

# Week of April ~~13-17~~, 2020

## Junior High Science

### Debra Welch

Hello students! I hope all of you are staying healthy. I just want everyone to know that I am thinking of you and miss having school as normal. Remember to keep your immune systems strong! Basic directions are: You need to complete one lesson a week for only the class you were currently enrolled in and choose from the 3 choices. Choices 1 & 2 are for review of material we have already covered this year. I will start at the beginning and go through the year's material. Choice #3 will always be new work using your textbook or other handouts I include. I will make every effort to keep your work simple to do, considering that we are not learning together in the classroom. Your work should be turned in as a hard (paper) copy to the office or through email in a word or google document. My email is: [debra.welch@oakland5.org](mailto:debra.welch@oakland5.org). Please be sure all work has your name! If you have not turned in the assignment by the following Monday, I will need to email your parents and/or place a phone call home. Please be diligent to turn work in on time. I suggest you set up a schedule just as if you were at school and allow for the normal time period. Most assignments I send you will take less time than our normal 40 minutes. Comments will be made on paper copies and returned to you. If you send in homework answers as an email I will reply to your email and give my comments/reflections of your work. I will be supplying you with the necessary notes or you will need to use your book to find the answers. If you have any questions feel free to email me and I will get back to you by email during my office hours. If you can't email feel free to call the office and leave me a message. Good Luck and stay healthy!

Class	Choice 1	Choice 2	Choice 3 (Enrichment)
8th Grade Life Science	Use the Notes provided & text and answer questions on the Nature of Life handout.	Vocabulary for Chapter 1: write the word and definition. Use a complete sentence!	Viruses: Use your notes from last week & Chap 2-3 in text to fill out worksheet Directed Reading p21 & Reinforcement p29.
6th Grade General Science	Take the Quiz on the Branches of Science using the wordlist. (see attached Notes).	Give the function of each piece of equipment used in the lab for a-m on the handout. (See notesheet included).	Read the powerpoint on Weather provided. Do the handout: Directed Reading p19 & 20.

## Branches of Science

### **Physical Sci-** matter (atoms) & energy

Physics: motion, light (optics), electricity, magnetism

Work, heat

Chemistry: atom, chemical reactions, quantum mechanics

### **Life Sci-** living things

Biology-

Environmental- environment (living/non-living)

Anatomy- structure

Zoology- animals

Botany- plants

Microbiology- microscopic living things (aid for eye)

### **Earth Sci-** Earth & space

Geology- rocks

Meteorology- weather/climate

Oceanography- oceans

Astronomy-space

**Forensic Sci-** science as it pertains to LAW.

Ex: violent crime, insurance (cars), drug dealers, art forgery

Zoology- animals. Careers- zoo keeper, farmer, marine biologist, conservationist

Environmental Sci- environment. Career: conservationist, landscape architect, EPA, Ecologist, Forester

Biology: living things. Careers- biochemist, cellular biologist, geneticist

Botany: plants. Careers: Arbolist, greenhouse worker, Horticultural, Dept of Ag

Anatomy: structure of body. Career: Doctor, nurse, physical therapist, dentist

Microbiology- microscopic organisms. Career: Microbiologist, Nabisco, med tech, cytologist

### **Earth Sci-**

Geology-earth. Careers: geologist, oil companies, engineer, miners, Astronomer.

Oceanography: oceans. Oceanographer, diver, marine parks.

Meteorology: weather/climate. Career: weather report, storm chaser, meteorologist.

Astronomy: space. Career: astronomer, NASA, aerospace

Physical Sci

Physics: matter/energy Career: Physicist. Engineer, Professor

Chem: matter/chem changes. Career: prof, organic chemist, biochemist. Chem company: Dow.

Prelab discussion: Lab over Equipment will be Wednesday

Choice 1  
Develcer btegradp  
4/4

Name \_\_\_\_\_ Date: 4/13-17 Hr \_\_\_\_\_

**Quiz: Branches of Science**

1) Under each of the THREE main areas of science place the terms that belong using the wordlist.

