Steps	Descriptions	Examples
5. **Analyze your data** (evidence, results)	- Look at it - Review it - Study it	- Is my hypothesis correct?
6. **Draw Conclusions** (come up with a final answer)	- Think about outcome - What makes my hypothesis correct or incorrect?	- Retest (if necessary) - Duplicate experiment to verify results
7. **Communicate your results**	- Share your idea - Seek recognition - Hear other opinions - Improve experiment	- Publish articles - Put results online - Write a blog - Lecture / teach

What is Science?

The goal of science is to investigate and understand the natural world, to explain events in the natural world, and to use those explanations to make useful predictions.

1. Science deals only with the natural world.

2. Scientists: collect and organize information in a careful, orderly way, looking for patterns and connections between events.

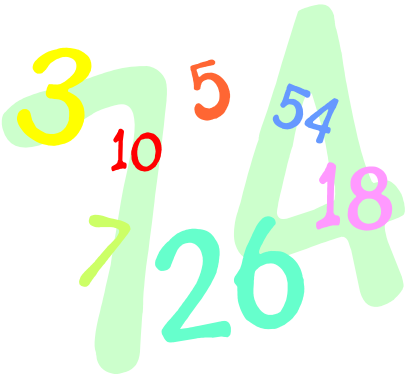
3. Scientists propose explanations that can be tested by examining evidence.

4. Science is an organized way of using evidence to learn about the natural world.

How is Science Done?

Science begins with an observation.

This is the process of gathering information about events or processes in a careful, orderly way.

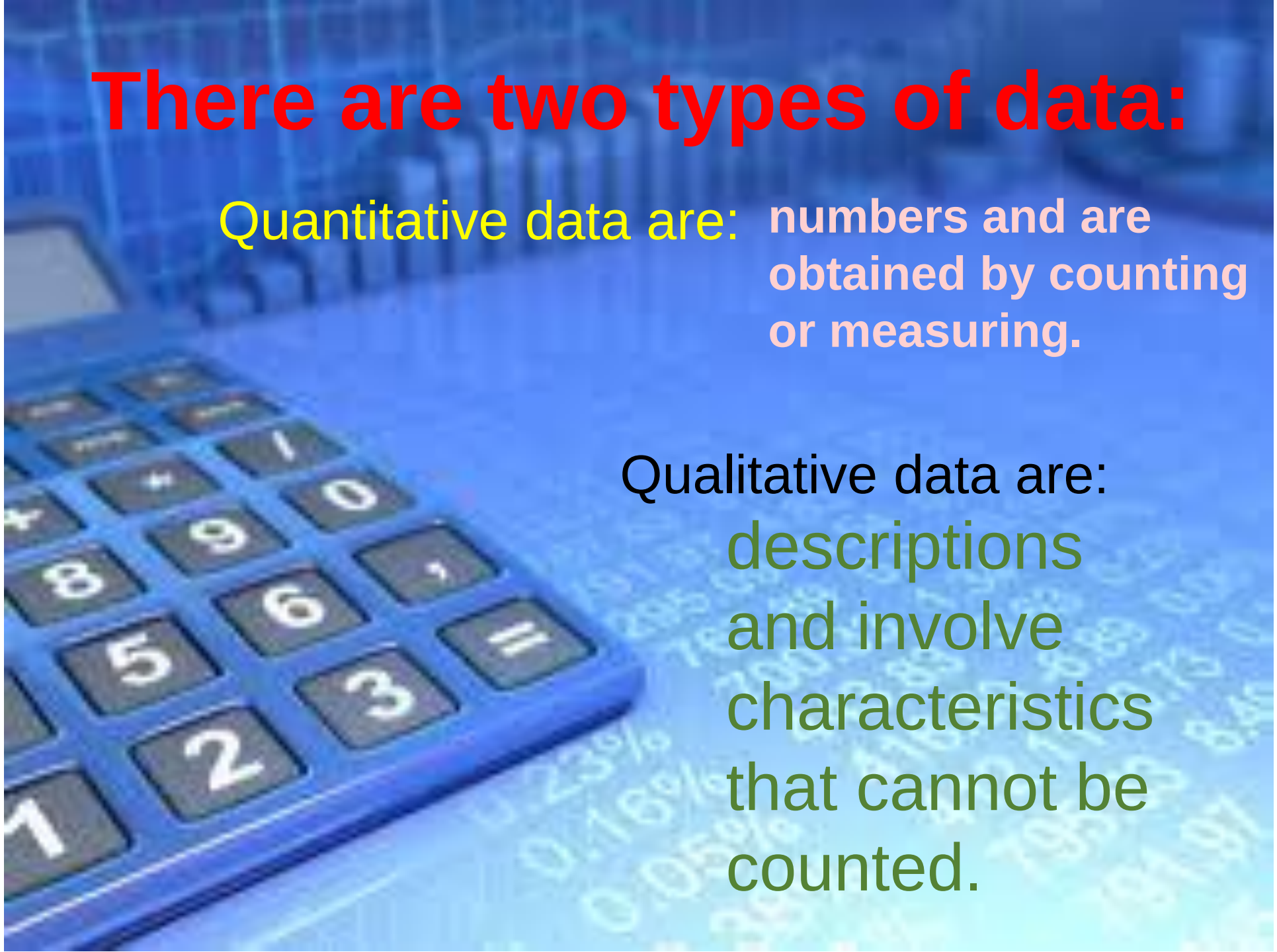


Data is the information gathered from making observations.

Observation vs. Inference

- Observation = watching, looking, learning with your eyes
  - Definition = the action or process of observing something or someone carefully or in order to gain information.
  - **This is the data you use in an experiment!**

- Inference = give your opinion, guess, use your brain to make connections with what you see
  - Definition = a conclusion reached on the basis of evidence and reasoning



There are two types of data:

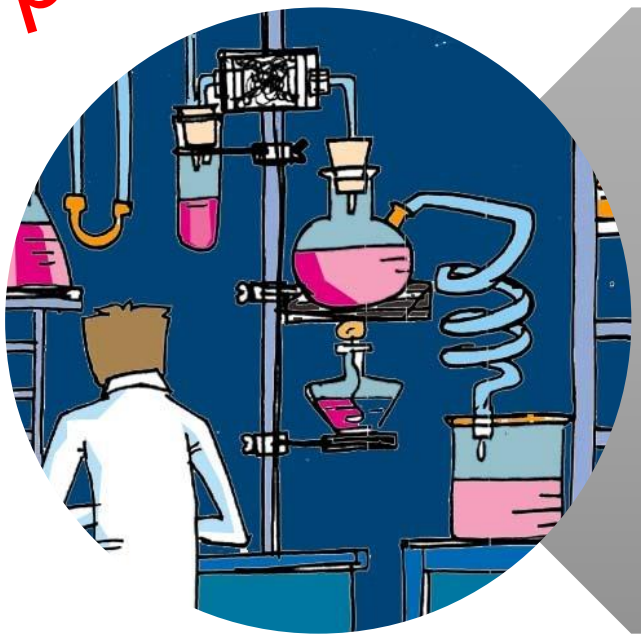
Quantitative data are: **numbers and are obtained by counting or measuring.**

Qualitative data are:

descriptions and involve characteristics that cannot be counted.

A hypothesis is a scientific explanation for a set of observations.

Hypothesis



A hypothesis must be stated in a way that makes it “testable”. The hypothesis is just a possible answer to a question, and it must be thoroughly tested.