LESSON 25

THUNDER & LIGHTNING SIMULATIONS

In these activities, we are going to demonstrate how lightning is created and why the sound of thunder follows a flash of lightning.

Lightening Simulation

Supplies

- Styrofoam plate
- Pencil with a new eraser
- Flat thumbtack
- 4x4 inch piece of wool fabric
- Aluminum pie plate (disposable would be best)

Instructions

1. Press the thumbtack through the pie plate so the flat part of the thumbtack is underneath the pie plate.
2. Press the middle of the eraser on the pencil through the thumbtack so the pencil sticks straight up out of the pie plate.
3. Turn the styrofoam plate upside down so the flat portion is sticking up.
4. Rub the bottom of the styrofoam plate with the wool fabric for two minutes.
5. Turn off the lights.
6. Grab hold of the pencil on the pie plate, and touch the bottom of the styrofoam plate with the bottom of the pie plate.
7. Quickly touch the pie plate with the hand that is not holding the pencil.
8. Look for the flash of light!

Questions

1. Take some time to research what you are creating when you rub the bottom of the styrofoam plate with the wool fabric. What are you seeing when you touch the pie plate?

2. When you touched the pie plate after the pie plate touched the styrofoam plate, there was a flash of light. What causes this flash of light? Do a little research to answer this question: how is this flash of light like lighting?

Thunder Simulation

Supplies

- 3 brown paper lunch bags
- Timer or stopwatch

Instructions

1. For this lab, you will need a partner. One of you should hold the bag, and one of you should be in charge of the timer.
2. Begin by blowing up the brown lunch bag so that it is full of air.
3. Twist the end of the bag so that the air is trapped inside. Hold the lunch bag with one hand, making sure that the air stays trapped inside.
4. Have your partner ready the timer. You will smack the bag quickly with force. Your partner will time how long it takes from the moment you smack the end of the bag until when the sound is heard. Note the time in the data table.
5. Try this lab again with a partner. Have them stand across a room to pop the brown lunch bag. Use the timer to time the delay before you hear the sound. Note the time in the data table.
6. Try this lab a third time, having your partner stand across the yard to pop the brown lunch bag. Note if there was a delay before you heard the sound. If there was a delay, note the time in the data table.

Trial	Delay in hearing the sound (seconds)
Holding the bag	
Bag popped across the room	
Bag popped across the yard	

Questions

1. Did you notice a delay in the time between the popped bag and hearing the sound in any of your trials? _____

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2. Take some time to research how the sound of thunder is made during a storm. What causes the sound? _____

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3. What might cause a delay between seeing a bag popped and hearing the sound of it being popped? How is this similar to lightning and thunder? _____

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