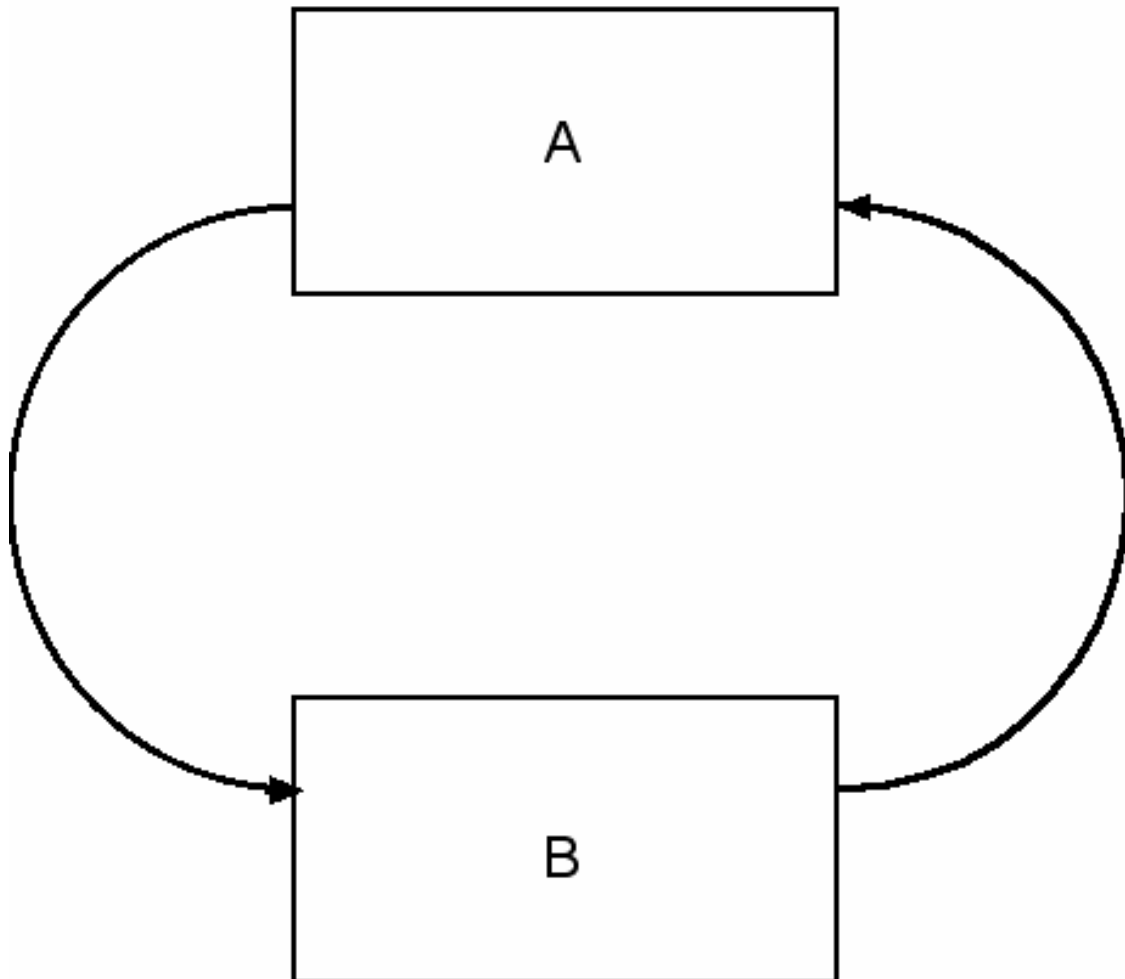
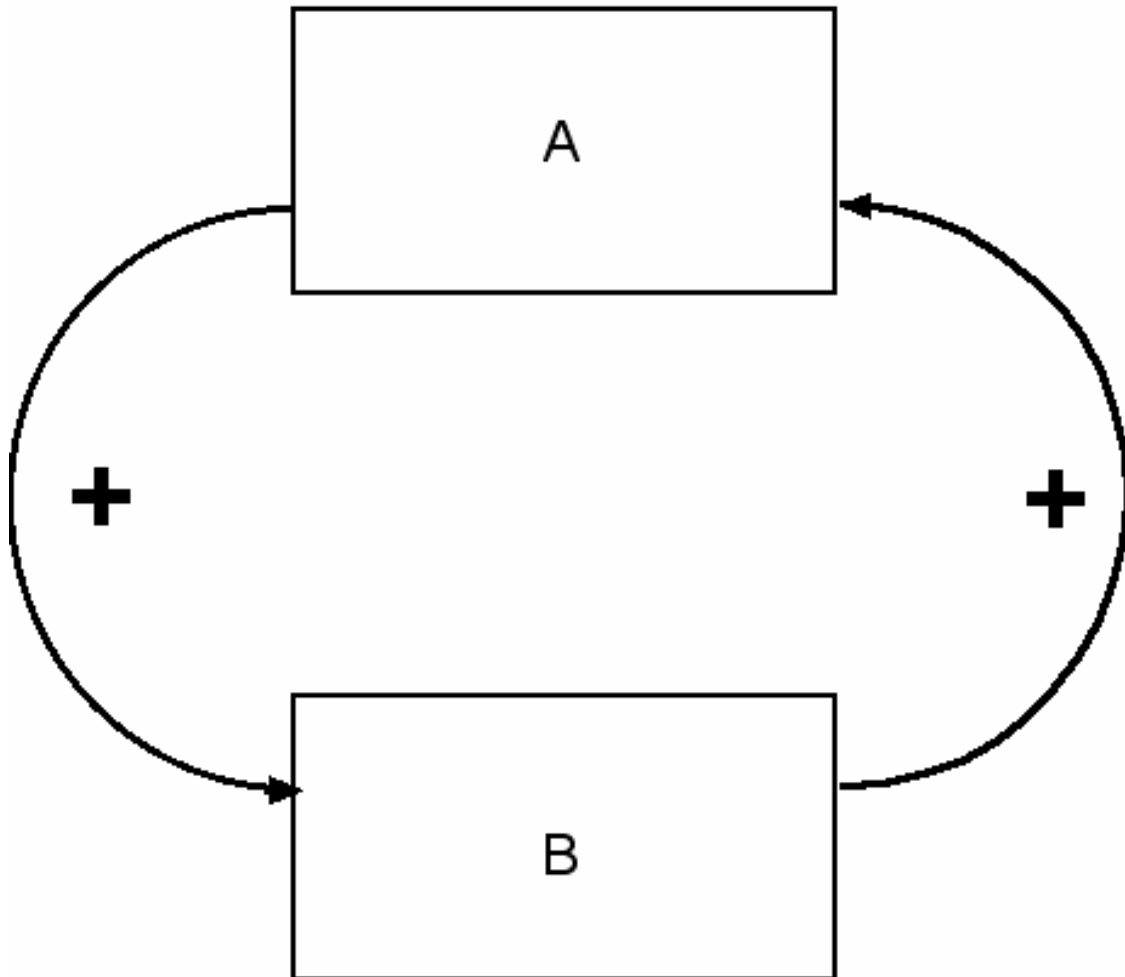


