

Course: 5<sup>th</sup> Grade

Course Code: 5020010

Quarter: 4

**Topic(s) of Study:** Motion of Objects in Relation to Force

**Bodies of Knowledge:** Physical Science

**Big Idea(s):** 13. Forces and Changes in Motion

**Essential Questions:** How does the amount of force applied to an object affect an object's motion? What is the relationship between the mass of an object and its motion?

**Optional Teacher Background:** *ScienceSaurus*-Physical Science

**RESOURCES**

**SCIENCE CENTER**

**Vocabulary:** force, gravity, friction, balanced forces, unbalanced forces

**Common Inquiry Labs:**

- *Science Fusion* Inquiry Flipchart "On a Roll" & "Make it Easier" p. 30
- *Science Fusion* Inquiry Flipchart "How do forces affect motion?" p. 31
- *Science Fusion* Inquiry Flipchart "What are balanced and unbalanced forces?" p. 32

	<b>Technology Links:</b>	
<p><b><u>Lab Assistance:</u></b></p> <p><a href="#">Daily Inquiries</a> <a href="#">Logs and Mini Lessons</a></p>	<p><b><u>Science Links:</u></b></p> <p><a href="http://www.Thinkcentral.com">www.Thinkcentral.com</a> <a href="#">Fusion Teacher Resources</a> <a href="#">Graphic Organizers</a></p>	<p><b><u>Online Guides:</u></b></p> <p><a href="#">Above Level</a> <a href="#">On Level</a> <a href="#">Below Level</a></p>

St. Lucie County Public Schools Scope and Sequence 2012-2013

NGSSS	CONTENT	TARGETS
<p>SC.5.P.13.1 Identify familiar forces that cause objects to move, such as pushes or pulls, including gravity acting on falling objects. Cognitive Complexity: <b>Low</b></p> <p>SC.5.P.13.2 Investigate and describe that the greater the force applied to it, the greater the change in motion of a given object. Cognitive Complexity: <b>Moderate</b></p> <p>SC.5.P.13.3 Investigate and describe that the more mass an object has, the less effect a given force will have on the object's motion. Cognitive Complexity: <b>Moderate</b></p> <p>SC.5.P.13.4 Investigate and explain that when a force is applied to an object but it does not move, it is because another opposing force is being applied by something in the environment so that the forces are balanced. Cognitive Complexity: <b>High</b></p>	<p>What forces cause objects to move?</p> <ul style="list-style-type: none"> <li>▪ Push</li> <li>▪ Pull</li> <li>▪ Gravity</li> </ul> <p>How does the amount of force applied to an object affect its motion?</p> <ul style="list-style-type: none"> <li>▪ The greater the force, the greater the motion</li> <li>▪ The lesser the force, the less motion</li> </ul> <p>How does mass affect the force required to move an object?</p> <ul style="list-style-type: none"> <li>▪ The greater the mass of an object, the slower the motion</li> <li>▪ The lower the mass of an object, the greater the motion</li> <li>▪ There is an indirect relationship in this case</li> <li>▪ The motion can be described and measured</li> </ul> <p>What are balanced forces?</p> <ul style="list-style-type: none"> <li>▪ Are created when all forces acting on an object are equal</li> <li>▪ Acting on a stationary object will cause the object to remain station</li> </ul> <p><b>TEACHER TRANSITION INTO NEXT TOPIC OF STUDY</b></p> <p>We have studied how forces impact the motion of matter; now let's us learn about how forces impact the motion of objects in space.</p>	<ul style="list-style-type: none"> <li>▪ Identify some common forces.</li> <li>▪ Describe how varying the strength of a force affects the motion of an object.</li> <li>▪ Describe how objects of varying mass are each affected by a similar force.</li> <li>▪ Compare and contrast balanced and unbalanced forces.</li> </ul>

St. Lucie County Public Schools Scope and Sequence 2012-2013

Course: 5<sup>th</sup> Grade

Course Code: 5020010

Quarter: 4

**Topic(s) of Study:** Planets and Beyond

**Bodies of Knowledge:** Earth Science

**Big Idea(s):** 5: Earth in Space and Time

**Essential Questions:** How are the stars, the planets, the moons, asteroids and comets interrelated? How can Earth's place in the Solar System be described?

