

Real Time Weather – Understanding Weather

Name: _____ Date: _____ Period: _____

LT: I can investigate air masses and fronts and how they impact local weather.

Readings come from - Holt Science and Technology: Weather and Climate, Chapter 2

Part 1: Read Chapter 2, Section 1 pages 37-39 and answer the following questions to learn more about water in the air.

1. What is humidity?

2. Does warm air or cool air hold more water vapor?

3. What is relative humidity?

4. What is saturated air and what is its relative humidity?

5. Do the math break problem on page 37.

6. If there is less humidity in the air does water evaporate more quickly or less quickly?

7. What must be true about the humidity in the air before condensation can occur?

8. What is dew point? What happens to relative humidity as the air temperature drops below the dew point?

Part 2: Read Chapter 2, Section 2 pages 44-47 and answer the following questions as a review of air masses and fronts.

1. What causes changes in the weather?

2. What is an air mass and what two characteristics are used to describe them?

3. What air masses are responsible for the cold, winter weather in the United States?

4. What warm air masses influence the weather in the United States?

5. What is a weather front? Where did the term originate?

6. What is the weather like at a front? Why?

7. Explain why the Pacific Coast has cool, wet winters and warm, dry summers.

Part 3: Read Chapter 2, Section 3 pages 48-53 and answer the following questions to explore how air masses and fronts influence severe weather.

1. What are three examples of severe weather?

2. What two atmospheric conditions are required for a thunderstorm to be produced?

3. What four conditions can result from a thunderstorm?

4. What is a tornado?

5. What types of air masses generally collide causing tornadoes in the United States?

6. What is a hurricane?

7. Why do hurricanes generally form in the area between 5° and 20° north and south and not over higher latitudes?

8. What causes a hurricane to form? Where do they get their energy?

9. What is a storm surge?

10. What happens to a hurricane as it moves over land? Why? (Think about where they get energy.)

Part 4: Read Chapter 2, Section 4 pages 54-57 and answer the following questions to explore how weather is measured and predicted.

1. What is a weather forecast?

2. Why is it important to be able to predict the weather?

3. Write the name of the tool for forecasting each atmospheric condition.

- a. relative humidity (see page 38) _____
- b. rain (see page 43) _____
- c. air temperature _____
- d. air pressure _____
- e. wind direction _____
- f. wind speed _____

4. What three methods are used to study weather in the upper atmosphere?

5. What type of weather measurements are made in the upper atmosphere? (What type of data is collected?)

6. What are isobars? What are isobars used to show on a weather map?

7. Draw the symbols used to show each of the following on the weather map. Make sure you use the correct color, or tell what color is used.

- a. warm front _____
- b. cold front _____
- c. stationary front _____
- d. isobar with pressure _____
- e. high-pressure cell _____
- f. low-pressure cell _____

8. Why would a meteorologist compare a new weather map with one 24 hours old?
