Weather and Climate

Eileen Carpenter

http://spark.ucar.edu/

The difference between weather and climate can be a difficult topic for students to understand. It is hard for adults to grasp as well. Climate is the study of weather over time. Scientists need to study weather for 30 years or longer in order to understand climate.

To get started, we need clues or data about what is going on in our atmosphere. From this data we can look for patterns or trends. Scientists, like those at NCAR, get data in many different ways. The five important observations that scientists and students can make to understand weather are temperature, wind speed, wind direction, humidity and air pressure.

These characteristics can be observed with (a.) and without (b.) instrumentation in the following ways:

1. Temperature
   a. Use infrared or regular thermometers for air, soil, rock, skin, under a lamp, clothing.
   b. Use hands to touch surfaces in the shade, sun, dirt.
2. Wind speed
   a. Anemometer.
   b. Hold a wet finger to the wind, close your eyes and feel the wind on your face, listen for wind, toss dirt or grass in the air, look at the trees/plants for movement.
3. Wind direction
   a. Anemometer.
   b. Same as 2b.
4. Humidity (moisture)
   a. Psychrometer or hygrometer
   b. Look for clouds, rain and snow, the feel of your skin, moisture on the window.
5. Air Pressure
   a. Barometer
   b. Talk about ears popping, can you feel more or less air pressing on you?

Resources:

   Make an anemometer
   The GLOBE Program
   The System Game
   Tree Ring info
   Tree ring video
   Tree Core site
   Lord of the tree rings video
   Climate Activities
   Understanding Climate
   Climate Discovery Teachers guide

Trees: Recorders of Climate Change Activity