



## Seeing the Sea Pre-visit Activity Sheet

### **Shark Distribution**

#### **Concepts:**

1. There are over 350 species of sharks found in the oceans today worldwide.
2. Sharks come in many different sizes, shapes and colors. Some of these factors are dependent on their environment.

#### **Materials:**

1. Large world map.
2. Access to the Internet and/or shark identification books.

#### **Directions:**

1. Assign each child or group a shark.
2. Give each child/group time to look up information about their specific shark. They can use the Internet and/or shark identification books, which can be found in bookstores or your local library.
3. Give each child/group a sheet with specific questions to answer while they are doing their research. Questions can include the following: Where does this species of shark live? What do they eat? What eats them? How big do they get? What are some of their unique adaptations to their specific environment? Do they face any threats?
4. Have each child/group draw a picture of their shark or print out/copy pictures of each one.
5. Allow time to share information.
6. Place the pictures of the sharks in the location they are found on the world map.

#### **Explanation:**

1. Sharks are found all over the world.
2. Each shark's habitat can affect his or her behaviors and adaptations.

### **Human/Shark Interaction**

#### **Concepts:**

1. Sharks kill on average 4 humans per year.
2. Humans kill about 100 million sharks per year.
3. Humans are more likely to be killed by a bee sting, a coconut falling on your head, or a toaster than from a shark bite.
4. People kill sharks for meat, medicine, oil, skin, and fish food as well as for sport.
5. Sharks have long gestation (egg development) periods that can last up to 12 months. They also give birth to small litters of pups. Overharvesting can cause a strong decline in the population.

**Materials:**

1. Paper
2. Pencil
3. Calculator
4. Access to a computer with Microsoft Excel programming

**Directions:**

1. Create graphs on Microsoft Excel using the following information:

<b>Year</b>	<b>Fatal Attacks (Worldwide)</b>	<b>Non-fatal Attacks (Worldwide)</b>
2000	11	69
2001	4	69
2002	3	62
2003	4	49
2004	7	58
2005	4	55
2006	4	52
2007	1	68
2008	4	49
2009	6	57
2010	6	73

- a. Open Microsoft Excel.
- b. Create a spreadsheet by listing the dates along the top of the sheet and type fatal and non-fatal on side of the sheet.
- c. Insert numbers of attacks in the proper cells.
- d. Go to **Insert** on the tool bar.
- e. Scroll down to **Chart**.
- f. Choose the type of chart you would like to create.
- g. Click on **Next**.
- h. You will see a preview of the chart. The area it is encompassing will be hi-lighted.
- i. Click on **Next**.
- j. Type in the title you would like to give your chart.
- k. Type in the title you would like to give the X-axis.
- l. Type in the title you would like to give the Y-axis.
- m. Click on **Next**.
- n. The chart will be inserted into your spreadsheet.

**Explanation:**

1. On average, 100 million sharks are killed by humans each year.
2. We are overharvesting some species of sharks such as the soup fin shark. We are also altering shark habitats causing them to come closer to shore and look for food.

**Whale Ecology: Feeding Mechanisms****Concepts:**

1. Whales are classified into two main groups, toothed whales and baleen whales, based upon their method of feeding.
2. Toothed whales are called the Odontocetes and have hard teeth for eating fish, squid, octopus and seals.
3. The group, Odontocetes, includes sperm whales, orcas, porpoises and dolphins.

4. Baleen whales are called the Mysticetes and have a hair-like material for filtering plankton and small crustaceans called krill.
5. The group Mysticetes includes blue, gray, right, and humpback whales.

**Materials:**

1. Plastic shoebox bin filled with water
2. Soft bristled hairbrush
3. Tongs
4. Black pepper
5. Small foam balls that float

**Directions:**

1. Add the balls and pepper to the water.
2. Try to pick-up the food with both the tongs and hairbrush.
3. Examine which tool is best at catching the food.

**Explanation:**

1. The balls represent large food sources such as fish or squid.
2. The pepper represents tiny food items such as krill.
3. Toothed whales use their teeth like tongs; to grab prey of substantial size.
4. Baleen whales use the hair-like bristles in their jaws to strain the water for food.

**Whale Physics: Sound**

**Concepts:**

1. Sound is caused by something that vibrates or shakes.
2. The vibration must pass through a medium - a solid, liquid or gas.
3. We hear sound that travels through air. Whales hear sound in air as well as below water.
4. Whales use echolocation. They emit a pulse of sound towards prey or other whales. The sound reflects off the object back towards the sender.

**Materials:**

1. String
2. Scissors
3. Pen/Pencil
4. Metal coat hanger
5. Partner

**Directions:**

1. Cut a two-foot piece of string with the scissors.
2. Tie one end of the string onto the hook or a corner of the coat hanger.
3. Wrap the other end of the string around your pointer fingers a few times.
4. Stick your pointer fingers into your ears. Be careful not to go too deep!
5. Bend forward so that the coat hanger is not touching your body, any furniture in the room, or the floor.
6. Ask someone to tap the coat hanger with the pencil and listen.
7. Switch places with your partner so he/she can also listen.

**Explanation:**

1. Tapping the hanger produces a vibration.
2. The sound vibration is passing through a solid medium (the string and finger) to your ear.