



Lesson Question



Lesson Goals

Explain how develops.

Define and distinguish it from .

Identify the of science.

Recognize the characteristics that possess.



Words to Know

Write the letter of the definition next to the matching word as you work through the lesson. You may use the glossary to help you.

_____ science

A. based on facts instead of opinions or beliefs

_____ pseudoscience

B. a process that involves the collection of information and ideas supported by evidence

_____ objective

C. a process that involves the collection of information and ideas supported by belief or opinion



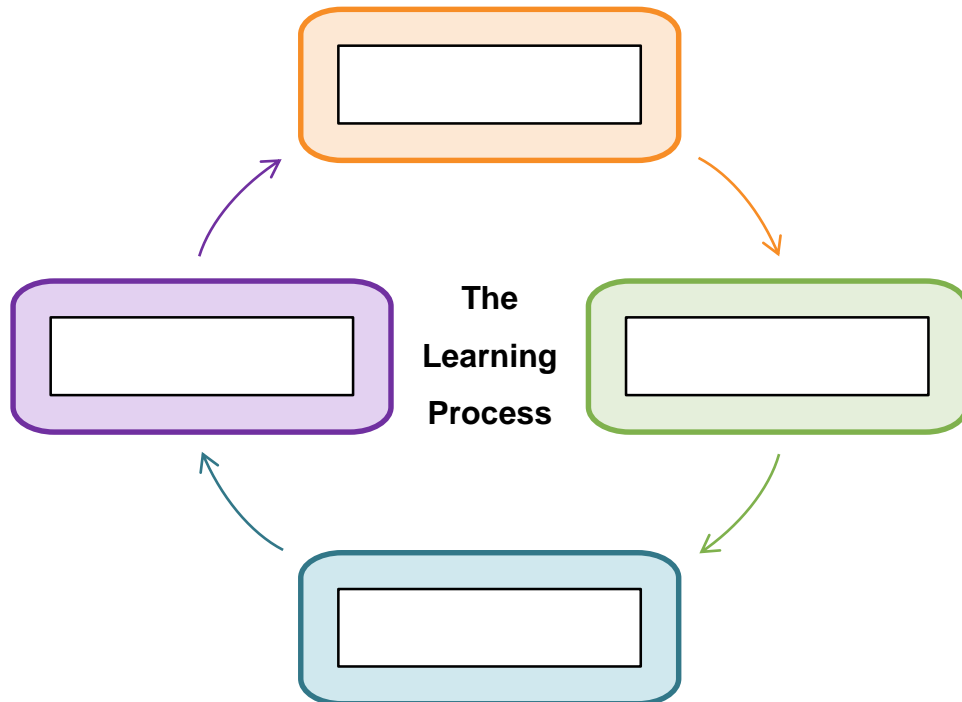
Words to Know

- | | |
|----------------------------|---|
| _____ subjective | D. the information that is gathered by the systematic study of nature |
| _____ scientific knowledge | E. using a careful method |
| _____ systematic | F. based on opinions or beliefs instead of facts |



The Learning Process

Fill in the steps of the learning process.



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Science

Science:

