

The Nature of Science & The Scientific Method

Ch. 1.2-1.3

What Is Science?

- a body of knowledge based on the study of nature
- Pseudoscience - does not provide a science-based explanation of the natural world
 - Ex: astrology

What Is Science

- Relies on evidence (proof)
 - Theory – an explanation of a natural phenomenon supported by many observations over time
 - Ex: cell theory, theory of evolution

What Is Science

- Challenges accepted theories
 - scientists welcome debate about new ideas
- Science advances by making changes for new information

What Is Science

- Questions results
 - observations that don't "fit" with current understanding lead to further investigation
 - Always refining hypotheses and theories

What Is Science

- Tests claims
 - scientists use standard experimental procedures
 - scientific method
- Undergoes peer review
 - scientists check each other's work before it goes public

What Is Science

- Uses metric system
 - a measurement system with units that are powers of ten
 - Liter (L)
 - Meter (m)
 - Gram (g)

Scientific Method

- It includes:
 - Observations – direct method of gathering info in an orderly way
 - Inferences – logical conclusions based on what you know plus what you learned
 - summary

Scientific Method

- When analyzing, ask:
 - “Has my hypothesis been supported?”
 - “Do I need different procedures?”
 - Look for patterns