Snowfall Activity 1

Confetti Snow Maps

Objectives and Standards
- To understand that precipitation intensity can vary between places during a storm event, and to teach how to create a contour map and compare it to how weather is predicted by media sources.

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

4-H SET Abilities Addressed
Measure
Draw/Design
Observe
Communicate
Question
Summarize/Relate
Interpret/Analyze/Reason
Model/Graph/Use numbers
Compare

Supplies Needed

-construction paper
(various colors suggested)
-15 to 20 recyclable cups
-pen or marker
- graph paper
-towel or sheet

Background

We know a lot about what conditions create rainfall or snowfall in an area. However, we are constantly looking to better understand the spatial variability of rain and snow; like why one house might get 3 inches of snow but, down the road, a friend's house only had one inch of snow fall. This activity looks at how we measure snowfall and then create precipitation contour maps to determine where the heaviest snowfall occurred. Contour mapping of precipitation is also used in weather forecasting to determine what areas will be most heavily impacted by potential snowfall.

CoCoRaHS Extension Ideas

After a heavy snowfall in your area, print off a CoCoRaHS map of your state or county with all of the stations and their recorded snowfall data. Using what you've learned from this activity, draw a contour map of snowfall in your area and determine which parts of the county or state were hit hardest, and which received little or no snow at all. Then, find the predicted pattern and amount of snow from a newspaper, weather website, or other source, and compare the actual results from those predicted.

Another idea is to make a 3-D model of real contour map data from precipitatiaon measurements taken byb CoCoRaHS observers. Visually represent the amount of snowfall with playdoh, paper mache, or by some other means.

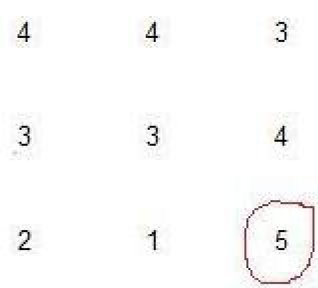
Preparation Needed

Cut enough confetti out of construction paper for each individual to have a handful. If you like, and for older audiences, assign each color of confetti a different snow amount, or decide all colors will represent the same anount. For example, blue and green may be light snowfall, 1 piece = 1 inch of snow, orange and red may be heavy snowfall, 1 piece = 2 inches of snow.

Activity

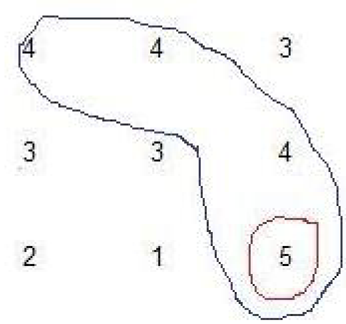
1. Place the cups to form a grid on the floor (4x4, 5x3, 3x3, etc., depending on the number of participants.) Use a sheet beneath cups to minimize mess from confetti. Cups should be an inch or two apart. You may choose to cover a map of your county or state with cups instead of the grid, modifying subsequent directions to fit your experiment.
2. Youth should draw on their graph paper a grid that matches the arrangement of the cups on the floor, noting the name or number of each cup and labeling them (if using a map, print out maps for each youth and have them mark where the cups are on the map). Assign each youth a cup(s) that will be their responsibility. Label cups accordingly, though be sure not to label the bottom of the cup.
3. Grab a handful of confetti (or have youth each grab a handful) and toss it randomly over the grid arrangement of cups.

4. Have groups count the number of confetti pieces that fell in their cup (i.e. Cup 1 had 4 red pieces, 2 blue pieces, etc.) If different colored confetti will be assigned a numeric value, be sure they record the number of each color. If not, color doesn't matter. Make sure youth record the numbers as they correspond to each labeled cup.
5. Youth share information with each other or record on one large paper/chalkboard how much snow confetti fell in each labeled cup.
6. Total up the amount of snow that fell in their cups (4 blue and 2 red pieces = 8 inches of snow in Cup 2). Have youth record the total amount of snow that fell in each cup on their grid sheet of paper in the corresponding cup.
7. Youth should then make contour maps of snowfall by outlining all of the colored areas. This step works much better with older groups, so younger children may wish to do this in a directed group with the leader's help.

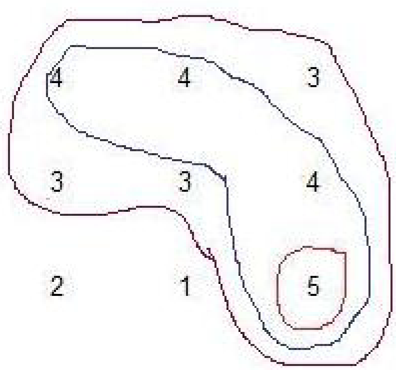


8. Making a contour map:

a. Circle the cup with the highest amount of snowfall. If more than one cup has the same highest amount make a circle that encompasses all of them, but none of the other snowfall amounts.

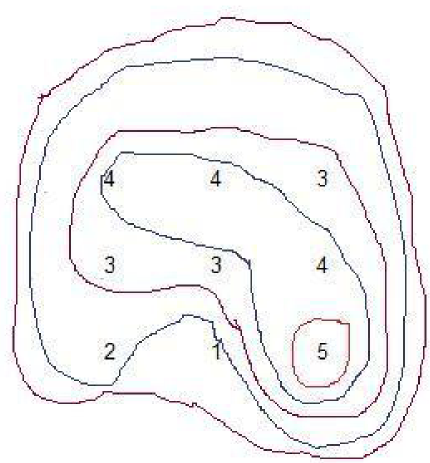


b. Find the cup(s) with the next highest amount of snowfall. Make a circle that encompasses them and the smaller circle with the higher amounts of snowfall. Be sure to avoid the lower amounts of snowfall.



c. Find the next highest amount of snowfall.

d. Repeat steps b and c until all snowfall amounts have been graphed in a contour map.



Discussion

This activity allows youth to see how variable snowfall and other forms of precipitation can be. These precipitation patterns do exist in real life and affect where people live, where animals live, and how snowfall buildup in one area can replenish rivers and lakes in many other areas. These patterns can seem very random over an area, with one side of town getting hail or snowfall, and the other side of town having nearly no snow or hail. Further, their participation in CoCoRaHS (if applicable) is helping scientists to better understand this local variability.

Have youth name different regions in the US that experience different amounts of snowfall and other precipitation. Talk about how the precipitation affects where people are living. Some examples are below:

- Snow falls on a mountaintop year-round, few people live in mountainous areas, yet the snow melts into the valleys below where people have settled

- Snow falls in the northern U.S. states. That snow melt trickles down lakes and streams and feeds more arid regions in the south like New Mexico and Arizona.

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	
CoCoRaHS Participation ☐ Precipitation measurements and other activities	

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** ________________________