

# Marbles In Motion; Teachable Moments

Wire & Tubing and Cardboard<sup>85</sup> track building, provides many **trigger opportunities** for learning about the **Principles of Motion**. Rather than just saying, “build something”, look for opportunities for “Aha Moment”. “I hear and I forget. I see and I remember. I do and I understand.” Confucius

**Activity: Use a Narratives.**

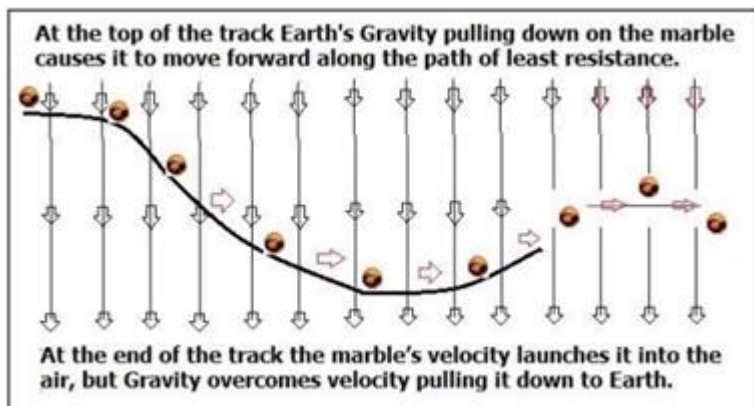
“The marble track is powered by the invisible force of gravity. **Gravity** is constantly pulling the marble down toward earth. Elevating the starting point gives the marble more gravitational **potential energy (PE)**. The higher the starting point, the greater the PE. The marble tracks channel this force on the marble, making it move forward.”

“**Acceleration** describes any change in speed of an object. The marble accelerates when it is released from the top of the track. **Friction** (a force that acts in the opposite direction of motion), a bump or an upward tilt of the track, will cause the marble to **decelerate** - slows down.”

**Activity:** Make a diagram that shows how Gravity affect the marble on the track.<sup>86</sup>



“When the marble is released and starts moving, the **Potential Energy (PE)** in the marble converts to **Kinetic energy (KE)**. You can see the principle of “**transfer of energy**” by placing three marbles together, touching each other, at the end of the track. When you release the marble from the starting point on the track, what happens when the first marble collides with the resting marbles?”



<sup>85</sup> Look at “Cardboard Tracks Video at MarbleKeeper.com [downloads] [videos]

<sup>86</sup> Download a Marbles in Motion poster at marblekeeper.com [downloads] [visual aids]