Physical Science

Life Science

Earth Science

Wordlist:

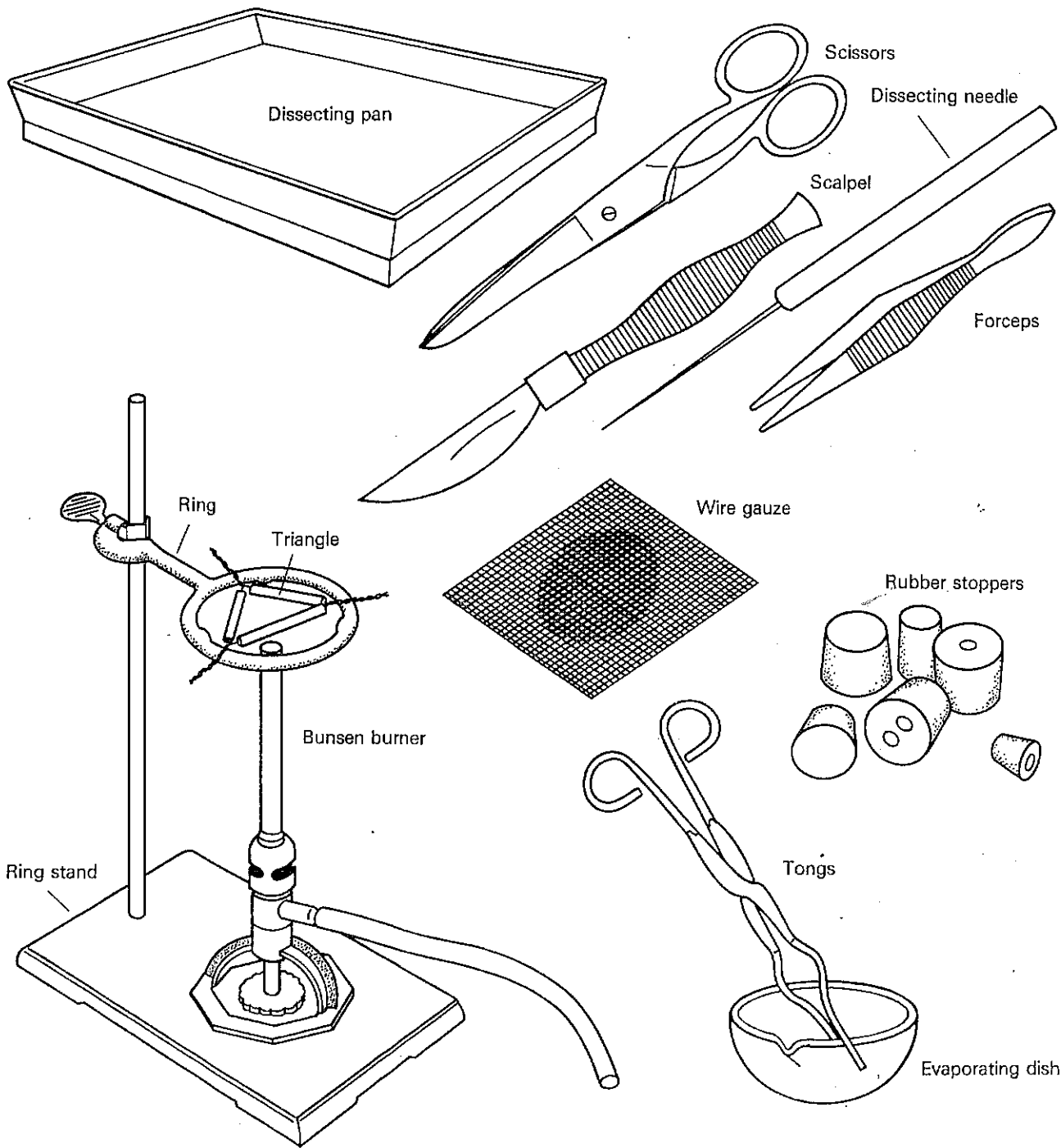
- |               |                       |                    |
|---------------|-----------------------|--------------------|
| Botany        | chemical reactions    | volcanoes erupting |
| Light & color | zoology               |                    |
| Weather       | magnetism             |                    |
| Motion        | earthquakes           |                    |
| Comets        | Astronomy             |                    |
| Oceanography  | environmental science |                    |
| Anatomy       | electricity           |                    |

