

# WHAT'S HIDING IN THE WATER?

This lesson plan developed by:



### **Overview:**

Have you ever wondered what organisms are hiding in your waterway? In this activity, students will make a plankton net to observe what is living in their local waters. Plankton are a group of diverse organisms that all have one thing in common, they are unable to propel themselves against a current.

### Materials:

- Wire hanger
- Stocking
- Glass jar
- Duct tape
- Needle
- Thread
- Thin line
- Large metal washer
- Ruler
- Scissors
- Wire cutter
- Magnifying glass
- Clear bowl or dish
- Black and white paper
- Plankton ID cards
- Crayons or colored pencils

## Duration:

1-2 hours

## What's Hiding in the Water (cont.)



## **Physical Activity:**

Moderate

## **Background:**

Plankton are a diverse group of organisms that live in large bodies of water. One thing they all have in common is that they are unable to swim against the current. In fact, the word plankton means "wanderer" or "drifter." They are also an important source of food to many animals, including fish and whales.

The two major groups of plankton are phyto- (plant) and zoo- (animal) plankton. Some organisms spend their entire lives as plankton, including copepods and some jellyfish. While others spend part of their lives, including larvae of sea urchins, starfish, crabs and most fish.

## Activity:

#### Part 1: Build a Plankton Net

For this activity, you can make two types of plankton nets, one with a handle and one with line attached to drag through the water.

Plankton net with a handle:

- 1. Cut the wire hanger and create a circle that is at least 7 inches in diameter. With the ends you can make a handle (like a dip net).
- 2. Fasten the circle together with duct tape.
- 3. Using one stocking, cut a hole in the foot creating a small hole at one end and a larger hole at the other end.
- 4. Sew the larger hole end of the stocking around the circle wire hanger, which helps keep the tow open.
- 5. At the small hole end of the stocking, use duct tape to attach the stocking to the glass jar.





Plankton net with line:

- 1. Cut the wire hanger and create a circle that is at least 7 inches in diameter with ends that overlap.
- 2. Fasten the circle together with duct tape.
- 3. Cut three pieces of the strong thin line (or cord) that are 2 feet in length. Tie them evenly around the circle wire hanger. Tie the three loose ends to a large metal washer.
- 4. Cut and tie a long piece of thin line (or cord) at least 10 feet in length to the other end of the washer so that you are able to drag the tow.
- 5. Using one stocking, cut a hole in the foot creating a small hole at one end and a larger hole at the other end.
- 6. Sew the larger hole end of the stocking around the circle wire hanger, which helps keep the tow open.
- 7. At the small hole end of the stocking, use duct tape to attach the stocking to the glass jar.



#### Part 2: Collect and Identify Organisms

- 1. Conduct a plankton tow using the plankton net. Students can drag the net by either wading along a beach or shallow waterfront, off a dock or in a very slow moving boat. Aim to tow net for a distance of about 50 meters.
- 2. Once a tow has been completed, place contents of jar into a clear container, which can be labeled depending on tow (i.e. "Tow 1").
- 3. Repeat tows so different students can have a chance to carry out a tow.
- 4. Place a white or black paper under the clear containers. Plankton are generally easiest to see when viewed with a dark surface underneath the container. Have the students use their eyes or magnifying glasses to see if they can find any plankton.
- 5. Have the students use the ID sheets to see if they can identify specific plankton
- 6. Encourage the students draw what they see.



## Discussion:

As a whole group, start a discussion about the activity with the following questions:

- 1. If you were a scientist how might you choose a net mesh size depending on what you were interested in studying? Fish? Plankton?
- 2. Did you find more or less in your tows than you expected? Were the organisms smaller or bigger than you thought they would be? How do you think what you observed would vary if you were in a different body of water (river, lake, coast)? Or time of year?
- 3. Did you find any plastic in the tows? Do you think you would find the same amount everywhere in the ocean? How would you solve this problem?

## **Additional Resources:**

To learn more about the activity, check out our **Build a Plankton Net "how to" video**.

## **Ocean Literacy Principles:**

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

- 4. The ocean made Earth habitable
- 5. The ocean supports a great diversity of life and ecosystems
- 6. The ocean and humans are inextricably interconnected
- 7. The ocean is largely unexplored

## Further Your Impact with Sailors for the Sea Powered by Oceana:

As sailors and water-lovers, you are among the first to notice changes to our seas such as fewer marine animals, more pollution and damaged marine habitat. Through our Green Boating initiative, Sailors for the Sea Powered by Oceana provides opportunities for you and your community to address pressing ocean health issues. As a Green Boater, you will be provided with the information, resources and access to combat marine plastic pollution, prevent habitat destruction, source responsible seafood and protect marine animals. From demanding plastic-free alternatives to choosing sustainable seafood, your voice and actions are an important part of restoring the abundance of our oceans and protecting marine habitats. Join our growing Green Boating Community today.



### **Common Marine Saltwater Plankton**

If you are collecting plankton in the ocean or a saltwater lake, use the guide below to identify your catch.









Amphipod

(up to 3 major variations—calanoid, cyclopoid, harpacticoid)

The second se

Barnacle nauplius



Cladocera

Gastropod veliger larva



Crab zoea



Crab megalops



Small jellyfish



Trochophore larva



Fish larva



Mysid shrimp



Shrimp zoea



Fish egg



Bryozoan cyphonautes larva

## What's Hiding in the Water (cont.)



#### **Common Freshwater Plankton**

If you are collecting plankton in freshwater (such as a lake, pond, river or stream), use the guide below to identify your catch.



Daphnia (water flea)



Dragonfly larva



Copepod (freshwater variety)



Mosquito larvae



Midgefly larva



Mayfly larva



Rotifer



Hydra (polyps)

Leech

