Name _____ Date _____

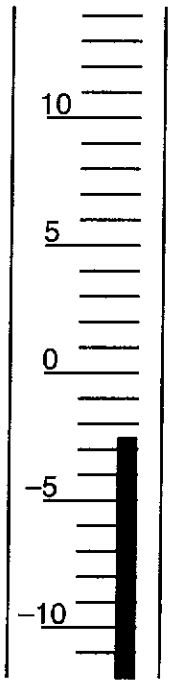
SECTION 17

Measurement Skill

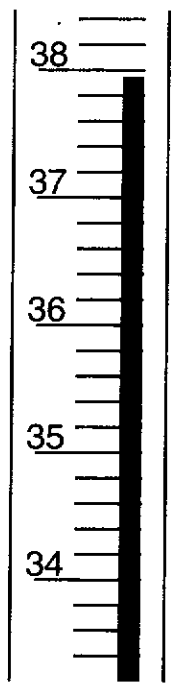
Measuring Temperature

Read the temperature on each of the thermometers below.

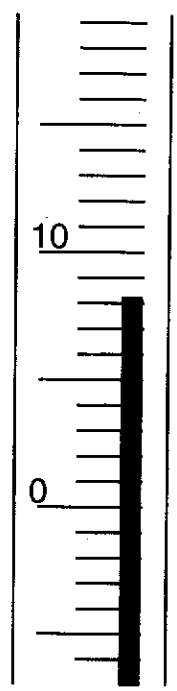
1. _____



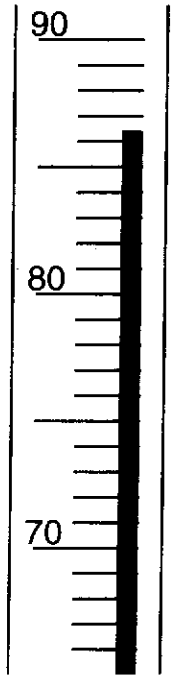
2. _____



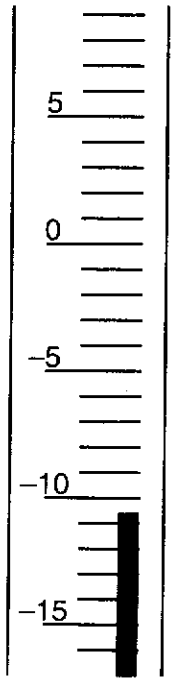
3. _____



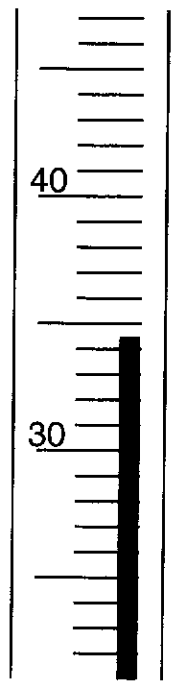
4. _____



5. _____



6. _____



Comparing Fahrenheit, Celsius, and Kelvin Temperature Scales

Answer the following questions by using the chart of the three temperature scales on the next page. Use a straight edge to read the corresponding values of the three scales.

