



Unit 1 Lesson 4
Making Observations



Making Observations

Students will be able to:

- Define observation.
- Differentiate qualitative and quantitative observations.
- Make qualitative and quantitative observations.



Making Observations

Keywords:

- observation
- qualitative observation
- quantitative observation



Making Observations

Making Observations

Humans are naturally curious.

This innate curiosity leads to noticing things around them and being able to perceive things through their senses.

This is known as **observation** or the process of observing something or someone carefully in order to gain information.



Making Observations

Observation is an essential process in science.

Observations often lead to asking questions and having the desire to pursue answers to these questions.

Through observations, scientists can propose an educated guess and test it through experiments, then formulate conclusions.

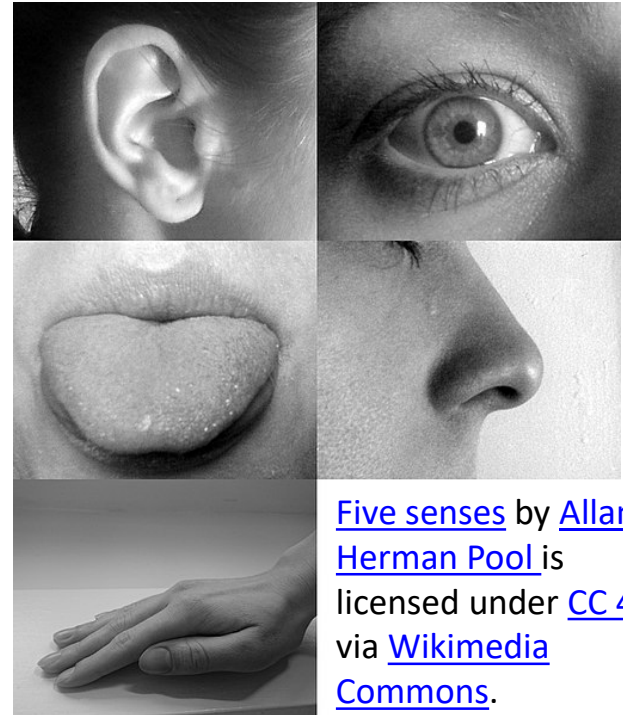


Making Observations

Observation involves the use of senses in describing an object, a person, or an event.

Our senses include vision, hearing, touch, smell, and taste.

We see with our eyes, hear with our ears, touch with our hands, smell with our nose, and taste with our tongue.



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Making Observations

We can also extend our senses and our ability to make observations by using instruments such as microscopes, telescopes, weighing scales, rulers, and thermometers.

These tools allow for more precise and accurate observations. Tools also help gather information about things beyond our capability to experience firsthand.



Making Observations

There are two types of observation:
qualitative and quantitative.

Qualitative observation is a subjective gathering of information, which focuses more on quality rather than on quantity.

Thus, it mainly uses the senses alone in describing an object, a person, or an event.

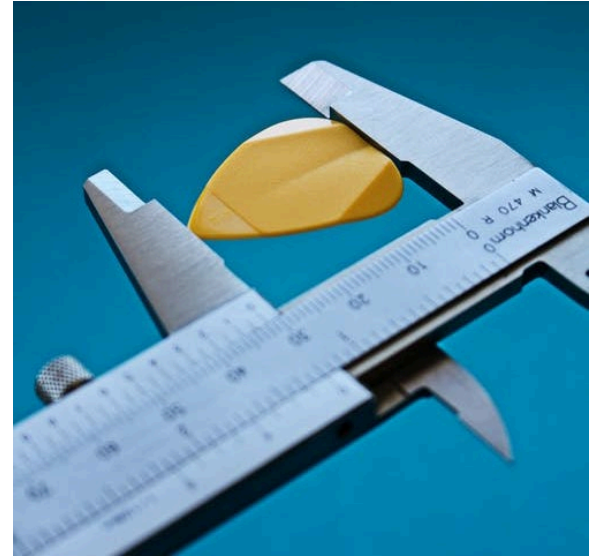


Describing the smell of the flower is an example of qualitative observation.

Making Observations

A **quantitative observation** is an objective gathering of information, which focuses on numbers or measurements.

This requires the use of measuring instruments to provide an accurate observation.



Measuring length using a Vernier caliper is an example of quantitative observation.

Making Observations

Observations are used to gather evidence.

Besides raising questions for investigations, observations play another role in scientific investigations, which is gathering evidence.

To gather evidence means to provide factual information that supports a certain claim.



Making Observations

Observations yield what scientists call data.

Whether the observation is an experimental result or just noticing a certain event through senses – they are all data.

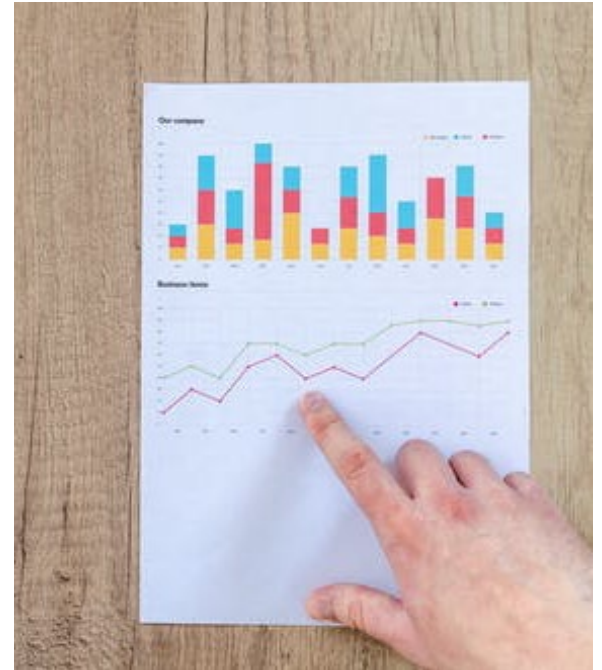
Scientists analyze and interpret data in order to figure out how those data inform their educated guess and conclusion.



Making Observations

Scientists interpret whether the data support one idea over others, help refute an idea, or suggest an entirely new explanation.

Though data may seem complex and be represented by detailed graphs or complex statistical analyses, it is important to remember that at the most basic level, they are simply observations.



Making Observations

Observation is a skill.

Like most skills, observation improves with practice and knowledge. One can be more scientific in observing when observations are prompted by appropriate questioning or when they are connected with growing background knowledge on the subject or object under observation.



Making Observations

Observation is an essential skill.

Observation is a good way to learn something new or to expand our knowledge.

It is the key to understanding objects and phenomena as well as interactions between them.



Making Observations

The ability to make good observations is also essential to the development of the other science process skills such as communicating, classifying, measuring, inferring, and predicting.

Making good observations requires one's appropriate use of senses and scientific instruments in gathering information.



Making Observations

Comprehension

Check...

1. What is an observation?
2. Differentiate qualitative from quantitative observation.
3. Why is observation an important skill?

Answer the following questions.

Making Observations

Comprehension

Check...

Answers

Answer the following questions.

1. What is an observation?
It is the process of observing something or someone carefully in order to gain information.
2. Differentiate qualitative from quantitative observation.
Qualitative observation focuses on the qualities of the object being observed while quantitative observation uses instruments to quantify or provide accurate measurements.
3. Why is observation an important skill?
The ability to make good observations is essential to the development of other science process skills.