

## EVOLUTION OF WHALES

### 2. Why is it a whale?

**Objective:** Students will understand the differences between cetaceans and other ocean-dwelling creatures.

**Level: K-3, 4-7**

**Background:** A whale has a smooth, rounded, streamlined body that moves quickly and easily through the water. Instead of arms, it has flippers that help it balance and steer in the water. A whale also has two pointed flukes that make up its large, horizontal tail. This tail propels the whale forward with an up-and-down motion rather than a side-to-side motion as a fish's tail does. The dorsal fin on the back helps keep the whale balanced, although some whales manage quite well without one.

Whales are mammals. Like other mammals, they breathe air, are warm-blooded, nurse their young with milk and, at some point in their lives, have hair. Whales evolved from land-dwelling, flesh-eating mammals that lived about 70 million years ago. Between 70 and 50 million years ago these ancestors gradually ventured back into the ocean and evolved into the superbly adapted animals we know today. In order to make this transition to a marine lifestyle, cetaceans had to overcome problems of buoyancy, thermoregulation, streamlining, underwater vision, respiration, feeding and communication.

**Level: K-3**

**Materials:** paper, crayons.

**Procedure:**

- 1) Have students draw a picture of a whale and a fish. What position is the tail in for each animal? (Vertical for the fish and horizontal for the whale.)
- 2) Discuss how each tail is used for swimming. (A sideways motion for the fish and an up-and-down motion for the whale.)

**Level: 4-7**

**Materials:** large sheet of paper, felt pens.

**Procedure:** The complexity of this activity can vary with the grade level.

- 1) Divide a sheet of paper into four columns. In the first column list general characteristics of animals that live in the sea; i.e., body covering, source of oxygen, tail, tail position, warm or cold-blooded, method of birth (live/eggs), etc. Label the other columns "Cetaceans", "Fish", "Other Sea Mammals".
- 2) Discuss for each column of animals how each relates to the category of characteristics listed in column one. Write down these findings and discuss the similarities and differences found.