Middle School Science Virtual Learning

6th Grade Science

Newton's 1st Law

April 14, 2020

Middle School Physical Science
Lesson: April 14,2020

Objective/Learning Target:

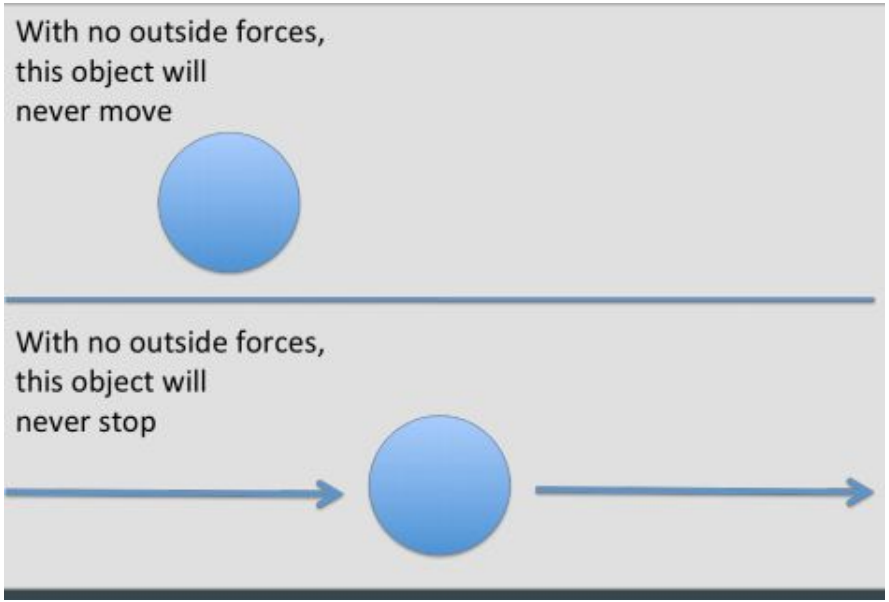
Students will analyze and explain Newton's 1st Law

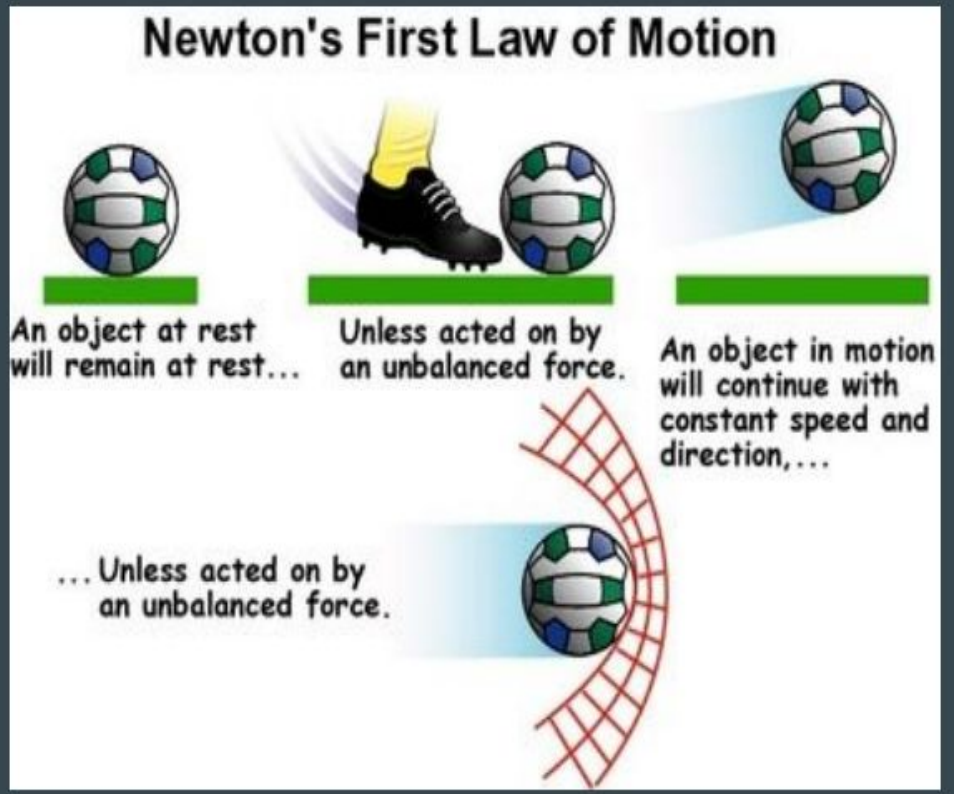
Warm Up: What do you know about Newton's 1st Law of Motion?

Watch this Study Jams Video. When finished, click test yourself to see what you know!

Newton's 1st Law

Law of Inertia: An object will remain at rest or in motion unless acted on by a force.





Inertia: The tendency of an object to resist change, in motion or rest.

Practice: (Answer on a sheet of paper.)

1. Describe what happens if you are riding a skateboard and hit something (like a curb) with the front wheels.
2. What is another name for the first law of motion? Why is it given that name?
3. Why should we wear seatbelts? Use Newton's Law 1st law in your answer.

Answers (may vary):

1. Your body will keep moving forward and fly off your skateboard since the curb only stops the board, not yourself.

2. Law of inertia. It is given that name because inertia is the tendency of an object to resist any change in its motion until an unbalanced force acts on it. That is the same thing that Newton's first law states.

3. We should wear seat belts so if we are in an accident our body doesn't keep moving at the same speed and in the same direction that the car was going. A new force would be introduced to our bodies (the seatbelt) in order to keep our bodies in place.

Practice:

Watch the Coin Drop video.

Collect the materials needed to see if you can complete the challenge!

Materials:

- Index card (or thick paper)
- Coin(s)
- Cup

Practice:

Watch the Steve Spangler Video.

Why does the dinnerware stay in place when the tablecloth is quickly moved? Consider Newton's First Law.

Answer:

Why does the dinnerware stay in place when the tablecloth is quickly moved? Consider Newton's First Law.

Plain and simple, the Tablecloth Trick works because of inertia. In his First Law of Motion (there are three), Newton described inertia as the tendency of an object at rest to remain at rest unless a force acts upon the object to move it. Inertia for an object in motion is the tendency for that object to remain in motion, unless a force acts on it to speed it up, slow it down, stop it, or change its direction. In terms of the Tablecloth Trick, inertia is the key. The inertia of the stuff on the table keeps them where they are despite the speeding tablecloth underneath them.

Additional Practice:

Follow the links below to do more practice.

1. Practice with Khan Academy
2. The Physics of Seatbelts