# Feedback



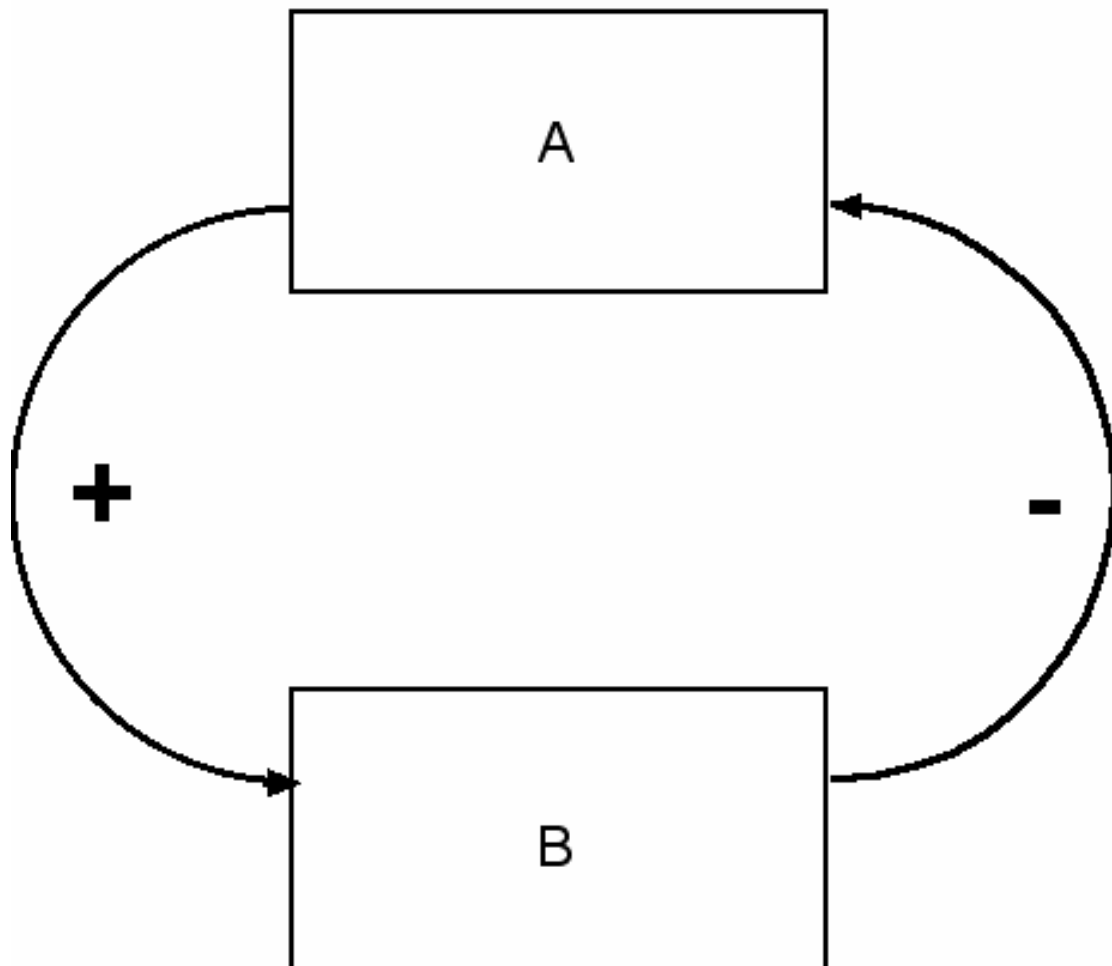
Feedback is a property of a system such that the output 'feeds back' into the input. Imagine that a change in A leads to a change in B, which leads to a change in A (which...)