# LABORATORY SKILLS

NAME Notes Davelon  
 CLASS Lotugrade  
 DATE ~~8/27~~ 4/13-17 1/3

## Laboratory Equipment

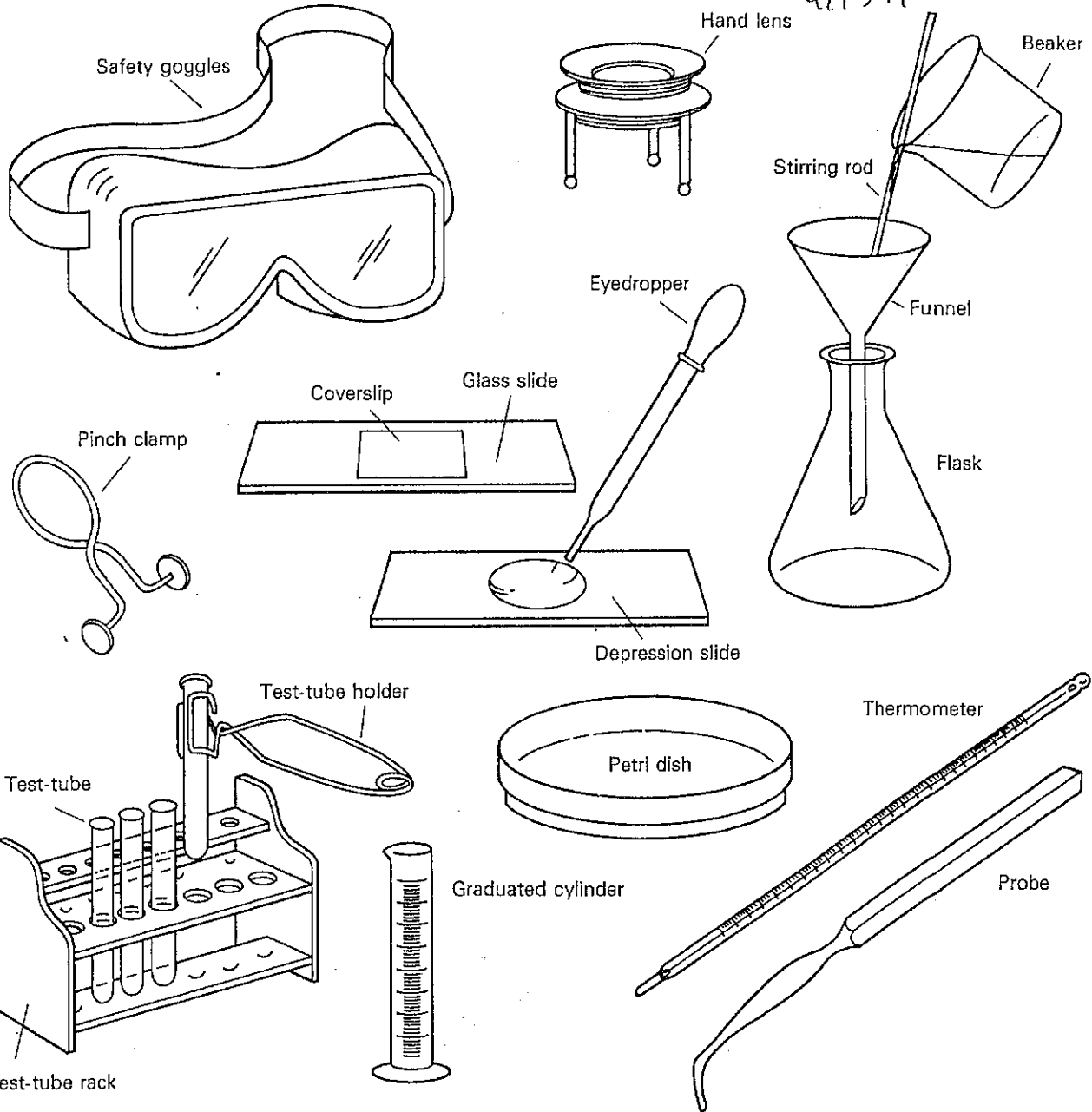
Following are pictures of some common pieces of laboratory equipment. The procedures in the investigations for *Heath Life Science* often refer to specific pieces of laboratory equipment. Learn the names and appearance of the laboratory equipment so you can follow the directions in the labs properly.



