THE FOUR TRAITS OF FISH

Topic
Fish, Traits

Duration
One session

Vocabulary
backbone
fin
fish
gill
trait
vertebrae

STANDARDS

Practices
Analyzing and Interpreting Data

Core Ideas
Inheritance of Traits

Crosscutting Concepts
Patterns

OCEAN LITERACY PRINCIPLES

OLP 5

Focus Question

What is a fish?

Overview

Students list organisms they believe to be fish. Students infer what traits determine that an organism is a fish by examining their list. Students discover the four main traits of fish. Students classify animals as being fish or different organisms.

Objectives

Students will be able to:

- ★ Identify the four main traits of all fish
- ★ Recognize the difference between fish and other organisms
- ★ Compare and contrast fish and other organisms

Materials Needed

- ★ Is it a Fish? activity sheet for each student (page 155)
- ★ One copy of How Are These the Same? photography sheet (page 156)
- ★ A whiteboard or SMART Board to record student feedback

Teacher Preparation

1. Make copies of Is it a Fish? Activity sheet (page 155)
2. Make one copy of How Are These the Same? photography sheet (page 156) or be prepared to display it on a projector for the class.
3. Have a whiteboard or SMART Board available to record student feedback.

Background

The four main traits of all fish include the following:

1. All fish live in water.
2. All fish have gills to filter oxygen from their water environment.
3. All fish have fins to help them move through the water.
4. All fish have backbones (vertebrae) for support and movement.

Teacher Tips

- ★ When completing the Is it a Fish? activity sheet consider pairing up partners of varying ability levels so that they might assist each other.
- ★ Show a recommended website video after listing the four main traits of fish and before the Is it a Fish? activity.
- ★ Have a device nearby to fact check any student feedback regarding characteristics of fish/types of fish and share out information immediately.

Extension Suggestions

- ★ Have students participate in the Monterey Bay Aquarium's lesson titled, "Decode a Fish," found on their educational website.
- ★ Provide students with the average length of each fish from the Is it a Fish? activity sheet. Have students create a bar graph that conveys the length of each fish to create a visual comparison of the fish sizes

Background (continued)

Most fish are cold-blooded except for the Tuna family and the Mackerel shark family. There are more than 27,000 different species of fish. The largest fish is the whale shark, measuring up to 51 feet long. The smallest fish is the Stout Infantfish measuring up to 8 millimeters long. Most fish have a skeleton made of bone, but some fish (like sharks) have skeletons made of cartilage.

Procedure

Part One

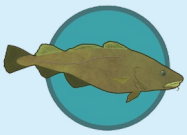
1. Show students the How Are These the Same? photography sheet using a projector or SMART Board. Ask students, "How are these organisms the same?" Confirm correct answers and politely acknowledge incorrect answers.
2. If students did not come up with the answer, "They are all fish," inform students that the four organisms shown are indeed all fish. Confirm correct answers, politely acknowledge incorrect answers, and research answers if you are unsure.
3. Ask students why all of the organisms on their list and projected on the board are fish? What traits (characteristics) does an organism have to make it a fish?
4. Write on a board or large piece of paper, "Four Traits of Fish" and beneath this heading write down any correct answers.
5. When students are done inferring what main traits all fish have, complete the list:
    a. All fish live in water.
    b. All fish have gills to filter oxygen from their water environment.
    c. All fish have fins to help them move through the water.
    d. All fish have backbones (vertebrae) for support and movement.
6. Suggest that students memorize the initials "WGFB" to assist them in remembering the four main traits of fish: "Water, Gills, Fins, Backbone."

Part Two

7. Inform students that they are going to be working in pairs to complete an activity called, "Is it a Fish?"
8. Pass out the Is it a Fish? activity sheet and review instructions with students.
9. When all students have completed the assignment have pairs of students share their answers as you review each fish or "not fish."

Books

- ★ *Flossie Flounder: A Tale of a Flat Fish* by Suzanne Tate
- ★ *DK Eyewitness Books: Fish* by Steve Parker
- ★ *What's It Like to Be a Fish?* by Wendy Pfeffer



Websites

- ★ Check out a video outlining the four main traits of a fish on Dunedin Aquarium's YouTube Channel titled, "What Makes a Fish a Fish?"
- ★ Have students play the online game "Ocean Animals" on Sheppard Software's website.

Scientist Notebook

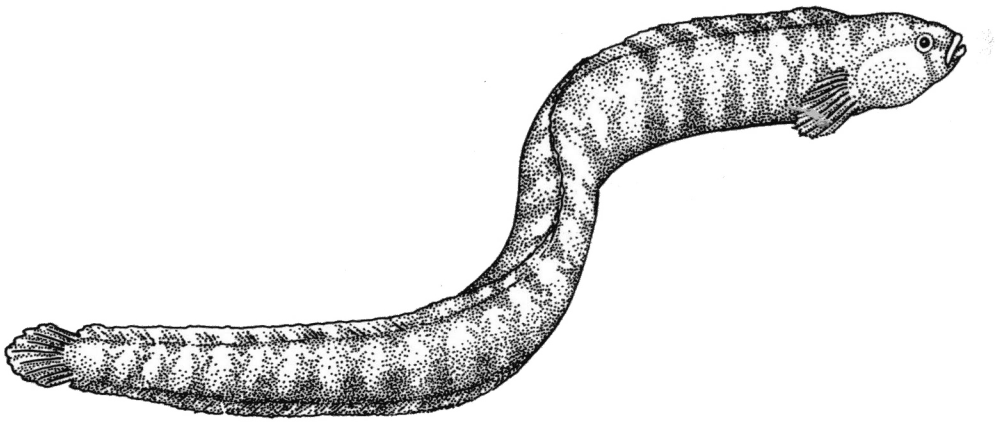
- ★ Students can record the four main traits of fish. Students can paste their Is it a Fish? activity sheet into their notebook.

