

Physics 101

Handout for Group Project 2

The Basic Idea

Each group will research a potential pseudoscience, analyze the potential pseudoscience in light of our discussions on the nature of science, and attempt to classify the potential pseudoscience as a science, a pseudoscience, or a non-science. You may choose to research any potential pseudoscience, but it should meet the following criteria:

- You must be able to find information about the potential pseudoscience from multiple sources so that you have access to more than one perspective.
- There must be some question about the status of the topic as a pseudoscience. So, for example, you should not pick Newtonian Mechanics as your topic since it is clearly a science. Similarly, don't pick religion as your topic since it is clearly non-science in general (however, a topic like Creation Science might be fine). It must be conceivable that two people could get into an argument over whether or not this topic is science.
- The topic should be something that you can explain quickly without having to provide a great deal of background information. So, for example, string theory (which some would claim is pseudoscience) would not be a good topic to choose since you would not even be able to provide a simplified explanation of what it is in the time that is allotted to your presentation.

My general suggestions on how you should investigate your topic are:

- Pick a topic quickly and try to find a few sources that discuss the topic right away. If you wait until the last minute and then you can't find sources you may end up having to change your topic, which will give you little time for researching and preparing your presentation.
- Make sure you read enough to get a good understanding of the basic idea of your topic. If you can find sources that argue for or against the scientific merit of your topic then by all means read those, but ultimately I want you to analyze the topic yourself and decide if *you* think it is scientific.
- Discuss the topic as a group and try to reach a consensus on whether or not it is scientific. Refer back to the characteristics of science that we discussed in class (but remember that we never established anything like a final, absolute list of criteria for being a science).
- Come up with specific examples of ways that your topic either violates the criteria of science or satisfies those criteria. It's okay to make some general statements about the overall character of your topic, but you want to back those up with more concrete and specific examples.

Deadlines

Apr. 10 Send me an email describing the topic you plan to research.

Apr. 25 Presentations given during lab period.

Apr. 26 Turn in all materials related to the project.

The Presentation

On April 25 each group will present their analysis of their chosen topic to the rest of the class. This presentation should include:

- a description of the basic ideas involved in the topic,
- an analysis of how the characteristics of the topic match (or fail to match) the characteristics of a science,
- specific examples of ways that the topic satisfies (or fails) the criteria of science,
- a conclusion in which the topic is declared scientific or not,
- a list of the sources used in researching the topic.

You can do this presentation however you wish. If you need any special equipment (like a projector and computer for showing PowerPoint slides, or a TV and DVD player to show a movie you made, etc.) please let me know well in advance.

What You Must Turn In

You must turn in the following things to me:

- A written summary or outline of your presentation. This could be a printout of your PowerPoint slides, if you choose to use slides.
- A list of your sources.
- A brief description of the contributions of each member of the group.

Some Possible Topics

You may choose a topic from this list, but you should also feel free to choose a topic not on this list if it meets the criteria given in the first section of this handout.

- Astrology
- Palm Reading
- Fortune Telling with Tarot Cards
- Telekinesis
- Telepathy
- Extra Sensory Perception
- Auras
- Ghosts/Spirits
- Acupuncture
- Holistic Medicine
- Herbal Supplements
- Freudian Psychoanalysis
- Jungian Dream Analysis
- Creation Science
- Intelligent Design
- Alien Visitation
- The Existence of Other Universes
- Vacuum, or Zero-Point, Energy
- Magnet Therapy
- Q-rays
- Anti-Gravity
- Cold Fusion
- Bubble Fusion
- Genetic, or Chemical, Memory
- Animal Consciousness
- Reincarnation