Inclined Plane Investigation

**Materials:** Ramp board (piece of wood, cardboard, etc.), balls or rolling cars, books or other objects to elevate one end of the testing ramps, stopwatches/timers (optional), measuring tape/meter sticks (optional), materials of different textures to cover surface of ramp board (sandpaper, wax paper, felt, etc.)

**Background Information:** An inclined plane is a simple machine with no moving parts. It is simply an even, sloping surface. It makes it easier for us to move objects to higher or lower surfaces, than if we lifted the objects directly upwards. Inclined planes are also called ramps. Ramps inside and outside buildings and playground slides are examples of inclined planes.

**STEM Career Connection:** A carpenter is someone who builds and repairs things made from wood. Carpenters can be responsible for the construction and installation of ramps used to access buildings and other structures.

**Literature Connections:** Roll, Slope, and Slide: A Book About Ramps (Amazing Science: Simple Machines) by Michael Dahl, Wedges and Inclined Planes by Sally Walker

**Challenge:**
1. Gather materials and set up your ramp board so that one end is higher than the other end and there is room at the bottom of the ramp for objects to roll.
2. Investigate the ramp by testing objects rolling down the ramp. Get creative and have fun! Some things you could test include:
   a. What different objects can you find that roll down the ramp? Which object rolls the fastest? The slowest? The farthest off the end of the ramp? Look for and test different types of balls or rolling objects and find out.
   b. How does the height of the ramp affect the speed of objects rolling down the ramp? Set the ramp to different heights and find out.
   c. How does the surface material of the ramp affect how objects roll down it? Cover the ramp with different materials and find out.
3. Make, record, and share your observations.