



Weather

Scouts BSA · STEM

Name

Started

Completed

Weather is something you deal with every day, and understanding it keeps you safe outdoors. You will learn how weather works, read the clouds, and see how forecasters make predictions. You might even build your own weather instrument.

Requirements

Every official requirement, in plain language. Check the official wording when you sign off (scouting.org/merit-badges/weather/). Tips and examples are ideas, not extra requirements.

- ☐ **1** Define meteorology, explain weather and climate, and discuss how weather affects farmers, sailors, pilots, and outdoor construction workers and why forecasts matter to each group

Tip: Use your own words to explain the difference between the weather today and the climate where you live.

- ☐ **2** Name five dangerous weather conditions and the outdoor safety rules for each, explain how a severe weather watch differs from a warning, and go over the safety rules with your family

Tip: Pick five dangerous weather types, like thunderstorms or blizzards, and list a safety rule for each.

Example: Pick five conditions you might face on Scout trips, like lightning, flash floods, extreme heat, tornadoes, and blizzards. For each, give one safety rule, like "When thunder roars, go indoors" or "Turn around, don't drown."

- ☐ **3** Identify at least two forecast sources to use when preparing for hikes, campouts, and other outdoor activities, and name two sources of emergency weather warnings at home and at outdoor Scout events

Tip: Compare a few forecast sources and pick the ones you'd check before a campout.

Example: Compare a National Weather Service forecast, a weather app, and a local TV station for the same weekend. Explain which you'd check before a campout and why, and how you'd watch for changes while on the trail.

- ☐ **4** Explain how high and low pressure systems differ and which one brings good or bad weather. Sketch a cross section of a warm front and one of a cold front, showing where cold and warm air sit and move, the frontal slope, cloud types and locations, and where precipitation falls

Tip: Watch a weather map on TV or online and look for the H and L symbols.

- ☐ **5** Explain what makes wind blow, what makes rain fall, and how lightning and hail form

Tip: Look up how lightning and hail form, and watch what the wind and rain do during the next storm.

- ☐ **6** Identify and describe low-, middle-, and high-level clouds and the kinds of weather each is linked to

Tip: Take photos of clouds for a week and match them with the weather that followed.

Example: Keep a cloud log for a week with a sketch or photo of each day's sky. Match each to a type, like cumulus, stratus, or cumulonimbus, and note what weather followed.

- ☐ **7** Draw and label a diagram of the water cycle's main processes and explain the cycle to your counselor

Tip: Draw the water cycle and explain it to a family member.

- ☐ **8** Identify some human activities that change the environment and describe their effects on climate and people

Tip: Talk about how people affect climate and how climate affects people's lives.

- ☐ **9** Describe how the tilt of Earth's axis helps shape climate near the equator, near the poles, and in between

Tip: Use a ball and flashlight to show how Earth's tilt causes seasons.

10 Weather observation: Choose 1 of 2

Tips for this section: Build a simple rain gauge or wind vane, or arrange a visit to a National Weather Service office.

Example for this section: Build a rain gauge from a straight-sided clear container with a ruler taped to the side, or a wind vane from a straw, a pin, and cardboard. For a week, record your readings at the same time each day, along with the forecast and what actually happened.

- ☐ **10a** Make a wind vane, anemometer, rain gauge, or hygrometer. For a week, log at the same time daily, using it plus radio, TV, NOAA Weather Radio, or internet (with permission): wind direction and speed, temperature, precipitation, clouds, and any dew or frost. Also log each day's forecast and what really happened

- ☐ **10b** Go to a National Weather Service office, or interview a local TV or radio weathercaster, private meteorologist, agricultural extension officer, or university meteorology instructor. Learn what weather most threatens your community and how severe weather and flood warnings reach local homes

- ☐ **11** Give a talk lasting five minutes or more to a group (for example, your unit or a Cub Scout pack) on outdoor safety during lightning, flash floods, and tornadoes. Get your counselor's approval of your outline first

Tip: Practice your talk in front of family and keep it focused on staying safe outdoors.

Example: Plan a five-minute talk for your troop or a Cub Scout pack on lightning, flash floods, and tornadoes: how to tell danger is coming, where to go, and what to do if you're caught outside. Get your counselor's OK on your outline, then practice once with a timer.

- ☐ **12** Explore careers in meteorology and weather. Research one: training, education, costs, job outlook, pay, duties, and advancement (searches, interviews, or visits need a parent's or guardian's OK). Discuss with your counselor what you found and what makes it interesting to you

Tip: Ask a TV meteorologist or weather service staff how they got started.