Observations, Inferences, Hypotheses

1) Definitions:

Observation: anything detected with the senses, which include sight, hearing, touch, smell, and taste, and include all quantitative measurements.

Inference: a conclusion or educated guess drawn from observations as well as previous knowledge

Hypothesis: a prediction or explanation that can be tested by an experiment. Typically expressed as 'If...Then..." statements, but can be sneaky...

2) A 500 ml. beaker is placed on a counter at one side of the classroom. The beaker is filled to about half full with a liquid and allowed to remain there for one week. During this time you make as many observations and related statements about the beaker and contents as you can during your class period.

Listed below are some statements that have been made by the student observers. Read their statements and identify which are observations, inferences or hypotheses.

Statement	Observation, inference, or hypothesis?
1. On the first day the volume of liquid was about 200 milliliters.	
2. The beaker looks and feels like glass.	
3. The beaker is glass.	
4. The liquid appears clear; you can see through it.	
5. The liquid has a sweet odor.	
6. If we performed a chemical analysis, it would reveal the presence of peppermint oil in the liquid.	
7. All clear, transparent liquids have a sweet odor.	
8. On the third day the volume of the liquid was 100 mL	
9. 100 ml. of the liquid must have evaporated during the first three days.	
10. Someone drank 100 ml. of the liquid during the first three days.	
11. Liquids decrease in volume when allowed to stand in an open container for any length of time.	