CLOUD TYPES AND FORMATION OF CLOUDS

Related Subject: Climate and Weather
Group Size: 1-15
Length of Activity: ongoing

Overview

An ongoing project where participants photograph, observe and identify clouds compiling a scrapbook.

- Participants will take photos of cloud or other weather using the Cloud Data Sheet.
- Photos can be compiled into a "cloud library" or into a chronological scrapbook of weather.
- Photos will be labeled by type of clouds or other weather phenomena.
- Each photo will be mounted on a sheet of paper with the Cloud Data Sheet giving information such as date, time, place and weather conditions.
  - Separate the categories of clouds/phenomena by dividers labeled accordingly in the scrapbook, or keep the records chronologically in order by date.
  - Have the scrapbook on display to share with visitors/parents.

Objective

Upon completion of this project/activity, participants will have an understanding of:

Cloud types and the weather associated with them
Use of technology to record clouds
A better understanding of clouds

Materials
- Download, print, laminate and assemble a Cloud Spotter from http://www.srh.weather.gov/srh/jetstream/synoptic/images/cloudwheel.pdf for each participant
- Digital camera(s) or disposable cameras
- Scrapbook or 3-ring binder
- Dividers for the scrapbook/3-ring binder labeled for cloud types and other weather phenomena such as rainbows, halos, etc. or by dates, depending on final outcome
- Paper and pen

When each photo is taken, using the Cloud Spotter and the Cloud Data Sheet, ask and record answers to the following questions to be displayed with each photo in the album:
1. What time of day was the cloud(s) photographed?
2. Identify the type of cloud(s) photographed.
3. What are the weather conditions when the photo was taken?
4. What weather conditions followed taking the photo?
5. What is your weather prediction for tomorrow's weather?

After the album is complete, use the following questions as a review and conclusion to the activity.
1. What time of day were most clouds photographed?
2. What type of clouds were photographed most often?
3. What type of clouds were seen or photographed least often?
4. What type of clouds do you like best? Why?
5. What type of clouds do you like least? Why?
6. Is it possible to forecast the next day's weather using the clouds from today?

Background
- Since this is an ongoing project/activity, you might want to assign certain participants to take pictures of clouds at different times of the day and on different days of the week.

- On a weekly basis discuss the weather with the participants, take photos of clouds, classify and compile the scrapbook.

- A useful way to categorize clouds are in three levels:

- Low level - stratus, stratocumulus, cumulus, and cumulonimbus
- Middle level - altostratus, altocumulus, nimbostratus
- High level - cirrus, cirrostratus, cirrocumulus

- If you do not have access to a digital camera, purchase a couple of disposable cameras and have prints developed. Some department stores may donate disposable cameras and developing if they know the purpose and group behind the project.

- When you are classifying the cloud pictures, none of them are going to look exactly like the clouds in your book or on the cloud chart, and that some may actually overlap and be two different types. It is sometimes a judgment call, so use your best judgment.

- Results may vary, however participants should be able to answer the questions on the participant activity form. This can be a fun and enriching experience for them as well as for the leader.

- Many meteorologists say that clouds are the greatest free show on Earth, and for good reason. They are among nature's most beautiful creations, but can be among nature's deadliest enemies to the farmer, rancher and society in general depending on what the cloud is bringing us.

- Encourage participants to watch for other weather phenomena such as fog, rainbows, auroras, halos, sun dogs, pillars, (see http://www.weatherwizkids.com/optical_illusions.htm)

Sources: http://www.srh.weather.gov/srh/jetstream/synoptic/ll_clouds1.htm

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National Science Education Standards:

NSES K-4:
      Science as Inquiry (4ASI)
            Abilities necessary to do scientific inquiry (4ASI 1)
      Earth and Space Science (4DESS)
            Objects in the sky (4DESS 2)
            Changes in earth and sky (4DESS 3)

NSES 5-8:
      Science as Inquiry (8ASI)
            Abilities necessary to do scientific inquiry (8ASI 1)
      Physical Science (8BPS)
            Transfer of energy (8BPS 3)
      Earth and Space Science (8DESS)
            Structure of the earth system (8DESS 1)

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CLOUD DATA SHEET

NAME _____

Today's Date _____

Time photo taken _____

Outside Temperature _____

Where were you when you took the photo of the clouds? (try to be as specific as possible including city and state)

What direction were you facing?

Was there any wind?   Yes   No   If yes, wind from the _____ (direction).

The sky was (mostly clear, partly cloudy, cloudy)_____.

What was the weather when you took the photo?

What was the weather 24 hours or the next day after the photo?

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