## Newton's Laws of Motion
Project

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:

O 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.

O 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.

O 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.

Date Assigned:

Date Due:

Oct. 1

Oct. 15
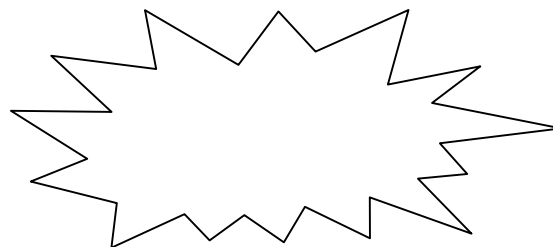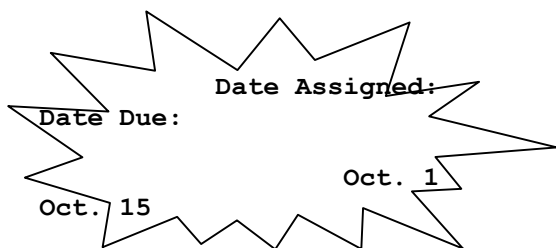
What to do:

1. Illustrate an example of **each** of the three laws of motion.
2. Use one poster board or large piece of paper – 3 illustrations on one board or sheet of paper.
3. You may draw or use images from magazines or the Internet.
4. Include an explanation of how the illustration demonstrates or describes the law of motion. Put the explanation next to the illustration. Do not use a separate sheet of paper for the explanation.
5. Make sure your illustrations are colourful and neat.

	Expert 30 Points	Skilled 24 Points	Novice 18 Points	Beginner 12 Points
Content & Accuracy	▪ All written information is accurate ▪ Illustration is accurate ▪ No errors in illustration or explanation ▪ Written information is complete ▪ Illustration is complete	▪ All written information is accurate ▪ Illustration is accurate ▪ No major errors in illustration or explanation ▪ Written information is mostly complete ▪ Illustration is mostly complete	▪ All written information is partly accurate ▪ Illustration is partly accurate ▪ Noticeable errors in illustration or explanation ▪ Written information is mostly complete ▪ Illustration is mostly complete	▪ Written information is inaccurate ▪ Illustration is inaccurate ▪ Major errors in illustration or explanation ▪ Written information is incomplete ▪ Illustration is incomplete
	Expert 10 Points	Skilled 8 Points	Novice 6 Points	Beginner 4 Points
Visual Appeal	▪ Colourful ▪ Eye-appealing ▪ No obvious erasure marks, White-Out	▪ Colourful ▪ Eye-appealing ▪ Small erasure marks, ▪ No White-Out	▪ Colourful ▪ Obvious erasure marks, White-Out	▪ No colour ▪ Large amounts of erasure marks, White-Out ▪ Paper torn or dirty