Weather

This is your guide to complete this Trail Walk. Please read all directions closely!

Have Fun!!!

Stop #1.

Clouds

Walk to the *Mall* area in front of the library.

Lie down in the grass and look at the clouds. Observe!

What did you see? (shape, size, color) _____

_____

_____

_____

_____

_____

How do you think clouds are made? _____

_____

_____

_____

Let's Explore and Find Out!!

Experiment #1

Cloud in a Bottle

Follow the steps and directions very carefully.

1. **Take a 2-liter plastic bottle and have Miss Myers or Miss Harrell pour warm water into the bottle.**
2. **Place the cap back on your bottle.**

What is happening? _____

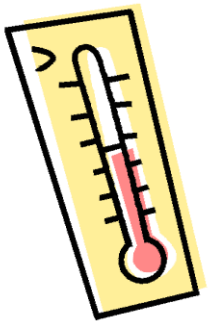
_____

_____

3. **Squeeze and release the bottle. You'll notice that nothing is happening. The squeeze will represent the warming that occurs in the atmosphere and the release represents the cooling. Why is nothing happening? Think about it.**
4. **Take the cap off the bottle and Miss Myers or Miss Harrell will light a match and drop it in the bottle. Quickly put your cap back on to trap the smoke inside.**
5. **Begin slowly squeezing the bottle hard and then release. What happens this time?**

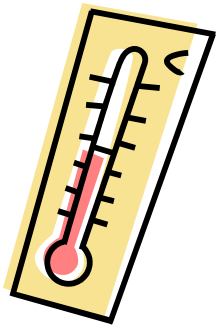
What are the three ingredients to make a cloud?

1. _____
2. _____
3. _____



Stop # 2

Temperature



Follow the map to the *Peace Garden*. Sit by the fountain.

Temperature = the degree of hotness or coldness that can be measured using a thermometer.

What is the weather like when it is hot or cold?

Hot	Cold

Using the thermometer, find the temperature of the air and the water in the fountain.

Air _____ °C _____ ° F

Water _____ ° C _____ ° F

Experiment #2

Make a Thermometer

Follow the Steps and the Directions carefully.

1. **Take a water bottle. Pour water into the bottle up to the first line. Take the alcohol and pour it into the bottle until the liquid reaches the fourth line on the bottle.**
2. **Add a few drops of food coloring.**
3. **Put your straw into the bottle. <u>Do not let it touch the bottom of the bottle.</u>**
4. **Use the modeling clay to seal the neck of the bottle around the straw. Make sure the straw stays in place, but do not let it touch the bottom. Miss Myers and Miss Harrell will assist you.**
5. **Place the bottom of the bottle in the water in the fountain. Does it move?**
6. **Place your hands on the bottom of the bottle and try to warm up the liquid.**

What happens? _____

_____

_____

Why does the liquid rise just like in the thermometer? _____

_____

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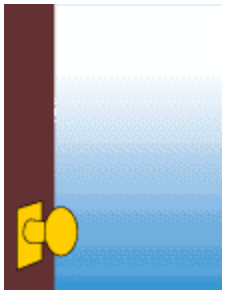
Stop #3

Lightning

Follow the map to *Holl-Kitner*. Go inside and go into the co-ed bathroom.

Lightning = a bright flash of electricity caused by an electric current during a thunderstorm.



Have you ever rubbed your feet across a carpet and then touched a door knob? You get shocked! Why?

It is called an electric current. When things rub against each other it causes them to become negatively charged. As you rub your feet along the carpet, you become negatively charged, while the door knob is positively charged. In an electric current, opposites attract. When you (negative charge) connect with the door knob (positive charge) it creates a zap or shock.

Lightning works the same way! There are small bits of ice inside thunderclouds that bump into each other as they move. The collisions create an electric charge.

The positive charges form at the top of the cloud and the negative charges at the bottom of the cloud. Once again, opposites attract causing positive charges to build up on the ground.

The electrical charges on the ground build on anything sticking up, such as a tree, people, or mountains. The charge from the ground eventually meets with the charges coming from the cloud and – ZAP – Lightning strikes!

Fun Facts:

1. Lightning kills and injures more people each year than hurricanes or tornadoes; between 75 to 100 people.
2. Lightning is approximately 54,000 °F. That is six times hotter than the surface of the sun!
3. Lightning seems to be clear or a white-yellow color, but it really depends on the background
4. What we see as a flash of lightning may actually be 4 different strokes in exactly the same place, one right after another. That's why lightning appears to flicker.

Experiment #3

What is Lightning?

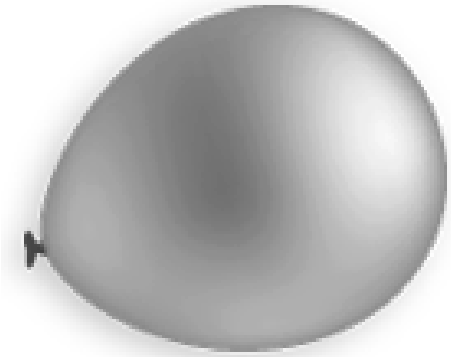
Follow the steps and directions carefully.

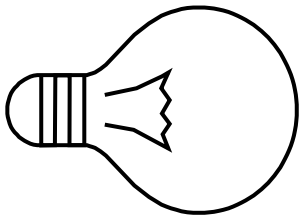
1. **Take a balloon and blow it up and tie it. Rub it on your hair for several seconds.**
2. **Hold your balloon near the end of the light bulb.**

What happened? _____

_____

Finish the diagram below. Insert the electrical charges then explain in the space below why the light lit up.





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Congratulations!!

You have just finished the Science Trail on Weather!

Follow your map to the *Library*. We are going to go inside to the computer lab to do a Web Quest and learn more about weather.