Name: Date: Class Period

**Isaac Newton's First Law of Motion**

Link

**https://youtu.be/-6Qyf1J7bUA**

Newton's first law states that an object at _____ will stay at _____ and an object in _____ will stay in _____, going the same _____ and in the same _____ unless acted upon by an unbalanced _____.

**Exhibit #1: The Object at Rest**

Explain why the individual sitting on the slip and slide stayed mostly, but not entirely, at rest using Newton's first law to prove your point.

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*Important point: The more mass an object has, the more it resists a change in its motion. If a small child repeated this experiment would they likely move more or less?_____

How does Newton's first law explain how someone is able to pull a tablecloth out from under dishes without them falling off the table?

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Based on the *important point above, would the table experiment work better with plastic or metal utensils (spoons, forks and knives)? Explain.

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## Exhibit 2: The Object Resists a Change in its Speed

When the car collided with the board a force made it stop. However, the crash test gummi did not hit the board. Describe the gummi bear's motion right after the crash.

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The crash test gummi eventually did stop. What unbalanced forces caused this change in his motion?

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What will happen to your body in a car crash if you are not attached to your vehicle with a seat belt?

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## Exhibit #3: The Object Resists a Change in its Direction

Explain what happened to the crash test gummi when the radio controlled car suddenly turned?

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Sometimes when you are driving around a corner in a car it feels like the door hits you. Use Newton's first law to explain what is actually happening in this situation.

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## Enrichment Activity and Question

Come up with another experiment or demonstration that would illustrate how objects at rest tend to stay at rest? Explain what your experimental set-up would be and what your expected results would be.

Answer Key:

Name: Date: Class Period

## Isaac Newton's First Law of Motion

Newton's first law states that an object at rest will stay at rest and an object in motion will stay in motion, going the same speed and in the same direction unless acted upon by an unbalanced force.

### Exhibit #1: The Object at Rest

Explain why the individual sitting on the slip and slide stayed mostly, but not entirely, at rest using Newton's first law to prove your point.
The man was at rest at the beginning of the scene. According to Newton's first law he should have stayed at rest. When the slip and slide was suddenly pulled out from under him, he stayed mostly - but not entirely - at rest because the friction between the man and the slip and slide applied a small unbalanced force to him causing him to move forward a little.

*Important point: The more mass an object has, the more it resists a change in its motion. If a small child repeated this experiment would they likely move more or less? They would probably move more because they have less mass and so they have less resistance to a change in their motion.

How does Newton's first law explain how someone is able to pull a tablecloth out from under dishes without them falling off the table? The objects on the table are at rest. If someone quickly pulls the tablecloth out and there is not too much friction involved, the dishes will stay at rest on the table.

Based on the *important point above, would the table experiment work better with plastic or metal utensils (spoons, forks and knives)? Explain. According to the important point, metal utensils would probably work better for the experiment. This is because they have more mass so they will have more resistance to a change in their position.

## Exhibit 2: The Object Resists a Change in its Speed

When the car collided with the board a force made it stop. However, the crash test gummi did not hit the board. Describe the gummi bear's motion right after the crash. The gummi bear kept right on moving forward at the same speed it was going before the crash.

The crash test gummi eventually did stop. What unbalanced forces caused this change in his motion? Gravity, friction and air resistance.

What will happen to your body in a car crash if you are not attached to your vehicle with a seat belt? You will continue to move at the same speed you were going before the crash until you hit something that stops you.

## Exhibit #3: The Object Resists a Change in its Direction

Explain what happened to the crash test gummi when the radio controlled car suddenly turned? The crash test gummi kept going straight.

Sometimes when you are driving around a corner in a car it feels like the door hits you. Use Newton's first law to explain what is actually happening in this situation. According to Newton's first law an object resists a change in its direction. When a car goes around a turn your body wants to keep going straight. The door stops you from going straight and forces you to turn with the vehicle.

## Enrichment Activity and Question

Come up with another experiment or demonstration that would illustrate how objects at rest tend to stay at rest? Explain what your experimental set-up would be and what your expected results would be.