



# WEATHER

## Merit Badge Requirements

- 1) Define meteorology. Explain how the weather affects farmers, sailors, aviators, and the outdoors 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) 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 the front, and the location of rain. Tell the differences between a cold front and a warm front.
- 4) Tell what causes wind, why it rains, and how lightning and hail are formed. Explain the difference between high and low pressure systems in the atmosphere and tell which is related to good and poor weather.
- 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 as well as 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, 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. The following information should be recorded 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.
  - B) Visit a National Weather Service office or talk with a local radio or television weathercaster, private meteorologist, local agricultural Extension service office, 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.
- 9) Do ONE of the following:
  - A) Give a talk of more than 5 minutes to your unit explaining the camping safety rules in the event of lightning, flash floods, and tornadoes. Before your talk, show your outline to 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.

### Requirement 1

Define Meteorology: \_\_\_\_\_  
\_\_\_\_\_  
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\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

How does the weather affect farmers? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

How does the weather affect sailors? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

How does the weather affect aviators? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

How does the weather affect the outdoor construction industry? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Why are weather forecasts important to farmers? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Why are weather forecasts important to sailors? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Why are weather forecasts important to aviators? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Why are weather forecasts important to the outdoors construction industry? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## Requirement 2

Name five dangerous weather-related conditions and give the safety rules for each when outdoors.

Condition: \_\_\_\_\_ Safety Rules: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

Condition: \_\_\_\_\_ Safety Rules: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

Condition: \_\_\_\_\_ Safety Rules: \_\_\_\_\_

\_\_\_\_\_  
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Condition: \_\_\_\_\_ Safety Rules: \_\_\_\_\_

\_\_\_\_\_  
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Condition: \_\_\_\_\_ Safety Rules: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

Explain the difference between a severe weather watch and a warning: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

## Requirement 3

Use the back of this sheet, or an additional piece of paper (attach it to this worksheet) to draw cross sections of a cold front and a warm front.

Show the following:

\_\_\_ Location of cold & warm air    \_\_\_ Movements of the cold & warm air    \_\_\_ Frontal Slope    \_\_\_ Location of clouds

\_\_\_ Type of cloud associated with front    \_\_\_ Location of rain

Show your drawing to your counselor.

What is the difference between a cold front and a warm front? \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

**Requirement 4**

What causes wind? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Why does it rain? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

How is lightning formed? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

How is hail formed? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

What is the difference between high and low pressure systems in the atmosphere? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

What type of pressure is related to good weather? \_\_\_\_\_

What type of pressure is related to poor weather? \_\_\_\_\_

**Requirement 5**

What type of clouds would you find in the low levels of the atmosphere? \_\_\_\_\_

Description: \_\_\_\_\_

What kind of weather is related to these types of clouds? \_\_\_\_\_

What type of clouds would you find in the middle levels of the atmosphere? \_\_\_\_\_

Description: \_\_\_\_\_

What kind of weather is related to these types of clouds? \_\_\_\_\_

What type of clouds would you find in the High levels of the atmosphere? \_\_\_\_\_

Description: \_\_\_\_\_

What kind of weather is related to these types of clouds? \_\_\_\_\_

**Requirement 6**

Use the area below to draw a diagram of the water cycle. Label all of its major processes.



Show your drawing to your counselor.

Give an explanation of the water cycle: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
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\_\_\_\_\_

### Requirement 7

What is acid rain? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Identify some human activities that pollute the atmosphere and the effects the pollution can have on people:

Pollution causing activity: \_\_\_\_\_

Effect of pollution: \_\_\_\_\_  
\_\_\_\_\_

Pollution causing activity: \_\_\_\_\_

Effect of pollution: \_\_\_\_\_  
\_\_\_\_\_

Pollution causing activity: \_\_\_\_\_

Effect of pollution: \_\_\_\_\_  
\_\_\_\_\_

Pollution causing activity: \_\_\_\_\_

Effect of pollution: \_\_\_\_\_  
\_\_\_\_\_

Pollution causing activity: \_\_\_\_\_

Effect of pollution: \_\_\_\_\_  
\_\_\_\_\_

### Requirement 8

You have been given two options for this requirement. Select and complete one of them.

If you selected *Option A*:

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

Which instrument did you build? \_\_\_\_\_

<p><b>*NOT REQUIRED FOR BADGE</b></p> <p>Briefly describe how you built your instrument: _____</p> <p>_____</p> <p>_____</p> <p>_____</p>
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\_\_\_\_\_ Show your instrument to your counselor.

To complete this requirement you are asked to keep a daily weather log for a 1 week period. A sample log has been attached and you may use it if you choose. Or, you may choose to create your own log. Fill out the log daily for 1 week. Show the log to your counselor when completed.

(See Chart On Following Page)

Scout Name: \_\_\_\_\_

Unit #: \_\_\_\_\_

Date: \_\_\_\_\_

Begin Date: _____	Wind Direction	Wind Speed	Temp	Precipitation	Types of Clouds Present	Dew Or Frost	Official Forecast	Actual Weather Conditions
<b>Monday</b> Time: _____								
<b>Tuesday</b> Time: _____								
<b>Wednesday</b> Time: _____								
<b>Thursday</b> Time: _____								
<b>Friday</b> Time: _____								
<b>Saturday</b> Time: _____								
<b>Sunday</b> Time: _____								

About what time each day did you record your observations? \_\_\_\_\_

Was your instrument successful at gathering data? \_\_\_\_\_



Scout Name: \_\_\_\_\_ Unit #: \_\_\_\_\_ Date: \_\_\_\_\_

If you selected **Option B**:

Visit a National Weather Service office or talk with a local radio or television weathercaster, private meteorologist, local agricultural Extension service office, or university meteorology instructor. Who/What did you visit? \_\_\_\_\_

Give a brief description of your visit: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

What type of weather is most dangerous or damaging to your community? \_\_\_\_\_

How do severe weather and flood warning reach the homes in your community? \_\_\_\_\_  
\_\_\_\_\_

### **Requirement 9**

You have been given two options for this requirement. Select and complete one of them.

If you selected **Option A**:

Give a talk of more than 5 minutes to your unit explaining the camping safety rules in the event of lightning, flash floods, and tornadoes. Use the area below to create an outline of your talk. Show your outline to your counselor.

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If you selected **Option B**:

Read several articles about acid rain and give a prepared talk of more than 5 minutes about the articles to your unit. Use the area below to create an outline of your talk. Show your outline to your counselor.

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