



KIDS ENVIRONMENTAL LESSON PLANS

This lesson plan developed by:



How to Hide in the Ocean

Overview:

Students learn about how fish and other ocean creatures have adapted to hide in their surroundings. They will create their own fish and test how well they can camouflage in the classroom or outside.

Ocean Literacy Principles:

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

Key Concepts:

- Fish have developed a variety of adaptations to hide in the ocean.
- Many adaptations are dependent on the habitat in which the fish is living.

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

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



How to hide in the Ocean (cont.)

reaching mid-water from above.

Activity:

Part I:

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

Part II:

1. Divide students into pairs or groups of three.
2. Each group is to 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.
9. Discuss each team's fish's adaptations to its habitat (area where the fish were hidden).

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