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# LABORATORY SKILLS

NAME Choice 2 Dewelche Gfca 6  
4/13-17 2/3



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Gather together each of the items pictured on these pages. Try to match each picture with the real object. Then, based on the appearance of the laboratory equipment, answer the questions below.

1. Which pieces of laboratory equipment have a pouring spout? \_\_\_\_\_  
 \_\_\_\_\_
2. Which pieces of laboratory equipment are measuring devices? \_\_\_\_\_  
 \_\_\_\_\_
3. Which pieces of laboratory equipment are used to pick up hot objects? \_\_\_\_\_  
 \_\_\_\_\_
4. Which pieces of laboratory equipment are used for cutting? \_\_\_\_\_  
 \_\_\_\_\_

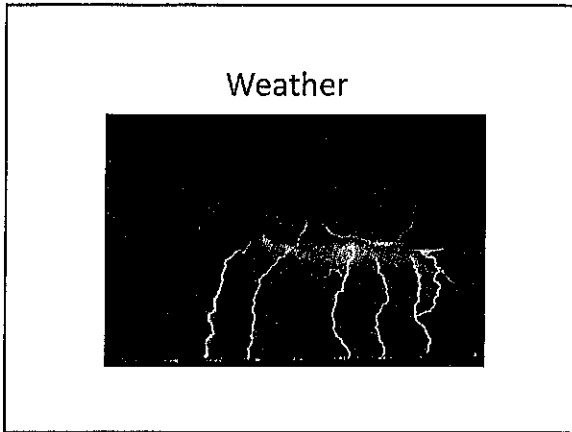

Choice 2  
Dwelen 6th grade  
4/13-17  
3/3

Lab Equipment Wordlist:

Number on paper 1-13. Use the following wordlist:

- a. Evaporating dish
- b. Graduated cylinder
- c. Test tube rack
- d. Dissecting pan
- e. Mortar & pestle
- f. Glass stirring rod
- g. Micropipette
- h. hotplate
- i. Forceps
- j. Erlenmeyer flask
- k. Beaker
- l. Funnel
- m. Test tube



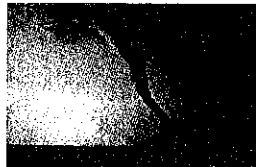
**Weather Objectives:**

- Today we will begin a unit on WEATHER.
- In section 1, you will learn about the role of water vapor in the atmosphere & how it affects weather
- Next, we'll discuss clouds & classification
- Then, you will compare the development of rain, hail, sleet, & snow.
- Last, we'll discuss careers in weather

**What is Weather?**



A. Factors of Weather:

1. Why is it necessary to keep track of the weather in people's lives: Name some examples-
  - a) airlines- schedules
  - b) farmer-planting
  - c)
  - d)




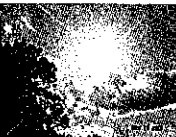

**Weather:** present state of atmosphere & describes current "conditions".

- Important factors are:
  1. Air pressure
  2. wind
  3. temperature
  4. moisture in the air (humidity)


**The interaction of 3 factors cause our weather:**

- 1. Air-atmosphere-gases natural & unnatural
- 2. Water-water cycle
- 3. Sun-warms the Earth: radiation, conduction, & convection

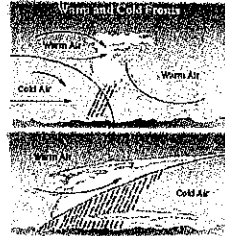
**Humidity**

- The air is like a sponge. The holes in a sponge enable it to hold water. Water vapor "molecules" fit into spaces between the molecules.
- Humidity- is the amount of water vapor the air can hold at a "specific" temperature.
- Warmer air can hold MORE moisture.



### Cooler temperatures:

- Molecules of air move **Slowly** & this allows for water vapor molecules to “condense” or join together.
- Cold air becomes heavy & sinks.



### Warmer temperatures:

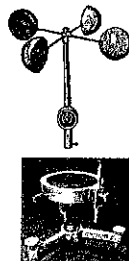
- Warmer air = higher energy molecules moving too fast to join up- NO condensation occurs.
- More molecules remain as water vapor.
- Result: **HIGH** Humidity when its warm.
- That's why when its 95° F & 95% humidity you feel miserably hot.



