Sir Isaac Newton: The Apple and Beyond: **Pre-Visit Activities**

1) Ask students to describe what happens in each of the following scenarios.
   - You are riding in a car and the driver slams on the brakes. What happens to you?
   - You are riding in a bus and throw a ball in the air. What happens?
   - Two people are on skates facing each other. They place their hands up and push against each other. Who moves?

2) Write the sentence "May the force be with you" on the board. Ask students what they think it means. Guide them into a discussion of force, what it means and the kinds of forces they have experienced. Come up with a class definition of force. Ask for sentences that describe each force. Forces they may be familiar with are: gravitational force, magnetic force, electrical force. Other forces (contact forces) they may not be aware of are: friction, tension, buoyancy, air resistance, spring force.

3) Write each of the Laws of Motion on the board. Divide students into groups and have them brainstorm events or examples that would demonstrate one or more of the laws.

4) Take students out onto a sports field to observe people engaged in a sport or play activity. Look for examples of each of the Laws of Motion in their actions.

5) Give each group a golf ball and a ping pong ball, a rope and a balloon. Have each group work together to use these materials to demonstrate each Law of Motion.

6) Explanations of the motion of objects were explored as early as the 4^{th} century B.C. beginning with Aristotle. Before the presentation or after, have students read about the theories of Aristotle (4^{th} century B.C.), Copernicus 1473-1543), and Galileo (16^{th} century).