

Move it! Force and Motion



Collect several balls of different sizes, textures and weights (golf, ping pong, tennis, etc.).

Explore your ball collection together:

How are the balls alike? How are they different?
Which balls are good rollers? Good bouncers?
What do you think makes a good roller? A good
bouncer?

Test three different balls to find out:

Which ball will roll the farthest?

Begin by rolling the first ball as far as you can.

Now roll the other two balls in the same direction.

Which ball went farthest?

What happens when you roll the balls on a rough
surface like a carpet?

On a smooth surface?



Force: a push or pull that is applied to an object. In order to make something move, a force is required.

Motion: the process of changing position or place.

Friction: a force that happens when two objects come into contact or rub together, such as a ball rolling on the ground. Eventually, friction will slow the ball to a complete stop. A bumpy surface will slow the ball more quickly than a smooth surface.

Ramp: a surface with one end or side higher than the other.

Move it!

Making a Ramp



To make a simple ramp you'll need:

- a piece of cardboard or other sturdy flat surface at least two feet long for your ramp
- books or blocks to prop up one end of each ramp
- materials to change the ramp surface (foil, sandpaper, cloth)

Build a simple ramp by propping one end of a piece of cardboard on a stack of blocks or books. In order to make comparisons among different balls, you'll need to make more than one ramp to find out:

Are some balls faster than others?

Which ball travels the greatest distance?

How far can you make a ball go?



Now try changing the slope of your ramps by raising or lowering one stack of blocks. What do you notice?

Try using different materials to create friction on the surface of your ramps. Which materials:

Make the balls go faster? Farther?

Slow the balls down?

What other ideas can you try?

Try the same investigations using toy cars.



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