# Positive Feedback



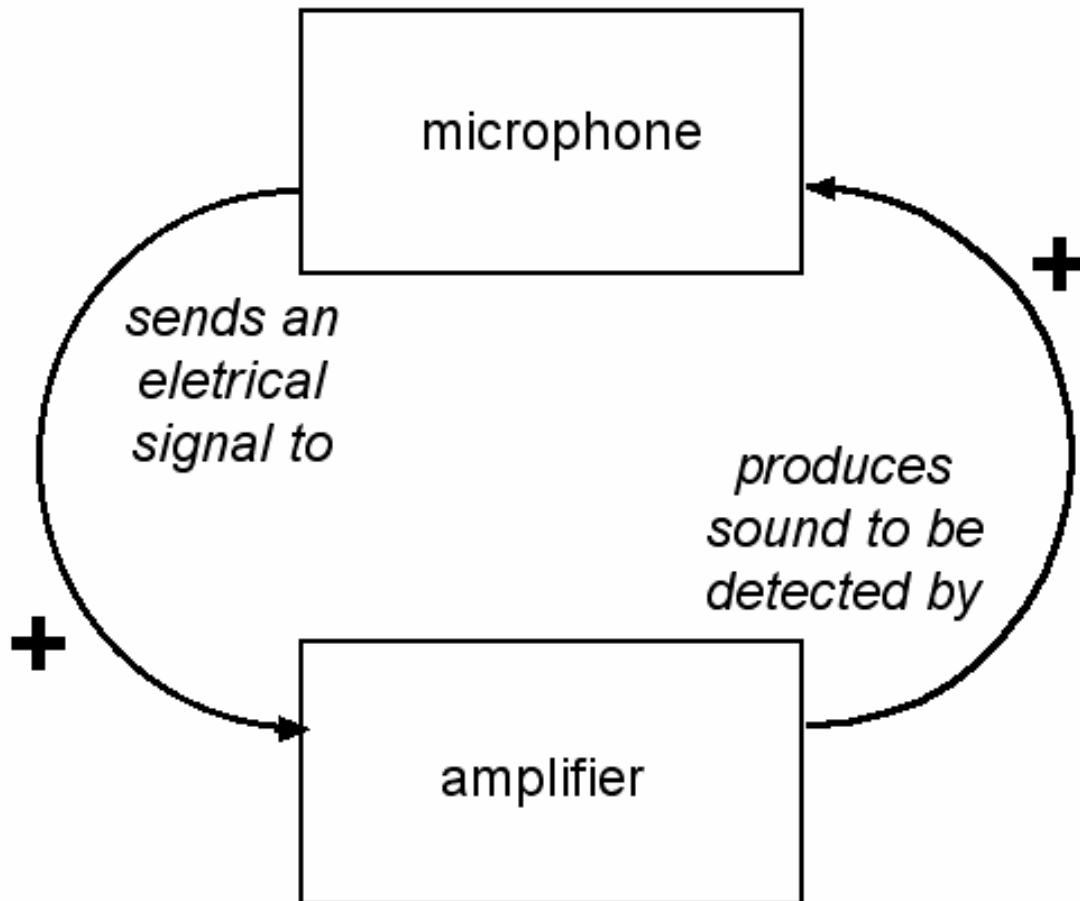
Positive feedback occurs when the changes reinforce each other, so that for example, an increase in A leads to an increase in B (which...)

# Negative Feedback



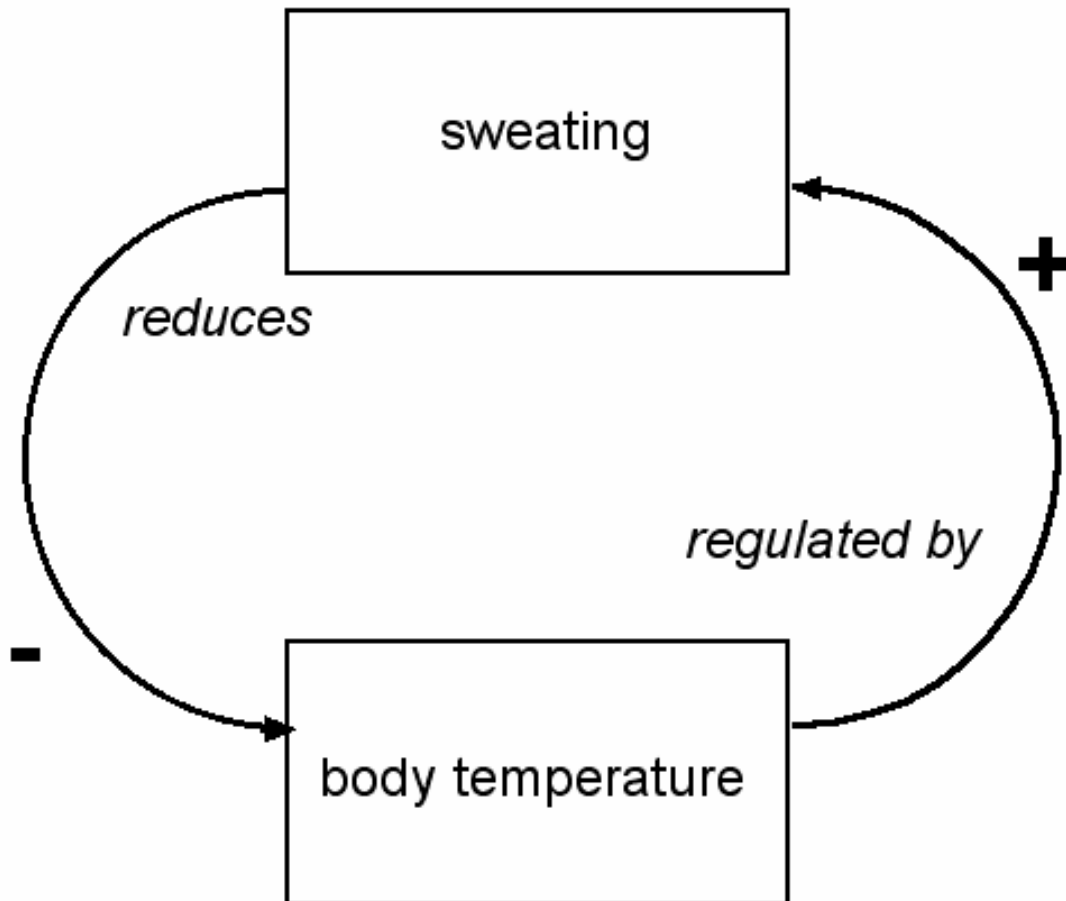
Negative feedback occurs when a change in A leads to a change in B which reverses the change in A - so, for example, an increase in A leads to an increase in B, but that leads to a decrease in A.

