

**Scientific Method:**

a) Describe the primary steps of the scientific method.

*1) Observation → State the problem*

*2) Explanation → Formulate a hypothesis*

*3) Experimentation → Test the hypothesis*

b) Who is credited with establishing the scientific method?

*It depends on who you ask.*

*1) Sir Francis Bacon (English philosopher)*

**→ 2) Galileo Galilei (Italian "natural philosopher")**

*3) Robert Boyle (Irish chemist)*

c) What is required for a hypothesis to be "scientific"?

*It must be testable, i.e. there must be a testable way to prove it wrong.*

d) Give an example of both a scientific and non-scientific hypothesis/statement.

e) Describe how qualitative and quantitative observations are different. Give an example of each.

*Quantitative observations are based on a numerical value and a unit (reference scale).*

*Qualitative observations are not based on a numerical value and objective reference scale. They are based on subjective "qualities".*

**Being Scientific:**

For each observation/problem, formulate a scientific hypothesis to explain it. Describe how you might test your hypothesis.

a) Traffic is terrible and you are late for class. What is the fastest way to get to school?

b) You just finished a game of tennis and your elbow is sore. What caused your elbow to be sore?

c) The moon is bright yellow. Why is the moon so yellow?