, adaptation

### **Lesson Target:**

- I can describe what a habitat is.
- I can identify adaptations on a fish.
- I can explain why it is important to protect animal habitats.
- I understand why fish are important.

### **Differentiation strategies to meet diverse learner needs:**

- Hands-on instruction
- Tutor/Peer Buddy activities
- Use of visuals
- Questioning techniques
- Modification of text or curriculum
- Working in a group setting to explain vocabulary

### **Background:**

There are 20,000 to 40,000 species or kinds of fish. They live in different habitats, but all need food, water, and shelter. Fish are water-dwelling animals that live in oceans, lakes, rivers, stream, and ponds. They have gills for breathing oxygen in the water and most are covered with protective scales. They swim by wiggling their bodies back and forth and use fins to steer. Some fish eat plants, some eat bugs, smaller fish, and some eat decaying matter. To stay safe, some fish swim in schools to confuse predators while some hide among rocks, plants, oyster reefs, or logs.

### **Engage:** (To be completed prior to the River Center field trip)

1. Read one of the books from the suggested list in the teacher's materials or any book about fish.
2. Discuss the characteristics of fish. Compare the fish in the story to real fish.
3. Have students create and design fish using handprints. Allow them to decorate their fish, adding fins, eyes, and a mouth as well as designing a habitat. Then have the children draw its shelter (either a school of fish, grasses, rocks, or logs) and food.
4. Allow the children the opportunity to share their picture with the rest of the class. Discuss the importance of its habitat (where an animal finds its food, water, and shelter).

### **Explore:** (Completed during visit with River Center staff)

1. Welcome, introduction to the River Center, overview of today's field trip, and safety/rules
2. Divide the students into 2 groups to rotate through 3 different activities
  - a. Lovin' the Loxahatchee River Tour – focusing on fish species, adaptations, and habitats
  - b. Fish Morphology hands-on activity (See below)
  - c. Water resources discussion – Where our water comes from, how we use water, where it goes once it is down the drain, water conservation
3. Touch tank demonstration

## 5E Lesson Plan

### **Explain: Fish Morphology Main Lesson** (Completed during visit with River Center staff)

1. River Center educators will complete a shape, form, and function lesson about different mouth shapes, fin shapes, body shapes, coloration, and behaviors of fish.
2. Using different shapes of construction paper and materials students will create dorsal fins, pectoral fins, a mouth, a tail, and eyes. Different shapes or designs are descriptive of different adaptations. Their adaptations give the fish advantages for survival.
3. Using CDs, Students will add art materials such as sequins, stickers, construction paper, etc. to the CD to represent the protective scales on its outer body.
4. They can color their fish depending on its habitat and camouflaging techniques.
5. Students will show their completed fish explaining their design, how it survives, and what habitat it lives in.

### **Elaborate:** (completed in classroom after visiting)

1. Play Fish Tag

Lots of predators besides people eat fish: larger fish, seals, bears, and pelicans are just a few. Many fish hide from predators under docks or rocks, among plants, or other places. Play a game where a predator (one child) tries to catch fish (other children) by tagging. The predator can choose what kinds of animal to be. Fish are "safe" if they stand or touch a safe spot, like a grass bed (hula hoop), mangroves (safety cone), rocks (box) or a dock (carpet square). To keep things moving, fish can stay in the safe spot only as long as it takes for them to count to five. After the predator catches some fish, play again with a new predator.

2. Have a fish snack. Use pretzels sticks as fishing poles and cream cheese or peanut butter as bait. Have the children "fish" for fish-shaped crackers.
3. Fish Poem (Identify rhyming words)

### **Fish**

How I wish I were a fish! My day would begin flapping my fins. I'd make a commotion out in the ocean. It would be cool to swim in a school. In the sea, I'd move so free, with just one thought: Don't get caught!

### **Evaluate:**

- Participation in the activity.
- After the students get back to the classroom, have them write a story about the fish they designed on the field trip.
  - What kind of fish did you create? Where does it live? What does it eat? How does it protect itself?
- Have the students create a background/backdrop of a habitat that their fish can swim through. Remember to have food, water, and shelter. Students can perform a play.

### **Creating STEM Connections**

#### Science

- See standards above.

#### Technology

- Each student will receive a realistic laminated picture of a fish. Students will describe their fish referring to how they observed fish at the River Center. Students will use a ruler to measure their fish. Students can compare, contrast, and sort their fish pictures with other students. Are some similar? How are they different? What story can you make up about the fish in the class?
- River Center's Virtual Education Videos
  - Animal Feedings (Aquarium tours and Fish Feedings)  
[https://www.youtube.com/playlist?list=PLA39R2PcEo33NDR9rGFxW3StA--U\\_p99M](https://www.youtube.com/playlist?list=PLA39R2PcEo33NDR9rGFxW3StA--U_p99M)

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- Animal Encounters (Fish of the Week)

[https://www.youtube.com/playlist?list=PLA39R2PcEo33eoYyDQo2LzVRx72P\\_42Cy](https://www.youtube.com/playlist?list=PLA39R2PcEo33eoYyDQo2LzVRx72P_42Cy)

### Engineering

- Add paperclips to the pictures of fish (by the mouth) that were used in the prior activity.
- Attach string to the rulers use in the prior activity. Either tie a knot or use tape.
- At the other end of string attach a magnet using tape. They have now created a magnetic fishing pole.
- Put the fish on a blue backdrop to represent the ocean and let the students go fishing!

### Mathematics

- See standards above.

### **Making Loxahatchee River District Connections:**

- Water supply – water quality and quality habitats
- Stormwater – stormwater storage locations – more habitat

### **Making River Center Exhibit Connections:**

- All the aquariums with live fish and habitat representation. Students will observe different fish species, ecosystems, body shapes (fin, mouth, tail, etc.), coloration, camouflage, and adaptations (physical/behavioral/environmental) at each exhibit.