# Howling amps



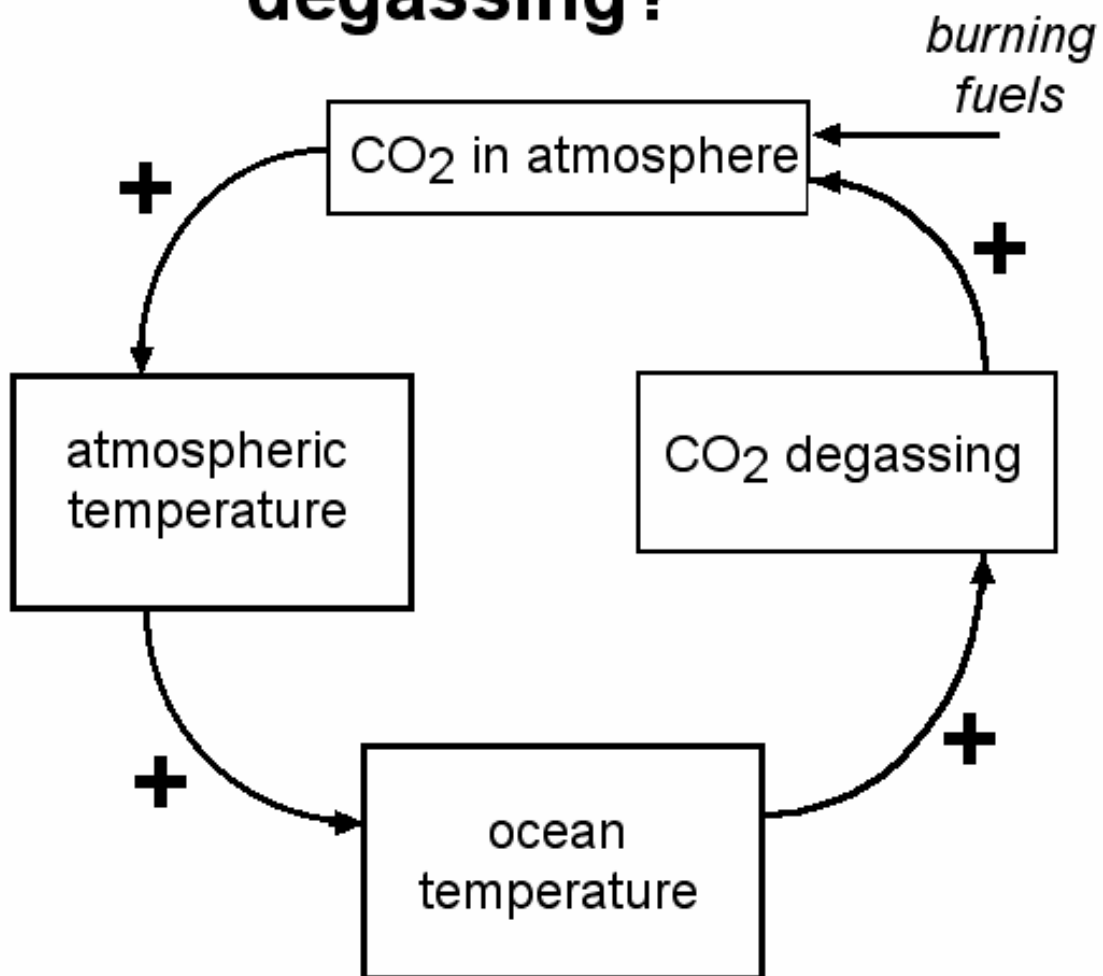
Feedback is often heard during amplified concerts (by accident or for effect) as the musical note is picked up by the 'mike', amplified and then the louder version is also picked up the mike. This is an example of \_\_\_\_\_ feedback.

