

7th Grade

Science - Week #4

Appendix I & II : Vocabulary for Unit

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Day 2 = page #3 Lab

Day 3 = page #4 (Honors: ^{Also} page 5)

Day 4 = page #6

Day 5 = page #7 (Honors: Also page 8)

(Quiz Assessment)

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Quick Vocabulary

Lesson 1

air pressure the pressure that a column of air exerts on the air or surface below it

dew point temperature at which air near the ground becomes fully saturated with water

humidity amount of water vapor in the air

kinetic energy the energy an object has due to its motion

precipitation water, in liquid or solid form, that falls from the atmosphere

relative humidity amount of water vapor present in the air relative to the maximum amount of water vapor the air can contain at that temperature

variable a quantity that can change

water cycle a series of natural processes in which water continually moves among oceans, land, and the atmosphere

weather atmospheric conditions of a certain place at a certain time

Lesson 2

air mass large body of air with distinct temperature and moisture characteristics

blizzard violent winter storm characterized by freezing temperatures, strong winds, and blowing snow

dominate to exert the guiding influence on

front boundary between two air masses

high-pressure system large body of circulating air that has high pressure at its center and lower pressure on the outside

hurricane intense tropical storm with winds exceeding 119 km/h

low-pressure system large body of circulating air that has low pressure at its center and higher pressure on the outside

tornado violent, whirling column of air that comes in contact with the ground

Quick Vocabulary

Lesson 3

computer model detailed program that solves a set of complex mathematical formulas

Doppler radar specialized radar that can detect precipitation and movement of small particles and can approximate wind speed

isobar line on a map used to connect all places where air pressure has the same value

surface report describes a set of weather measurements made on Earth's surface

upper-air report describes wind, temperature, and humidity conditions above Earth's surface



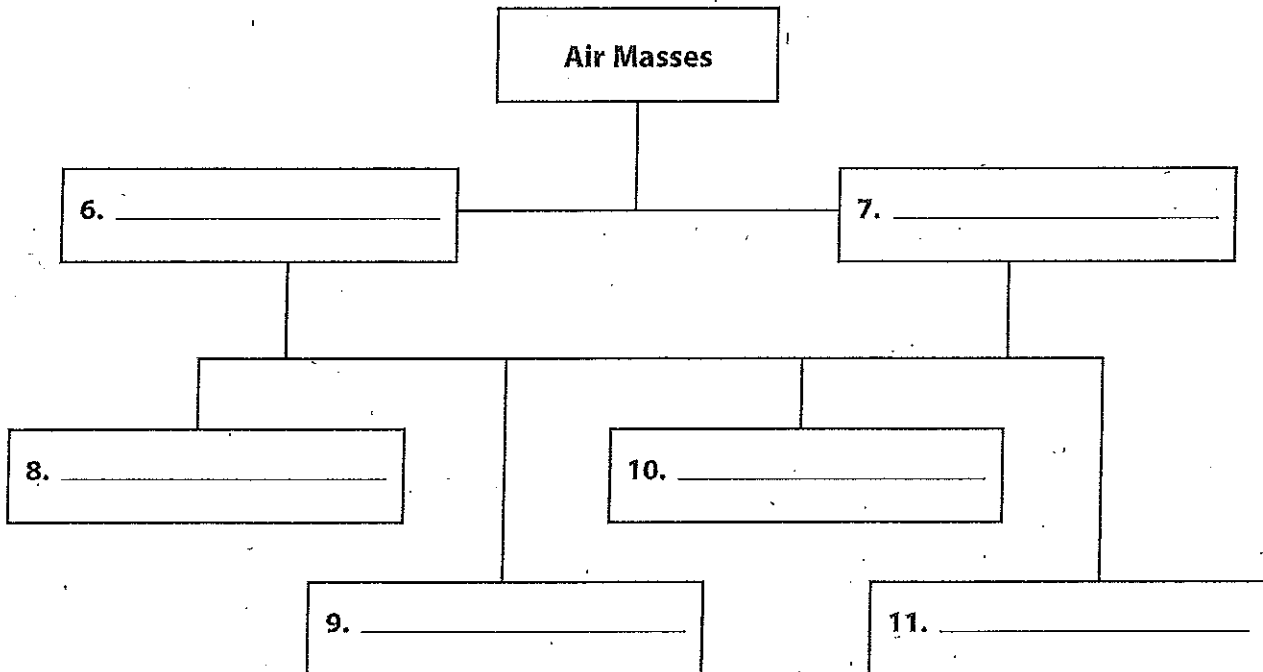
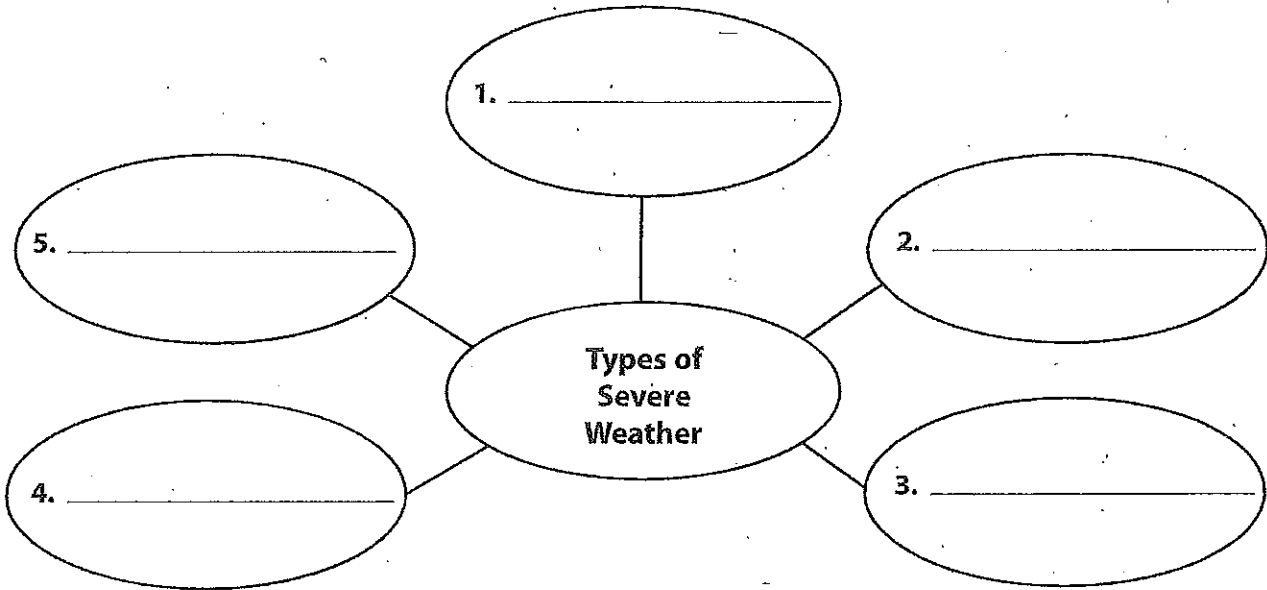
Content Practice A

