



Raceway Ramps

(Suggested Ages: 5+)



Gather

- Cardboard pieces
- Tape
- Object that will roll - ball, car
- Stopwatch (optional)

Let's Experiment!

1. Build your ramp by leaning thick cardboard pieces against furniture or boxes. Tape in place.
2. Roll your ball or car down the ramp and adjust the cardboard until the ball or car can run down the ramp without falling off.
3. For an extra challenge, use a watch or stopwatch to time how long it takes the ball or car to roll down the ramp.
4. Experiment with different angles of ramps to see how it affects how fast the ball or car can travel.

How Does it Work?

Gravity acts on all objects all the time and pulls them downward toward the earth. When you let go of your ball or car, it will start to roll because of that force! The further downward the object needs to fall, the faster it will get, so you may notice that a larger, more inclined ramp makes your ball or car travel faster.

To determine the speed of your object, you can measure the ramp's length and record how much time it takes to travel down the ramp. Try different size ramps, angles, or size cars and find their speed...which is fastest? To calculate the speed, use the following equation:

$$\text{Speed} = \text{distance travelled (inches)} \div \text{time (seconds)}$$

Take it Further!

For more information, simulations, and activities, visit:

http://www.cosmos4kids.com/files/universe_gravity.html

https://www.ducksters.com/science/physics/speed_and_velocity.php

<https://www.pbslearningmedia.org/subjects/science/physical-science/forces-and-motion/speed-velocity-acceleration/>