## Hot in here?



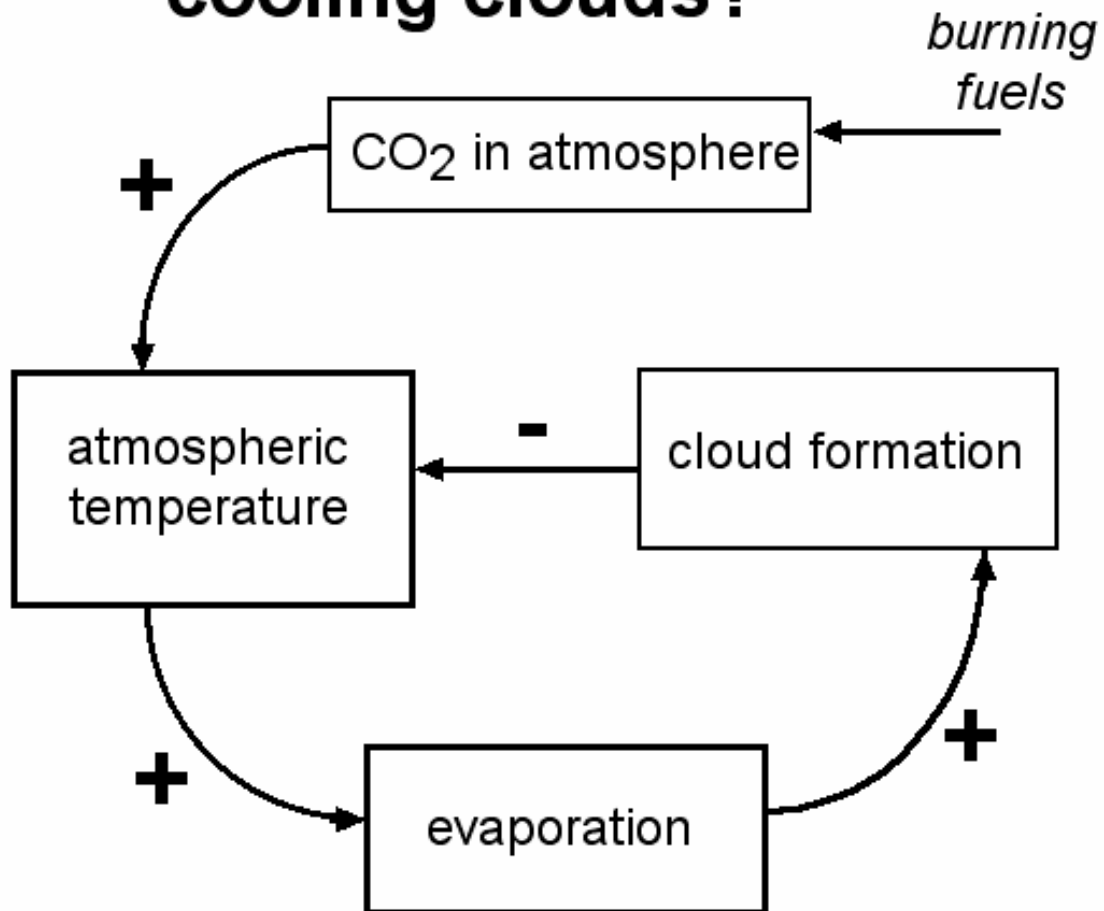
The body has many mechanisms for homeostasis - to keep conditions within small ranges of variation. For example, an increase in body temperature will lead to increased sweating, which helps reduce body temperature - an example of \_\_\_\_\_ feedback.

## degassing?



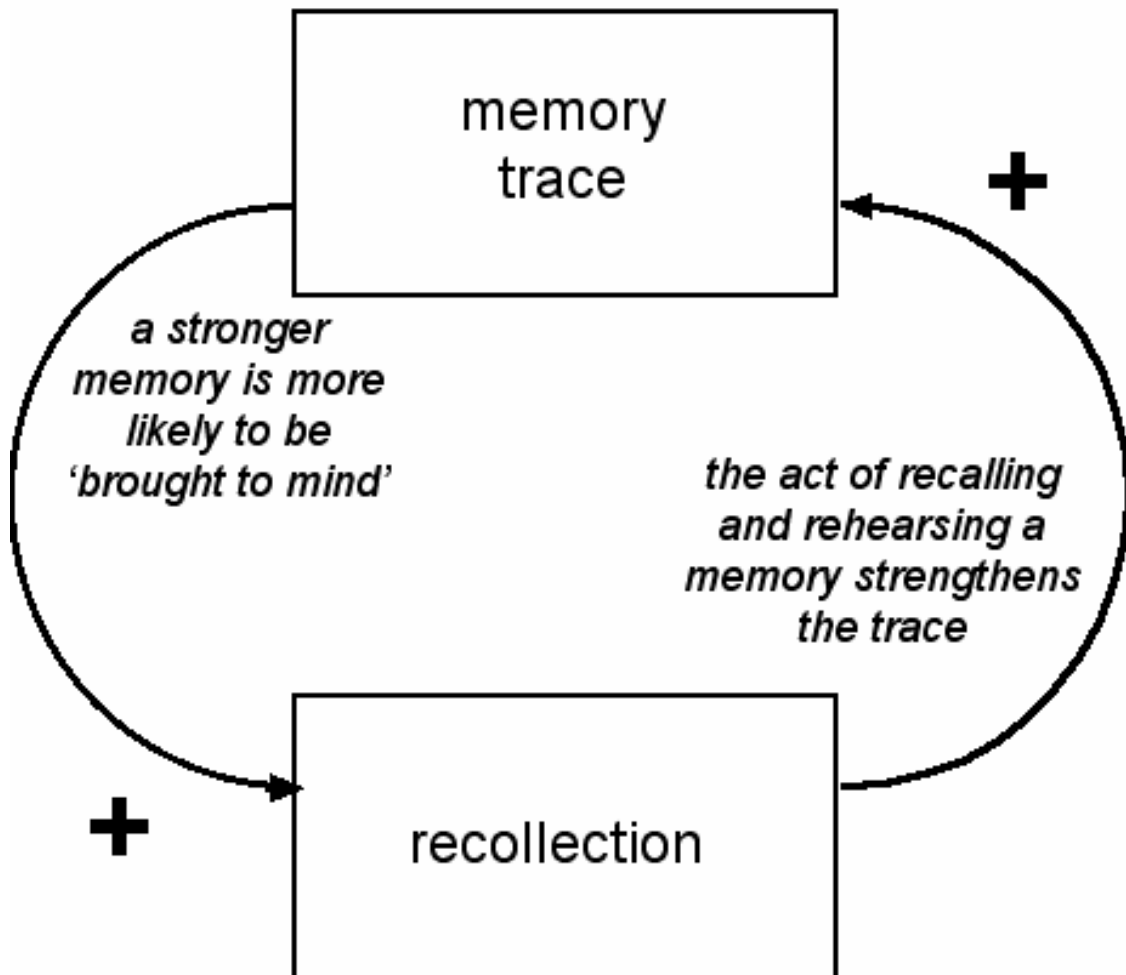
Most people know that the increase in carbon dioxide in the atmosphere leads to it absorbing solar radiation and warming. There is a vast quantity of CO<sub>2</sub> dissolved in the oceans and seas. As the solubility of CO<sub>2</sub> decreases with increasing temperature, warming seas will lead to great quantities of CO<sub>2</sub> being released into the atmosphere, leading to a \_\_\_\_\_ feedback cycle.

