

MERIT BADGE SERIES



WEATHER



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STEM-Based

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WEATHER



"Enhancing our youths' competitive edge through merit badges"



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Requirements

1. Define meteorology. Explain what weather is and what climate is. Discuss how the weather affects farmers, sailors, aviators, and the outdoor construction industry. Tell why weather forecasts are important to each of these groups.
2. Name five dangerous weather-related conditions. Give the safety rules for each when outdoors and explain the difference between a severe weather watch and a warning. Discuss the safety rules with your family.
3. Explain the difference between high- and low-pressure systems in the atmosphere. Tell which is related to good and to poor weather. Draw cross sections of a cold front and a warm front, showing the location and movements of the cold and warm air, the frontal slope, the location and types of clouds associated with each type of front, and the location of precipitation.
4. Tell what causes wind, why it rains, and how lightning and hail are formed.
5. Identify and describe clouds in the low, middle, and upper levels of the atmosphere. Relate these to specific types of weather.
6. Draw a diagram of the water cycle and label its major processes. Explain the water cycle to your counselor.
7. Identify some human activities that can alter the environment, and describe how they affect the climate and people.
8. Describe how the tilt of Earth's axis helps determine the climate of a region near the equator, near the poles, and across the area in between.

9. Do ONE of the following:
- Make one of the following instruments: wind vane, anemometer, rain gauge, hygrometer. Keep a daily weather log for one week using information from this instrument as well as from other sources such as local radio and television stations, NOAA Weather Radio All Hazards, and Internet sources (with your parent's permission). Record the following information at the same time every day: wind direction and speed, temperature, precipitation, and types of clouds. Be sure to make a note of any morning dew or frost. In the log, also list the weather forecasts from radio or television at the same time each day and show how the weather really turned out.
 - Visit a National Weather Service office or talk with a local radio or television weathercaster, private meteorologist, local agricultural extension service officer, or university meteorology instructor. Find out what type of weather is most dangerous or damaging to your community. Determine how severe weather and flood warnings reach the homes in your community.
10. Do ONE of the following:
- Give a talk of at least five minutes to a group (such as your unit or a Cub Scout pack) explaining the outdoor safety rules in the event of lightning, flash floods, and tornadoes. Before your talk, share your outline with your counselor for approval.
 - Read several articles about acid rain and give a prepared talk of at least five minutes to a group (such as your unit or a Cub Scout pack) about the articles. Before your talk, share your outline with your counselor for approval.
11. Find out about a weather-related career opportunity that interests you. Discuss with and explain to your counselor what training and education are required for such a position, and the responsibilities required of such a position.



Weather Resources

Scouting Literature

Basic Illustrated Weather Forecasting; Fieldbook; Chemistry, Emergency Preparedness, Environmental Science, and Oceanography merit badge pamphlets

Visit the Boy Scouts of America's official retail website at <http://www.scoutstuff.org> for a complete listing of all merit badge pamphlets and other helpful Scouting materials and supplies.

Books

- Burt, Christopher C. *Extreme Weather: A Guide and Record Book*. W. W. Norton, 2007.
- Ceban, Bonnie J. *Tornadoes: Disaster and Survival*. Enslow Publishers, 2005.
- Chaston, Peter R. *Weather Maps: How to Read and Interpret All the Basic Weather Charts*. Chaston Scientific Inc., 2009.
- Cosgrove, Brian. *Weather*. DK Publishing, 2007.
- Day, John. A., and Vincent J. Schaefer. *Clouds and Weather: The Concise Field Guide to the Atmosphere*. Houghton Mifflin, 1998.

- Elsom, Derek M. *Weather Explained: A Beginner's Guide to the Elements*. Henry Holt & Company, 1997.
- Gardner, Robert, and David Webster. *Science Projects About Weather*. Enslow Publishers, 1994.
- Kahl, Jonathan D. W. *National Audubon Society First Field Guide: Weather*. Scholastic, 1998.
- Moran, Joseph M., and Micahel D. Moran. *Meteorology: The Atmosphere and Science of Weather*. Prentice Hall, 1996.
- Petheram, Louise. *Acid Rain*. Bridgestone Books, 2006.
- Sorbjan, Zbigniew. *Hands-on Meteorology: Stories, Theories, and Simple Experiments*. American Meteorological Society, 1996.

Magazines

Weatherwise

325 Chestnut St., Suite 800
Philadelphia, PA 19106

Website: <http://www.weatherwise.org>



Organizations and Websites

Career Guide for the Atmospheric Sciences

Website: <http://www.ametsoc.org/atmoscareers/index.html>

Jetstream—Online School for Weather

Website: <http://www.srh.noaa.gov/jetstream/>

Lightning Protection Institute

P.O. Box 99
Maryville, MO 64468
Toll-free telephone: 800-488-6864
Website: <http://www.lightning.org>

Satellite Meteorology for Grades 7–12

Website:
<http://cimss.ssec.wisc.edu/satmet>

The National Center for Atmospheric Research and the UCAR Office of Programs

P.O. Box 3000
Boulder, CO 80307-3000
Website: <http://ncar.ucar.edu>

The National Oceanic and Atmospheric Administration's National Weather Service

1325 East West Highway
Silver Spring, MD 20910
Website: <http://www.weather.gov>

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