

*'It's not exactly rocket science to realise that someone's allergic to a particular food if there's a seismic change in the number of spots on their face every time they eat it. The acid test would be to make them eat some more and see if it sets off a chain reaction.'*

We've all used sciencespeak at some point in our lives – often in our everyday speak. The likes of journalists and politicians use it frequently. Sometimes it's misleading. Sometimes it gives an impression of superior knowledge. Other times it might just be that these scientific phrases seem most appropriate.

More often than not they are words or phrases that have been used so frequently in the English language that their new meaning seems to have preceded the old. And these new meanings can often be far from the original...

## **Quantum Leap or quantum jump**

A classic example of misuse might be: 'Any solution to the problem of global warming will require a quantum leap in the public understanding of what individuals, companies and governments can do to help'. The writer or speaker presumably means a 'great change', but thinks 'quantum leap' sounds better.

But what does 'quantum leap' actually mean? The energy in any physical system (for example, an atom or molecule) can only exist in certain fixed energy levels. For this energy level to change, the system has to take in, or give out, a definite amount – a 'quantum' – of energy. The jump from one energy level to another is instantaneous – it can never happen gradually.

Obviously, human beings and the societies and environments in which they exist never change instantaneously. The phrase 'quantum leap', it could be argued, is used by people who want to sound impressive but are ignorant of the science. Does it add anything valuable to the statement?

## **Eclipse, eclipsed, eclipsing**

Another example is 'Eclipsed', as in: 'The older manufacturing industries have been totally eclipsed by the modern hi-tech ones'. What is meant, presumably, is that the older industries have been surpassed or made insignificant by the modern ones.

But again, what does 'eclipse' mean? It is most commonly used in connection with heavenly bodies such as the sun and the moon, where one body gets in the way of the light from another. One obvious feature of a total eclipse of the sun is it never lasts for more than a few minutes.

## **You don't have to be a rocket scientist...**

'you don't have to be a rocket scientist...' or 'it's not exactly rocket science...' means it's not necessary to be exceptionally clever, or be able to master complex ideas or mechanisms, in order to do something or come to a conclusion.

It should perhaps be remembered that NASA's tragic loss of the Challenger space shuttle and all those on board was caused by a failure to remember that rubber becomes less flexible at low



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temperatures (try it with an elastic band in your freezer); and it's later loss of an unmanned Mars lander happened because someone mixed up imperial units of measurement with metric units.

## Examples of Sciencespeak

These are all widely-used words and phrases. You may well have met others:

Acid Test; Alchemy; Allergy; Allergic to; Case-hardened; Chain Reaction; Clone; Complex; Copper-bottomed; Evolution; Evolved; Feedback; Fixation; Function of; Galaxy; Half-life; Litmus test; Neanderthal; Parameter; Prove; Seismic change; Supernova; Tidal Wave

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## What you need to do:

Here is a list of some widely-misused words and phrases. You may well have met others; if so, write them in.

ACID TEST	FIXATION
ALCHEMY	FUNCTION OF
ALLERGY/ALLERGIC TO	GALAXY
CASE-HARDENED	HALF-LIFE
CHAIN REACTION	LITMUS TEST
CLONE	NEANDERTHAL
COMPLEX	PARAMETER
COPPER-BOTTOMED	SEISMIC CHANGE
EVOLUTION/EVOLVED	SUPERNOVA
FEEDBACK	TIDAL WAVE

Choose some of these words, or any similar ones you meet in your reading, listening and viewing. You may be able to use the Internet to study some of them, but remember – only their use in non-scientific contexts is wanted here.

Set out your material under the headings below. (You may be able to produce a spreadsheet).

- WORD or PHRASE
- EXAMPLE (State source – for example, newspaper, TV etc. or whether you have made it up).
- What did the writer/speaker mean to communicate?
- Scientific meaning
- Was the use justified and/or effective? Briefly explain your reasoning

At the end of the allocated time for your assignment, use your material as a basis for a discussion before handing it in. One question which your teacher may wish to discuss might be: Is a scientifically literate public necessary for democracy to operate properly?