

## The Nature of Force (pages 334–337)

### What Is a Force? (pages 334–335)

**Key Concept:** Like velocity and acceleration, a force is described by its strength and by the direction in which it acts.

- A **force** is a push or a pull.
- To tell about a force, you must tell how strong the force is. The SI unit for the strength of a force is the **newton**.
- To tell about a force you must also tell the direction the force is pushing or pulling.
- Arrows can be used to show forces. The point of the arrow shows the direction of the force. The length of the arrow shows how strong the force is.

*Answer the following questions. Use your textbook and the ideas above.*

1. Circle the letter of the arrow that shows the stronger force.



a.



b.

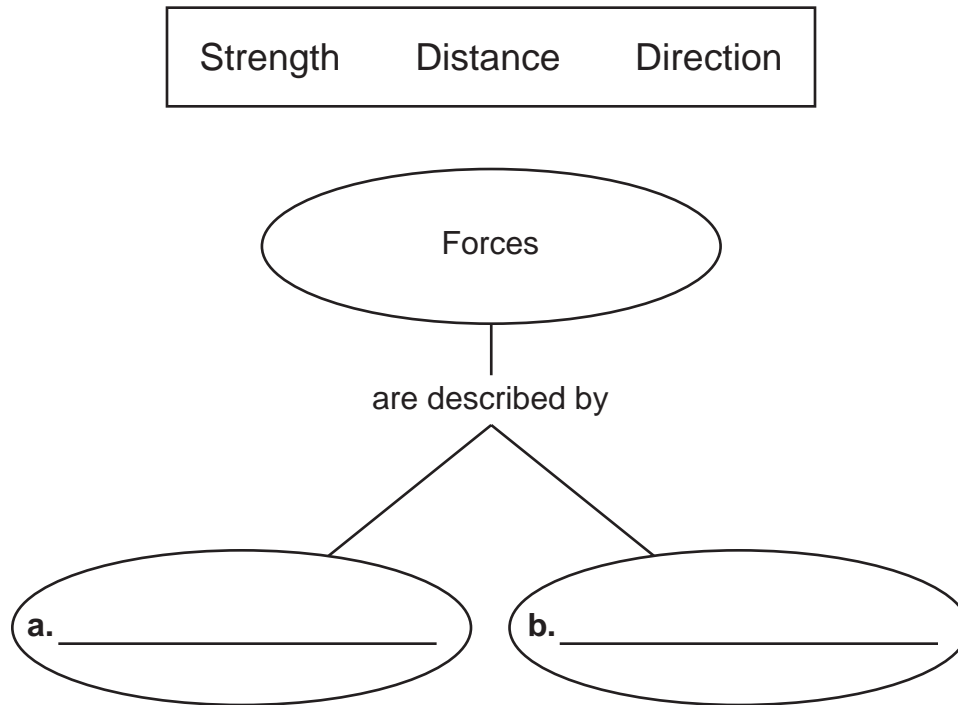
2. Is the following sentence true or false? Forces are described by their strength and their direction.

\_\_\_\_\_

3. The SI unit used for measuring the strength of a force is the \_\_\_\_\_.

**Forces** ▪ *Adapted Reading and Study*

4. Read the words in the box. Use the words to fill in the concept map about force.

**Combining Forces** (pages 335–337)

**Key Concept:** Unbalanced forces acting on an object result in a net force and cause a change in the object's motion. Balanced forces acting on an object do not change the object's motion.

- Often there is more than one force acting on an object. The total of all the forces acting on an object is called the **net force**.
- Sometimes the net force on an object is 0. This means there are **balanced forces** acting on the object. The object's motion does not change.
- Sometimes the net force does not equal 0. This means there are **unbalanced forces** acting on the object. The object's motion changes.

**Forces** ▪ *Adapted Reading and Study*

*Answer the following questions. Use your textbook and the ideas on page 142.*

**5.** Draw a line from each term to its meaning.

<b>Term</b>	<b>Meaning</b>
net force	<b>a.</b> cause a net force of 0
balanced forces	<b>b.</b> the total of the forces acting on an object
unbalanced forces	<b>c.</b> cause an object's motion to change

**6.** Label the circles in the Venn diagram to show which circle describes balanced forces and which circle describes unbalanced forces.

**a.** \_\_\_\_\_ **b.** \_\_\_\_\_

\_\_\_\_\_