## cooling clouds?



As the earth warms, the rate of evaporation of water from the oceans, seas, lakes etc. increases. The increased water vapour in the atmosphere will lead to more cloud cover. As clouds can help reflect solar radiation back into space, this may reduce the amount of energy absorbed in the atmosphere. This could act as a \_\_\_\_\_ feedback cycle.

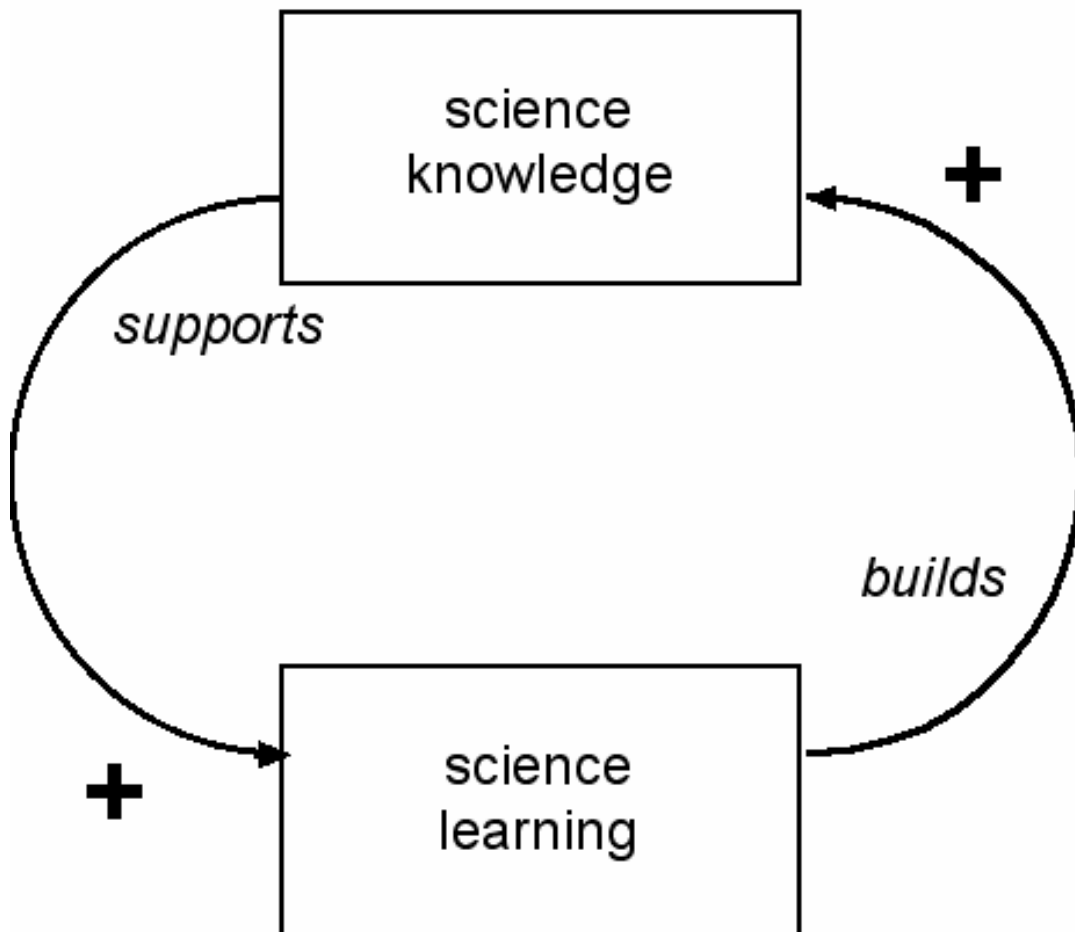
# consolidating learning



Some memories are more readily recalled than others. Each time a memory is revisited it is strengthened, making it more likely that it will be readily brought to mind in the future. This is an example of \_\_\_\_\_ feedback.

