

## Activity Sheet: Representing Functions

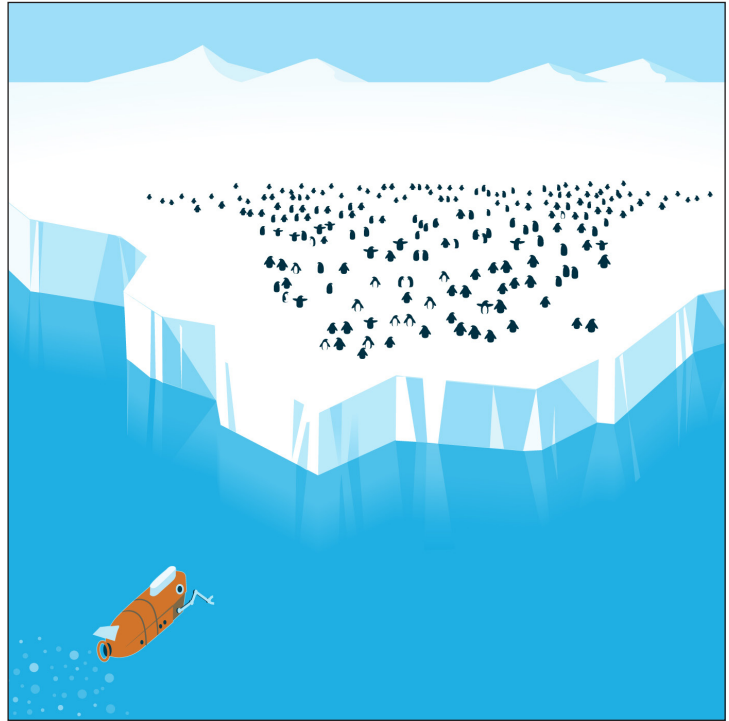
Name: \_\_\_\_\_

Date: \_\_\_\_\_

# A Well-Functioning Research Mission

The Living Ocean Institute is a world-renowned oceanographic research organization specializing in Pacific plant and animal life. Their scientists are on a search to uncover previously unknown species of life on and around Antarctica. To fulfill their mission, the scientists rely on a combination of their math skills and high-tech research equipment.

Use your knowledge of functions to answer the questions about the scientists' mission below.



### WORK THE MATH

Use a separate sheet of paper for your responses.

- 1** One of Living Ocean Institute's research sites is aboard the Delphino, a large research vessel off the coast of Antarctica. The Delphino can travel at 21 knots per hour (a nautical unit of speed), which is equivalent to around 24 miles per hour.
  - a. Is the relationship between time and distance traveled a functional relationship? Explain your thinking.
  - b. Make a table showing how many miles the researchers can expect to travel in a period of 1, 2, 3, 4, or 5 hours.
  - c. Represent the time/miles relationship as a formula.
  - d. Represent the relationship as a graph.
  - e. Could you use any of these representations to determine how far the ship could travel in  $1\frac{1}{2}$  hours? Explain your thinking.
- 2** On a recent mission to the Ross Ice Shelf, the researchers discovered a previously unknown species of penguin, the Mini-Emperor. The typical Mini-Emperor is 6 inches tall when born and grows 1 inch per month until it matures at two years old.
  - a. Is the relationship between the Mini-Emperor's age and height a functional relationship? Explain your thinking.
  - b. Make a table showing how tall a Mini-Emperor can be expected to be at birth, 6 months, 12 months, 18 months, and 24 months of age.
  - c. Represent the age/height relationship as a formula.
  - d. Represent the relationship as a graph.
  - e. Could you use any of these representations to predict how old the typical Mini-Emperor will be when it reaches 36 inches in height? Explain your thinking.