UNIT 1 BYOT ASSIGNMENT

**Part 1: What is the difference between science and pseudoscience?**

Go to <http://physics.weber.edu/carroll/honors/pseudoscience.htm> to complete the following chart.

|  |  |
| --- | --- |
| **Science** | **Pseudoscience** |
| 1. Uses careful observation and \_\_\_\_\_\_\_\_\_\_\_ to confirm or reject a \_\_\_\_\_\_\_\_\_. Evidence \_\_\_\_\_\_\_\_ theories and laws are searched for and studied closely. | 1. Starts with a hypothesis, looks only for \_\_\_\_\_\_\_\_ to support it. \_\_\_\_\_\_\_\_\_\_ experimentation. Conflicting evidence is ignored, excused, or hidden. The original idea is never \_\_\_\_\_\_\_\_\_\_\_\_\_ whatever the evidence. |
| 2. Based on well-established, repeating patterns and regularities in nature. | 2. Focuses, without \_\_\_\_\_\_\_, on alleged exceptions, errors, anomalies, and strange events. |
| 3. \_\_\_\_\_\_\_\_\_ results are required of experiments. In case of failure, no excuses are acceptable. | 3. Results cannot be reproduced or \_\_\_\_\_\_\_. Excuses are freely invented to explain the failure of any scientific test. |
| 4. Personal stories or testimonials are \_\_\_\_\_\_\_\_\_\_\_ as evidence. | 4. Personal stories or testimonials are relied upon for \_\_\_\_\_\_\_\_\_. |
| 5. \_\_\_\_\_\_\_\_ and interconnected; one part cannot be changed without affecting the whole. | 5. \_\_\_\_\_\_\_\_\_ and not interconnected; any part can be arbitrarily changed in any way without affecting other parts. |
| 6. \_\_\_\_\_\_\_ from scientific knowledge and from the results of experiments. | 6. Argues from \_\_\_\_\_\_\_. The lack of a scientific explanation is used to support ideas. |
| 7. Uses \_\_\_\_\_\_\_\_ that is well defined and is in wide usage by co-workers. | 7. Uses specially invented terms that are vague and applied only to one \_\_\_\_\_\_\_\_\_\_. |
| 8. Convinces by appeal to evidence, by arguments based on logical and/or mathematical reasoning. | 8. Attempts to \_\_\_\_\_\_\_\_ by appeal to emotions, faith, sentiment, or distrust of established fact. |
| 9. \_\_\_\_\_\_\_. Literature written for fellow scientists who are specialists and experts. | 9. No \_\_\_\_\_\_\_\_. Literature written for the general public without checks or verification. |
| 10. \_\_\_\_\_\_; as time goes on, more and more is learned. | 10. No \_\_\_\_\_\_; nothing new is learned as time passes. There is only a succession of fads. |

The definition of pseudoscience is

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

The following are some examples of pseudoscience.:

[Astrology](http://www.biocab.org/Astrology_Fake.html)

Astropsychology

Chiromancy

[Anthropogenic Global Warming](http://www.biocab.org/Discrepancies.html)

[Anthropogenic Climate Change](http://www.biocab.org/Discrepancies.html)

Divination by pendulums

[Parapsychology](http://www.biocab.org/Pseudoscience.html#anchor_40)

Psychoenergetics

Psychic Surgery

Psychotronics

Telekinesis

Naturism (the belief that the mythical four elements cure diseases).

Iridology

Homeopathy

[Alienology](http://www.biocab.org/Aliens.html)

[UFOlogy](http://www.biocab.org/Aliens.html)

Parallel Science (Magic)

Pyramidal Science

Egyptian Science

**Pick one of the topics above then answer the following.**

1. Why do people believe in this topic? When or who started this topic?
2. What, if any, scientific evidence is there to support this topic?
3. What supportive scientific evidence is missing?
4. What steps of the scientific method need to be completed to give credibility to this topic?
5. What questions remain unanswered?
6. As a result of your investigation, what are your thoughts on the validity of this topic?

**Part 2: Scientists**

Use your BYOT device to complete the chart below.

|  |  |  |
| --- | --- | --- |
| **Scientist** | **Contribution** | **Find something from this scientist’s background, interests, or experiences that may have contributed to his or her success.** |
| 1. Isaac Newton |  | Failed as a farmer, so he had to find another career. |
| 1. Alfred Wegener |  |  |
| 1. Charles Darwin |  |  |
| 1. Galileo Galilei |  |  |
| 1. Hubble |  |  |
| 1. Einstein |  |  |