**Optional Teacher Background:** *ScienceSaurus*: Earth Science Section

**Vocabulary:** solar system, planet, dwarf planet, asteroid, comet, astronomy, star, universe, galaxy

**Common Inquiry Labs:**

- *Science Fusion* Inquiry Flipchart "Make a Scale Model" & "First Sightings" p. 8
- *Science Fusion* Inquiry Flipchart "How do we observe objects in the solar system?" p. 9
- *Science Fusion* Inquiry Flipchart "A small slice of the universe" & "Colorful Stars" p. 10

St. Lucie County Public Schools Scope and Sequence 2012-2013

NGSSS	CONTENT	TARGETS
<p>SC.5.E.5.1 Recognize that a galaxy consists of gas, dust, and many stars, including any objects orbiting the stars. Identify our home galaxy as the Milky Way. Cognitive Complexity: <b>Low</b></p> <p>SC.5.E.5.2 Recognize the major common characteristics of all planets and compare/contrast the properties of inner and outer planets. Cognitive Complexity: <b>Moderate</b></p> <p>SC.5.E.5.3 Distinguish among the following objects of the solar system -- sun, planets, moons, asteroids, comets -- and identify Earth's position in it. Cognitive Complexity: <b>High</b></p>	<p>What do galaxies consist of?</p> <ul style="list-style-type: none"> <li>▪ Gases made up of gas and cosmic dust</li> <li>▪ Stars</li> <li>▪ Bodies that orbit the stars                             <ul style="list-style-type: none"> <li>○ Planets</li> <li>○ Asteroids</li> <li>○ Comets</li> <li>○ Moons</li> </ul> </li> <li>▪ The galaxy in which we live is called the Milky Way.</li> </ul> <p>What are the characteristics of all planets?</p> <ul style="list-style-type: none"> <li>▪ Revolve around a star – our star in the Sun.</li> <li>▪ May have moons that revolve around the planets</li> <li>▪ Rotate on an axis</li> </ul> <p>What are the characteristics of inner planets?</p> <ul style="list-style-type: none"> <li>▪ They are relatively small</li> <li>▪ Composed of mostly rock</li> <li>▪ Have few to no moons</li> </ul> <p>What are the characteristics of outer planets?</p> <ul style="list-style-type: none"> <li>▪ Large in comparison to inner planets</li> <li>▪ Composed primarily of gases</li> <li>▪ Many have rings made of gases</li> </ul> <p>What are some of the primary objects in our solar system?</p> <ul style="list-style-type: none"> <li>▪ Our Sun – the medium sized star around which all other objects in our Solar system revolve</li> <li>▪ Planets – Celestial bodies that revolve around a star and rotate on an axis</li> <li>▪ Moons – celestial bodies that revolve around planets.</li> <li>▪ Asteroids - rocky or metallic objects, most of which orbit the Sun in the Asteroid belt between Mars and Jupiter</li> <li>▪ Comets – small, icy celestial bodies that orbit around the Sun and are made up of a nucleus (solid, frozen ice, gas and dust), a gaseous coma and a tail.</li> <li>▪ Earth’s rotation and revolution</li> </ul> <p>***St. Lucie County’s 'Get Real About AIDS' Curriculum***</p>	<ul style="list-style-type: none"> <li>▪ Identify the major components of the solar system.</li> <li>▪ Describe the major characteristics of the planets of the solar system.</li> <li>▪ Compare and contrast the inner and outer planets.</li> <li>▪ Describe some of the smaller objects that orbit the sun, such as asteroids, meteoroids, comets, and dwarf planets.</li> <li>▪ Explain that stars are very large and appear small in the sky because they are far away.</li> <li>▪ Explain what galaxies are and how they are classified.</li> <li>▪ Describe the solar system’s place in the Milky Way galaxy.</li> </ul>