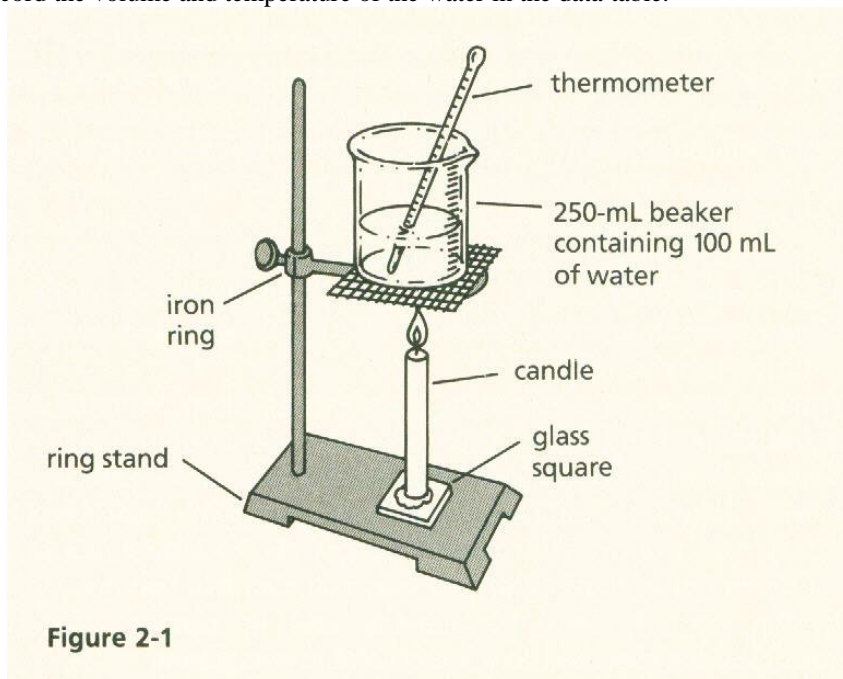


Quantitative Observation of a Chemical Reaction

Purpose: Make a quantitative investigation of a chemical reaction.

Procedure:

1. Obtain a candle and square piece of aluminum foil. Light the candle and drip some of the melted wax into the middle of the aluminum foil and adhere the candle to the melted wax. Extinguish the candle.
2. Mass the candle and aluminum foil. Record this in the data table.
3. Measure exactly 100-ml of tap water in a graduated cylinder. Pour the water into a 250-ml beaker and place the beaker on a wire gauze as shown in Figure 2-1. Measure the temperature of the water. Record the volume and temperature of the water in the data table.



4. Adjust the ring and wire gauze height so that it is approximately 3cm from the candle wick.
5. Light the candle and heat the water for exactly 10 minutes. At exactly 10 minutes. Blow out the candle and record the temperature of the water. Record data in the table.
6. Mass the candle and aluminum foil. Record the data
7. Repeat steps 2-6 for a second trial.

Data:

	Trial 1	Trial 2
Mass of candle and aluminum foil:		
Volume of water in graduated cylinder:		
Temperature of water in beaker:		
Length of time candle burned:		
Temperature of water at end of 10 minutes:		
Mass of candle after burning for 10 minutes:		

Calculations: *You must show your work. Label all answers with the appropriate units.*

1. Find the change in mass of the candle. (units are grams)

Trial 1	Trial 2

2. Calculate the change in mass of the candle per minute. (units are g/min)

Trial 1	Trial 2

3. Find the change in temperature of the water. (units are °C)

Trial 1	Trial 2

4. Calculate the change in temperature per minute. (units are °C/min)

Trial 1	Trial 2

Conclusion Questions:

1. If the candle burned for 20 minutes instead of 10 how would the change in mass of the candle, change in temperature of the water, and heating rate (°C/min) be affected?

2. If you placed 200 ml of water in the beaker instead of 100 would the change in mass of the candle, change in temperature of the water, and heating rate (°C/min) be affected?