



Scout Day 2010 Workbook ANSWERS



POSTERS (station 1)

See Poster Display (A) for answers to the following:

1. The scientific study of the atmosphere and of atmospheric conditions, especially as they relate to weather and weather forecasting is known as **meteorology**.
2. **Weather** is the state of the atmosphere at a given time and place, with respect to variables such as temperature, moisture, wind velocity, and barometric pressure.
3. **Climate** is the meteorological conditions, including temperature, precipitation, and wind that typically prevail in a particular region over a long period of time.
4. How does weather affects people in the following jobs; list one part of the forecast that is most important to them and why?

Farmers

Rain – field conditions too wet or too dry to plant, need to water
Temperature – killing frosts and freezes, too hot for some crops

Sailors

Wind – control of sail boats
Waves – capsize boats
Thunderstorms/lightning – nowhere to take shelter

Pilots

Wind - landing and take off
Turbulence – comfort and safety of passengers
Thunderstorms – safely operate plane
Cloud height and visibility – landing and take off

Construction Workers

Wind – affects to cranes and other tall equipment
Rain – ruin concrete, can't paint
Temperature – affects how paint or concrete dries, safety of workers
Thunderstorms – Safety of workers

5. Weather Maps and Systems

See Poster Display (B) for answers to the following:

a. True or False (circle the correct answer)

- T F High pressure is often associated with good weather.
- T F Low pressure normally brings clouds, rain or snow, and stronger winds.

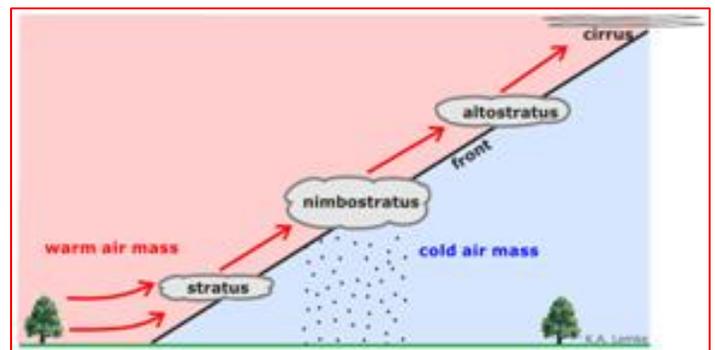
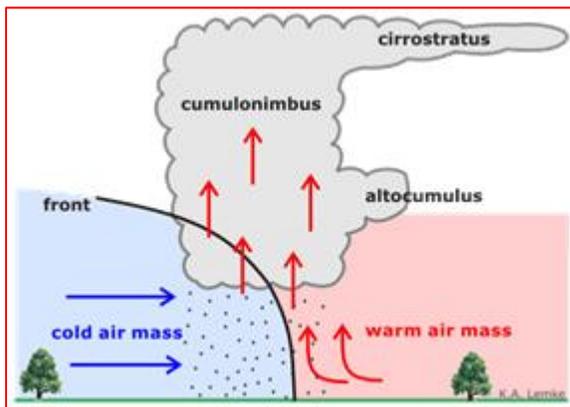


b. Pretend the weather map above is what is happening today. What kind of weather would you forecast for tomorrow for the Green Bay area?

As the cold front moves east of Green Bay, high pressure over southern Canada will move into the northern United States, bringing fair skies and cooler weather to the Green Bay area.

c. On the pictures below, draw arrows showing the direction of the movement of the:

1. Cold air and warm air with the cold front.
2. The warm air with the warm front.



6. Thunderstorms

See Poster Display (C) for answers to the following:

- a. The rings in a hail stone can tell you: **the number of up and down trips the hail stone took within the cloud.**

- b. **True** or False: The flash of light that we see with cloud to ground lightning starts at the earth's surface and moves up to the cloud.

- c. For rain to occur, rising air motion is required. Name two of the ways air on the earth's surface is lifted to produce rain.

Heating from the sun, a front, or forced by terrain (mountains)

7. Weather Careers

See Poster Display (D) for answers to the following:

- a. What weather-related career interests you the most?

- b. What education is needed for this career?

- c. Name 2 major responsibilities for this career.

