



What is the difference between weather and climate? Weather describes daily conditions and climate describes long-term averages of these moisture and temperature measurements. In Illinois, we live in a temperate climate with 4 seasonal changes. Other parts of the world have climate conditions such as tundra (cold and dry); tropical (warm and wet); or desert (cold or warm, but always very dry).



Exploring 4-H Weather

Spark Activity: Cloud Gazing

Weather forecasts typically include a sky condition prediction of cloud coverage. Guess which of these terms are used to describe the following levels of cloud coverage:

TERMS (in no particular coverage order)

- Mostly Cloudy or Considerable Cloudiness
- Mostly Sunny or Mostly Clear
- Partly Cloudy or Partly Sunny
- Clear or Sunny
- Cloudy



Cloud Coverage Predictions

Descriptive Terminology Guess

No Clouds

1/8 to 2/8 coverage

3/8 to 5/8 coverage

6/8 to 7/8 coverage

8/8 coverage (100% clouds)

Check your answers here: <https://www.weather.gov/bmx/nwsterms>

4-H Project Levels and Goals

Beginner

- Learn how temperature effects air movement and the ability of air to hold vapor
- Gain knowledge of terms used in weather alerts
- Know the different U.S. climate areas
- Learn what the U.S. hardiness zones are

Intermediate

- Learn how clouds form at different cloud classifications
- Know different weather measuring instruments and how to use them
- Gain knowledge of the greenhouse effect and what that means to our climate

Advanced

- Understand why there are low pressure and high pressure systems
- Be able to demonstrate why the earth's axis tilt and rotation creates our weather patterns
- Demonstrate with symbols, weather fronts and their effects on forecasting

Put Your Project Into Action

Show Your Skills

- Make a poster with a minimum of 10 pictures with at least 2 each of cumulus, cirrus and stratus cloud forms - label each cloud for cumulus, cirrus or stratus
- On a world map, locate the major deserts of the world. List the names of these deserts along with their general location on the earth. Are they hot or cold deserts? List a few plants and animals found in each of these deserts

Service and Leadership

- Become a volunteer weather spotter with the National Weather Service
- Become a volunteer precipitation monitor for the Community Collaborative Rain, Hail and Snow program (CoCoRaHS)

Technology Connection

- Use the Null Earth website to learn more about winds, oceans, and even space weather: <https://earth.nullschool.net/>
- Monitor hurricane developments at: <https://www.nhc.noaa.gov/>

Connecting with a Mentor

- Local broadcast meteorologist
- Local National Weather Service office

Events

- Collegiate level weather forecasting national competition: <https://www.wxchallenge.com/>
- American Meteorological Society – various events, webinars, and conferences for youth and adults



Careers for People Interested in Weather

Meteorologist	Climate Software
Climatologist	Engineer
Broadcast Meteorologist	Hydrologist

Start a Conversation

Do some clouds signal a change of weather?
Why do some clouds look different than others?
Why are deserts located where they are?
What are the hottest and coldest measurements ever on planet earth and who measured them?

Want to learn more?

go.illinois.edu/4Hweather

Explore more at Illinois 4-H!

4-H.extension.illinois.edu



College of Agricultural, Consumer and Environmental Sciences

University of Illinois | U.S. Department of Agriculture | Local Extension Councils Cooperating.
University of Illinois Extension provides equal opportunities in programs and employment.

Credits: National Weather Service/National Oceanic and Atmospheric Administration | Jackie Beck, 4-H volunteer | University of Illinois Extension staff that contributed to this resource include Duane Friend and Curt Sinclair | 4-H Spark Sheets are a collaborative effort of 4-H staff, volunteers, alumni and teens from across Illinois. A big thanks to the many contributors and reviewers!