

## 11. Weather Maps

**OBJECTIVES:** After completing this lesson, a student should be able to:

- \* **Explain how the NATIONAL WEATHER SERVICE NETWORK operates**
- \* **Identify states on the U.S. map (worksheet #2)**
- \* **Name capital cities on the map (Grades 4-8)**

### **TEACHER BACKGROUND:** (Grades 1-8)

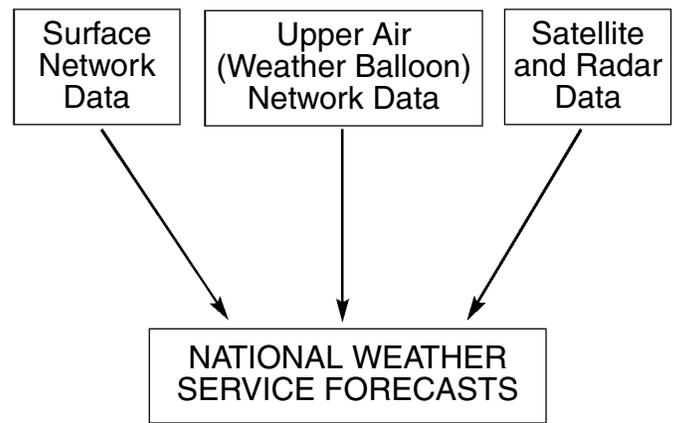
The last half of this curriculum guide applies the weather elements and instruments we have studied thus far and introduces techniques to plot weather data on a map. As students gradually "build" their weather map this week, this is also a good time for them to begin duplicating newspaper map symbols onto the computer maps.

As in any experiment, the more data collected, the more accurate the results. In meteorology, the experiment is the daily forecast. As the amount of weather data increases, so does the accuracy of the forecast. The best source of weather observations continues to be an extensive weather network on land.

**A WEATHER NETWORK is a collection of observing stations that share specific weather information with other stations.** Across the globe, more than 10,000 land-based weather stations in 130 nations, plus thousands of ships at sea, provide weather data at least four times daily.

In the United States, **The NATIONAL WEATHER SERVICE network collects and provides weather information for aviation, agricultural and public needs.** About 240 U.S. offices report hourly weather information, and nearly 100 sites launch balloons twice each day to collect data in the upper atmosphere. These U.S. reports are added to data collected from other countries.

Data from satellites locate weather systems over the vast oceans where surface observations are sparse.



The observations are transmitted electronically worldwide. At the National Meteorological Center (NMC) near Washington, D.C., the observations are plotted on weather maps. The maps are then transmitted to a network worldwide so weather forecasts can be made at local offices. Many television stations receive their weather maps from NMC.

Another U.S. weather network is the *cooperative observing network*, made up of volunteers who record weather conditions in their communities. This information is important in tabulating long-term climatic conditions for a region.

Lessons 11-15 assist students to plot their own weather maps with the data provided. Grade 4-8 students may want to review the names of the states and capital cities to quickly plot the data. Plotting skills are combined with those of analysis and critical thinking to help the students recognize symbols and weather conditions on their weather maps .

# Weather Map Activity

**MAP-GRADES 1-3** (Time: 10-15 minutes)

**Materials:** Worksheet #2, pencil

**Preparation:** Copy worksheet for distribution (and an optional transparency for use in class). Tell students that the map will be used to plot weather observations. Collect the maps daily so they won't be lost.

**Procedure:** Ask students to:

1. Locate and complete the *key* at the bottom. The *key* includes the name of the person making the map, time and date the data is taken and type of data.
2. Establish and mark directions on the map. (Top is north, bottom is south, right is east and left is west.)
3. Mark their city on the map with an "X".
4. Shade their state in pencil.
5. The following letters represent a network of stations where we will plot data. You may choose to learn only some of the stations. (Grades 2 and 3 can review the names of states from the list of reporting stations below.)

CITY	STATE
A	Montana
B	Minnesota
C	Colorado
D	Nebraska
E	Missouri
F	Virginia
G	Arizona
H	Oklahoma
I	Mississippi
J	Georgia
K	Washington
L	Ohio
M	Massachusetts

**Evaluation:** Does the map show a network? (yes) Why? (There are several stations reporting.) Can you name other types of networks? (telephone network, TV network)

**Excursion:** Make *flashcards* to help identify each sky symbol. Can you name a state that you visited recently and the type of weather you experienced?

**MAP-GRADES 4-8** (Time: 15 minutes)

**Materials:** Worksheet #2, pencil

**Preparation:** Copy worksheet for distribution (and an optional transparency for use in class). Tell students that the map will be used to plot weather observations. Collect the maps daily so they won't be lost.

**Procedure:** Ask students to:

1. Complete the *key* at the bottom with the student's name, time, date, and data type.
2. Establish and mark directions on the map. Top is north, bottom is south, right is east and left is west.)
3. Locate, mark and label their city.
4. Shade their state in pencil.
5. Identify as many states as possible and identify capital cities.
6. Identify major rivers, lakes and oceans.
7. Review the names and locations of the following reporting stations:

CITY	CAPITAL CITY/STATE
A	Helena, Montana
B	St. Paul, Minnesota
C	Denver, Colorado
D	Lincoln, Nebraska
E	Jefferson City, Missouri
F	Richmond, Virginia
G	Phoenix, Arizona
H	Oklahoma City, Oklahoma
I	Jackson, Mississippi
J	Atlanta, Georgia
K	Olympia, Washington
L	Columbus, Ohio
M	Boston, Massachusetts

**Evaluation:** Does the map show a weather network? (Yes) Why? (Because there are several weather stations reporting.) How could a better network be developed? (Add more weather stations.)

**Excursion:** Review directions on the map. Which cities are north of your location? Which cities are south, east and west of

### WEATHERSCHOOL QUESTION:

**Obtain the question and correct answer from your local Weatherschool TV channel!**