\*At 25° C a cubic meter of air can hold a MAXIMUM of 22 g of water vapor!

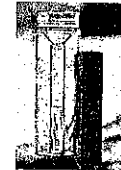
#### Weather Instruments:

- Anemometer-
- Nephoscope-
- Hygrometer-
- Thermometer-
- Barometer-
- Rain gauge-
- Vane-

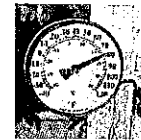


### Weather Instruments:

- Barometer
- Hygrometer
- Rain Gauge



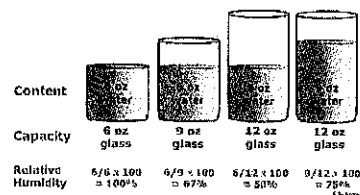
- thermometer

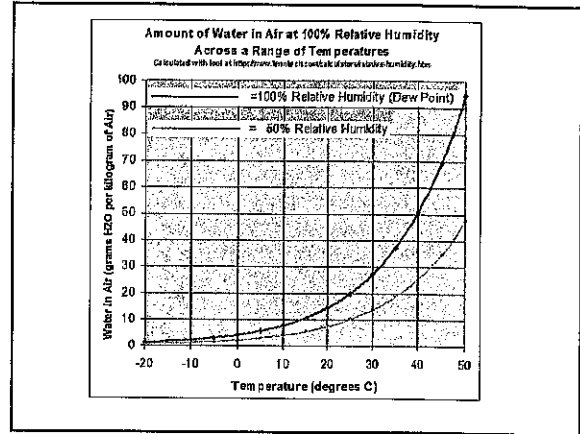
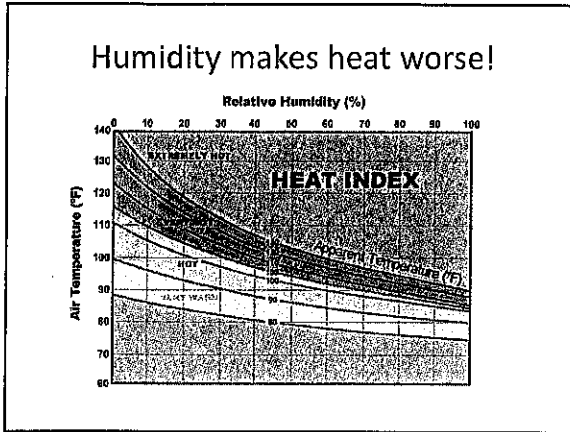



### Relative Humidity

- When air holds the maximum moisture it is **saturated**.
- At 40° C air is saturated at 50 g of water vapor per m<sup>3</sup>.
- Air at 25° C is saturated when it contains 22 g of water. If it contains 11g it's at 50% humidity.
- If saturated the air has a relative humidity of **100%**.

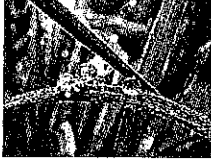
### Capacity vs. Relative Humidity




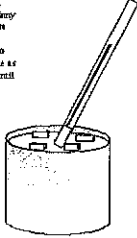

### Decreasing Temperatures

- Water vapor in saturated air will condense back into a liquid & freeze as the temperature decreases.
- The point in which saturated air condenses is called the **dew point**. Which can change with the amount of moisture in the air.



### Can of Ice Water:

To measure the dew point temperature, slowly add ice cubes to water until a thin layer can be made the water and can temperature drop. Continue to stir the water with a thermometer while adding the ice cubes to insure that the temperature is the same as the water. Watch the outside of the can until you start to see condensation. When condensation occurs, note the dew point temperature on the thermometer.






### Condensation & Dew Point

- water droplets forming on a glass of ice water happens because....


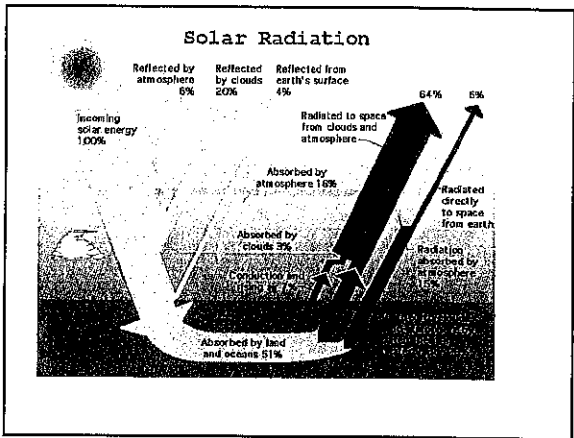
- cold glass cools air next to it- to the dew point
- water vapor in air can't stay as a gas and must "condense" onto a surface.
- Condenses onto the surface of the glass, like "sweating".

