

## Newton's First Law of Motion

Name \_\_\_\_\_

1. What is a force?
2. If two teams are playing tug of war and both teams are pulling on the rope with the same force, are the forces on the rope balanced? \_\_\_\_\_ Will the rope move in either direction? \_\_\_\_\_
3. A bowler rolls a bowling ball down the lane. Right before the ball leaves his hand, are the forces acting on it balanced or unbalanced? \_\_\_\_\_ Does the ball's motion change during the bowler's swing? \_\_\_\_\_
4. Describe three ways in which an object can undergo acceleration.
5. What two things affect the acceleration of an object?
6. If an object is at rest and there is no force applied to it, will the object continue to stay at rest? \_\_\_\_\_
7. An object in motion will tend to stay in motion unless a force acts on it. So why does a bicycle coast to a stop after a while?
8. What is inertia?
9. What has the most inertia, a baseball or a bowling ball? \_\_\_\_\_ Why?
10. In the video, explain why pulling the dollar bill out from between the bottles doesn't cause the top bottle to fall off.
11. Would it be easier to pull a dollar bill out from between the bottles if the top bottle is empty or if it's full of water? \_\_\_\_\_ Explain why.
12. State Newton's First Law of Motion.