

2010

WEATHER
PROGRAM OVERVIEW
& WORKBOOK



CENTRAL COMMUNITY COLLEGE
MERIT BADGE UNIVERSITY
OVERLAND TRAILS COUNCIL
7/31/2010

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(MUST HAVE UNIT LEADER SIGNATURE PRIOR TO CLASS)



FEBRUARY 2010

Information in this booklet was accurate at the time of publishing.
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Program Overview & Workbook was reviewed by
MBU Staff/Committee.

WEATHER PROGRAM OVERVIEW

COUNSELOR: tba

C/O: Overland Trails Council
PO Box 1361
Grand Island, NE 68802-1361

LOCATION: National Weather Service
6365 Osborne Drive East
Hastings, NE 68901

TRANSPORTATION: N/A

ADDITIONAL COSTS: None

CLASS SIZE: 10

BRING TO CLASS: Weather merit badge pamphlet.
Weather merit badge workbook, part one & part two.
Signed "Application for Merit Badge", found at the end of the merit badge workbook. (This will be your only record of work completed on this merit badge.) If your Council requires the official "blue card", you must bring one with you to class.

PRE-REQUISITES: Complete Part One of the workbook before class (requirements 2, 6, 9, & 10).
Complete information on "Application for Merit Badge" including Scoutmasters signature.

CURRICULUM: Requirements 1, 3, 4, 5, 7, & 8 will be completed during class (part two of the workbook). Pre-requisites will also be reviewed during class.





PRE-REQUISITE REQUIREMENTS ARE PRINTED IN **RED ITALICS** & MUST BE COMPLETED BEFORE CLASS.

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, 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, 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.
 - 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. 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 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.**

- b) 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.
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.

WEATHER WORKBOOK

PART ONE, PRE-REQUISITIES



Name _____
 Unit # _____ District _____
 Council _____

Part One of the workbook must be completed before class.

Bring the entire workbook (part one and part two) with you to class.

Also bring the "Application for Merit Badge" signed by your scoutmaster (included at the end of the workbook).

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.

<i>Weather-related conditions</i>	<i>Safety rules</i>
1	
2	
3	
4	
5	

Difference between a watch and a warning:

