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

Course: 2 Course Code: 5020010 Quarter: 3

Topic of Study: Energy and Forces that Cause Changes in Motion

Big Ideas: Forms of Energy, Properties of Matter, Forces and Changes in Motion

Essential Questions: How do we use energy? How does the sun warm our homes? What are forces? How do forces make objects move? What are magnets? How strong is a magnet?

Optional Teacher Background: *ScienceSaurus*- Physical Science Section

RESOURCES **SCIENCE CENTER**

Vocabulary: energy, solar energy, heat, light, electricity, motion, force, speed, gravity, friction, magnet, pole, repel, attract

Common Labs:

- *Science Fusion* Inquiry Flipchart "Making Toast" & "My Energy Survey" p. 20
- *Science Fusion* Inquiry Flipchart "How Does The Sun Warm Our Homes" p.21
- *Science Fusion* Inquiry Flipchart "Ramp Races" & "Pushes and Pulls" p.22
- *Science Fusion* Inquiry Flipchart "How Do Forces Make Objects Move?" p.23
- *Science Fusion* Inquiry Flipchart "Action at a Distance" & "Magnetic Attraction" p.24

	Technology Links:	
Lab Assistance:	**Science Links:**	**Online Guides:**
Daily Inquiries	www.Thinkcentral.com	Above Level
Logs and Mini Lessons	Fusion Teacher Resources	On Level
Health Activities	Graphic Organizers	Below Level

NGSSS	Content	Targets
SC.2.P.10.1 Discuss that people use electricity or other forms of energy to cook their food, cool or warm their homes, and power their cars. Cognitive Complexity: **Low**	How do we use energy? ▪ Energy ▪ Solar energy ▪ Heat ▪ Light ▪ Electricity	▪ Identify forms of energy and sources of energy. ▪ Explain how people use energy in their daily lives. ▪ Observe how the sun's energy warms our homes. ▪ Communicate the results of an investigation.
SC.2.P.8.1 Observe and measure objects in terms of their properties, including attraction and repulsion of magnets. Cognitive Complexity**: Low** SC.2.P.13.1 Investigate the effect of applying various pushes and pulls on different objects. Cognitive Complexity: **High** SC.2.P.13.2 Demonstrate that magnets can be used to make some things move without touching them. Cognitive Complexity: **Low** SC.2.P.13.3 Recognize that objects are pulled toward the ground unless something holds them up. Cognitive Complexity: **Low** SC.2.P.13.4 Demonstrate that the greater the force (push or pull) applied to an object, the greater the change in motion of the object. Cognitive Complexity: **Moderate**	What are forces? ▪ Pushes ▪ Pulls What are magnets? ▪ Pole ▪ Repel ▪ attract How strong is a magnet? ▪ Communicate the results of an experiment.	▪ Classify forces as pushes or pulls. ▪ Explain how forces can change motion. ▪ Demonstrate that the amount and direction of a force exerted on an object will determine how much and in what direction the object will move. ▪ Explain how objects fall to the ground unless something holds them up. ▪ Experiment with forces by varying the amount of force used to push an object. ▪ Communicate the results of an investigation. ▪ Observe and demonstrate that magnets can move objects without touching them. ▪ Sort objects based on whether they are attracted by a magnet.