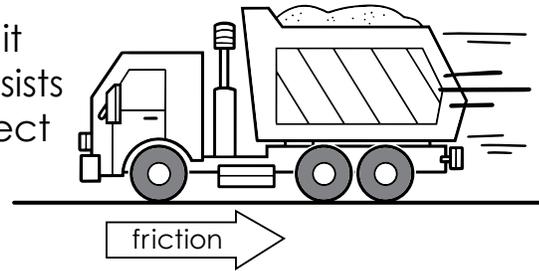


Name: \_\_\_\_\_

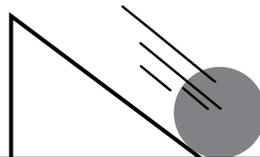
# Friction

When two surfaces move against one another, it causes friction. **Friction** is a special force that resists motion. It goes in the opposite direction an object moves. It slows and stops objects. To overcome friction, objects must use more force.



Manit does an experiment. He lets go of the same marble atop the same ramp on four different surfaces. Then he records how far the marble rolls.

surface	distance (feet)
pavement	2.4



A promotional banner for Super Teacher Worksheets. On the left is a cartoon superhero with a red cape and a blue suit, flying. On the right, the word "Preview" is written in large red letters. Below it, the text says "Please log in to download the printable version of this worksheet." The background is blue with white clouds.

magnetism      gravity      buoyancy      static electricity

3. Which surface had the least friction? \_\_\_\_\_

Which surface had the most friction? \_\_\_\_\_

How do you know?  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

4. Smooth surfaces cause \_\_\_\_\_ friction than rough surfaces.  
less / more

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

## Friction

5. If Manit pushes the marble instead of letting it go, will it roll farther? Why?

---

---

6. Manit tries his experiment a fifth time on the ice at an ice rink. How do you think it will compare to the data he already has? Why?

---

---

Answer the questions based on what you know about friction.



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9. Oil helps the parts in an engine move more smoothly. Does oil increase or decrease friction? \_\_\_\_\_

10. Avayah pushes a box 20 feet across a tiled room. The next day, she pushes the same box 20 feet across a carpeted room. Explain why she feels more tired out on the second day.

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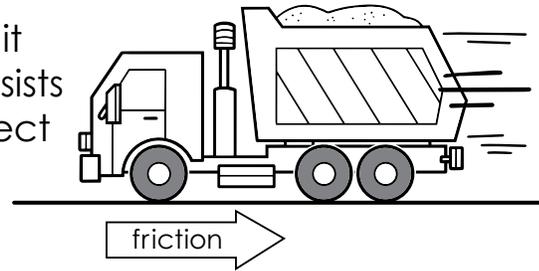
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# ANSWER KEY

## Friction

When two surfaces move against one another, it causes friction. **Friction** is a special force that resists motion. It goes in the opposite direction an object moves. It slows and stops objects. To overcome friction, objects must use more force.



Manit does an experiment. He lets go of the same marble atop the same ramp on four different surfaces. Then he records how far the marble rolls.

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1. Smooth surfaces cause \_\_\_\_\_ friction than rough surfaces.

less / more

# ANSWER KEY

## Friction

5. If Manit pushes the marble instead of letting it go, will it roll farther? Why?

**Yes, it will roll farther because the extra force will help it overcome friction.**

---

6. Manit tries his experiment a fifth time on the ice at an ice rink.  
How do you think it will compare to the data he already has? Why?

**Answer: It will be the same, but should indicate it will go far and likely farther than**

# Preview

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**Avayun needed to use more force. That is why she feels more tired out.**

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