WHAT DOES HEAT DO TO THE CLIMATE?

YOU NEED TO KNOW A BIT ABOUT HEAT

RADIANT HEAT

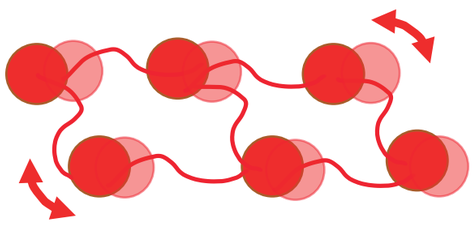
acts like a wave

both like a wave and a particle

acts like a particle

- has no mass (not made of particles)
- a form of light (but not visible to our eyes)
- can behave like a wave on a pond
- can also act like a little bullet
- it's how we get our heat from the sun

MOVEMENT (KINETIC) HEAT



- the energy of the moving particles which make up everything (particles = atoms and molecules)
- "temperature" is the average amount of energy the particles have
- "heat" is the total energy within the object

A spark has a high temperature but little heat; a cup of tea has a lower temperature but a lot more heat.

AND THIS IS HOW HEAT MOVES AROUND

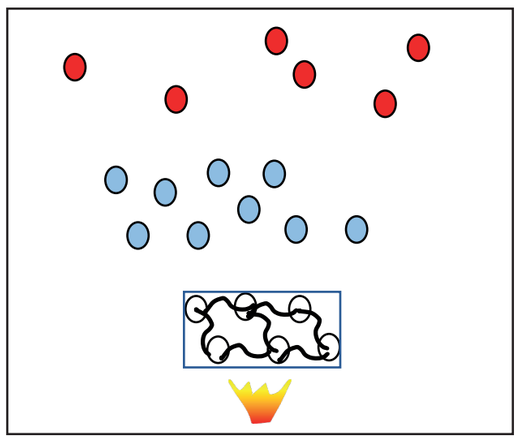
Heat always flows from hot to cold

When radiant heat hits an object it gives it energy - it makes the particles move i.e. kinetic heat.

Everything above absolute zero (-273 degrees C) both moves and radiates heat.

Heat mostly transferred by convection (and radiating heat)

Heat mostly transferred by conduction (and radiating heat)



Gas - e.g. steam

Liquid - e.g. water

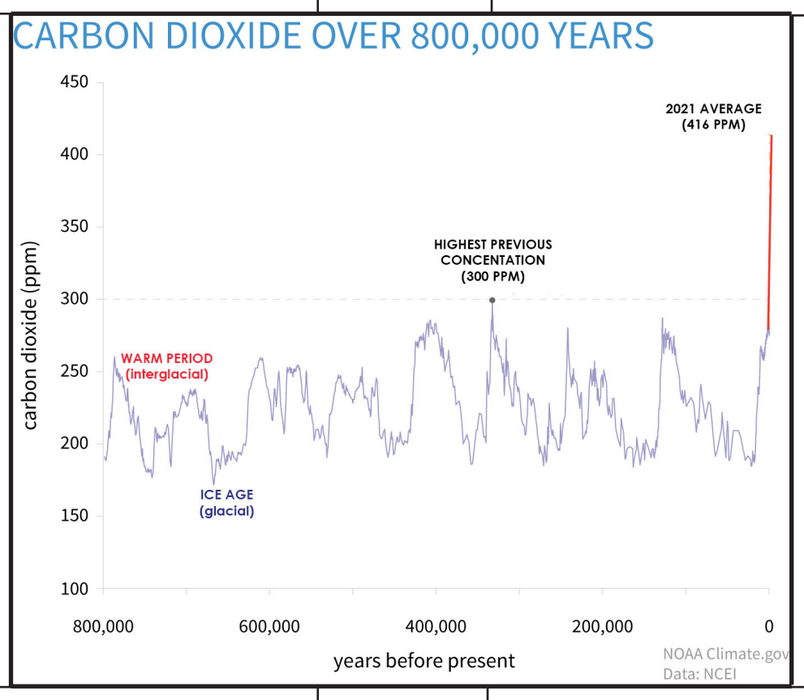
Solid - e.g ice

As you add heat, everything become more chaotic and more random.

This graph shows the levels of carbon dioxide over the last 800,000 years.

During that period, there were ice ages (when CO2 levels were low)and warm periods (when CO2 was high).

All greenhouse gases can absorb the heat both from the sun and the earth and radiate it back again towards the earth.



Every living thing you see evolved to survive in the temperatures and climate implied by a level of carbon dioxide of less than 300 ppm.

We are now at 416 ppm well outside the normal levels.

The fossil record suggests that when ecosystems are asked to evolve in a very short period, 70 to 95% of species can go extinct.

With thanks to Jacob Day of the Everything Electronic Youth Club for the use of his poster designs.

HOW DOES THAT IMPACT ON OUR PLANET ?

What will happen will vary depending on location but :

The laws of physics and chemistry imply :

- increasing temperatures and more frequent droughts
- more frequent and stronger winds
- more wildfires with higher intensity
- ice caps and glaciers will eventually melt, ice ages are less likely
- more moisture in the atmosphere – so heavier rainfall, more flooding, cloudier, more frequent thunder and lightening
- acidification of the seas as they interact with the carbon dioxide

www.futuregroup.org.uk

www.climateweeknortheast.org

Poster designed by Cromar Future Group and funded by NESCAN