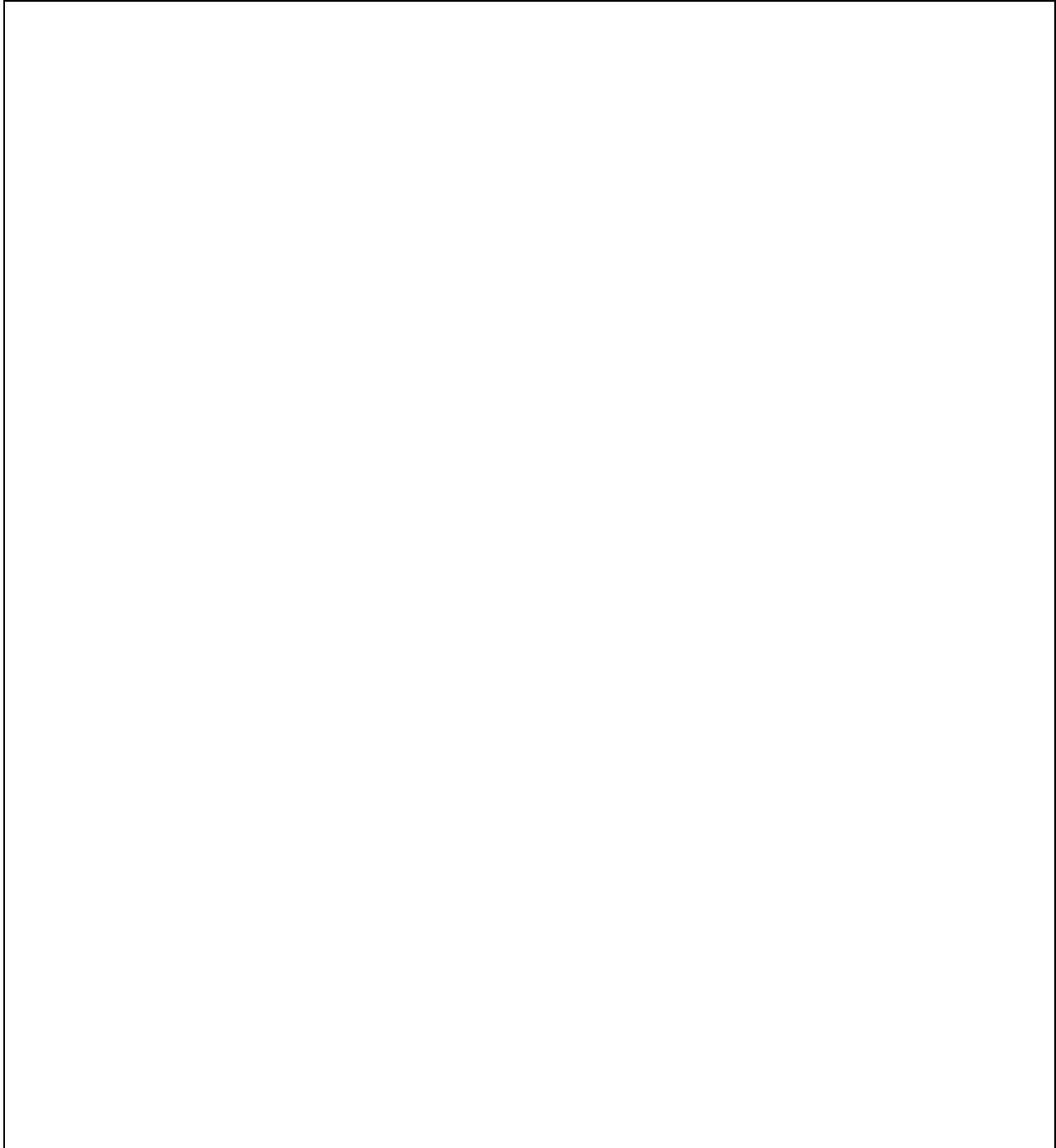
Discuss safety rules with your family:

Initial: _____ date: _____

Name _____

- 6. Draw a diagram of the water cycle and label its major processes. Explain the water cycle to your counselor.

Diagram of the water cycle:



WEATHER WORKBOOK, PART ONE, p.3

Name _____

- 9. Do ONE of the following:
 - a) 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.

Five minute talk explaining outdoor safety rules to a group: (your unit or a Cub Scout pack)

Initial: _____ date: _____

Outline of your talk:

OR

- b) 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.

Articles read about acid rain:

Five minute talk about acid rain to a group: (your unit or a Cub Scout pack)

Initial: _____ date: _____

Outline of your talk:



WEATHER WORKBOOK PART TWO, CLASS CURRICULUM

Name _____
 Unit # _____ District _____
 Council _____

Part Two of the workbook will be completed during class.

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.

Define meteorology:

Explain what weather is:

Explain what climate is:

How does weather affects:

<i>Group</i>	<i>How weather affects group</i>	<i>Why forecasts are important</i>
<i>Farmers</i>		
<i>Sailors</i>		
<i>Aviators</i>		
<i>Outdoor construction industry</i>		

Name _____

- 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.

Difference between high and low pressure systems:

Which is related to good and to poor weather:

<i>High pressure system</i>	
<i>Low pressure system</i>	

Cross section of a cold front:

--

Name _____

3. continued

Cross section of a warm front:



Name _____

4. Tell what causes wind, why it rains, and how lightning and hail are formed.

What causes wind:

Why it rains:

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.

Identify and describe clouds:

<i>Identify Clouds</i>	<i>Describe Clouds</i>	<i>Relate to specific types of weather</i>
<i>Low</i>		
<i>Middle</i>		
<i>Upper</i>		

Name _____

- 7. Define acid rain. Identify which human activities pollute the atmosphere and the effects such pollution can have on people.

Define acid rain:

Which human activities pollute the atmosphere:

The effects 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 one week using information from this instrument as well as from other sources such as local radio and television stations, 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.

