# The Process of Scientific Inquiry

In chemistry, we study the properties and changes of matter.  We seek to learn how the structure, properties and behaviour of substances are related in order to better understand the world around us.  To do this we must observe the

_____ of substances and investigate the changes in composition and properties they undergo - changes that we call

_____.

The _____ is a formal description of how we develop an understanding of the world.

1.	_____ your surroundings.

2.	_____ a problem.

3.	Form a _____ (an educated guess and explanation).

4.	Design and carry out an _____.

- identify a variable to change (_____)

- identify a variable to measure (_____)

- keep all other variables the same (_____)

5.	Make _____.

6.	Make _____.

## Observation

An observation is something that a scientists directly sees, hears, tastes, smells or touches.

i) _____ -involve observations that cannot be expressed numerically such as colour, odour, texture, sound, taste. etc.

ii) _____ - involve measured or counted quantities such as mass, melting point, volume, etc.

- Observations should be objective (_____).

- Observations should be as _____ as possible.

- Observations should be concise (_____)

- Observations should be _____.

- An _____ is an irregular result. Anomalies should not be ignored. There must be a logical explanation for an anomalous event. Investigating an anomaly often increases our knowledge and adds to our understanding of nature.

## Conclusion

A conclusion (_____) is a judgment or opinion based on direct observations.

Both observation and inference are important components of studying matter.   For example, we can infer the identity of a sample of matter by making many direct observations of it.

### Inference vs Observation