

## Springtide Sports: Keep Moving Forward

Grade 5 Science



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

Date: \_\_\_\_\_

**Activity 1:** What goes up, must come down. Do the following experiments and observe how gravity affects the objects, and the forces needed to move them.

**A. Roll a ball across the floor**

**B. Toss a ball into the air**

1. How do you need to apply force differently when you roll the ball from when you throw the ball?

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**A. Roll the ball up a hill**

**B. Roll a ball across the floor**

2. Explain why you must use more force to roll the ball up the hill than along the flat ground.

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3. What force causes the ball to come back when you roll it up the hill?

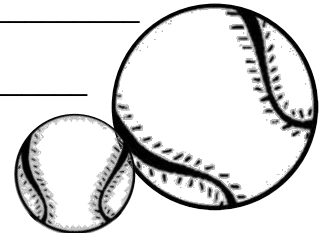
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4. Explain why it is more difficult for a ball to roll in the grass than a polished floor?

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**Activity 2:** Make predictions to answer the following questions based on what you know about forces and mass.

1. How can these brothers make the hoop roll slower? (list 2 ways)

\_\_\_\_\_

\_\_\_\_\_



2. How can the sisters make the hoops go higher?



\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

3. What forces can Ben use to slow the bicycle down?

\_\_\_\_\_

\_\_\_\_\_



4. Explain how a ball with more mass will they have to apply more or less force to the ball in order to get it to the other player?



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**Activity 3:** Explain how factors such as friction, gravity, and change in mass affect the movement of the following objects.

1. Imagine a place far from all gravitational and frictional influences. Suppose that you visit that place (just suppose) and toss a grace ring. The ring will: (circle the best answer)

- a. gradually stop.
- b. continue in motion in the same direction at constant speed.

Why? \_\_\_\_\_  
 \_\_\_\_\_

2. Brother Clewell and Brother Reuz are arguing at the Toy Store. Brother Clewell says that if he flings the shuttlecock with a greater force it will travel further. Brother Reuz argues that force does not affect the distance an object travels. Who is right?

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 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_



3. Ben dropped a ball in the woods and is being chased by a very large buffalo that he startled. The enormous mass of the buffalo is extremely intimidating. Yet, if Ben makes a zigzag pattern through the woods, he will be able to use the large mass of the animal to his own advantage. Explain how?

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