Everything You Know Is Wrong 2

Student Handout #2: Recognizing Pseudoscience

Jargon. Rather than clarifying the concept, pseudoscientific jargon is actually supposed to distract and dazzle the reader. You may also find that pseudoscientific jargon terms are not in the dictionary and aren't used anywhere but within that pseudoscience.

Emotional appeals. Real science doesn't care whether you find it comforting or approachable, but pseudoscience will often try to appeal to wishful thinking. Pseudoscientific medicine may even try to convince you that you feel sicker than you do, so it can offer you hope of feeling well.

Narratives. Science is supported by experiments, but pseudoscience is supported by stories. If someone offers anecdotes, testimonials or hypothetical scenarios instead of data, you should be suspicious.

Bad testing. Science progresses by rigorous testing of theories. Promoters of pseudoscience often don't perform tests at all, or they perform tests where the results can't be replicated, where the findings are open to interpretation, or where the test is designed based on the assumption that the hypothesis is true. They may also distort the results of existing research.

Immunity. Many pseudosciences have built-in mechanisms for dodging criticism and disproof. If you use rigorous testing to show that a pseudoscience is invalid, its subscribers will usually be able to explain away your results. Proponents are often as invested in discrediting critics as they are in supporting their own claims. They may even claim that skepticism proves them right, because some valid scientists have met with skepticism.

Lack of progress. Pseudoscience does not change or grow, although new pseudosciences may be developed and different ones may become trendy over time. Modern astronomy looks completely different than it did a thousand years ago. Modern astrology does not.

Plot holes. Scientists try to fill in gaps in knowledge, with the eventual goal of understanding the universe as completely as possible. Pseudoscience often requires mystery, obscurity and incomplete information. If someone tries to convince you that he or she is right because there is so much we still don't know and can't explain, you may be talking to a pseudoscientist.

Vagueness. Pseudoscientific medicine usually claims to treat vague and frequent symptoms such as "malaise," often with methods that are not fully described. The operation of pseudoscientific technology is often similarly vague. Proponents will tell you what the treatment or technology does but not exactly how.

Profit. If you are asked to pay a lot of money for a technology or procedure, or for a book of someone's secrets or theories, you should be wary. Real science is not profit-driven, but many pseudosciences are fueled by the money of believers.