



WHALES

**ACTIVITIES BASED ON RESEARCH FROM
THE CENTER FOR COASTAL STUDIES**

written and edited by

**KATH BUFFINGTON, MARIA FLEMING,
DEBORAH KOVACS,
KAREN STEUER, AND NATHALIE WARD**

S C H O L A S T I C
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*This activity book is dedicated to
Dr. Barbara S. Mayo,
Founder of the Center for Coastal Studies.
Her life-long devotion to saving coastal and marine
environments was an inspiration to all ages.*

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GETTING TO KNOW WHALES

In recent years, whales have become the focus of increased attention as concern about their depleted populations has emerged. This has resulted in a growing body of information about whales, although scientists still have a host of unanswered questions about these elusive animals. This book is designed to introduce students to what scientists do know about whales and their behavior through a series of exciting activities designed to promote learning. Students are given the opportunity to do lots of fun, fact-based projects as well as “accompany” scientists on a whale watch and find out about the painstaking process of whale research. The book also includes a pull-out poster of whale tails—known as flukes—which you may want to display as your students embark on their journey of whale discovery.

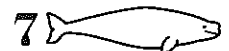
Mammals of the Sea

A frequent misconception about whales is that they are fish. Whales are actually mammals, which puts them in the same animal group as dogs, apes, and human beings. Like all other mammals, they are warm-blooded, bear live young, have hair, and breathe through lungs. Mammals have highly developed brains and are believed to be extremely intelligent.

Whale Adaptations

Most mammals live on land. Why don't whales? Their ancestors probably did. Scientists believe that one of the earliest known whale ancestors was a four-legged creature that lived on land about 55 million years ago. It may have been a meat-eater. As millions of years passed, this creature found more food in the water than on land. Its body changed gradually over time so that it could live better in the water. Finally, the whale we know today found its form.

What are some of the evolutionary changes this animal underwent? Forelegs became flippers. The creature's nostrils moved from the front of the head to the top, creating the blowhole on modern-day whales. Blubber, the dense insulating fat layer that protects it from cold water, began to form. Since whale skeletons also contain the remnants of what was once a pelvic, or hip bone, many scientists think whales once had back legs, too.



Types of Whales

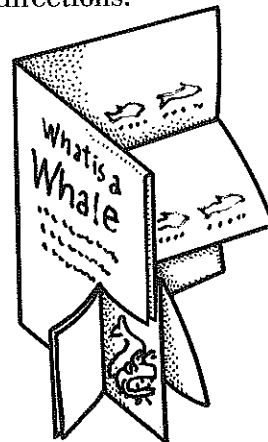
Whales belong to the scientific order called *Cetacea*. There are more than 76 kinds of *Cetacea*. This order of mammals includes everything from the great whales—which may grow as long as 100 feet—to smaller dolphins and porpoises. Cetaceans are generally grouped into two categories: toothed whales (Odontocetes) and baleen whales (Mysticetes). The former have teeth while the latter have hairy-edged plates, called baleen, instead of teeth.

STUDENT ACTIVITIES

Whale Characteristics

MAKE A MINI-BOOK: Students can get better acquainted with whales by making and reading the mini-book on the following two pages. Make double-sided photocopies of pages 9 and 10. (Be careful not to invert the copy on the reverse side of the page.) Distribute a copy to each child. Students can put together their mini-books by following these directions:

1. *Begin with the side showing lines A, B, C, and D facing up on the desk.*
2. *Cut along lines A and B.*
3. *Fold the bottom half of the page up along line C.*
4. *Fold the top of the page down along line D.*
5. *After making a crease, push the flap you just made back up into place.*
6. *Fold the book in half along line E so that the title page faces you.*

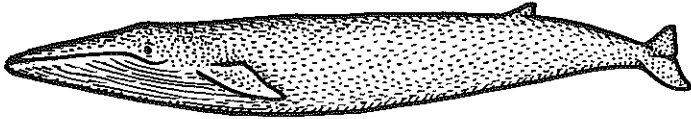
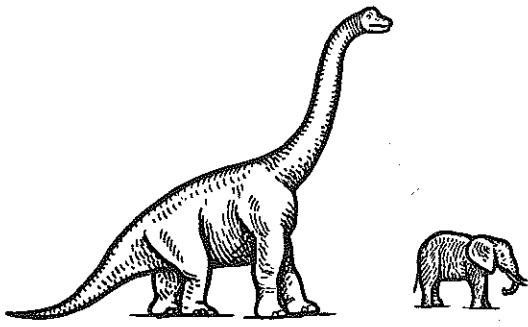


Finished mini-books should look like the illustration above.

