

# 13 Alternative Kit Usage Protocol

## North Carolina

Grade: 8th
Kit Name: Investigating Circuit Design
Essential Standards/CCSS: Methods of Inquiry and Scientific Processes
Suggested areas of focus: Use all investigations to focus students on proper behavior in the science classroom. Students will practice true inquiry skills learning they can answer questions through direct observation. Teachers should also use these investigations to teach students about proper use of science notebooks. They will become familiar with group science investigation, discussion, inquiry, and notebooking.
Suggested areas of minimization: Lesson 4 and 5 can be compacted into one class period. Lesson 13 can be compacted.
<b>Subconcept 1:</b> Students have ideas, preconceptions, and misconceptions about electricity. **This will be related to all other areas of science where preconceptions and misconceptions are common <i>Lesson 1:</i> Energy in Systems *After students have completed the circuit of four inquiries point out in discussion that misconceptions are common in many areas of science. Touch on other areas that you will discuss in later units such as the misconception that “all chemicals are bad,” or the idea that, “all bacteria are harmful.”
<b>Subconcept 2:</b> Energy is associated with static electricity <i>Lesson 2:</i> More Energy Investigations *Emphasize scientific method and questioning
<b>Subconcept 3:</b> Batteries provide a steady source of electrical energy <i>Lesson 3:</i> Making a battery *Emphasize the proper way to work through an investigation following directions and pausing to think
<b>Subconcept 4:</b> Batteries make electric charges flow in a circuit <i>Lesson 4:</i> Electrical Circuits *Emphasize that there are often different ways to do things. Many times in science class there are different roads that lead to the same conclusions. Students will learn to be open to new ideas. Students will practice their inquiry skills by answering questions by making direct observations. <i>Lesson 5:</i> Electrical Current *Emphasize how in science we use many special tools. Some of the tools we use are not common in our everyday lives and we need to learn the proper way to use and take care of the equipment.
<b>Subconcept 5:</b> Batteries provide current and voltage to power electrical devices. <i>Lesson 6:</i> Batteries in Electrical Circuits *Practice investigation behavior and inquiry <i>Lesson 7:</i> Batteries and Current *Practice investigation and inquiry <i>Lesson 8:</i> Exploration Activity (compact this activity by discussing concept, using activity as homework, move on) *Emphasize the relationship between what we are doing in the classroom and the students home life. <i>Lesson 9:</i> Electrical Power *Mathematics and calculations are common tools of science. Math and science are closely related. <i>Lesson 10:</i> Accounting for Electrical Energy *Emphasize math/science relationship importance
<b>Subconcept 6:</b> There are a number of ways of generating electrical energy to power electrical circuits. <i>Lesson 11:</i> Generating Electrical Energy and <i>Lesson 12:</i> Solar Cells *Go back to the discussion after lesson 4 about different ways to achieve the same outcome or conclusion.