

# Number Munching



## Objective

Students will create and use simple algebraic equations to calculate types and weights of food needed to feed a collection of marine mammals.

## Materials

- calculators
- copies of *Number Munching* worksheet per student or group

## Background

Zoo curators often order animal food in large quantities, stocking at least a one-month supply. Storing frozen food provides the flexibility to feed a variety of foods throughout the year, not just when they are seasonally available. In determining how much food to order, curators take into account the number of animals and each animal's average food intake. Based on a daily consumption of 6,350 kg (7 tons), SeaWorld parks purchase about 196,850 kg (217 tons) of seafood a month.

## Action

1. Curators are responsible for the health and well-being of the animals in their care. Discuss sources of seafood, shipping methods that reduce spoilage or contamination, and storage facilities for keeping stock on hand.
2. Distribute *Number Munching* worksheets and calculators to each student or group. Depending on the level of your students, you may give them equations or create them together.
3. Students present and discuss their results and problem-solving methods.

## Answers

For example, to calculate the total weight of herring for one month...

$n$  = days in the month

$h_k$  = daily amount of herring for 1 killer whale

$h_s$  = daily amount of herring for 1 sea lion

$h_w$  = daily amount of herring for 1 walrus

$h_b$  = daily amount of herring for 1 bottlenose dolphin

$$h_T = n(2h_k + 13h_s + 2h_w + 9h_b)$$

For a 31 day month...

$herring_T = 4,511$  kg herring

$squid_T = 1,442$  kg squid

$smelt_T = 6,231$  kg smelt

$salmon_T = 434$  kg salmon

$clams_T = 558$  kg clams

# Number Munching



Name \_\_\_\_\_

You are the new Curator at XYZ Zoo. Your zoo has 2 killer whales, 13 California sea lions, 2 Pacific walruses, and 9 bottlenose dolphins.

Your Assistant has just given you the average food quantity given to each animal each day (see chart below).

In one hour, Mr. Silverside from the Fantastic Frozen Fish Company, a leading distributor of high-quality fish, is calling for next month's order. What will you tell him?

	Food Type (per day)				
	herring	squid	smelt	salmon	clams
killer whale	23 kg	7 kg	32 kg	7 kg	—
California sea lion	3 kg	1 kg	5 kg	—	—
Pacific walrus	10 kg	3 kg	—	—	9 kg
bottlenose dolphin	4.5 kg	1.5 kg	8 kg	—	—

Create algebraic equations that will help you solve this problem.