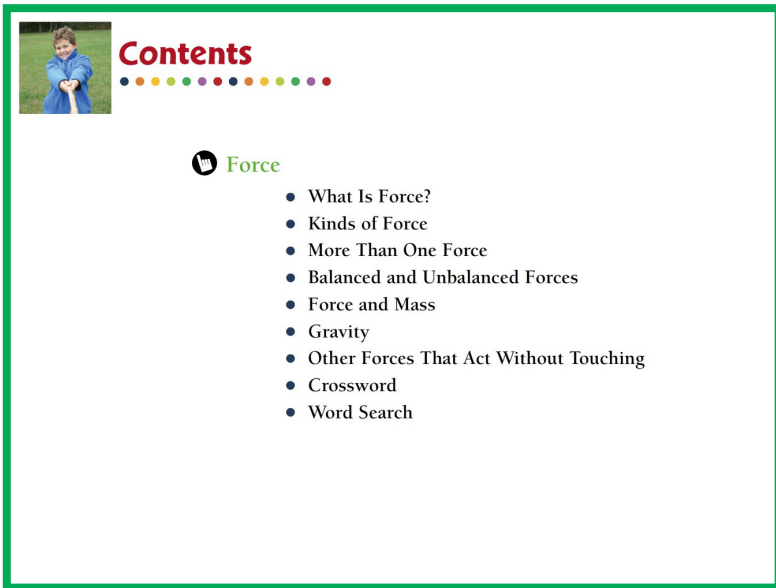


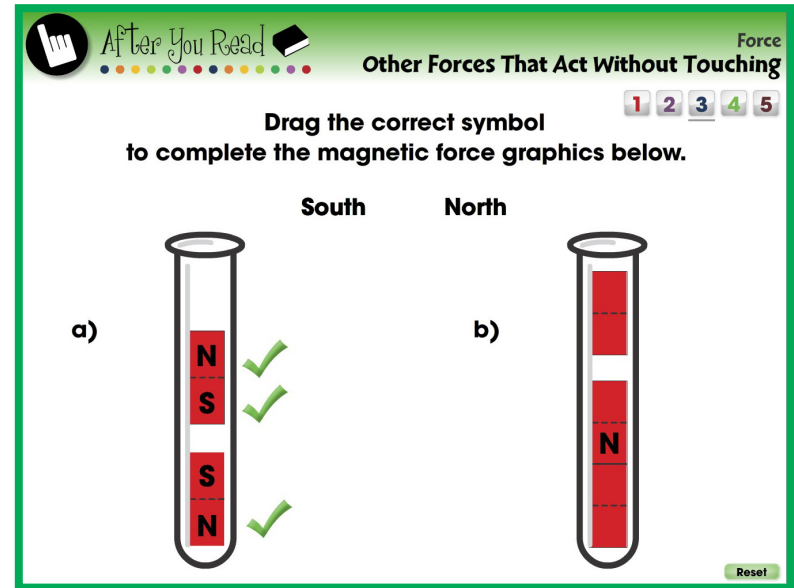
# Contents



**Contents**

- Force
  - What Is Force?
  - Kinds of Force
  - More Than One Force
  - Balanced and Unbalanced Forces
  - Force and Mass
  - Gravity
  - Other Forces That Act Without Touching
  - Crossword
  - Word Search

