

OBSERVING

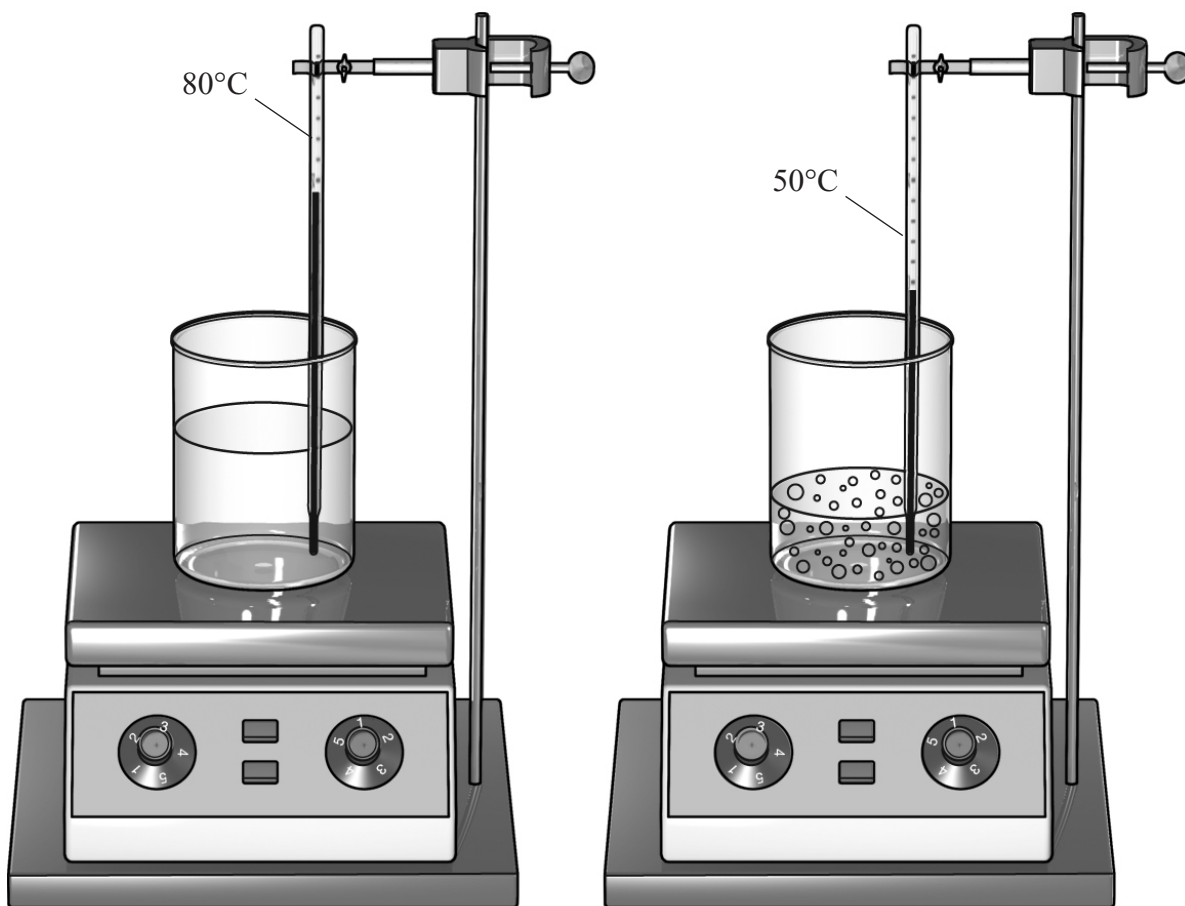
Making Observations

During experiments, scientists make and record observations to gather data. Quantitative observations are objective. They include physical measurements such as mass, volume, and temperature. However, anything that can be expressed as a number, from time to a rating scale on a survey, can be a quantitative observation. Quantitative observations can be used to investigate how or why something happens. Qualitative observations are descriptions that include sights, sounds, and smells. This type of data refers to a certain subjective quality of an observation rather than an objective amount or quantity that is measured.

Make both qualitative and quantitative observations of the image below, which shows a setup for an experiment. In the experimental setup, beakers containing substances are being warmed on hotplates. Write your observations in the space provided on the next page.

MATERIALS

metric ruler



1. Qualitative observations: _____

2. Quantitative observations: _____

3. Categorize these observations by writing “qualitative” or “quantitative.”
- a. It smells “like rotten eggs.” _____
 - b. It is bubbling vigorously. _____
 - c. It began boiling at 5 minutes 43 seconds. _____
 - d. It began boiling at 48°C. _____

Challenge List one measuring tool you would need to make further quantitative observations and describe how you would use it.

