

Newton's Laws of Motion



Sir Isaac Newton lived during the 1600s. Like all scientists, he made observations about the world around him. Some of his observations were about motion. His observations have been supported by more data over time; and we now call these *Newton's Laws of Motion*. His laws of motion explain rest, constant motion, accelerated motion, and describe how balanced and unbalanced forces act to cause these states of motion.

Review the three laws of motion:

☀ Newton's first law of motion says that an **object in motion will stay in motion and an object at rest will stay at rest unless acted on by an unbalanced force.**

- An object will not change its motion unless a force acts on it.
- An object that is not moving remains at rest until something pushes or pulls it.
- An object that is moving remains moving until something pushes or pulls it.
- All objects resist having their motion changed.
- This tendency to resist a change in motion is called inertia.
- The more mass an object has, the greater its inertia.

☀ The second law of motion states that **the force of an object is equal to its mass times its acceleration.**

- A change in motion occurs only if a net force is exerted on an object.
- A net force changes the velocity of the object, and causes it to accelerate.
- If an object is acted upon by a net force, the change in velocity will be in the direction of the net force.
- The acceleration of an object depends on its mass.
- The more mass an object has or the more inertia it has, the harder it is to accelerate.
- More mass means less acceleration if the force acting on the objects is the same.

☀ Newton's third law of motion states that **for every action there is an equal and opposite reaction.**

- When one object exerts a force on a second object, the second object
- exerts an equal force in the opposite direction on the first object.
- The force exerted by the first object is the action force.
- The force exerted by the second object is the reaction force.



Quarter 2 Newton's Laws of Motion Project Choice:

Due Date: Thursday, December 10, 2009

I choose the following project for my Quarter 2 Newton's Laws of Motion Project from the list below: (Circle the number)

1. Draw and create a picture book minimum 6 pages
2. Presentation minimum 5 minutes maximum 10 minutes
3. PowerPoint minimum 6 slides
4. Create and perform song with the lyrics to describe the laws of motion
5. Class demonstrations (with notes for each) proving three laws of motion as stated by Sir Isaac Newton.
6. Three page research paper about Newton's Laws of Motion
7. Create and perform a play or dramatization of the three laws of motion (You can do with one other person)
8. Other project discussed and approved by the teacher _____

Please initial the following:

_____ The teacher has signed off on it and marked this is the one I will complete.

_____ If I change my project choice I will notify my teacher by _____ This way I will have ample time to complete my project on time or early by December 10, 2009.

_____ I have been given the grading rubric on how I will earn my 100 points.

_____ I understand what is expected for my Newton's Laws of Motion project. If I have questions it is my responsibility to speak to my teacher about my project.

Timeline:

Choose

Project.....

Rough Draft Complete.....

Finish

Project.....

Final Touches on project.....

Present

Project.....