### Condensation on a Dragon fly





### What drives the weather?

- Main forces are: sun & moisture
- Energy from the sun-solar radiation
- Electromagnetic waves-charged particles flow from the sun into earth's atmosphere. Much of this radiation reaches earth.
- Ozone shields Earth from harmful rays.


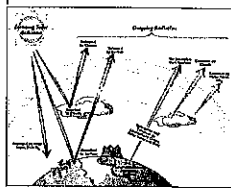
### Other factors that affect weather:

- Tilt of the earth & its rotation
- Earth revolution around the sun- which gives us the seasons.
- Uneven heating & cooling of earth & its atmosphere: absorption/reflection of solar radiation.
- Coriolis Effect

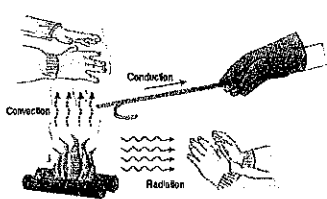
### Heat Transfer

- Three ways heat is transferred:
  1. Radiation- movement of heat warming molecules as they run into other air molecules, ex. fireplace


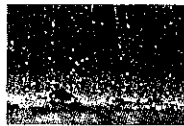

### Conduction:

1. 2 objects in direct "contact" – ex: pot on stove heats up due to contact on heating element.
2. Convection:  
Transfer of heat Through fluids By motion of Heat/cooling Currents.



### Precipitation:






- Defined as water falling from clouds
- Air temperature determines the form water droplets take:
  - a) Rain- water falls in temperatures above freezing.

Life isn't about waiting for the storm to pass. It's about learning to dance in the rain.





### Snow

- Forms when the air temperature is so cold the water vapor changes directly to a solid.



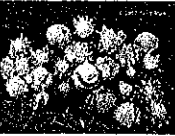
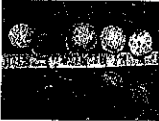


### Sleet

- Forms when snow passes through a layer of warm air, then melts & refreezes near the ground.



### Hail

- Is precipitation in the form of lumps of ice.
- Forms in cumulonimbus clouds of a thunderstorm when drops of water freeze in layers around a small nucleus of ice. Hail can grow in size as they are tossed up & down by convection currents.