# After You Read



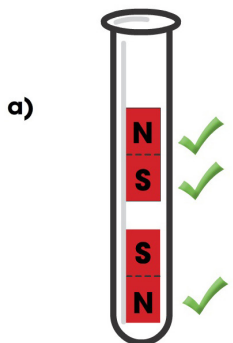

**After You Read** Force

Other Forces That Act Without Touching

1 2 3 4 5

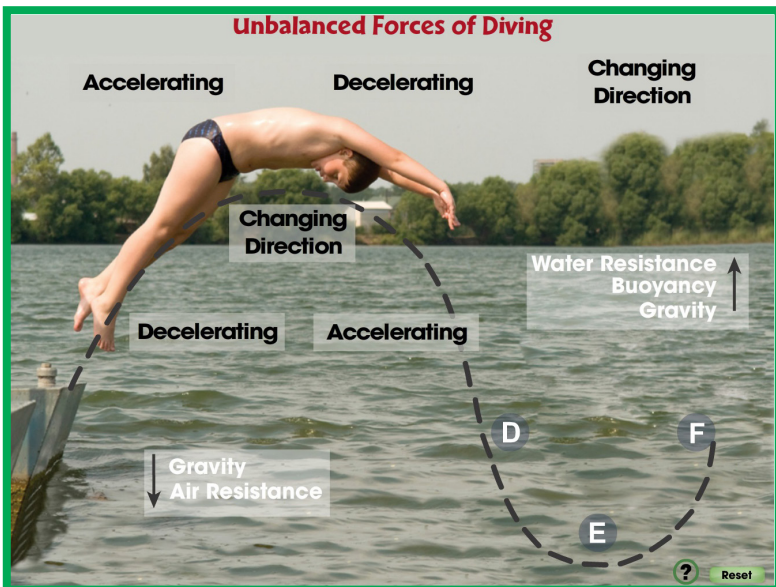
Drag the correct symbol to complete the magnetic force graphics below.

South North

a)  b) 

Reset

# Interactive Activity



**Unbalanced Forces of Diving**

Accelerating Decelerating Changing Direction

Changing Direction

Water Resistance Buoyancy Gravity ↑

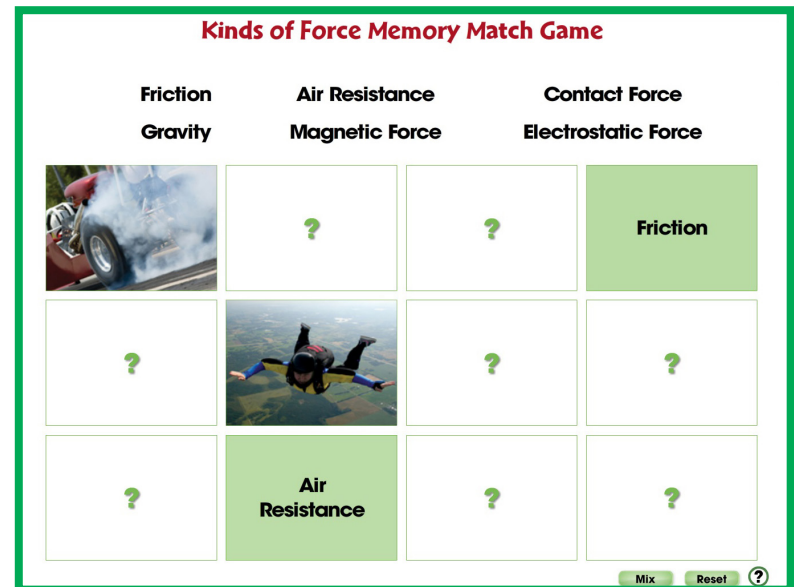
Decelerating Accelerating

Gravity Air Resistance ↓



D E F

Reset

# Memory Match Game



**Kinds of Force Memory Match Game**

Friction	Air Resistance	Contact Force
Gravity	Magnetic Force	Electrostatic Force
	?	?
?		?
?	Air Resistance	?

Mix Reset ?

# Contents



## Contents

-  **Motion**
  - What Is Motion?
  - How to Recognize Motion
  - Velocity and Speed
  - Acceleration
  - How to Graph Motion
  - Vibrating Motion
  - Wave Motion
  - Crossword
  - Word Search

# Reading Passage



## Reading Passage

Motion  
**Vibrating Motion**

The pictures to the right show four things that move with a vibrating motion, arranged from most pleasant to most unpleasant. When something vibrates it moves back and forth or up and down.



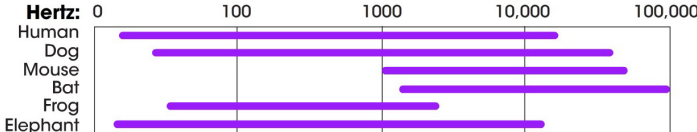
We can see the jackhammer and woodpecker's head moving back and forth. The motion of the guitar strings and hummingbird's wings are so fast we just see a blur.