Make an instrument:

<i>Initial:</i>	<i>date:</i>
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To help you complete this requirement, “Field Data Sheets” can be found at the end of this workbook.

Name _____

8. continued

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. 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.

Visited:

	<i>Initial:</i>	<i>date:</i>
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Type of weather is most dangerous:

How severe weather and flood warnings reach homes:

ORGANIZATIONS and WEB SITES

(Whenever you go online, be sure you have your parent's permission first.)

Career Guide for the Atmospheric Sciences

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

Earth Watch Weather on Demand

<http://earthwatch.com>

Lightning Protection Institute

<http://www.lightning.org>

Satellite Meteorology for Grades 7-12

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

The National Center for Atmospheric Research and the UCAR of Programs

<http://www.ucar.edu>

The National Oceanic and Atmospheric Administration's
National Weather Service

<http://nws.noaa.gov>

WEATHER WORKBOOK

Notes



APPLICATION FOR MERIT BADGE

Name: _____

Address: _____

City: _____

State: _____

Is a registered _____ Boy Scout,
 _____ Varsity Scout,
 _____ Venturer,

of _____ No. _____
Troop, team, crew, ship

District: _____

Council: _____

MERIT BADGE UNIVERISTY

Merit Badge: **Weather**

Counselor: _____

Address: Overland Trails Council

PO Box 1361

2808 O'Flannagan

Grand Island, NE 68802-1361

Phone: 308-382-3717

email: mbuotc@yahoo.com

and is qualified to begin working for this merit badge and has completed the following pre-requisite requirements:

SECTION A PRE-REQUISITE REQUIREMENTS

Requirement No. and letter	Date of Approval	Counselor Initial	Requirement No. and letter	Date of Approval	Counselor Initial
2					
6					
9					
10					

The applicant has personally appeared before me and demonstrated to my satisfaction that he has met all pre-requisites requirements for the above stated merit badge and is ready to attend his assigned MBU class.

Signature of Unit Leader _____ Date _____

SECTION B APPLICANTS RECORD

Requirement No. and letter	Date of Approval	Counselor Initial	Requirement No. and letter	Date of Approval	Counselor Initial
1					
3					
4					
5					
7					
8					

The applicant has personally appeared before me and demonstrated to my satisfaction that he has completed all requirements in **SECTION B** above for the

Merit Badge: **Weather**

Name of Counselor: _____

Signature of Counselor _____ Date _____

SCOUT INSTRUCTIONS

- Complete your name, address, city, unit type & number, district, & council on the Application for Merit Badge.
- Your unit leader must sign the Application for Merit Badge before attending class.
- All other information is already printed on the Application for Merit Badge; please make sure all information is correct.
- The merit badge counselor is registered & approved for this merit badge and is on the MBU Counselor's List.
- Read the merit badge pamphlet.
- Attend the merit badge class.
- Always meet with your counselor along with a buddy (a Scout, friend, or parent)
- Have your merit badge worksheet with you when you attend class.
- **If the merit badge pre-requisites are not completed before class, you will not be able to complete the merit badge during this weekend event, you will have to follow up with your Unit's Advancement Chair when you return home**
- **PLEASE BE AWARE THAT SOME COUNSELORS WILL NOT ALLOW YOU TO ATTEND THEIR CLASS WITHOUT PRE-REQUISITES COMPLETED—CLASS CURRICULUM IS DEPENDENT ON PRE-REQUISITE WORK BEING COMPLETED!**

COUNSELOR INSTRUCTIONS

- Never meet alone with a Scout.
- Verify all information & merit badge name on Application for Merit Badge is correct.
- Sign your name on the line at the bottom of **"SECTION B APPLICANTS RECORD"**.

**WEATHER FIELD DATA SHEET
(Daily Log)**

Date: _____ Observation time: _____

Instrument Readings

Wind (Direction/Speed)	Temperature	24-Hour Rainfall	Types of Clouds	Pressure	Relative Humidity

Weather Forecast

Weather Forecast Source: _____

High: _____ Low: _____ Sun/Clouds: _____

Chance of Precipitation: _____ Rain/Snow/Ice: _____

Field Weather Observations:

Comments/Notes