

Forces Make Things Move

Simple STEM Activities You Can Do at Home

Purpose:	The purpose of this activity is to investigate how an object moves in different ways when a force is applied to the object.
Standard:	<p>SKP2. Obtain, evaluate, and communicate information to compare and describe different types of motion.</p> <p>a. Plan and carry out an investigation to determine the relationship between an object’s physical attributes and its resulting motion (straight, circular, back and forth, fast and slow, and motionless) when a force is applied. (Examples could include toss, drop, push, and pull.)</p> <p>S2P2. Obtain, evaluate, and communicate information to explain the effect of a force (a push or a pull) in the movement of an object.</p> <p>a. Plan and carry out an investigation to demonstrate how pushing and pulling on an object affects the motion of the object.</p> <p>c. Record and analyze data to decide if a design solution works as intended to change the speed or direction of an object with a force.</p>
Materials:	Small gemstone or rock, tape, piece of string, obstacle of some sort.
Procedures:	<ol style="list-style-type: none"> Using your gemstone gently push it in a straight line as indicated. Push on your gemstone to move it repeatedly in a back and forth motion Flip over your sheet and move your gem in a circular motion. Using the animal pictures, move your gemstone in a very fast, fast, slow, and very slow manner. Tape a short piece of string carefully to your gemstone. Repeat each different type of motion by pulling gently on your string. Using your string and gem, carefully pull the gem through the obstacle course.
Science Behind It:	<p>Forces are interactions between objects that cause a push or a pull between them. We can use pushes and pulls to move objects. For example, to walk outside I have to push on the ground with my feet. Similarly, if I want to catch a baseball in my glove, I have to exert a force to stop it. Otherwise, it flies right past me.</p> <p>In this activity, students apply a force to a small gemstone or rock to make it move in a variety of ways. They start by pushing on the gemstone to make it move straight, back and forth, circular, and fast and slow. Next, they attach a string to the gem and pull on it to repeat the same series of motion. Finally, they use the string to pull the gem from the start to the finish of a simple obstacle course. Along the way, they practice the movements and use the vocabulary that is needed to build their understanding of motion and forces.</p>
Questions to Ask:	<ol style="list-style-type: none"> Explain why a force is needed to move an object? How could you change your obstacle course to make it more difficult?