Rain Activity 1

Make It Rain!

Objectives and Standards
- Understand that rain is a part of the water cycle and learn the physical forces that allow rain to fall

NSTA Standards Addressed
Content Standards
A, B, D, F, G

4-H SET Abilities Addressed
Observe
Communicate
Infer
Summarize/Relate
Interpret/Analyze/Reason

Supplies Needed

-Empty, clean glass jar (like a pickle or jam jar)
-Disposable pie pan
-6-8 ice cubes
-Hot water

Background

A number of forces come together to create rain in our community, including water availability in the air (humiditiy), a warm temperature to keep rain from turning to snow, and winds to bring clouds and low pressure systems together to create a storm. Does it rain often in a desert? No, because even though it is warm enough, there isn't enough humidity in the air. Does it rain often at the North Pole or in other arctic areas? No, because even if there is humidity in the air, it falls as snow and not as rain. This activity will show us some of the basic forces acting to create rain.

CoCoRaHS Extension Ideas

Think about the characteristics of your community as you make rainfall observations for CoCoRaHS. What does it feel like in the hours before a rainfall? Is it warm? Do your clothes feel like they are sticking to you because the air is so moist? What does it mean when someone describes the air as thick? Record these observations, too, as you record your precipitation data for CoCoRaHS on your data sheet.

Activity

1.Pour hot water into the glass jar and cover it with the pie pan (right-side up).
2. Let sit for approximately one minute. What's happening inside the jar?
3. Place the ice cubes into the pie pan and watch what happens inside the jar. Now what is happening in the jar? Why are droplets forming on the pie pan? Why is there water trickling down the side of the jar?

Discussion

In this activity, the hot water warmed the air inside the jar, allowing the air to expand and carry moisture in it. Think about feeling steam rise as you boil water for dinner. The moist air is trapped inside the jar by the pie pan, and when the ice is placed in the pie pan, the air in the jar is cooled. Cold air cannot hold as much water as warm air, so the water condenses on the pie pan and sides of the jar, making water droplets. These flow down the side of the jar, creating "rain." In the same way, warm, moist air from the Earth rises into the atmosphere, where eventually it is cooled, condenses, and creates clouds and rainfall.

When the hot water was poured into the jar and the pie pan was placed on top, the jar became opaque and hard to see through. This is the same process by which clouds and fog are formed. If we envision the jar as the Earth and atmosphere, the cloud forming is in the upper atmosphere. If we envision the top of the water as the Earth surface, the cloud forming represents fog, which occurs when the conditions for cloud formation exist at the Earth's surface.

Please send us your feedback!

As a 4-H Educator, you know what has worked well, what has not, and how we can improve the *Tracking Climate in Your Backyard* curriculum. Please share your feedback about the curriculum. We'd love to receive copies of any reports or newspaper coverage about completed *Tracking Climate in Your Backyard* projects.

Fax or mail your completed feedback to Trisha Smrecak, Museum of the Earth, 1259 Trumansburg Rd., Ithaca, NY, 14850 or fax to: 607-273-6620.

Check the activity completed	Suggestions for improving the activity
Rainfall Activities ☐ Make It Rain ☐ Where Does the Rain Come From? ☐ Stormy Weather	
Snowfall Activities ☐ Confetti Snow Maps ☐ How Much Water? ☐ Edible Education ☐ The Snowflake Game ☐ Snow Journaling	
Temperature Activities ☐ Energetic Weather ☐ Shade of the Old Oak Tree ☐ Temperature Through Time	
Wind Activities ☐ Why Does the Wind Blow? ☐ Make Your Own Wind Dial	
Hydrologic Cycle Activities ☐ The Incredible Journey ☐ Understanding Evapotranspiration ☐ Pinecones: Mother Nature's Weather Forecasters ☐ What is a Watershed?	
Climate Activities ☐ Where is My Backyard? ☐ Soak up the CO_2 ☐ Buckets O' CO_2 : How Your Backyard Can Change the Ocean ☐ Raise the Waters	

Please share your suggestions for improving the Tracking Climate in Your Backyard curriculum.

How have you used Tracking Climate in Your Backyard in your community?

Thank you for completing the Tracking Climate in Your Backyard curriculum feedback. We appreciate learning about how you are using the curriculum and receiving your suggestions for improving it.

Organization _____ **Contact Person** _____

Email _____ **Date** _____