LEARN WHALE ANATOMY: Pages 11–14 will help students get to know whales inside and out. Make double-sided photocopies of the page and distribute them to students. (Be careful not to invert the copy on the reverse side of the page.) After reviewing different parts of the whales' anatomies, students can hold the page up to the light to sneak a peak at the two whales' skeletons, which will show through from the other side of the page.

MAKE A BLUBBER GLOVE: Page 15 is a hands-on science activity that will help students find out about an adaptation that distinguishes whales from most other mammals: the thick layer of blubber beneath their skin that enables the warm-blooded animals to tolerate frigid ocean temperatures and that serves as a reservoir for food when they are not feeding.

How **Big** Is a Whale?



What is most amazing about whales is their size. Blue whales may be the largest animals that have ever lived on Earth. They are heavier than the largest dinosaur—Brachiosaurus—and the largest living land animal—the elephant. A whale's enormous weight is supported by the water it lives in.

4

fold

What Is a Whale?

Though it lives in the ocean and spends its days swimming, a whale is not a fish. It is a *mammal*. Like all mammals, whales have hair and breathe air through lungs. They also give birth to live young instead of laying eggs.

Whales belong to the order of mammals called Cetacea (see-TAY-shuh). This name comes from a Greek word that means "sea monster."

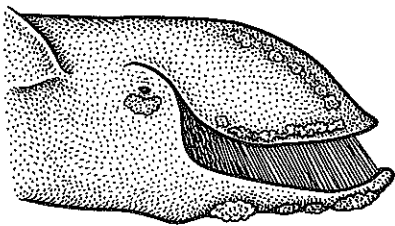
Open the flap to see what people used to think whales looked like.

**Monsters
of
the
Deep**

Baleen whales don't have teeth. Instead, they have long, flat plates called *baleen* that hang down from the roof of the mouth like a comb. At the edge of each plate of baleen is a row of stiff hairs. The whale feeds by filling its mouth with a huge gulp of water. It then pushes the water out through the plates. The hairs on the baleen act like strainers. They hold onto fish and other tiny animals and plants as the water rushes out of the whale's mouth. Baleen is made from the same material as your fingernails.

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Open the flap to see some kinds of toothed and baleen whales.



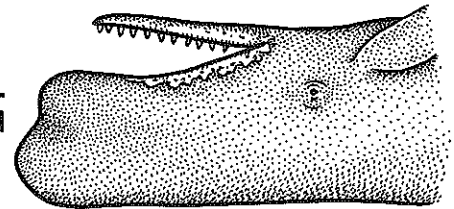
Mouth of Baleen Whale

Baleen Whales

Toothed whales have teeth for catching food. They eat mainly fish and squid. Toothed whales don't look for food—they listen for it. Have you ever heard your voice echo? Toothed whales use echoes to find food. A whale sends out a sound. When the sound hits an object, it makes an echo. The echo bounces back and tells the whale the size, shape, and distance of the object—and whether it would make a good meal! Scientists call this way of finding food *echolocation*.

2

fold



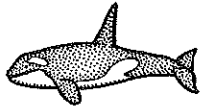
Mouth of Toothed Whale

Toothed Whales

Scientists divide whales into two main groups: *toothed whales* and *baleen whales*.

Types of Whales

Some Kinds of Toothed Whales



killer whale



bottlenose dolphin



sperm whale

A

B



harbor porpoise



beluga



pilot whale

Some Kinds of Baleen Whales



humpback whale



blue whale



gray whale

C

D



minke whale



fin whale



right whale