

Learning Focus / Common Core Essential Elements:

- Speaking and listening
- Language

Learning Level:

Students at the **essential** level, modify the activity by:

- Providing modeling cues before each activity step
- Reducing the number of steps students complete independently (use backwards chaining)

Students at the **intermediate** level, modify the activity by:

- Using less complex language
- Utilizing peer support

Students at the **advanced** level: use the provided instructions

Materials:

- Aluminum pie pan
- Wool fabric (1 small piece)
- Styrofoam plate
- Pencil with a new eraser
- Thumbtack

Preparation:

1. Set up a demonstration table in the front of room visible to all students. Make sure it is as level as possible.
2. Place your materials on the demonstration table.

Instructions:

1. Gather students around the demonstration table and indicate the materials.
2. Prompt students to talk about lightning using simple language. Discuss that lightning is electricity and ask students if they've ever been "shocked" when they've touched something with static electricity. Explain that for this experiment, you'll be making a spark using static electricity.
3. Push the thumbtack through the center of the aluminum pie pan, from the bottom. Push the eraser end of the pencil into the thumbtack.
4. Put the styrofoam plate upside down on a table. Quickly rub the bottom of the styrofoam plate with the wool for a couple of minutes. Pick up the aluminum pie pan using the pencil as a handle and place it on top of the upside-down styrofoam plate that has been rubbed with wool.
5. Touch the aluminum pie pan with your finger. You should feel a shock. If you don't feel anything, try rubbing the styrofoam plate again.
6. Once you feel the shock, try it again, turning the lights out before you touch the pan again. You should see a spark. Repeat the experiment to ensure all students see the spark.

Safety Note:

It is recommended that all science experiments and activities be conducted only under adult supervision. Adults should handle or assist with all materials. Please check with your school's administration to see if science materials are approved for use in the classroom.

Supplementary Information:

For learners who would benefit from a more detailed explanation of this exercise, explain the following scientific principle:

- This activity is an example of static electricity. Lightning happens when negative charges (electrons) in the bottom of the clouds (or, in this experiment, your finger) are attracted to the positive charges (protons) in the ground (or, in this experiment, the aluminum pie pan). The resulting spark is a mini lightning bolt.