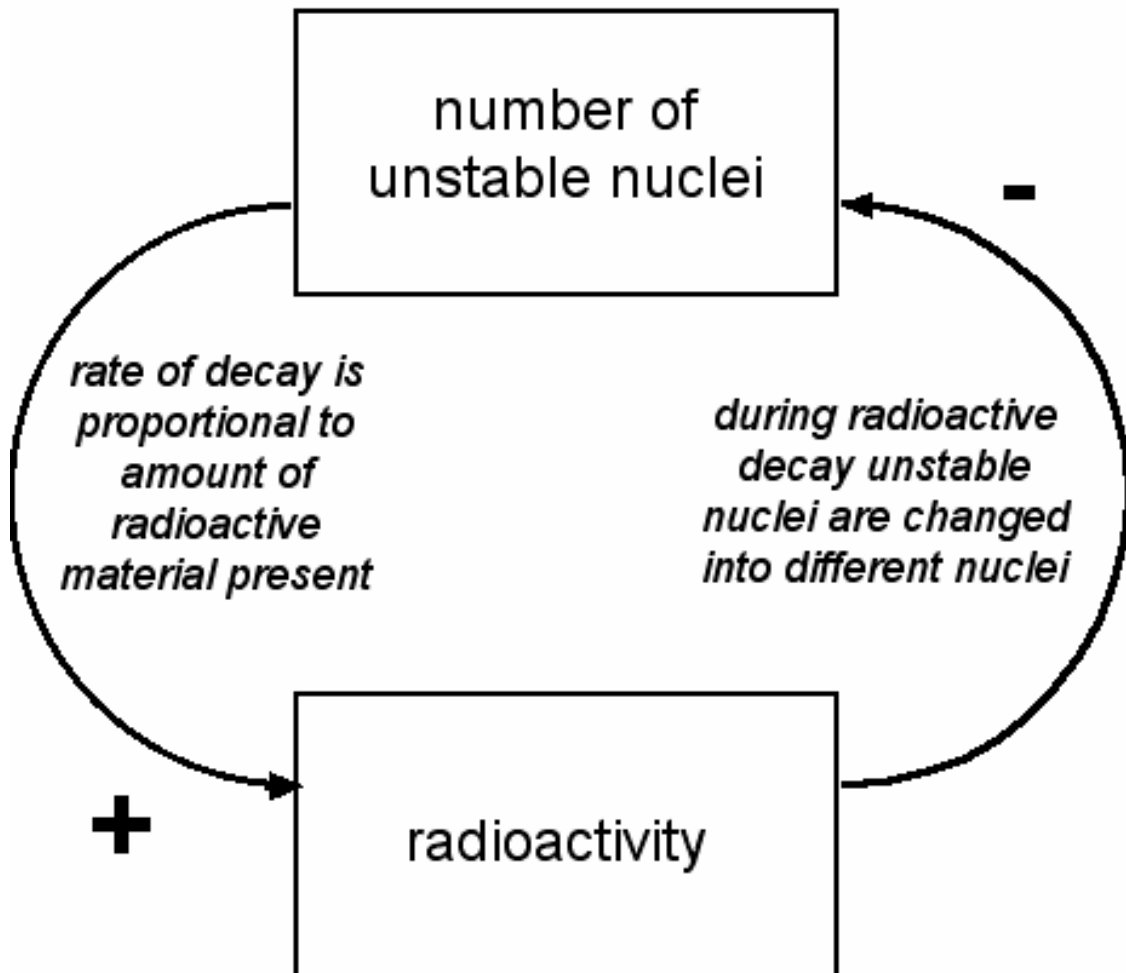


# understanding science

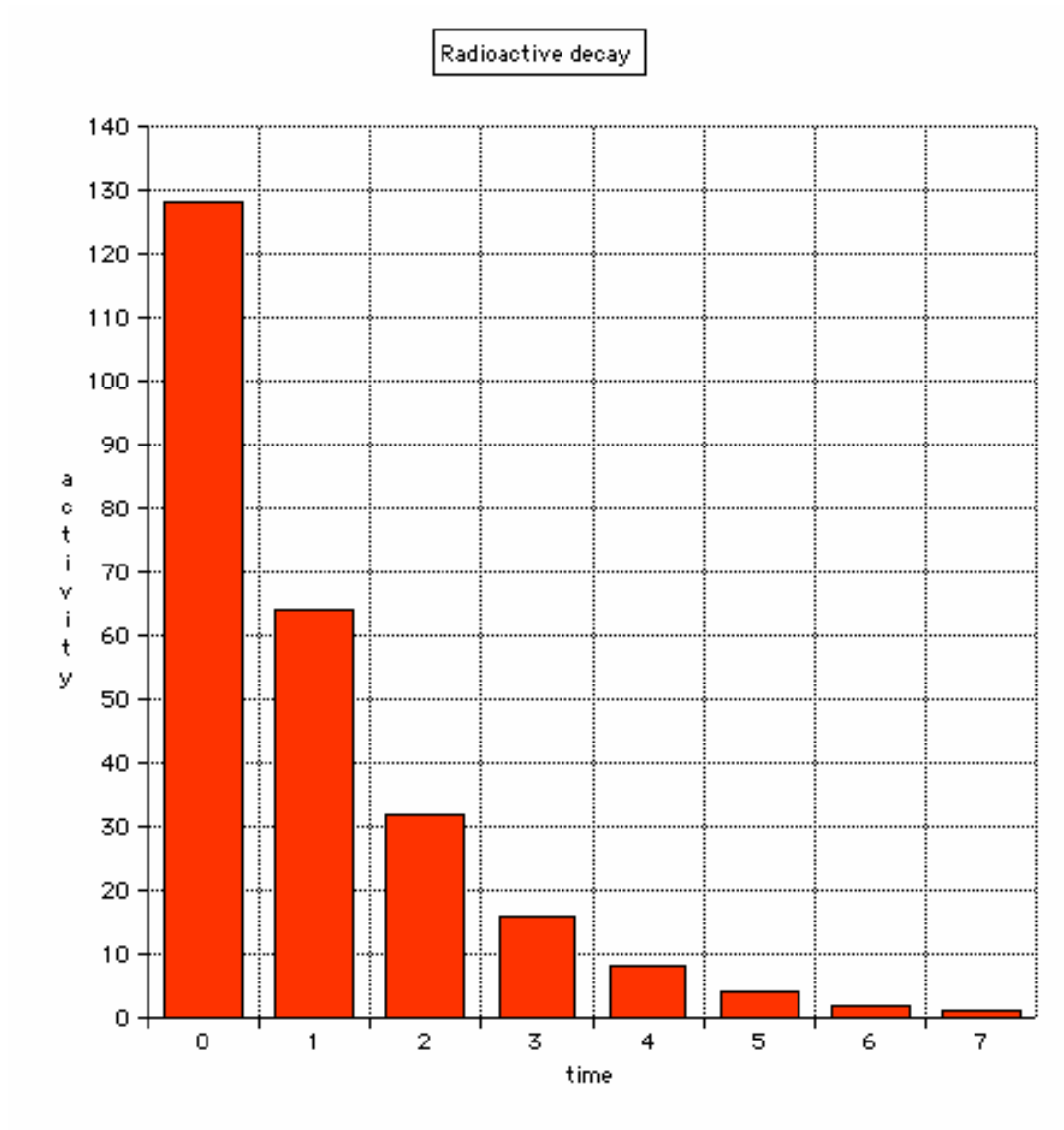


Science knowledge consists of a highly interlinked set of theories, principles, practices etc. Usually new science knowledge relies on prior learning, and provides a foundation for further learning: a kind of \_\_\_\_\_ feedback.

# Radioactive decay

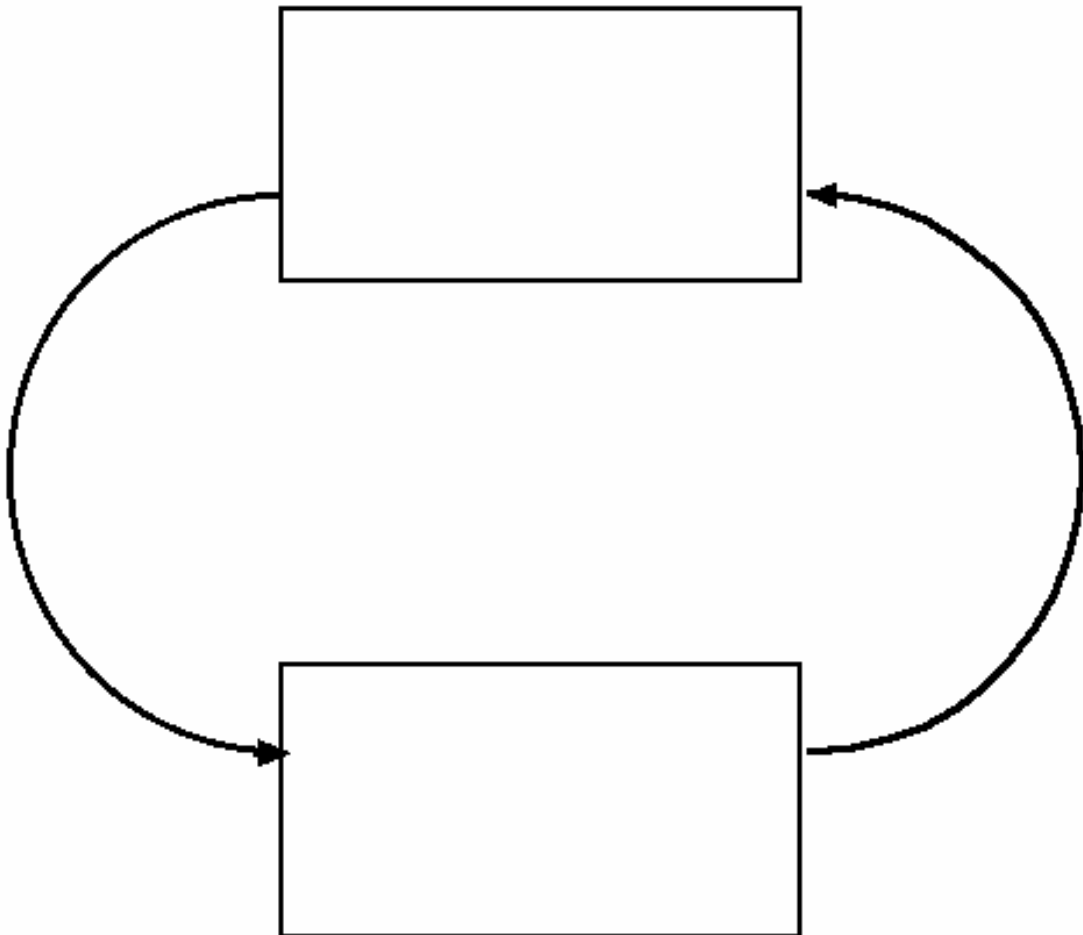


The activity of a radioactive source is proportional to the number of unstable nuclei present. However, the radioactivity means that the number of unstable nuclei is decreasing. This is a system with \_\_\_\_\_ feedback, and the radioactivity decays with a fixed 'half-life'.



**Radioactive decay follows a pattern known as 'exponential decay'. In this type of change, the value of the measured property (activity in this case, how many radioactive nuclei change per unit time) decreases by the same proportion in a fixed period of time. So the half-life is the time take for the activity to drop to half its previous value - and it should be the same no matter where we start measuring.**

# feedback cycle



This is an example of a  
cycle, where

feedback