

# A STEM in the Park Take Home Activity

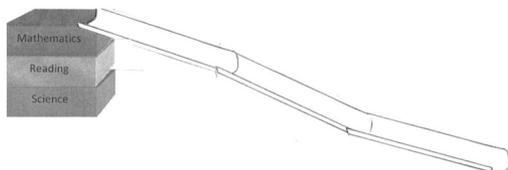
## STEM in the PARK

Science, Technology, Engineering, and Mathematics

# Make Your Own Marble Ramps

### **What You Need**

- paper towel tubes cut in half
- tape
- books
- marbles
- scissors



### **What To Do**

Paper towel tubes make great marble ramps. It is easier to make curvy ramps if you cut the tubes in half hotdog style. You or your parents can do this with a pair of scissors. Tape several tubes together to make hills and turns. Use books to raise one end of your ramp.

### **Observe...**

What does the marble do when you let it go at the top of the ramp? Where does it seem to be moving the fastest?

*Continued on back*

## ***Learn...***

Think of your ramp as the first hill on a roller coaster. Gravity is the driving force of a roller coaster. When the train (in this case, your marble) is released from the top of the lift hill, gravity pulls it down. The train begins slowly, then picks up speed as it approaches the bottom of the hill. At the top of the ramp, the train has potential energy (stored energy) but once it starts moving that potential energy is converted to kinetic energy (energy in motion).

## ***Investigate...***

Try different size marbles to see if the weight or diameter of the marble changes how it rolls. Do some marbles seem to move faster down the ramp than others?

How can you slow or stop your marble when it comes to the end of the track?

## ***Fun Facts***

Did you know that Ohio is the home of two roller coaster inventors?

- LaMarcus Thompson of Jersey, Ohio invented the Switchback Railway in 1884 and has been dubbed, "The Father of the Roller Coaster". His ride reached top speeds of six miles per hour with 450 feet of track. No Top Thrill Dragster, to be sure, but people back then were really excited.
- Even before LaMarcus Thompson, Alanson Wood of Toledo, Ohio received the first patent for his Circular Gravity Railway. This roller coaster ran in a circle and is considered the world's first thrill ride.

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