



HOW TO HIDE IN THE OCEAN

This lesson plan developed by:

SEA Semester®



Overview:

Fish and other creatures have developed a variety of adaptations to hide in the ocean. Many adaptations are dependent on the habitat in which the creature is living. Students will create their own fish and test how well they can camouflage in the classroom or outside.

Materials:

- Newspaper with lots of text
- Construction paper (3 different colors)
- Clear plastic sheets
- Crayons
- Scissors
- Glue
- Pictures of fish and other marine creatures hiding in the ocean
- Tape
- Small prizes (optional)

Set-up Prior to Activity:

1. Cut out three red, three blue and three yellow fish out of construction paper (or 3 other different colors).
2. Cut three fish out of newspaper text.
3. Adhere all fish to a full sheet of newspaper, hiding the newsprint fish as well as possible.
4. Tape your creation to a wall and have it covered before students arrive.

Duration:

1 hour

How to Hide in the Ocean (cont.)

Physical Activity:

Moderate

Background:

In the three-dimensional ocean, some creatures live on the sea floor, but many live and move about in the water column. Having a body form that is hard to see or detect helps many ocean dwellers avoid being eaten by hungry predators. However, many predators have evolved some of the same adaptations, which help them approach their prey without being seen. Some of the adaptations for hiding in the ocean include:

Small size: Small size makes visual detection difficult. A disadvantage of small size is the inability to move quickly over distances.

Transparent body: In the photic (light) zone of the ocean, many of the zooplankton are transparent. In addition, many organisms, such as fish and crabs, which later have body coloration are transparent in their vulnerable juvenile forms.

Cryptic coloration: Many fish have dark coloration on their dorsal (top) sides and shading to light coloration on their ventral (bottom) sides. Seen from above, they blend with the dark waters below; seen from below, they blend with light from the sky.

Disruptive coloration: This type of camouflage helps hide the outline of the fish, especially if its habitat includes a variety of shapes and colors. The coloration of the clown anemone fish is helpful for its coral reef habitat, but would make it conspicuous in the open ocean.

Mimicry of surrounding: Some organisms are colored and shaped to appear part of the surrounding habitat. Some flatfish can even change their color by altering the distribution of pigment in specialized cells called chromatophores.

Bioluminescence: Some mid-water fishes have specialized cells called photophores, which can emit light. In lantern fish, these cells are arranged along the ventral (bottom) side. It is thought that in dimly-lit waters the bioluminescence from these cells helps mimic the light reaching mid-water from above.

Activity:

Part 1: Introduction to Hiding in the Ocean

1. Tell the students that their job is to count the fish and they will have 20 seconds in which to do this. Uncover the fish covered newspaper.
2. Have the students answer the following questions:
 - How many total fish are on the paper?
 - How many kinds of fish are on the paper?
 - Which fish will be the last ones eaten and why?

How to Hide in the Ocean (cont.)

3. Show a few pictures of ocean creatures and have students discuss how they keep from being seen. What types of adaptations are they using?

Part 2: Create and Test Your Own Fish

1. Divide students into pairs or groups of three.
2. Each group will create a fish that can be placed in plain view in the classroom or outside, and not be seen by the other teams. Fish must be a minimum of 15cm x 5 cm.
3. Allow the students time for examining the area for a good location for each team's fish and time for the creation of the fish (construction paper, newspaper, clear plastic sheets, coloring, etc).
4. All the students must leave the area (room/outside area) while each team hides its fish. Teams should take turns entering the room and placing their fish.
5. When all the fish are hidden, call the teams back in.
6. Allow two to three minutes for the students to hunt for the fish.
7. Each student should mark on a map of the area where each fish is placed.
8. Tally the number of students who found each fish. The best-hidden fish (fewest times seen) wins a prize.

Discussion:

As a group, discuss each team's fish adaptations to its habitat (area where the fish were hidden). What types of adaptations did they use? Which ones were the most successful? Why?

Ocean Literacy Principles:

Ocean literacy is an understanding of the ocean's influence on us, and our impact on the ocean. There are seven [Ocean Literacy Essential Principles](#) that all people of our blue planet should have an opportunity to learn and understand. This activity touches upon the following Essential Principles:

5. The ocean supports a great diversity of life and ecosystems
7. The ocean is largely unexplored

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How to Hide in the Ocean (cont.)

