

## Pseudoscience

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Pseudoscience is a belief that masquerades as a real science, despite failing to follow the scientific method.

Astrology, Intelligent Design, Occult Studies and Phrenology are examples of quasi-sciences. That is not to denigrate these beliefs, but they are not sciences, whatever the proponents claim, and they do not belong in the science classroom.

Sometimes, the boundaries are a little blurred. For example, researchers into extra-sensory perception and the power of the mind do perform scientific tests. Whilst few positive results have been found, it could still be classed as a genuine field that tries to stick to the scientific method.

Whether positive results are gained or not is largely irrelevant, only that the method is followed. This is an example of a pseudoscience gradually becoming an established science.

Another example is alternative medicine, which used to be classed as pseudoscience by the medical profession. Now, many fields such as herbalism, acupuncture, and chiropractics follow the protocols of scientific research. They are often classed as genuine fields, or indeed proto-science. Working the other way, phrenology, where many proponents believed that a person's personality could be assessed by measuring the shape of the skull, is now debunked. It has sunk into the realms of pseudoscience.

Whilst some 'pure' scientists refer to many of the social sciences and market research as not proper science, they do at least attempt to follow the scientific method. A fairer term, in such cases, is quasi-science.



The banner features a bright orange background. At the top center is a white icon of a flask with a flame, followed by the word "EXPLORABLE" in a bold, white, sans-serif font. Below this, the phrase "Quiz Time!" is written in a white, cursive script. The banner contains three white-bordered boxes, each with a different image and a quiz title. The first box shows a pair of red roller skates on a wooden deck, with the text "Quiz: Psychology 101 Part 2". The second box shows a fan of colorful pens, also with the text "Quiz: Psychology 101 Part 2". The third box shows a Ferris wheel at sunset, with the text "Quiz: Flags in Europe". In the bottom right corner of the banner, there is a white text link that says "See all quizzes =>".

## Signs That Research is Pseudoscience

Check the credentials of any researchers, as it is easy to be swayed by qualifications, and pseudo scientists

are very good at switching fields.

For example, a professor of quantum physics typically knows less about biology than first year biology undergraduate, so why are they qualified to comment upon evolution?

Pseudosciences are often selective with facts, selecting [results](#) [1] that suit their needs. [Peer reviewing](#) [2] and replication are essential to science, so any [experiment](#) [3] that does not allow this process cannot be taken seriously.

Parapsychology is a very good example. If researchers into ESP and telekinesis follow the scientific method, and accept results for what they are, then their work can be classed as science. Unfortunately, many pseudo researchers in this field distort findings and try to fit the results to their theory, rather than using them to try to refine [hypotheses](#) [4]. The Atkins diet is another example of [verification error](#) [5], resulting in potentially dangerous practices.

Pseudoscience often uses the media as a first stop, rather than submitting their work for peer review. No genuine researcher would dream of publishing their results until they had passed all of the rigors of the scientific method.

Pseudoscience often claims that it is right and that everybody else is wrong, instead of trying to fit in with established scientific protocols. Many pseudo-sciences now claim to be complimentary to science, rather than alternative, and this view is fair in many cases.

Acupuncture, Cognitive Behavior Therapy and Reflexology are good examples. Physicians and consultants often refer patients, believing that there may be some benefit if these therapies are used alongside regular medicine. The fact that these methods are also prepared to subject their methods to scientific debate often earns them the name of proto-science.

Pseudoscience is often about making money, through selling books, claiming that the research is something that science cannot explain. The reason why science cannot explain everything is that often it does not care. Most researchers are not going to waste time and resources studying a field that is full of cranks.

For example, the pyramid scam selling e-books claiming that water used in your car engine saves gas is physically impossible. Scientists often find [other explanations](#) [6] than those of the pseudoscience. Hypnotherapists charging many dollars an hour are not interested in healing anybody, but in making the client return week after week.

Pseudoscience often tries to create problems and mysteries that are not there, usually linked to making money. The Bermuda Triangle spawned a range of books and films, but [Occam's razor](#) [7] showed that a plane or ship is statistically no more likely to go missing there than anywhere else. This was not before an extensive array of books and films about the subject.

## **It is All About the Money**

To summarize, the boundaries between science and pseudoscience are often blurred. Some practices straddle the divide, like complimentary medicine, and others can begin as a pseudoscience and develop into a science. If they follow the [scientific method](#) [8], and allow scrutiny, then they may develop into a full-blown field

The common denominator for the rest is money. Every pseudoscience has money or an unethical motivation at the root, and dresses crankery up as science to persuade the public. This is the reason that the scientific method was developed, to drive the charlatans out.

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### **Links**

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