

# Teach your parents!

## Information about positive and negative feedback mechanisms in climate change



### What is a feedback mechanism?

A feedback mechanism is an interaction in which an effect causes a change in a second effect, and the change in the second ultimately leads to an additional change in the first, which keeps the wheel spinning.

### Positive and a negative feedback mechanisms?

A positive feedback mechanism is an effect on the climate that grows stronger as time goes by, like an avalanche.

A negative feedback mechanism has a positive effect on our climate by lowering the the temperature. They are the reason that climate have been so stable on earth.



### How do they affect us?

Positive feedback mechanisms are usually bad because they enhances the climate change.

Negative feedback mechanisms are good because they used to hold the positive feedback mechanisms in place, but they are not able to do it anymore.

### Real world example; permafrost

A lot of carbon dioxide (CO<sub>2</sub>) and methane (CH<sub>4</sub>) is trapped in layers of permafrost. Permafrost is ground level soil that never reaches temperatures over 0°C; this means that everything in that soil is trapped. When these gases are released they speed up the climate change even further. This is a positive feedback mechanism.



### Shrinking levels of ice and snow

A lot of the energy that is coming from the sun is reflected by snow, because white objects reflect light. When the ice in glaciers, the Arctic and the Antarctic regions melt, more of the energy will stay in our atmosphere. This is therefore a positive feedback mechanism that will affect the whole world.

### So what can we do?

We need to hold the global temperature from rising above 1.5°C, because over 40% of the permafrost over the world will melt if we reach 2°. If we stay at 1.5% we would be able to save 2 million km<sup>2</sup> land of permafrost.

The sea ice has also decreased by ~12% each decade. If this continues we will reach a point where we are unable to fix our climate problems. We need to remember that earth and life will be able to thrive without humans, so nobody but us can do anything.