Science 5

Friction, Heat, and Motion

Study Guide

Friction

Friction is a force that opposes motion between surfaces.



Effects of Friction:

- Slows down or stops motion
- Produces heat
- Causes wear and tear

Heat

Heat is a form of energy that can make things hotter or colder.



Friction and Heat:

Friction produces heat because moving surfaces rub against each other.

Motion

Motion is the change in position of an object.



Types of Motion:

- Straight-line motion
- Circular motion
- Back and forth motion

Surfaces and Friction

Rough surfaces create more friction, while smooth surfaces create less friction.



Rough Surface (more friction)



Smooth Surface (less friction)

Ways to Increase or Reduce Friction

To Increase Friction:

- Use rough surfaces
  Add treads or grips
- Use sandpaper



To Reduce Friction:

- Use lubricants (oil, grease)
- Use wheels or rollers
- Choose smooth surfaces



Lubricants

Lubricants are substances that reduce friction.

Examples:

- Oil
- Grease
- Water



Wheels and Rollers

Wheels and rollers help reduce friction and make movement easier.



Friction in Daily Life

- Shoes give grip when walking.
- Bicycle tires help us ride.
- Brakes use friction to stop a moving vehicle.





Remember!

- Friction slows motion and can produce heat.
- Different surfaces create different amounts of friction.
- We can increase or reduce friction for our needs.



LIVEWORKSHEETS

SCIENCE 5

WEEK 9

Friction, Heat, and Motion

Explore • Investigate • Learn • Apply

Competency: Demonstrate how friction can produce heat and investigate ways of reducing and increasing friction.

Name: _____ **Grade and Section:** _____

Direction: Read each question carefully. Choose the letter of the correct answer.

1. **What can friction produce when two surfaces rub together?**
   - A. Heat
   - B. Rain
   - C. Light
   - D. Wind

2. **What happens when you rub your hands together quickly?**
   - A. Your hands become colder.
   - B. Your hands become warmer.
   - C. Your hands disappear.
   - D. Your hands become wet.

3. **Why do your hands become warm when you rub them together?**
   - A. Water is produced.
   - B. The air freezes.
   - C. Your hands stop moving.
   - D. Friction produces heat.

4. **Which activity shows friction producing heat?**
   - A. Looking at the moon
   - B. Rubbing two sticks together
   - C. Listening to music
   - D. Smelling a flower

5. **Friction happens when two surfaces _____.**
   - A. disappear
   - B. float in the air
   - C. rub against each other
   - D. glow

6. **Which surface usually creates MORE friction?**
   - A. Smooth glass
   - B. Ice
   - C. Rough sandpaper
   - D. Polished tile

7. **Which surface usually creates LESS friction?**
   - A. Rough road
   - B. Sandpaper
   - C. Smooth ice
   - D. Carpet

8. **Which can be used to reduce friction between moving machine parts?**
   - A. Sand
   - B. Lubricant or oil
   - C. Rough paper
   - D. Gravel

9. **Why do people put oil on some machine parts?**
   - A. To make parts heavier
   - B. To reduce friction
   - C. To increase friction
   - D. To change their color

10. **Which action can increase friction?**
    - A. Making a surface rougher
    - B. Adding oil
    - C. Polishing a surface
    - D. Making a surface smoother

Investigate Today!

A Smoother, Brighter Tomorrow

LIVEWORKSHEETS