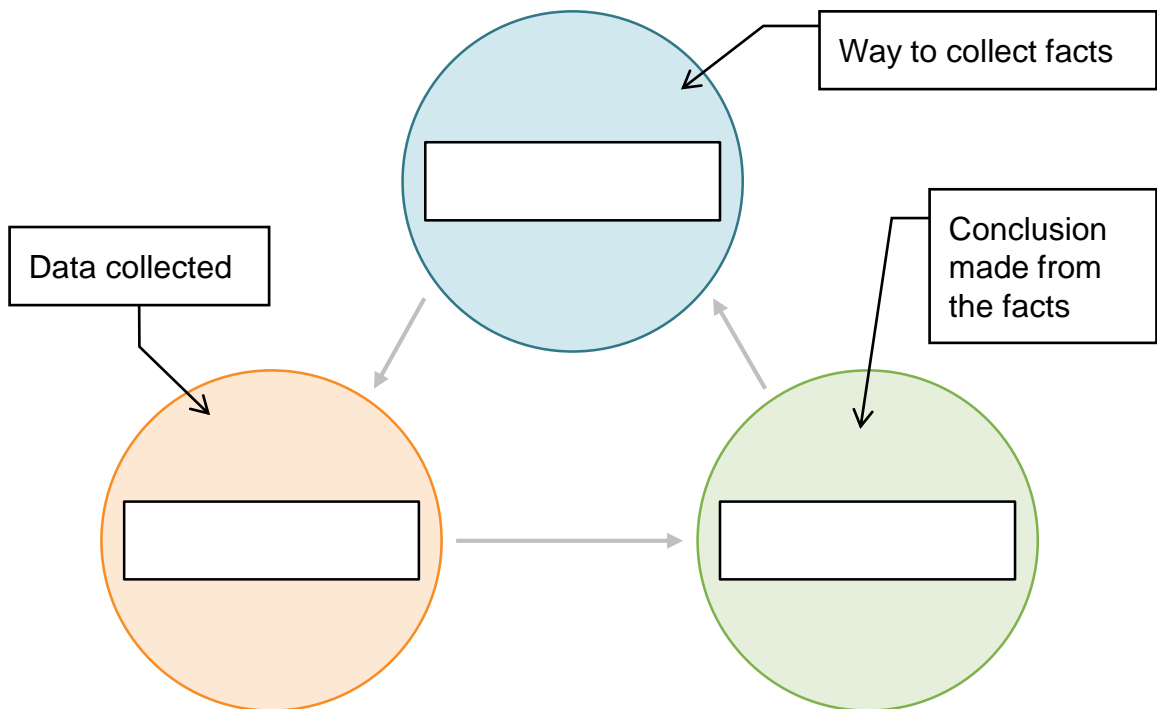
- is a process.
- Involves observation and .
- involves the collection of .
- is supported by .

Scientific knowledge:

- is the gathered by the systematic study of nature.

Science: A Cyclical Process

Fill in the steps of the cycle of science.



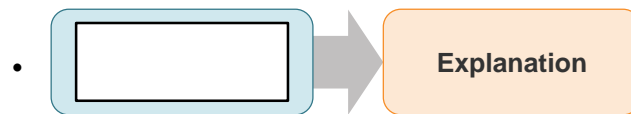
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Pseudoscience

Pseudoscience:

- is a process that involves the collection of information and ideas supported by belief or .



Examples:

- The effect
- candling

Science vs. Pseudoscience

Science	Pseudoscience
<ul style="list-style-type: none"> • Relies on process 	<ul style="list-style-type: none"> • Lacks process
<ul style="list-style-type: none"> • Is <input type="text"/> 	<ul style="list-style-type: none"> • Is <input type="text"/>
<ul style="list-style-type: none"> • Is <input type="text"/> constantly 	<ul style="list-style-type: none"> • Is <input type="text"/> to new information

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Words to Know

	an act of recognizing and noting something by using the senses
	a possible explanation of or answer to a scientific question that is based on prior knowledge or research, and is testable

Characteristics of Scientists

- Curious—asking about the natural world
- Observant—taking a at the natural world
- Creative—using to solve problems
- Skeptical—requiring and thinking logically

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Observation of the Natural World

- Scientific knowledge develops through making about the natural world.
- An observation may generate a scientific .
- A scientific question may lead to a .
- The hypothesis can be tested through .
- Experimentation leads to changes in scientific .

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The Use of Technology

- Scientists rely on to make observations of things they cannot directly .
- Advancements in technology often lead to new scientific .

Repeated Experimentation

- Make observations.
- trials.
- Use .
- Repeat .

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Practical Limitations

- Time
-
- Equipment
- of a system
- Complexity
- Other concerns

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Practical Solutions

- Limit
- Conduct over time
- Create
- Acknowledge

Ethical Limitations

Ethical controversy:

- Testing on
- Testing on laboratory

Summary

Scientific Knowledge

**Lesson
Question**

How does scientific knowledge develop and progress?

**Answer**

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2**Review: Key Concepts**

Science:

- is a process that involves the collection of information and ideas supported by .
- is conducted by curious, observant, creative, and scientists.
- builds scientific through observation and experimentation.
- limited by time, money, equipment, size, complexity, etc.

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Review: Key Concepts

Pseudoscience:

- is a process that involves the collection of information and ideas supported by and .

Use this space to write any questions or thoughts about this lesson.