



# Weather

## Merit Badge Workbook

This workbook can help you but you still need to read the merit badge pamphlet (book). No one can add or subtract from the Boy Scout Requirements #33215. Merit Badge Workbooks and much more are below: [Online Resources](#).

Workbook developer: [craig@craiglincoln.com](mailto:craig@craiglincoln.com). Requirements revised: 2006, Workbook updated: December 2008.

Scout's Name: \_\_\_\_\_ Unit: \_\_\_\_\_

Counselor's Name: \_\_\_\_\_ Counselor's Ph #: \_\_\_\_\_

**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. Define acid rain. \_\_\_\_\_

Identify which human activities pollute the atmosphere \_\_\_\_\_

and the effects such pollution can have on people. \_\_\_\_\_

8. Do ONE of the following:

(a) Make one of the following instruments:  wind vane,  anemometer,  rain gauge,  or hygrometer.

Keep a daily weather log for 1 week using information from this instrument as well as from other sources such as local radio and television stations or NOAA Weather Radio, 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.

Information	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
Time							
Wind Speed							
Direction							
Temperature							
Precipitation							
Cloud Types							
Dew or Frost							
Forecasted							
Actual							

- OR -

(b) 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.

Date: \_\_\_\_\_ Location: \_\_\_\_\_ Person's name: \_\_\_\_\_

Find out what type of weather is most dangerous or damaging to your community. \_\_\_\_\_

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Determine how sever weather and flood warnings reach the homes in your community. \_\_\_\_\_

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**9. Do ONE of the following:**

(a) Give a talk of at least 5 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.

(b) Read several articles about acid rain and give a prepared talk of more than 5 minutes about the articles to your unit. Before your talk, show your outline to your counselor for approval.

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10. 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. \_\_\_\_\_

**Online Resources** (Use any Internet resource with caution and only with your parent's or guardian's permission.)  
**Boy Scouts of America:** ► [scouting.org](http://scouting.org) ► [Guide to Safe Scouting](#) ► [Age-Appropriate Guidelines](#) ► [Safe Swim Defense](#)  
 ► [Scout](#) ► [Tenderfoot](#) ► [Second Class](#) ► [First Class](#) ► [Rank Videos](#) ► [Safety Afloat](#)  
**Boy Scout Merit Badge Workbooks:** [usscouts.org](http://usscouts.org) -or- [meritbadge.org](http://meritbadge.org)    **Merit Badge Books:** [www.scoutstuff.org](http://www.scoutstuff.org)

**Requirement Resources**

- These resources and much more are at: <http://meritbadge.org/wiki/index.php/Weather>
1. [The Weather.com Encyclopedia](#) - [Encarta: Meteorology](#) - [Wikipedia: Meteorology](#)  
[Encarta: Weather](#) - [Wikipedia: Weather](#) - [Encarta: Climate](#) - [Wikipedia: Climate](#)
  2. [Thunderstorm](#) - [Tornado](#) - [Tornado](#) - [Encarta: Hurricane](#) - [Wikipedia: Hurricane](#) - [Wikipedia: Blizzard](#) - [Blizzard](#) –  
[Wikipedia: Fog](#) - [Fog](#) - [Freezing rain](#) - [Snow](#) - [Sleet](#) - [Ice storm](#) - [Monsoon](#)
  3. [Low Pressure](#) – [Low Pressure](#) – [High Pressure](#)  
[Wikipedia: Weather front](#) - [Wikipedia: Cold front](#) - [Cold Front](#) - [Wikipedia: Warm front](#) - [Warm Front](#)
  4. [Wikipedia: wind](#) - [Wikipedia: rain](#) - [Lightning](#) - [Wikipedia: Lightning](#) - [Hail](#) - [Heat lightning](#) - [Lightning.org](#)
  5. [Cloud](#) - [Types of Clouds by Altitude](#) - [Lesson Video: How To Predict The Weather](#) - [Weather Photos](#)
  6. [Water Cycle](#) - [Wikipedia: Water cycle](#)
  7. [Acid Rain](#) - [Wikipedia: Acid rain](#)
  - 8a. The Weather Log you need is included in the [Weather Worksheet](#).  
[Weather Instruments](#) - [Wikipedia: Weather Instruments](#) - [Encarta's Guide to Forecasting the Weather](#) - [Encarta: A Guide to Storms](#) - [AccuWeather](#) - [Weather radar](#)

8b. [NOAA Weather Service](#) - [NOAA In Your State](#) - [Weather Forecast Offices](#) - [National Weather Centers](#)

9a. [Weather Safety](#) - [National Weather Service: Lightning Safety](#) - [Lightning safety](#) - [Lightning rod](#)

9b. [Acid Rain](#) - [Wikipedia: Acid rain](#) - [EPA: Acid Rain](#) - [USGS: Acid Rain](#) - [AcidRain.org](#) –

[Acid Rain News How Acid Rain Works](#) - [Myths and Facts: Acid Rain](#)

10. [Careers at NOAA](#) - [Weather Careers](#) - [Career Guide](#)

### **General Resources**

American Meteorological Society: <http://www.ametsoc.org/AMS>

Nat. Climatic Data Center: <http://wf.ncdc.noaa.gov/oa/ncdc.html>

Nat. Geographic Society: <http://www.nationalgeographic.com>

Earth Watch Weather on Demand: <http://earthwatch.com>

Satellite Meteorology for Grades 7-12: <http://cimss.ssec.wisc.edu/satmet>

The National Center for Atmospheric Research and the UCAR Office of Programs: <http://www.ucar.edu>