



# Rose Island Lighthouse Foundation Education Program – Lesson Plans

**Grade Level: 3-5**

## **Lesson Topic: Lightning**

**Length: One class period**

**RI Standard of Learning: Science and Technology** (The Physical Setting, Nature of Technology)

**Learning Objective:** Students will learn the practical knowledge of lightning and the properties of static electricity.

**Materials:** Balloons, Styrofoam packing pellets, Strips of wool cloth, salt and pepper

**Vocabulary:** lightning, static electricity, charges, barracks, lightning rod

### **Procedure:**

On Rose Island: Interpreter shows students the lightning rods that exist attached to the barracks building. These rods reduce the risk of the barracks buildings or the surrounding buildings of being hit by lightning. The rods are grounded and are the tallest things on the island so they attract the lightning.

### In the Classroom:

- Introduction: Define static electricity for the students. Lightning is an extreme version of the shock you get after walking across a carpet and touching a doorknob. There is an exchange of charges. Ask students to recall the information they learned on the island. Ask the students to recall thunderstorms during their lifetimes. Have any of them actually seen lightning?
- Development: Now have the students complete a static electricity experiment. Inflate a balloon and rub it on the wool cloth, bring the balloon to a handful of the Styrofoam pellets and watch what happens. Many of the pellets will cling to the balloon. Wait for several minutes and observe what happens to the pellets. Try to explain what forces were involved in the pellets being attracted to the balloon, and then explain the odd behavior of the pellets that followed. Mix together a small pile of salt and pepper, recharge the balloon with the cloth, then hold the balloon very close to the salt and pepper. What happens? Is it what you expected?
- Closure: Go back through the experiments and chart, in writing, the positive and negative forces involved in each step and how they caused the motions you observe. Discuss the concept of charge with the students. Ask them what will opposite charges do? What will like charges do?

**Evaluation:** Do the students understand the concept of charge? Observe their writing about charge and their discussion of what happened in the experiment. Make sure they can connect the concept of charge with events in their daily life, like the shock you get when you walk across the carpet and touch the doorknob.

### **References:**

<http://www.tpt.org/newtons/15/lightning.html>

<http://www.mos.org/sln/toe/>