Name _____ Date _____ Period _____ 116

RELATIVE HUMIDITY

Complete the following activities to learn more about relative humidity.

Activity I - Finding Relative Humidity in the Classroom

In this activity you will use a sling psychrometer to determine the relative humidity of the air in the classroom.

Materials:

Sling psychrometer, water, stop watch

Procedure:

1. The thermometer with the cloth is called a wet-bulb thermometer. Wet the cloth with room temperature water.
2. Spin the psychrometer for 20 seconds. Read both thermometers. Record the temperatures in the Table 1. Subtract the wet-bulb temperature from the dry bulb temperature and record the difference in the Table 1.
3. Continue spinning the psychrometer and checking the temperatures until there is no further change or until two minutes have past. Record those temperatures as final temperatures in Table 1. Subtract the wet-bulb temperature from the dry-bulb temperature. Record the difference in Table 1.

Observations:

Table I - Measuring Relative Humidity			
	Dry-Bulb Temperature (°C)	Wet-Bulb Temperature (°C)	Temperature Difference (°C)
After 20 Seconds			
Final (after 2 minutes)			

Analysis Questions

4. Which of the two thermometers measures the air temperature?

5. Use the table on the right to determine the relative humidity in the classroom.

6. What is the relationship between evaporation and the wet-bulb temperature?

DRY-BULB TEMPERATURE (°C)	DIFFERENCE BETWEEN DRY-BULB AND WET-BULB TEMPERATURES (°C)									
	1	2	3	4	5	6	7	8	9	10
– 4°	77	55	33	12						
– 2°	79	60	40	22						
0°	81	64	46	29	13					
2°	84	68	52	37	22	7				
4°	85	71	57	43	29	16				
6°	86	73	60	48	35	24	11			
8°	87	75	63	51	40	29	19	8		
10°	88	77	66	55	44	34	24	15	6	
12°	89	78	68	58	48	39	29	21	12	
14°	90	79	70	60	51	42	34	26	18	10
16°	90	81	71	63	54	46	38	30	23	15
18°	91	82	73	65	57	49	41	34	27	20
20°	91	83	74	66	59	51	44	37	31	24
22°	92	83	76	68	61	54	47	40	34	28
24°	92	84	77	69	62	56	49	43	37	31
26°	92	85	78	71	64	58	51	46	40	34
28°	93	85	78	72	65	59	53	48	42	37
30°	93	86	79	73	67	61	55	50	44	39
32°	93	86	80	74	68	62	57	51	46	41
34°	93	87	81	75	69	63	58	53	48	43
36°	94	87	81	75	70	64	59	54	50	45

RELATIVE HUMIDITY (%)

7. What is the relationship between evaporation and relative humidity?

8. Would you expect the temperature of the wet-bulb thermometer to be higher on a humid or on a dry day? Explain.

9. Why do people from southwestern states, like Utah, claim, "Oh it's 100 degrees today, but it's a dry heat?"

10. Does a great difference in temperature between dry-bulb and wet-bulb thermometers indicate a high humidity or low humidity? Explain your answer.

Activity 2- Water in the Air

Use the amazing textbook of knowledge **pages 422 – 427** to answer the following questions.

11. What is weather?

12. What is humidity?

13. What is relative humidity?

14. Explain the difference between humidity and relative humidity.

15. How does temperature of the air affect how much water vapor it can hold?

16. What is condensation?

17. How does the water cycle contribute to condensation?

18. What is dew point?

19. What is the relationship between condensation and dew point?

20. What is a cloud?

21. How do cumulus clouds form?

22. When cumulus clouds get larger and produce thunderstorms, what kind of cloud is created?

23. How are stratus clouds form?

24. What is a nimbostratus cloud?

25. What type of cloud is fog?

26. How are cirrus clouds formed?

27. How are clouds classified?