

DIY ROLLER COASTER TRACK

Learning Goal

Apply the concept of inertia to the building of a roller coaster that takes advantage of gravity and manipulates speed.

Roller coasters may seem new and exciting, but did you know that the first roller coaster was made all the way back in 1884? It only went about 6 miles per hour! Modern roller coasters can go over 100 miles per hour!

A big part of what makes today's roller coasters so fast is a cleverly designed track. Roller coasters use **gravity** and **inertia** to keep moving along a track. Inertia is that thing that keeps your body moving forward if you're riding in a car that suddenly stops! **Inertia** is the tendency of a thing to resist a change in motion or rest-- that means fast things want to stay fast! Roller coaster tracks use twists, turns, and slopes to build speed and keep things going fast.

Check out this popular roller coaster track. Can you pick out the spots where the track is increasing speed? How about decreasing speed?

"The Hulk" at Universal Studios Orlando



INSTRUCTIONS

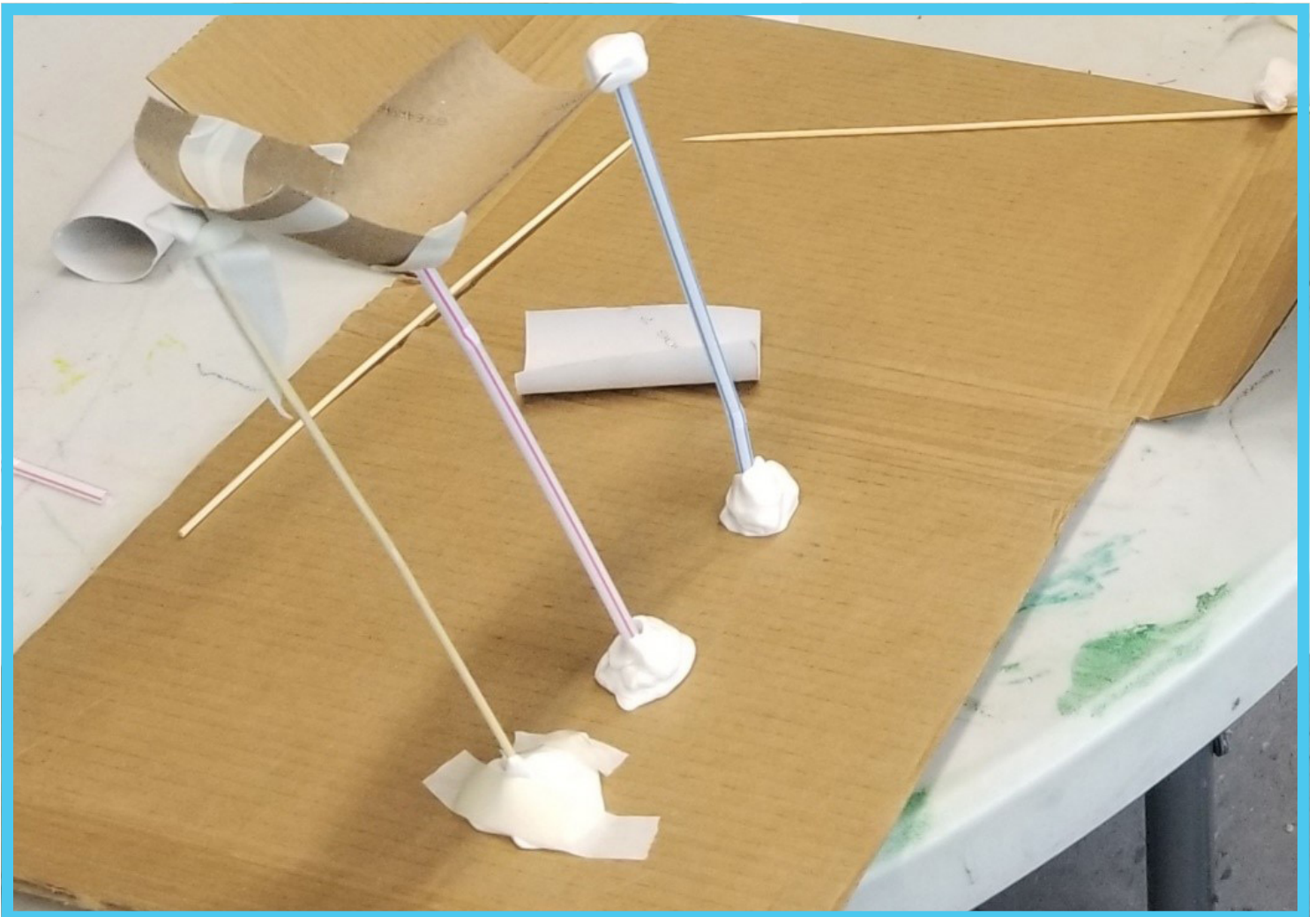
Materials:

5-7 Toilet Paper/Paper Towel Tubes, ~15 Straws/Wooden Skewers, 1-2 Packs Modeling Dough (Recommended: Model Magic), Tape, Scissors, Large Piece of Cardboard

Don't have these materials available? No problem! MOSH activities are designed to be versatile. Think of it as a challenge and change it up to suit yourself. Be sure to take a pic and show us your customization.

1. Draw out the track you'd like to build on a scrap piece of paper.
2. Cut all paper tubes in half lengthwise, so that they are open. These are the pieces that will make up your track!
3. Use medium-sized wads (about golf ball-sized) of modeling dough to anchor your straws/wooden skewers to your cardboard. They should be standing straight up.

These are going to be our track's support beams! Tape two straws/skewers together for added height, or cut them in half to take away height.



4. Use tape and modeling dough to attach your toilet paper tube track to the tops of your support beams. If you need to make sharp turns, try cutting the tubes in half horizontally to make them shorter. Keep building until you've finished your track!



5. Time to test your track! Make a "roller coaster car" by balling up a small piece of modeling dough (about the size of a marble). How does your car move along the track?



6. Does your car fly off the track? Does it slow to a stop in the middle of your track? If your car is flying off your track, you may be building too much speed -- try adding a small dip or turn to slow your car down. If your car slows too much, try adding a big drop and using **gravity** to increase your car's **inertia**!
7. Make adjustments to your track until your roller coaster car glides through it with ease!

We'd love to see all of your amazing roller coaster tracks! Post an awesome video or picture using [#MOSHConnect](#) so we can see what you've been up to!