1. At what temperature does water freeze on the Fahrenheit scale? _____

   On the Celsius scale? _____

   On the Kelvin scale? _____

2. At what temperature does water boil on the Celsius scale? _____

   On the Kelvin scale? _____

   On the Fahrenheit scale? _____

3. The weather forecaster predicts that today's high will be 70°. Which temperature scale is being used? _____

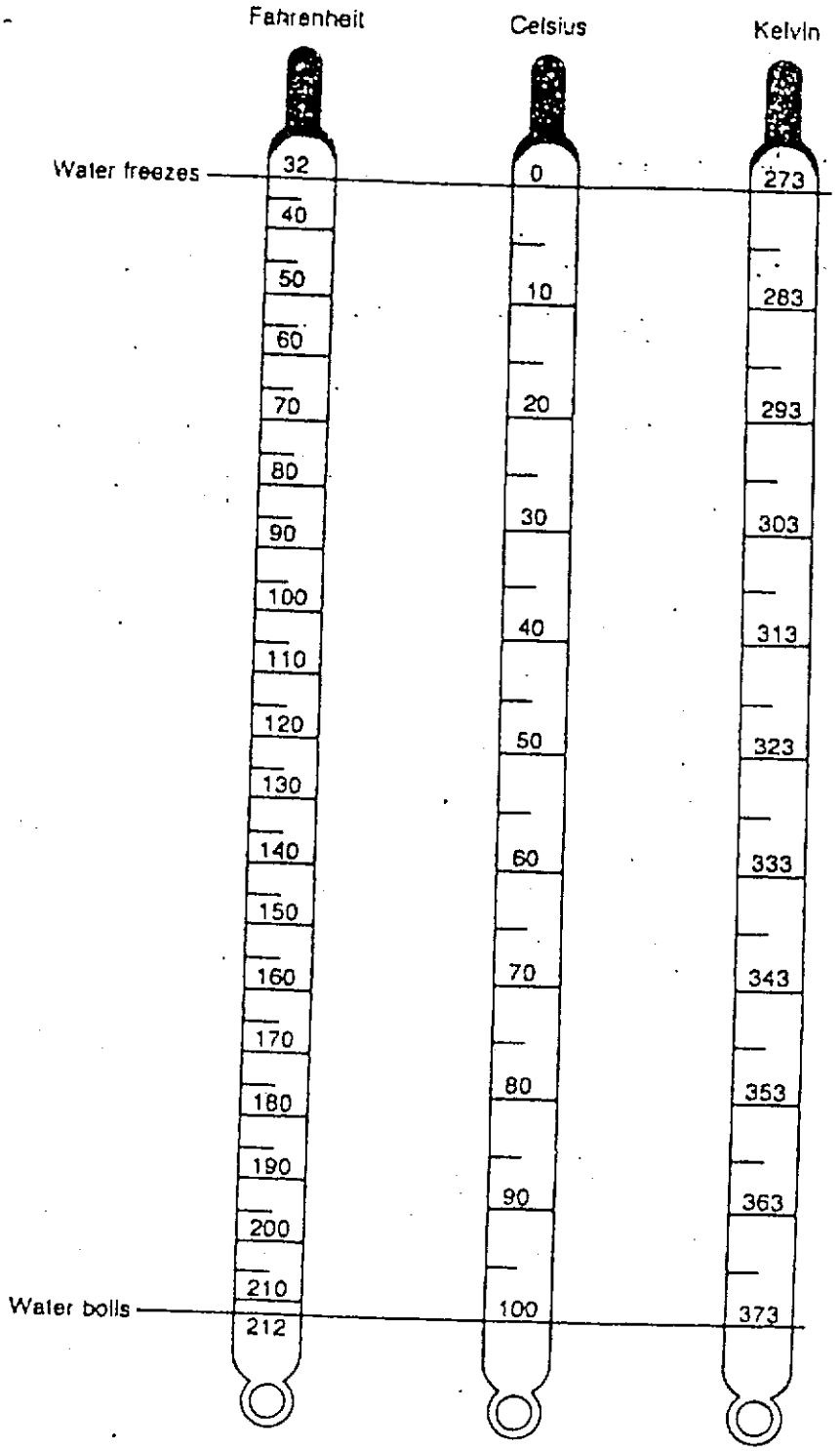
   What would be the corresponding temperatures on the other two scales? _____ _____

4. "It was so cold yesterday that the temperature only reached 275°!" Which temperature scale is being used? _____

   What would be the corresponding temperatures on the other two scales? _____ _____

5. "Today's temperature of 42° in Chicago set a record high for the month of August. Which temperature scale is being used? _____

   What would be the corresponding temperatures on the other two scales? _____ _____


Fahrenheit
Celsius
Kelvin
Water freezes
Water boils
32
40
50
60
70
80
90
100
110
120
130
140
150
160
170
180
190
200
210
212
0
10
20
30
40
50
60
70
80
90
100
273
283
293
303
313
323
333
343
353
363
373

Name _____ Date _____

SECTION 1

Laboratory Task

Using a Thermometer

What You'll Do

You will accurately determine the temperature of the water, positioning the thermometer correctly.

