

Observations and Inferences

Observations

There are two types of observation: **Qualitative** and **Quantitative**.

Qualitative observations describe properties of an object that **do not** involve a number *and* a unit.

- Example: The car is red
- Example: The wire is shaped like a number 6

Quantitative observations use a number *and* a unit to describe the object.

- Example: The pencil is 8 cm long
- Example: The beaker has a mass of 45 g

Inferences

If a guess is added to an observation, then it becomes an **inference**.

- Example: an observation is "Your pen cap is blue." An inference would be "Your pen cap is blue, so your pen must contain blue ink."

Questions

1. Classify each of the following statements as either an observation or an inference by checking the appropriate box.

Statement	Observation	Inference
The liquid in the unlabeled beaker is clear.	<input type="checkbox"/>	<input type="checkbox"/>
The liquid in the unlabeled beaker is water.	<input type="checkbox"/>	<input type="checkbox"/>
The liquid in the unlabeled beaker has no smell.	<input type="checkbox"/>	<input type="checkbox"/>

Statement	Observation	Inference
The student is sick to her stomach.	<input type="checkbox"/>	<input type="checkbox"/>
The student ate a hamburger for lunch.	<input type="checkbox"/>	<input type="checkbox"/>
The hamburger contained bacteria that caused food poisoning.	<input type="checkbox"/>	<input type="checkbox"/>

2. Give an example of an observation and an inference that could be stated by each of the following:
 - a) A nurse examining a patient with a high fever.

Observation:

Inference:

- b) A firefighter shifting through debris at a recent fire.

Observation:

Inference:

- c) A chef tasting a new recipe.

Observation:

Inference:

3. Give an example of a qualitative and a quantitative observation from each of the cases.

- a) A nurse examining a patient with a high fever.

Qualitative:

Quantitative:

- b) A firefighter shifting through debris at a recent fire.

Qualitative:

Quantitative:

- c) A chef tasting a new recipe.

Qualitative:

Quantitative:

4. Underline the observations in the paragraphs below. Circle any inferences.

You are working on an experiment in lab. You are heating an acidic solution on a hot plate. You leave your station to ask a fellow student a question. You hear your lab partner scream and turn around. She is covering her eyes with her hands. Some of the acid must have splashed in her eyes. She was not wearing goggles during the lab procedure. You bring her to the eye wash station and alert the teacher. She will always have eye damage now!