

Now what? We need to test this claim experimentally and happily some potentially suicidal adventurers were only too willing to oblige: sailing off round the world they found that you could in fact circumnavigate it and get all the way back to where you started. So the Earth, it seems, is round.

Proving it right or failing to prove it wrong?

However, this conclusion is premature. Just because you can sail round it that doesn't mean that the Earth is actually round it could be that the Earth isn't a sphere but an egg shape, and on the basis of theory and evidence so far discussed we can't be sure.

This is the essence of scientific truth: it can never be proven experimentally that a claim is correct. All we can ever do for certain is try to prove that it's wrong, i.e. by trying to sail around the world and falling off the edge. It's important (and slightly strange at first) to realise that science doesn't attempt to prove things right; in a back-to-front kind of way it actually attempts to prove things wrong and hope that it fails. Knowing that we haven't been proved wrong yet is the closest thing that you can get to being right in science. This approach to science is called **falsification**, because you attempt to prove things false but hope you fail. The longer a theory has been around the more likely it is to be true ... but you can never be sure that you've actually got it right: the experiment that proves that theory wrong could be just around the corner.

The idea of falsification is an important one and in fact is used by some to determine whether an idea is scientific or not. If it can't be falsified, it's not science!

Remember that to say that a claim is not scientific does not mean that it is not important. As the physicist Richard Feynman says: 'If a thing is not a science, it is not necessarily bad. For example, love is not a science.' So, if something is said not to be a science, it does not mean that there is something wrong with it; it just means that it is not a science.

Nicholas Alchin - Theory of Knowledge pp 17- 19