

CHEMISTRY - THE SCIENTIFIC METHOD

- 1) Explain the difference between **qualitative** and **quantitative observations**.
Give two examples of each.
- 2) Which of your senses do you use most to make observations?
How could you improve observations using this sense?
- 3) What can you use to quantitatively measure observations?
- 4) Is qualitative observation better than quantitative? Why or why not?
- 5) If your **hypothesis** was tested and found to be incorrect, why WASN'T your experiment a waste of time?
- 6) After reporting the results of an **experiment**, how might a scientist continue his or her research?
- 7) Think of a **problem** you encountered recently.
(examples: your locker doesn't open; your best friend suddenly won't speak to you)
 - a) What was the problem? (stating the problem/question)
 - b) What did you think caused the problem? (hypothesizing)
 - c) List relevant info. or details about the problem. (data collection)
 - d) How did you try to fix the problem? (experimentation)
 - e) Did it work? (analyzing results; drawing conclusions)
 - f) If not, how did you change your game plan to fix it? (revisions)
- 8) An **inference** is taking an observation one step further. Observations state the obvious, but inferences draw conclusions from what is observed.
Decide whether each statement is an **observation (O)** or an **inference (I)**:
You may use the codes **O** or **I** for your answers.
 - a) Grass is present inside the puddle.
 - b) The grass surrounding the puddle is greener and taller than inside the puddle.
 - c) During a rainstorm, some soil is washed into the puddle.
 - d) Water always runs downhill.
 - e) Gravity causes water to run downhill.
 - f) The soil that washes out of the puddle will eventually become part of a stream.
 - g) Brownish water contains suspended soil particles.
 - h) The soil particles are suspended because the water is flowing fast.
 - i) When the rain stops, the puddle water looks clear.
 - j) There are mud cracks on the surface.
 - k) Mud cracks result from drying soil.