Activity 10

Observe Like a Scientist

How Fish Breathe

Have you ever tried to hold your breath underwater? How long were you able to stay under without coming up for air? Now imagine that you were a fish and could breathe under the water but not on land. How would your respiratory system need to be different?

Read the text that follows to learn about how fish have adapted to life underwater.

Unlike humans, fish do not breathe using lungs. Fish use gills to take oxygen that dissolved in water out and release carbon dioxide. Gills are found on the sides of a fish's head. Water enters the mouth of the fish and passes across the gills. Just like in our lungs, blood vessels then carry oxygen to the rest of the body. Gills are unique structural adaptations that allow fish to live and breathe underwater. How do you think water pollution impacts the fish that live nearby? Just as we need to breathe clean air to stay healthy, fish need clean water to survive.

What are the similarities between the human respiratory system and the fish respiratory system? What are the differences?

Life Skills **I can analyze a situation.**

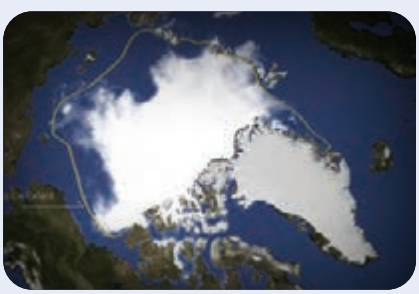
Activity 11

Analyze Like a Scientist

Humans Change the Environment

Read the text that follows and **underline** evidence that human activity contributes to rapid changes in an ecosystem. **Circle** the impacts that human activities have on plants and animals.

Humans Change the Environment



Organisms are adapted to the ecosystems in which they live; however, that ecosystem may change. That maybe other changes are caused by human activity. Humans change ecosystems when they farm, clear land, and build communities. People cut down forests and plow grasslands. They introduce plants and animals that were never part of the ecosystem. These types of changes can cause the disappearance of plants and animals that once lived in an environment.

Human activities can also pollute the air and water. The exhaust from too many cars or factories operating improperly can create air pollution. Bad habits, such as littering or dumping materials where they do not belong, can **pollute** soil and waterways. Plants and animals can be affected by changes in an ecosystem caused by humans. When the air, water, or soil in an area are no longer safe, some animals can survive by moving to another ecosystem to find what they need. Plants must rely on their seeds landing in a better place for them to survive and grow.

Humans are also affected when crops cannot grow, clean drinking water is hard to find, or smog makes it hard to breathe. People who live in cities where air pollution is a big problem are forced to change their lifestyle on days when the pollution levels are dangerous. Exposure to high levels of air pollution over a long period of time can damage the lungs and lead to conditions such as asthma and heart problems.

Just as humans can cause harmful changes, they can also help restore ecosystems. Cleared forests can be replanted, air and water pollutants can be removed, and native plants or animals can be preserved. Which impact will you have?

Talk Together Think about how the human respiratory system works. What types of human activity can positively or negatively impact respiratory health?