



Coral Reefs

Concepts

Fish are uniquely adapted to survive in the water. These adaptations are necessary for them to live in different areas and to feed on a variety of prey items.

HCPS III Benchmarks

SC 4.3.2

SC 4.5.2

SC 4.5.3

Duration

1 hour

Source Material

MARE

PRISM

Investigating a Fresh Fish

Summary

This is the true hands-on portion of the unit! The lesson provides students with the opportunity to take a closer look at fish adaptations through the observation and hands-on exploration of a fresh fish specimen. They will be able to make a clear distinction between different types of adaptations of fish and begin to understand through their senses of touch and sight what makes individual species of fish unique.

Objectives

- Students will be able to identify various fish adaptations.
- Student will be able to make predictions about where fish live and what types of food they eat.

Materials

Per class:

5-6 fresh fish bought from the local market
5-6 gallon size plastic freezer bags
1 tray for each fish or newspaper
Paper towels

Per group:

5-6 pairs of disposable gloves
1 Fish Feature Chart Worksheet
6 sheets of blank paper
Colored markers
Paper towels & newspaper
Fish Posters from Department of Land and Natural Resources OR books

Making Connections

Students will recall what they learned in previous lessons about fish anatomy and adaptations. They will use that knowledge to identify specific adaptations they observe in a variety of fish species. This will give them a better understanding of how and why they live in the areas of the ocean they do and feed on only certain types of prey.

Teacher Prep for Activity

Purchase 5-6 fresh fish. Choose as many different kinds of fish as you can find including a wide variety of species, sizes, shapes, and colors. Make sure that the fish are not scaled or gutted and that they are fresh (otherwise, they may be “stinky”). The following fish make good examples: mackerel or bonita, eels, rockfish, flounder, tuna, or



any reef fish (parrotfish, convict tang, etc.). Rinse the fish thoroughly, pat dry with a paper towel, and freeze them in individual plastic Ziploc bags until ready to use. Write the name of the fish on the bag with permanent marker.

When you are ready to use them, the fish do not need to be completely thawed. Just be sure the fins, mouth, gills, and gill cover can be moved around for good observation. Usually, if you take the fish out of the freezer about 2-3 hours before class they will be fine. If you are short on time, run the fish under cool water or place them in the sun for just a short while. Before use in the classroom, be sure to run the fish in clear, cool water, pat dry, and place each on a separate tray or layers of newspaper.

You will need to remove the gill rakers from each fish. Use the following instructions to complete this task:

1. Lift one of the gill covers to see the soft, delicate gills protected inside. (There is one gill cover on each side of the body and four separate gills under each gill cover.) The gill rakers are just a part of the gill – they are not separate.
2. Use a set of tweezers and sharp pointed scissors to reach inside and separate the outermost gill from the other three. Snip both ends of the gill and use the tweezers to remove it from the fish.
3. Rinse the gills and place next to the fish.

Finally, you will need to place a damp paper towel the fish to keep is moist and fresh. Number the fish specimens 1-6, placing the number on the tray of newspaper before distributing them to the students. After the activity, quickly return the fish to the plastic bags and freezer. The fish can then be reused at a later date.

Make a copy of the Fish Feature Worksheet for each group. Be sure to have enough gloves for each student (these can be purchased from local drug stores or online). Note: the use of gloves is optional but highly recommended.

Background

See introduction and supplemental materials.

Procedure

1. Separate the students into groups of 5-6. Pass out a copy of the Fish Feature Chart to each group. Model how to complete the chart using an example from posters or pictures. Explain that this is the process they will go through when their group gets the actual fish to observe.
2. Give each student a piece of blank paper and a pencil. Explain that they will each have to make a drawing of at least one of the 5 or 6 fresh fish. They must include the adaptations listed on the Fish Feature Chart and two other features of the fish that they find interesting. *This might include scales, spines, eyes, etc.* They should also label their drawings using the vocabulary covered in the previous lessons. *HINT: It may be helpful to have a vocabulary list written on the board or a paper-based list handy.*
3. Before you pass out the fresh fish to each group, have a brief discussion about proper handling and treatment of animals (live or dead). Explain that these fish were purchased for human consumption and even though they are dead, they were once beautiful living



creatures that should be respected. Ask the students what it would look like to treat the fish with respect while observing it in this activity (no poking, tearing, throwing, etc.)

To Begin:

4. Pass out one fish on a tray with gill rakers to each group. Be sure to give each group paper towels and gloves as well.
5. Ask the students in each group to count off from 1-5 or 6. Explain that each student is responsible for drawing the fish with the number that corresponds to theirs as they rotate through each fish. So, student #2 draws Fish #2 and so on.
6. As an entire group, they are responsible for discussing and completing the Fish Features Chart for each fish, including listing where they think it lives and what it eats. Remind them to be as specific as possible & that they should discuss and come to a conclusion the entire group agrees on. Everyone in the group should also agree on the label chosen to describe the adaptations and must take a turn being the recorder.
7. Let the exploration begin, allow 5-7minutes at each station and circulate through the classroom helping as needed.
8. At the end of the rotation time, ask the students to quietly find a seat with their group and finish the Fish Feature Chart and each of the 5-6 drawings. As the first few students complete both, have them assist you in clean up by collecting the fish trays and bringing them to the clean-up station. Each fish should be returned to a plastic bag and returned to the freezer.

Assessments

Completion of Fish Feature Chart

Completion of fish drawing with correct labels



Student Name _____

Fish Feature Chart

	Fish #1	Fish #2	Fish #3	Fish #4	Fish #5
BODY SHAPE	Fusiform				
TAIL SHAPE	Forked				
MOUTH, TEETH, GILL RAKERS	Large mouth, sharp teeth				
COLORATION PATTERNS	Counter-shading				
I PREDICT IT EATS:	Zooplankton; Small crustaceans				
I PREDICT IT LIVES IN THE (HABITAT):	Open ocean				
TWO OTHER INTERESTING FEATURES					
NAME OF FISH	Mackerel Opelu				