

DOLPHIN RESEARCH CENTER

How Many Students Make A Whale?

Grades- 3rd-5th

Objective: Students will understand the enormous size of whales and that some of the largest creatures on earth can be effected by the smallest pieces of trash, and will compare, contrast, and convert within systems of measurement.

Florida Sunshine State Standards:

Mathematics

MA.B.2.2.1: The student uses direct (measured) and indirect (not measured) measures to calculate and compare measurable characteristics.

MA.B.3.2.1: The student solves real world problems involving estimates of measurements, including length, time, weight, temperature, money, perimeter, area, and volume.

Social Studies

SS.B.2.2.4: The student understands how factors such as population growth, human migration, improved methods of transportation and communication, and economic development affect the use and conservation of natural resources.

Science

SC.D.2.2.1: The student knows that reusing, recycling, and reducing the use of natural resources improve and protect the quality of life.

National Science Education Standards:

Content Standard F (K-4) - Changes in Environments: Changes in environments can be natural or influenced by humans. Some changes are good, some are bad, and some are neither good nor bad. Pollution is a change in the environment that can influence the health, survival, or activities of organisms, including humans

Content Standard F (5-8) - Natural Hazards: Human activities also can induce hazards through resource acquisition, urban growth, land-use decisions, and waste disposal. Such activities can accelerate many natural changes.

Background: This is an easy, hands-on activity that gives students the opportunity to understand and visualize the large size of dolphins and whales and the need to protect them. Some of the largest animals on earth live in the ocean. Whales and dolphins belong to the scientific order known as Cetacea. Within this order, there are two suborders: mysticete and odontocete. Mysticetes are whales that have no teeth. Instead of teeth, they have big fibrous plates called baleen. These plates act as sieves to trap food. Baleen whales swallow gallons of water and push the water through the baleen plates. Plankton and krill are too large to be pushed through the baleen plates. The food becomes trapped and the whale uses its tongue to gather and swallow food. Some of the largest whales are baleen whales, which means they feed on some of the smallest creatures! Examples of baleen whales include humpback whales,



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minke whales, right whales, gray whales, and the blue whale. The blue whale, the largest mammal on earth, can grow up to 100 feet in length!

The second suborder in the Cetacea order is the Odontoceti. Odontocetes are toothed whales. The largest toothed whale is the Sperm Whale, which can grow up to 60 ft. Dolphins and porpoises belong to this suborder as well. Dolphins and porpoises are, in fact, small toothed whales. Odontocetes use their teeth to catch their prey, but they actually swallow their food whole.

Materials:

- A measuring tape
- Students
- A large area

Procedure:

1. Discuss with students background information on whales and dolphins. Have students predict how many students it would take to equal different species of whales and dolphins.
2. An important message to give to students is that many species of whales and dolphins are effected by marine debris. Some of the largest mammals on earth are effected by the smallest forms of pollution. Sandwich bags can be mistaken for yummy jellyfish, while cigarette butts can look like tasty shrimp. Whales and dolphins can ingest our garbage and become terribly ill. Marine debris could potentially kill these amazing marine mammals.
3. Using the length measurements, have students lie head to toe, and then measure out on the ground the size of various whales and dolphins. Have students lie down in a row to find out how many children it takes to make a whale. Discuss the great size of many whales and dolphins.

Key Terms

The 3 R's:

Reduce: to cut down on the use of something like turning off the lights when you leave the room.

Reuse: to use something over again like a water bottle.

Recycle: to make something useful out of something else- take advantage of recycling bins! Make sure to find out which ones are for plastics like soda bottles, aluminum like coke cans or soup cans, paper like newspaper, etc.

Marine debris is anything from a discarded sandwich bag to a lost fishing net.

Pollution: the act of spoiling a natural resource or ecosystem with waste made by humans

Characteristics of baleen whales:

Long plates of baleen hang in a row from the upper jaw Made of protein similar to human fingernails

Forms a curtain in the whale's mouth for straining food

Mysticete: scientific name for baleen whales

Odontocete: scientific name for toothed whales



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Wrap up: A great way to end the lesson would be to conduct a beach, street, or river cleanup and discuss the students' findings and feelings.

Taking it further:

- As an additional math lesson, have students convert measurements from feet into inches, meters and centimeters.

Baleen whales:

Blue Whale- 100 ft.

Fin Whales- 88 ft.

Sei Whales- 69 ft.

Bowhead Whales- 65 ft.

Right Whales- 60 ft.

Humpback Whales- 50 ft.

Bryde's Whales- 50 ft.

Grey Whales- 45 ft.

Minke Whales- 30 ft.

Toothed Whales:

Sperm Whales- 60 ft.

Killer Whales- 30 ft.

Bottlenose Whales- 15-30 ft.

Pilot Whales- 22 ft.

White Whales- 18 ft.

Narwhals- 16 ft.

Belugas- 16 ft.

Bottlenose Dolphins- 13 ft.

Porpoises- 8 Ft.

