

Best lesson by David Rospond

Grade Level: Fourth Grade

Title of Lesson: Get the Ball Rolling

Unit Title: Physical Science

Performance Standard(s) Covered: S4P3. Students will demonstrate the relationship between the application of a force and the resulting change in position and motion on an object.

Essential Question: What affect does height and mass have on the motion of an object down an incline?

Objective: Students will be able to identify how height and mass affects the motion of an object?

Key Words and Terms: Gravity, mass, friction, force

Learning Activity

Abstract (limit 100 characters): Students will roll marbles of different sizes down a makeshift ramp in order to observe firsthand how the height the marble is released from and the size of the marble affect the distance rolled.

Materials Needed (per group):

Three marbles of different sizes

Foam tubing about a meter long (cut in half down the length of the tube)

Yard stick and ruler

Safety Concerns: Small marbles can be thrown or possible choking hazard

Procedure:

Split the class into groups and give them their materials (groups of about 4 work best). Make a chart on the board that looks like the following for each ball size.

Ball Size:

Height	Distance
3cm	
5cm	
8cm	

Starting with the smallest marble, have each group raise the end of the ramp the lowest height (3cm) and then place the marble at the end of the risen end. The students should then release the marble and report the distance the marble rolled. Record the average distance rolled between the groups. Follow through until the groups have rolled each marble size down from each height. Ask the students if they see a pattern in between height and size of the ball compared to the distance it rolled. After the students have had a chance to answer, explain how more height and a more mass will give an object more momentum allowing it to roll farther.

Notes and Tips: I originally had the students do their own charts, but that proved difficult for many of the students to do.