# ROLLING WITH GRAVITY

*Grab your favorite balls, head outside, and get ready to roll! In this activity, you'll explore how gravity affects the speed of different balls and discover how mass, shape, and the slide's angle play a role in how quickly they fall. Get ready for some fun, hands-on science as you race against gravity!*

## SUPPLIES

- Playground slide (the longer, the better)
- Balls of different sizes and weights
- A stopwatch
- A measuring tape or ruler

## PRE-ACTIVITY QUESTION

Read through the instructions and then answer this question. How do you think the size and weight of a ball might affect the speed at which it travels down the slide? Will they roll at the same speed, or will some roll faster than others?

## INSTRUCTIONS

1. Find a clean, dry slide you can use for this activity. If you're using a homemade ramp, set it up at a gentle slope.
2. Measure the length of the slide (distance) from the top to the bottom using a measuring tape or ruler. Record this distance on the data table.
3. Gather several balls of different sizes and weights. For example, you could use a rubber ball, a tennis ball, a soccer ball, a marble, or any other objects you think will roll easily.

4. Roll the balls down the slide one at a time.
    a. For each ball, place it at the top of the slide and release it (don't push it).
    b. Ask a partner to watch the ball and start a timer as soon as you release the ball and stop the timer as soon as the ball reaches the bottom of the slide.
    c. Note the time it takes for each ball to reach the bottom of the slide and record this time on your data table.
5. Calculate the speed of each ball. Use the formula: Speed = Distance ÷ Time. If you're unsure how to divide, use a calculator or ask a parent to help you!

## DATA TABLE

| Ball type | Distance (Length of slide) | Time | Speed (Distance ÷ TIme) |
|---|---|---|---|
| | | | |
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## QUESTIONS

1. What role did gravity play in making the balls roll down the slide?
2. Did the size or weight of the balls affect how quickly they rolled down the slide? Why or why not?