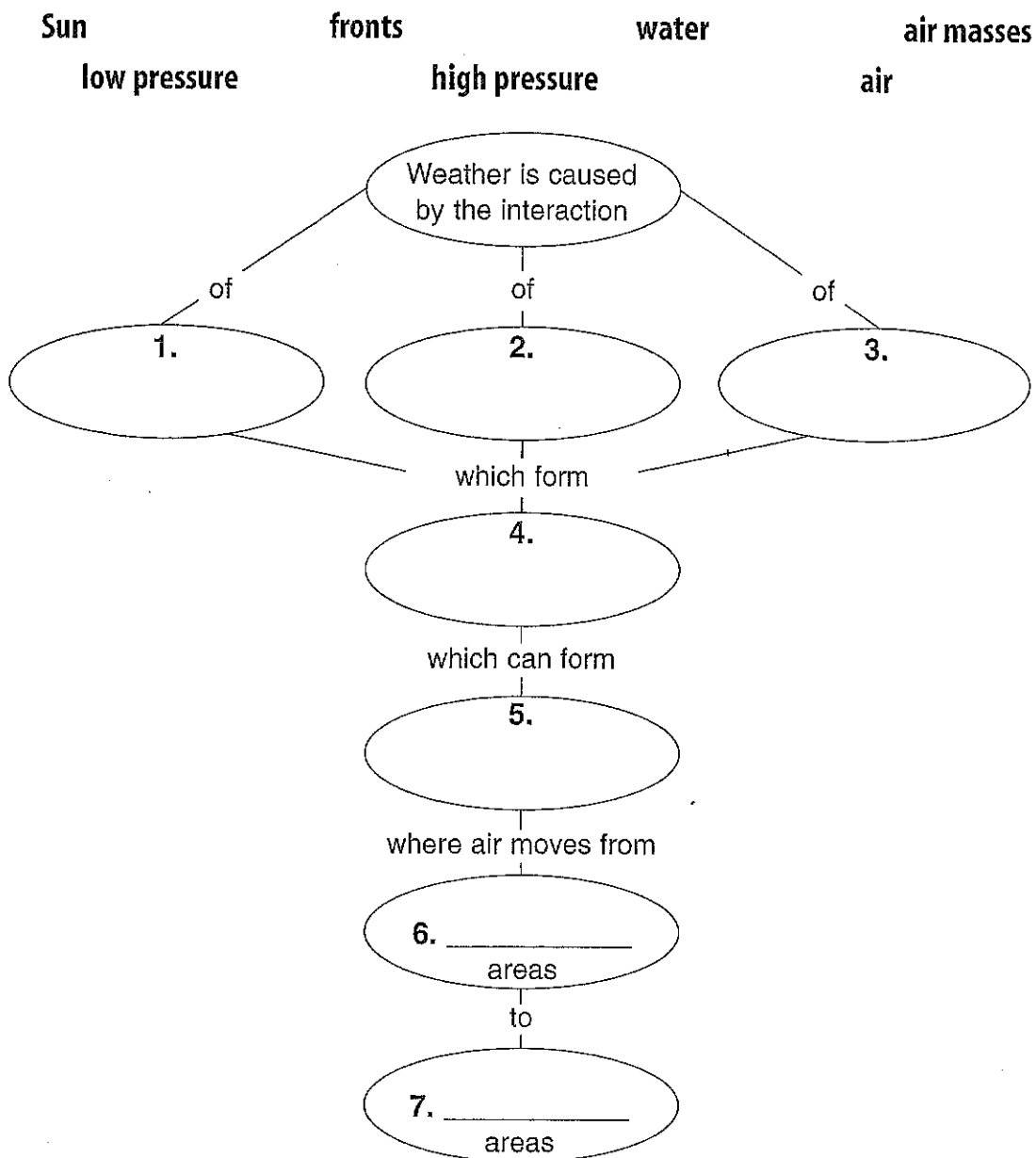
Choice 3 - Ravelca  
6/6/17



**Directed Reading for  
Content Mastery**

**Overview  
Weather**

**Directions:** Complete the concept map using the terms in the list below.



**Directions:** Complete the following sentences using the correct terms.

8. Clouds form as moist air rises and \_\_\_\_\_.
9. When dense, cold air meets less dense warmer air, the warm air is pushed \_\_\_\_\_.
10. Winds form because air moves from an area of high pressure to an area of \_\_\_\_\_ pressure.


**Directed Reading for  
Content Mastery**
**Section 1 ■ What is weather?**

1/1

**Directions:** Write the letter of the correct question next to its answer below.

**Questions**

- a. What is the dew point?
- b. What is sleet?
- c. What is fog?
- d. What is humidity?
- e. What is wind?
- f. What is relative humidity?
- g. What is weather?
- h. What is temperature?
- i. What are clouds?
- j. What are types of precipitation?
- k. What is caused by the interaction of air, water, and Sun?

**Answers**

- \_\_\_\_\_ 1. a description of the current state of the atmosphere
- \_\_\_\_\_ 2. the amount of water vapor in the air
- \_\_\_\_\_ 3. objects that form as warm air rises, expands, and then cools
- \_\_\_\_\_ 4. the temperature at which condensation forms from saturated air
- \_\_\_\_\_ 5. the measurement of the amount of water vapor in the air compared to the amount needed for saturation at a specific temperature
- \_\_\_\_\_ 6. rain, snow, sleet, and hail
- \_\_\_\_\_ 7. a stratus cloud that forms near the ground
- \_\_\_\_\_ 8. the weather
- \_\_\_\_\_ 9. air moving in a specific direction
- \_\_\_\_\_ 10. a measure of the average amount of motion of molecules
- \_\_\_\_\_ 11. rain drops that pass through a layer of freezing air near Earth's surface forming pellets