

## ACTIVITY 7: How Much Food Do Whales Eat?

### Concept

Whales eat an enormous quantity of food.

### Materials

- Paper
- Pencil
- Copy of math problem

### Subjects

- Math
- Biology

### Time

15 minutes

### Teacher information

Right and bowhead whales are examples of skimmer feeders. Right whales eat tiny copepods that live on the ocean's surface and make feeding dives for deeper swarms of prey. These whales skim the surface and dive through the waters with their mouths partially open. There is a gap at the front of the mouth between the two rows of baleen. Seawater streams through this gap and passes out through the fringes of baleen, leaving behind the small organisms trapped against the screen of baleen. Small crustaceans, principally copepods and euphausiids, form the diet of right whales. There is no evidence they eat fish.

Some baleen whales feed for only 4 or 5 months a year when they are in cold polar or upwelling regions that are particularly rich in food. A large whale swallows an estimated 2 tons of food a day and builds up a store of energy in the form of a thick layer of blubber. The blubber is believed to store

energy that may last through the rest of the year, when food supplies are scarce during their long migrations.

Toothed whales, on the other hand, feed on squid or fish. Sperm whales feed on squid, including the giant squid, and have very large, cone-shaped teeth. They are believed to feed year-round, although long, unpredictable periods of no food supply are likely to occur. All toothed whales have cone- or spade-shaped teeth. This tooth shape allows the animal to capture and hold prey. A large sperm whale eats an estimated 1½ tons of food per day (International Whaling Commission Estimate).

### Teacher key to student worksheet #7

1. 15,291 liters filtered per minute
2. 229.4 liters in one bathtub
3. 66.7 per minute
4. 4,002 per hour
5. 2½ pickup loads
6. 5 pickup loads

### Help students visualize measurements of quantity

#### A liter compared to a quart:

Fill an empty 1-liter soft-drink container with water. Pour it into a 1-quart jar. Add the remaining water to a measuring cup. How much more is a liter than a quart?

#### Visualizing a ton:

One ton = 2,000 pounds. A large, heavy-duty pickup truck will carry  $\frac{3}{4}$  ton. Imagine: It would take two loaded pickup trucks to feed one sperm whale per day.



Name \_\_\_\_\_

Date \_\_\_\_\_

## Student Worksheet #7

Right and bowhead whales filter 15,291 liters of water per minute. A bathtub holds 229.4 liters of water.

1. How many bathtubs full of water equal the amount of water filtered by a right whale each minute?  
\_\_\_\_\_ liters filtered per minute
2. How many bathtubs full would equal the amount of water a right whale can filter in 1 hour?  
\_\_\_\_\_ liters in one bathtub
3. How many full bathtubs need to be filtered each minute? \_\_\_\_\_ per minute
4. How many tubs are filtered per hour? \_\_\_\_\_ per hour

Having difficulty visualizing a liter? Fill a 1-quart jar with water. Empty it into an empty 1-liter soft-drink container. Add the remaining water to a measuring cup. How much more is a quart than a liter?

How many tons of food are consumed by filtering all that water?  
Bowheads eat up to 2 tons per day.

A large pickup carries  $\frac{3}{4}$  ton of weight. One ton = 2,000 pounds.

5. How many pickup loads of food will the bowhead whale eat? \_\_\_\_\_ pickup loads
6. How many pickup loads of food will the blue whale eat? \_\_\_\_\_ pickup loads