Procedure (continued)

10. Have students compare and contrast the fish and other organisms on the Is it a Fish? activity sheet by asking them how the fish and other organisms are the same, and how they are different.

Wrap-up

- ★ Ask students to identify the four main traits of a fish (WGFB).
- ★ Ask students to recall the different types of fish they were exposed to in today's activity.
- ★ Ask students to recall how fish are similar to other organisms in the ocean, and how they are different.



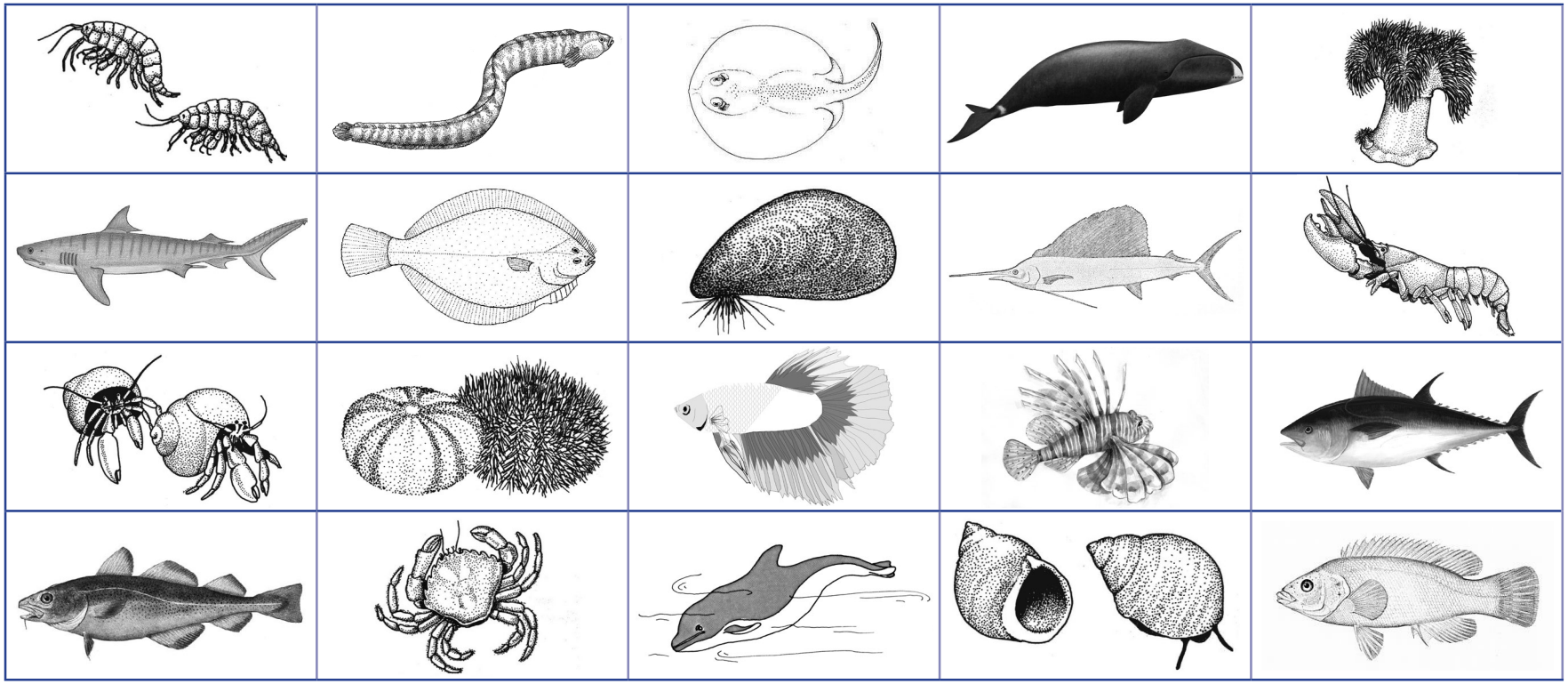
IS IT A FISH?

Name: _____

Date: _____

List the Four Traits of Fish:
1.
2.
3.
4.

Directions: If you think it is a fish, circle the picture. If you do not think it is a fish, leave it blank.



IS IT A FISH?

Answer Key

Row One (left to right)

1. scud (not a fish)
2. gunnel (fish)
3. yellow stingray (fish)
4. bowhead whale (not a fish)
5. frilled sea anemone (not a fish)

Row Two (left to right)

1. tiger shark (fish)
2. flounder (fish)
3. blue mussel (not a fish)
4. sailfish (fish)
5. lobster (not a fish)

Row Three (left to right)

1. hermit crab (not a fish)
2. sea urchin (not a fish)
3. betta (fish)
4. lionfish (fish)
5. bluefin tuna (fish)

Row Four (left to right)

1. Atlantic cod (fish)
2. green crab (not a fish)
3. porpoise (not a fish)
4. common periwinkle (not a fish)
5. cunner (fish)

HOW ARE THESE THE SAME?

Seahorse	Bluespotted Stingray
	
Ribbon Eel	**Hammerhead Shark**