LESSON 2

Weather Patterns

Directions: Complete these charts by choosing terms from the word bank and writing them in the correct spaces.

- | | | | |
|---------------|----------------|------------------|-------------|
| blizzards | cold front | freezing rain | humidity |
| hurricanes | occluded front | stationary front | temperature |
| thunderstorms | tornado | warm front | |



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#1

Language Arts Support

LESSON 2

Word-Usage Activity: Understanding Latin Roots

The word *precipitate* is a verb that comes from the Latin root *praecipitatus*, which means "to cast down headfirst." *Precipitate* has various meanings including "to increase the occurrence of something" or "to cause something to happen suddenly."

The storm damage *precipitated* an argument about the way government should respond to disasters.

The word *precipitate* is related to each of these words.

precipitation *n.* products of condensation in the air, such as rain, snow, and hail

The *precipitation* that fell during the storm was unusually heavy.

precipitous *adj.* extremely or impassably steep

The *precipitous* trails in the nearby mountains make them difficult to climb.

precipitate *n.* substance that is not soluble and condenses out of a solution

She observed that a white *precipitate* formed when she mixed the two colorless solutions.

precipitant *adj.* hasty or rash

The result of his *precipitant* action is an example of why it is wise to think before you act.

Directions: On each line, write the term from the word bank that correctly completes each sentence.

precipitate precipitous precipitation precipitant

1. The weather report says that today's _____ includes rain mixed with snow.
2. Think carefully before you act so you do not make a _____ decision.
3. The sure-footed mountain goats do not appear to be bothered by the _____ mountain paths.
4. A solid produced during a chemical reaction in a solution is a _____.




Inquiry MiniLab

LESSON 2: 20 minutes

How can you observe air pressure?


Although air seems very light, air molecules do exert pressure. You can observe air pressure in action in this activity.

Procedure 

1. Read and complete a lab safety form.
2. Seal an empty plastic bottle.
3. Place the bottle in a **bucket of ice** for 10 minutes. Record your observations in your Science Journal.

Analyze and Conclude

1. **Interpret** how air pressure affected the bottle.

2.  **Key Concept** Discuss how changing air pressure in Earth's atmosphere affects other things on Earth, such as weather.

3. What would happen if you placed the bottle in boiling water? (Educated guess only!)

Content Practice B

LESSON 2

Weather Patterns

Directions: On the blank line, write the term from the word bank that correctly completes each sentence. Some terms may be used more than once or not at all.