1) _____

2) _____

CLOUDS (station 2)

Cirrus



Cirrostratus



Contrails



Altostratus



Altostratus



Altostratus Lenticular



Stratus



Nimbostratus



Cumulus



Fog



Stratocumulus

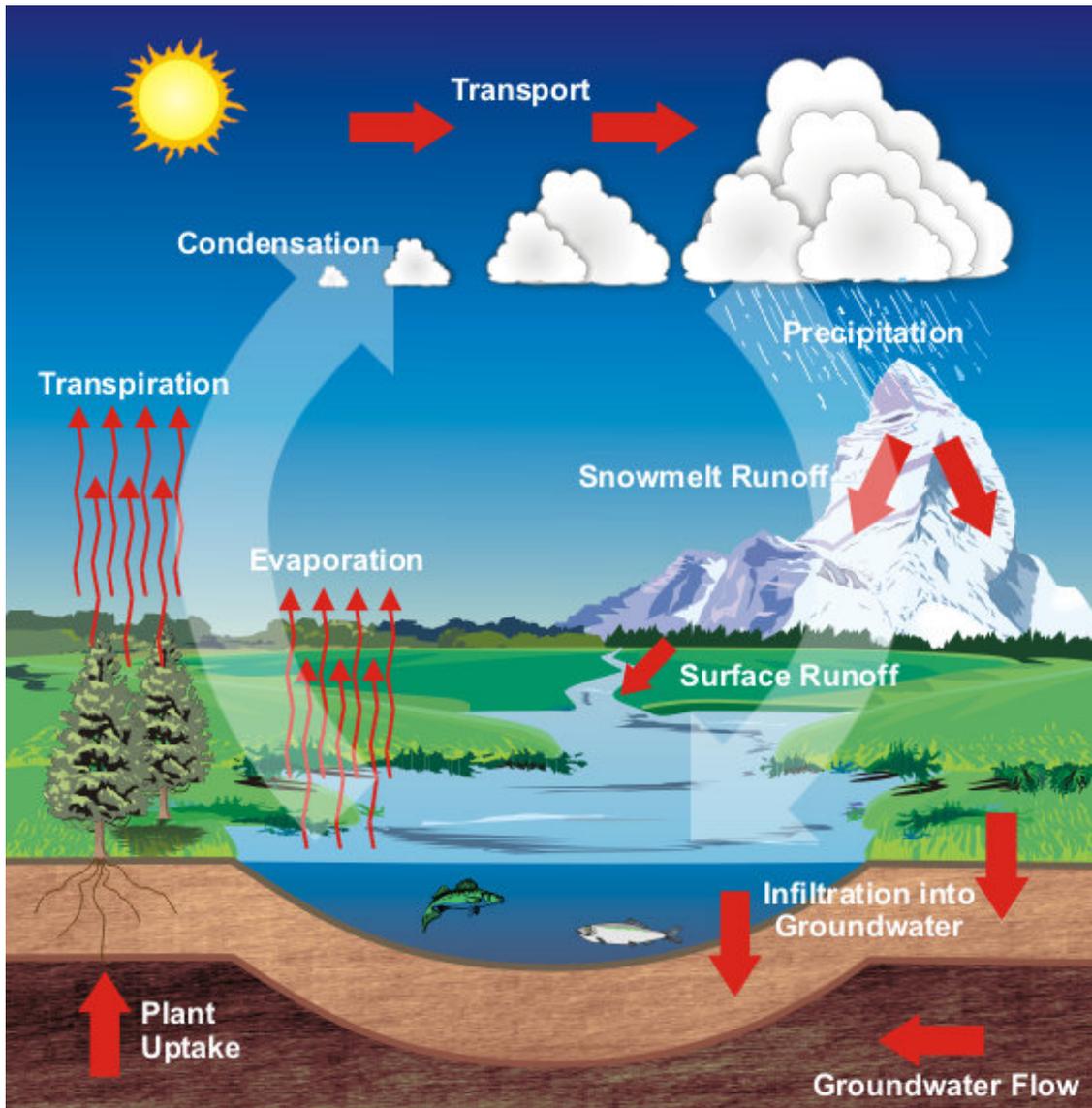


Cumulonimbus



HYDROLOGY (station 3)

1. Label the major processes of the water cycle.



2. **True or False:** Acid rain is rain consisting of water droplets that are unusually acidic because of atmospheric pollution - most notably the excessive amounts of sulfur and nitrogen released by cars and industrial processes. Acid rain is also called acid deposition because this term includes other forms of acidic precipitation such as snow. Acid deposition can occur from natural sources like volcanoes.