Materials

- thermometer
- beaker (or other container)
- hot water

Safety Precautions

WARNING: *Notify your teacher immediately if you break the thermometer.*

WARNING: *Be sure to use a thermometer that is calibrated for high temperatures when measuring the temperature of hot or boiling liquids.*

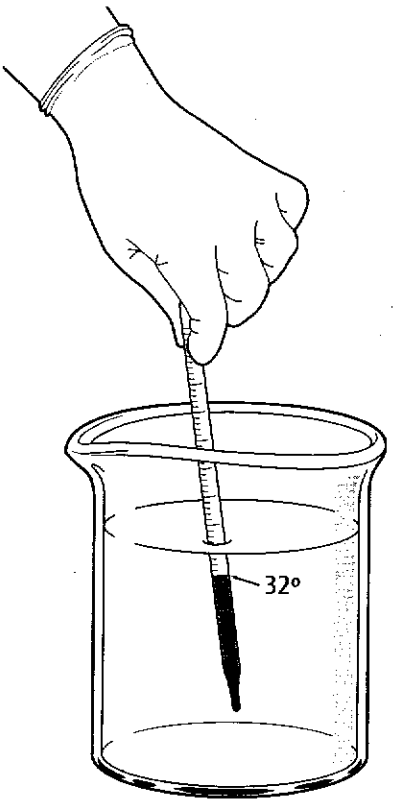
WARNING: *NEVER "shake down" a thermometer to reset it.*

WARNING: *NEVER stir anything with a thermometer.*

Procedure

1. Place the bulb of the thermometer in the center of the hot water in the beaker. Do NOT allow the bulb to touch the bottom or sides of the beaker (or other container). See **Figure 1**.
2. Watch the column in the thermometer until it stops moving.
3. Read the thermometer while it is still in the water. (Once the thermometer is removed from the liquid, the column of mercury or alcohol will soon adjust to the temperature of the air.)

Figure 1: Using a thermometer



Task Assessment

_____ I positioned the thermometer correctly and read the thermometer accurately.

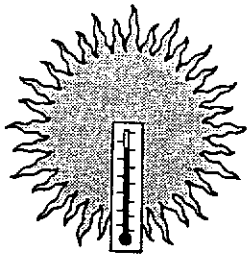
_____ I need to try the task again because _____

_____

_____

Name ______________________ Date ____________

Measurement of Temperature I.



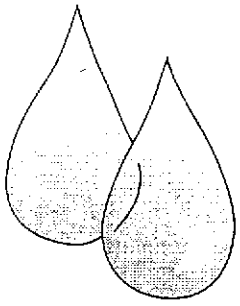
Procedure or Protocol for Measuring with a Thermometer

- Place the thermometer in the substance to be measured for one minute or as designated.
- Do not remove the thermometer until you have read the temperature.
- Use the Celsius scale.

		Temperature
1. room temperature tap water		______
2. hot water		______
3. room air		______
4. inside of a refrigerator		______
5. window air		______
6. ice water		______
7. ice/salt water mixture		______
8. inside of your fist		______
9. 100 ml of water before and after vigorous shaking	______	______
10. modeling clay before and after 25 squeezes	______	______

Name _____ Date _____

Mixing Water Activity II



1. Measure 40 ml of cool water and 40 ml of warm water in separate graduated cylinders.
2. Record the temperatures of each in the table below.
3. Mix the cool and warm water together. Record the temperature of the mixture.
4. Repeat the steps above for the remaining combinations as specified in the table.

Amount of Water	Temperature of Cool Water	Temperature of Warm Water	Temperature of Mixed Water
40 ml of cool water and 40 ml of warm water			
30 ml of cool water and 50 ml of warm water			
20 ml of cool water and 50 ml of warm water			
10 ml of cool water and 70 ml of warm water			

Were your results what you expected? Why or why not? _____

_____

_____

_____

_____