The speed of the vibration is called the **frequency**. Frequency tells how often (how frequently) the thin **continue reading** →

# Interactive Activity

## Ranges of Hearing

Hertz: 0      100      1000      10,000      100,000



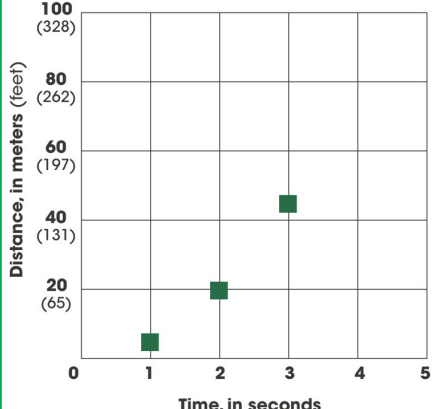
 Human 20-20,000 Hz	 Dog 40-60,000 Hz	 Mouse (label) 16-12,000 Hz
 Bat (label) 50-4,000 Hz	 Frog (label) 1,000-70,000 Hz	 Elephant (label) 2,000-120,000 Hz

Reset

# Interactive Activity

## Acceleration of a Falling Apple Timeline

Acceleration = 10 meters (32 feet) per second *per second*  
Distance = 0.5 X acceleration X time squared



Time, in seconds	Distance, in meters (feet)
1	5 (16)
2	20 (64)
3	45 (144)
4	

10 (32)	35 (112)
60 (192)	80 (256)

Reset


# Contents



## Contents

- Simple Machines
  - What Are Force, Motion, and Work?
  - What Are Simple Machines?
  - Lever
  - Wheel & Axles and Pulleys
  - Inclined Planes, Wedges, and Screws
  - Compound Machines
  - Gains and Losses with Simple Machines
  - Crossword
  - Word Search

# Before You Read



## Before You Read

Simple Machines  
Compound Machines

1 2










Which statements are True and which statements are False?

- TRUE / FALSE** A) Compound means separate.
- TRUE / FALSE** B) A wedge is a simple machine.
- TRUE / FALSE** C) We can do some things with simple machines we couldn't do without them.
- TRUE / FALSE** D) An axe is made of two simple machines.
- TRUE / FALSE** E) Simple machines are always smaller than machines with motors.

Reset

# Interactive Activity

## First, Second, and Third-Class Levers

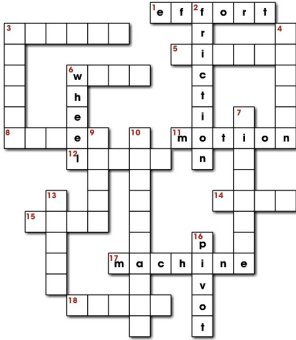
<p><b>First-Class Lever</b></p>  <p>Baseball Bat</p> <p><b>Third-Class Lever</b></p>	<p><b>Second-Class Lever</b></p>  <p>Nutcracker</p> <p><b>Second-Class Lever</b></p>	<p><b>Third-Class Lever</b></p>  <p>Door on Hinge</p> <p><b>Third-Class Lever</b></p>
 <p>Wheelbarrow</p> <p><b>Second-Class Lever</b></p>	 <p>Oil Pump</p> <p>(label)</p>	 <p>Stapler</p> <p>(label)</p>
 <p>Seesaw</p> <p>(label)</p>	 <p>Hole Puncher</p> <p>(label)</p>	 <p>Soft Drink Can Tab</p> <p>(label)</p>

Reset

# Crossword Puzzle

## Crossword

Reset



### Word List

d	e	n	p	r	w
i	e	w	l	a	s
s	e	t	r	n	e
t	a	n	e	s	t
a	n	c	e	s	a
n	c	e	s	a	n
e					e

Across / Down

- The force that slows down something that is sliding.
- Ramps are inclined \_\_\_\_\_.
- How force is measured in the metric system.