- | | | | |
|----------------------|-------------|------------|---------------------|
| air mass | continental | denser | front |
| high-pressure system | hurricane | lighter | low-pressure system |
| maritime | occluded | stationary | thunder |
| thunderstorm | tornadoes | tropical | warm |

1. A(n) _____ is the most destructive storm on Earth.
2. A(n) _____ forms when a large, high-pressure system lingers over an area for several days.
3. An example of a(n) _____ air mass is a polar air mass that forms over the northern Atlantic Ocean.
4. A boundary between two air masses is a(n) _____.
5. In a(n) _____, rising air cools and water vapor condenses, forming clouds.
6. Cold air pushes underneath warm air because it is _____.
7. In a(n) _____ front, warm air glides over cold air.
8. A(n) _____ front forms when a fast-moving cold front catches up with a slow-moving warm front.
9. The first stage of a(n) _____ is when clouds form; this is the cumulus stage.
10. Rapidly expanding air molecules near a bolt of lightning cause a sound that is referred to as _____.
11. Dry air masses that form over land are called _____ air masses.
12. More _____ occur in the United States than anywhere else.
13. An air mass that forms near the equator is a(n) _____ air mass.
14. Other names for a(n) _____ are tropical cyclone and typhoon.

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Conversions

Fahrenheit ($^{\circ}\text{F}$) units and Celsius ($^{\circ}\text{C}$) units are used to measure temperature. The Celsius scale is the standard unit of temperature used in nearly all countries in the world. To convert between Fahrenheit degrees and Celsius degrees, use these equations.

$$C = \frac{(F - 32)}{1.8} \quad F = (C \times 1.8) + 32$$

The news report says that it is 42°F outside. What is the temperature in Celsius?

Step 1 Select the correct equation.

$$C = \frac{(F - 32)}{1.8}$$

Step 2 Substitute the given value.

$$C = \frac{(42 - 32)}{1.8}$$

Step 3 Subtract and then divide.

$$C = \frac{10}{1.8}$$

$$C = 5.6^{\circ}$$

Practice

- The thermometer on the classroom wall reads 20°C . What is the temperature in degrees Fahrenheit?
- It is 100°F on a summer day in San Antonio, Texas. What is the temperature in degrees Celsius?
- It is 17°C in San Francisco, California, and 79°F in Cincinnati, Ohio. In which city is the temperature higher?
- It is -11°C in Detroit, Michigan, and -3°F in Milwaukee, Wisconsin. In which city is the temperature lower?

Key Concept Builder 

LESSON 2

Weather Patterns

Key Concept Why is it useful to understand weather patterns?

Directions: Work with a partner. Put a check mark in the space to identify the correct front(s).

Weather Event	Front			
	Cold	Warm	Stationary	Occluded
1. A colder air mass moves toward a warmer air mass.				
2. An approaching front stalls.				
3. Warm air glides above a cold air mass.				
4. A fast-moving cold front catches up with a slow-moving warm front.				
5. The boundary between two air masses stalls.				
6. The wind becomes gusty and changes directions.				
7. A wide blanket of clouds is created.				
8. A few days of warm weather occur.				
9. Warm air is forced to rise.				
10. This is present at the edge of an approaching air mass.				
11. This front moves faster than a warm front.				
12. This usually brings precipitation.				

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Lesson Quiz A**LESSON 2****Weather Patterns****Multiple Choice**

Directions: On the line before each question, write the letter of the correct answer.

- _____ 1. Which type of weather is associated with a maritime polar air mass?
A. cloudy and rainy
B. cloudy, warm, and dry
C. warm, sunny, and clear
- _____ 2. Which front brings several days of steady rain or snow into an area?
A. a cold front
B. a warm front
C. a stationary front
- _____ 3. When would a thunderstorm likely cause severe flooding?
A. during its mature stage
B. during its cumulus stage
C. during its dissipation stage
- _____ 4. Which air mass is warm and humid and forms over the ocean?
A. maritime polar
B. maritime tropical
C. continental tropical
- _____ 5. How does air move in a low-pressure system?
A. toward the low-pressure area
B. away from the low-pressure area
C. clockwise around the low-pressure area
- _____ 6. What are characteristics of a blizzard?
A. swirling winds, a central eye, heavy rain
B. low temperatures, strong winds, blowing snow
C. rotating updrafts, high wind speeds, heavy rain
- _____ 7. When might a beach area be evacuated?
A. when a tornado watch is given
B. when a hurricane warning is given
C. when an occluded front is over the water

Lesson Quiz B

LESSON 2

Weather Patterns

Completion

Directions: On each line, write the term that correctly completes each sentence.

- 1. Cloudy and rainy weather is associated with a(n) _____ air mass.
- 2. A(n) _____ front brings several days of steady rain or snow into an area.
- 3. A thunderstorm would likely cause severe flooding during its _____ stage.
- 4. A(n) _____ air mass is warm and humid and forms over the ocean.

Short Answer

Directions: Respond to each statement on the lines provided.

- 5. **Describe** how air moves in a low-pressure system.

- 6. **Identify** which type of severe weather often poses a threat to Florida. Explain your reasoning.

- 7. **Infer** Would a thunderstorm warning or a tornado watch indicate an immediate need to take cover? Explain.

