

# Kindergarten

## Forces and Motion

### Core Concepts

1. How can you make an object move?
2. How can you make an object go faster? Slower? Change direction? Stop?
3. What causes a change in motion?
4. What happens when objects collide?
5. How are pushes and pulls the same and how are they different?
6. How can you plan and use data to solve problems?

### Essential Vocabulary

Force	Friction	Gravity	Push	Pull
Collide	Speed	Distance	Motion	

### STEM Fair Ideas

1. How do 3D shapes move? (Roll and/or slide - spheres, cylinders, cubes, cones, rectangular prisms)
2. Do heavier blocks slide further than lighter blocks? Do heavier balls roll further than lighter balls?
3. How do different surfaces affect how far a block will slide? How do different surfaces affect how far a ball will roll?
4. When dropped from the same height, do heavier blocks fall faster than lighter blocks?
5. Do different surfaces affect how far a ball will roll?
6. Does the height of a ramp affect how far (or how fast) a ball will roll?
7. Does the length of a ramp affect how far (or how fast) a ball will roll?
8. What happens when a ball collides with a wall? Does this change when the ball is lighter/heavier or larger/smaller?
9. What happens when a ball collides with an object that is lighter than it?
10. What happens when two balls of the same weight collide?

# Kindergarten

## Weather and Climate

### Core Concepts

1. How can weather patterns and conditions change over time?
2. How do weather patterns and conditions connect to the different seasons?
3. What types of severe weather occur in our region?
4. What is the effect of the sun on Earth's surfaces?
5. Why is one surface cooler/warmer than another?
6. How does shade affect the temperature of a surface?
7. Why does shade have that effect on the various surfaces?

### Essential Vocabulary

Climate	Forecast	Observe	Predict	Temperature
Weather				

### STEM Fair Ideas

1. Make a chart of the number of days in each month it has rained in Maryland. Which month has the most/least rainfall?
2. Make a chart of the temperature each day in Maryland. Which month is the warmest/coolest?
3. What materials get hot in the sun? Do these materials also get hot in the shade? What is the difference in temperature between a block in the sun and a block in the shade?
4. How does the color of a piece of paper affect its temperature in the sun and/or shade? Which color gets the hottest? Which color stays the coolest?
5. How does water (humidity) or air (wind chill) affect temperature?
6. How does the sun (heat source) affect the movement of air (or water)?