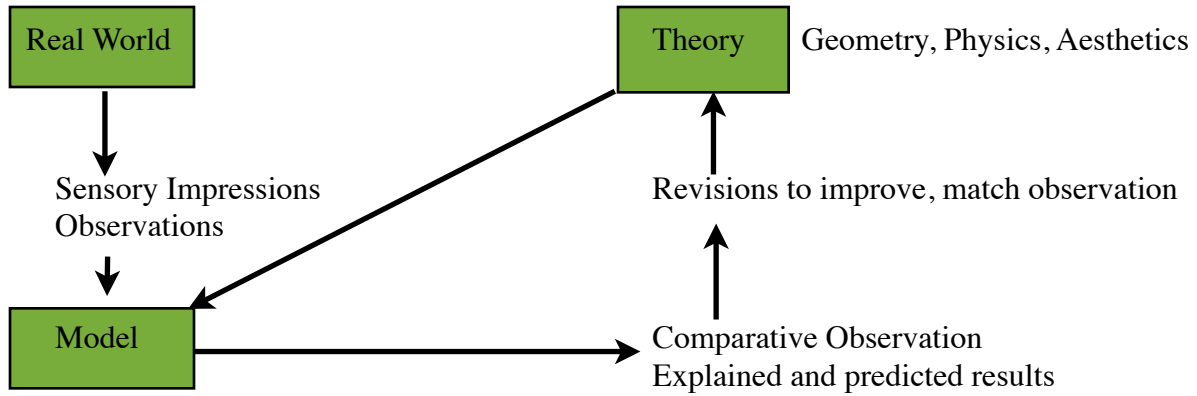


Scientific Modeling

The Scientific Model

Explains what is seen

Predicts accurately what can be seen.

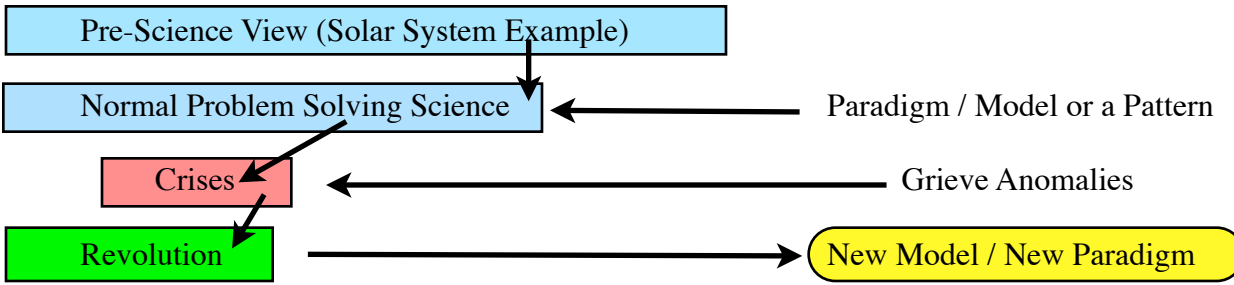


Models of phenomena

Models of data

Models of theory (Interpretation of a general law)

The Scientific Method



A series of steps to test a causal relationship. Method of inquiry calls for specific action and a desired result.

How?

- By observation
- By measurement
- By classification

What is an hypothesis?

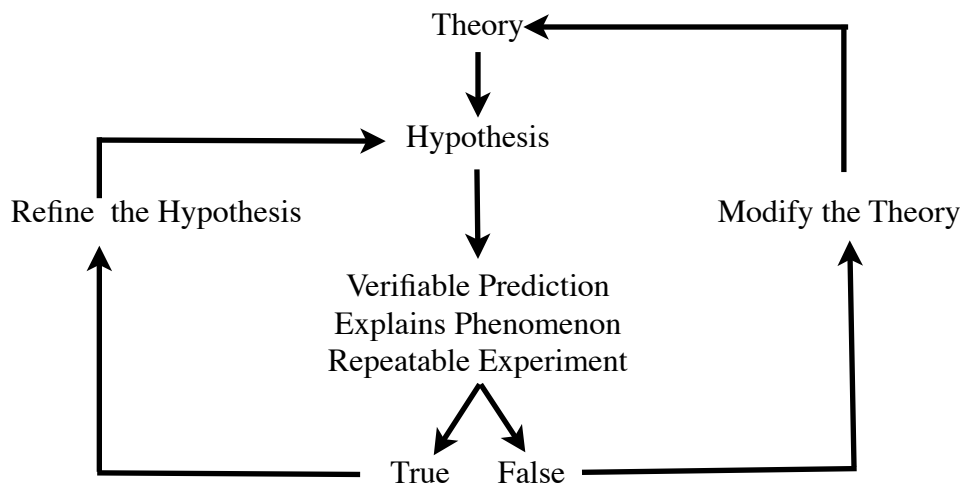
- tentative theory that has not yet been tested.
- an assumption
- an idea
- a guess

Testing Hypothesis

- Does it make predictions?
- Does it explain a phenomenon
- Is the result a repeatable experiment

Testing looks for

- Truth or Falsity
- Scientific progress is made when an hypothesis is shown to be true or false.



Theories do not “graduate” to laws...Scientific laws are typically short, mathematical expressions representing how nature will behave under certain conditions. eg $e=mc^2$

It is never correct to say that a scientific principle or theory has been proven

Scientific Visualization

Scientific visualization is a branch of computer graphics which is concerned with the presentation of interactive or animated digital images to scientists who interpret potentially huge quantities of laboratory or simulation data or the results from sensors out in the field.

NASA Scientific Visualization Studio

The mission of the Scientific Visualization Studio is to facilitate scientific inquiry and outreach within NASA programs through visualization. To that end, the SVS works closely with scientists in the creation of visualization products, systems, and processes in order to promote a greater understanding of Earth and Space Science research activities at Goddard Space Flight Center and within the NASA research community.