**Post-Activity Discussion**

1. Does the motion of an object change when net force is zero?
2. Does the motion of an object change when forces are balanced?
3. Could an object be at rest and stay at rest if the net force on the object is zero? Explain.
4. Newton’s First Law of Motion states that “An object at rest stays at rest and an object in motion stays in (constant) motion, unless acted upon by an outside, unbalanced force.” How did our four setups in the activity demonstrate Newton’s First Law of Motion?
5. Although we can completely accept and understand Newton’s First Law of Motion because we live in a technological age of space exploration, in the 1600s the idea that an object in motion would continue in that constant motion unless acted upon by an unbalanced force contradicted human understanding of how things worked. When Newton expanded the fundamental work of Galileo on inertia and presented the three laws of motion in 1686, people believed that a push or pull was needed to keep an object moving, and if taken away, the object would stop moving. But Newton theorized that even if the force is taken away, the object would continue until something - an outside, unbalanced force - changed it. So think about rolling a ball across the room. Would the ball stay in the same motion as Newton said it would? What might change the motion, and why does Newton’s law still hold true?
6. Could an object be in motion, for example, and continue moving at a constant velocity, if the net force on the object is zero? Explain.
7. What kind of environment would be needed for an object to stay in constant motion?
8. What is a possible example of Newton’s First Law of Motion when the object is in motion? For example, when an object is moving at a constant velocity of 100 m/s?
9. What possible outside, unbalanced force might change the constant motion in the example?