3. Identify one human activity that pollutes the atmosphere and an effect such pollution can have on people or environment.

Activities that pollute the environment: driving cars, factories/manufacturing, oil drilling, waste burning, power plants, and farming (methane, pesticides).

Effects on people or the environment: lung problems (asthma, cancer), skin disorders, killing plants/trees, and poisoning animals.

MAKING AN ANEMOMETER

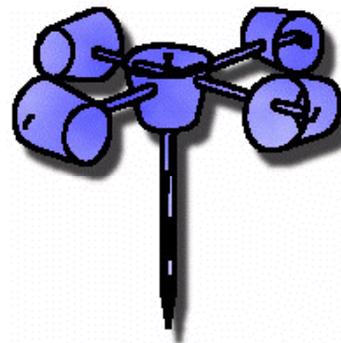
(station 4)

1. **True** or **False**: Wind is caused from the sun heating parts of the earth like land and water differently.
2. **True** or **False**: The Wind blows from High pressure to Low pressure.

Revolutions in 10 seconds	Wind Speed (mph)
2-4	1
5-7	2
8-9	3
10-12	4
13-15	5
16-18	6
19-21	7
22-23	8
24-26	9
27-29	10
30-32	11
33-35	12
36-37	13
38-40	14
41-43	15
44-46	16
47-49	17
50-51	18
52-54	19
55-57	20

Use this table to estimate the wind speed using the anemometer you made!

Look at the **X** on the bottom of the cup as it spins around. Count the number of times it spins around (revolutions) in 10 seconds. Use the table below to estimate the wind speed.



OFFICE TOUR (station 5)

1. The National Weather Service issues what products to help save lives and protect property.

Watch

Warnings

Advisories

2. Which of the following tools do meteorologists use to monitor and predict the weather?

a. Numerical Weather Models

b. Airport Observations

c. Satellites

d. Lightning Detection Systems

e. Upper Air Soundings

f. Radar

g. Microwave Ovens

3. True or False (circle the correct answer)

T All weather forecasts are correct.

T Looking at the same data, all meteorologists will make the same forecast

4. Put an "X" next to the types of weather that could be dangerous, damaging, or deadly to your community.

Thunderstorms Floods Flash Floods Heat Cold

Hurricanes Frost/freezes Lightning Fires Hail

Winter storms High Winds Rip Currents Droughts

5. Circle all the ways that severe weather and flood warnings can reach homes in your community.

a. NOAA Weather Radio

b. Cell Phones

c. Outdoor Tornado Sirens

d. Local TV and Radio Stations

e. Internet

(Outdoor tornado sirens are not designed to alert people inside a home, only people outdoors)

Place your
Jeopardy
sticker
here!

JEOPARDY (station 6)

See *Thunderstorms, Tornadoes, Lightning* booklet for help answering the following

1. Match the five dangerous weather-related conditions with the safety rule for each when outdoors.
(A safety rule can be used more than once)

Tornado	D
Lightning	A, B, D
Flash Flood	C
Hail	B, D
Wind	A, B, D

2. Match the NWS slogans to the dangerous weather threat:

Lightning	→	Break the grip of the rip
Flash Flood	→	Beat the heat...check the backseat!
Rip Current	→	Turn around don't drown!
Heat Wave	→	When thunder roars, go indoors!

3. A **watch** means severe weather is possible over the area for the next few hours. Be prepared!

A **warning** means severe weather is likely or already occurring, possibly life threatening.

4. True or False (circle the correct answer)

- T F No location is safe from tornadoes, including cities, highway underpasses, lakes, rivers, campgrounds, and mountains.
- T F If it is not raining, then there is no danger from lightning.
- T F The rubber soles of shoes or rubber tires on a car will protect you from being struck by lightning.
- T F People struck by lightning should not be touched because they carry an electrical charge.

5. Name three items that should be on your family safety plan:

See page 15 of the *Thunderstorms, Tornadoes, Lightning...* brochure.

6. Name six items that should be in your emergency supply kit:

See pages 16-18 of the *Thunderstorms, Tornadoes, Lightning...* brochure.