

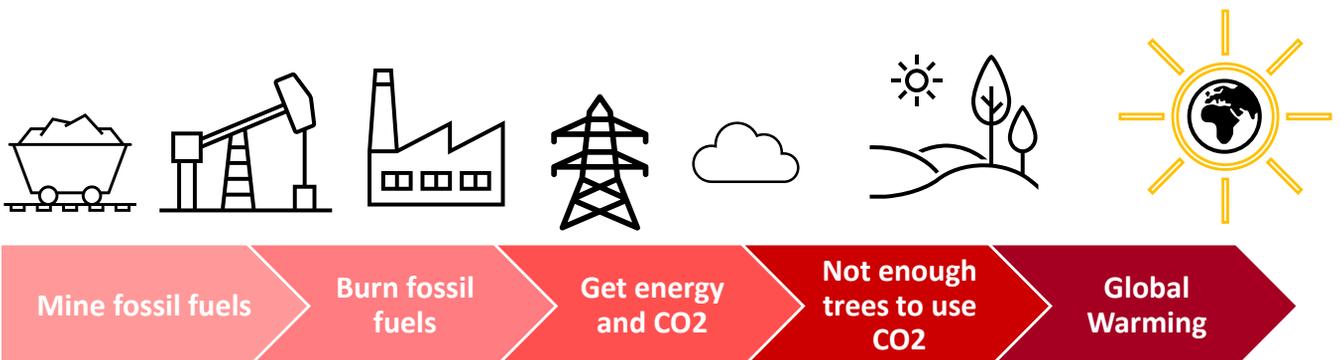
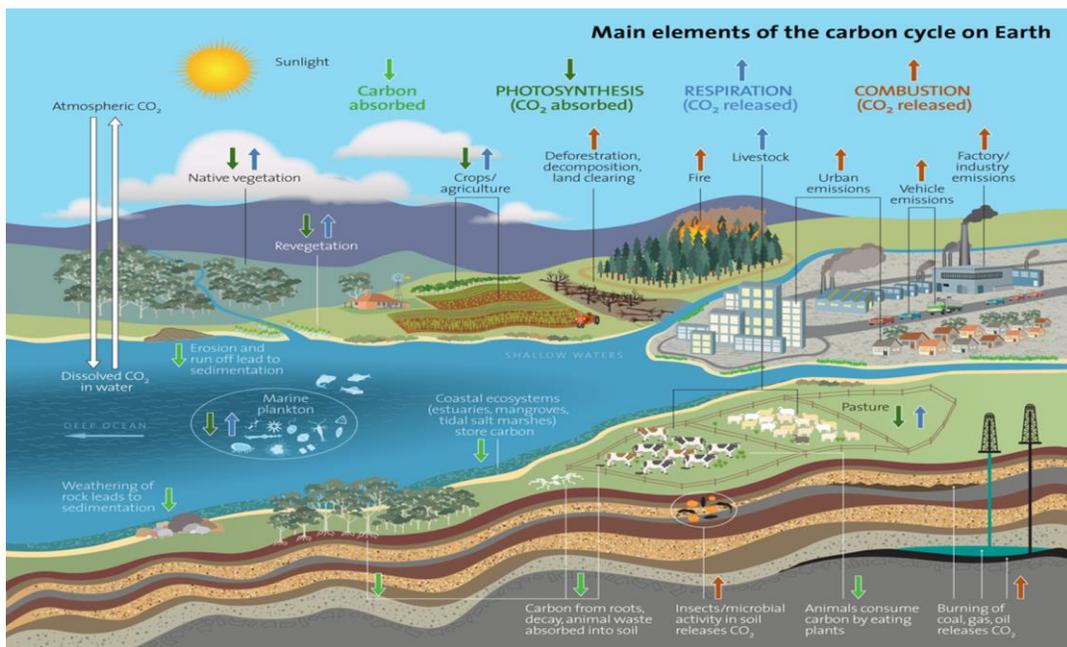
# Energy Chains

## The Wood Chain / Carbon Cycle

The way Energy resources are made and used often forms a cycle or a chain. These cycles may be repeated and repeated or may be broken.

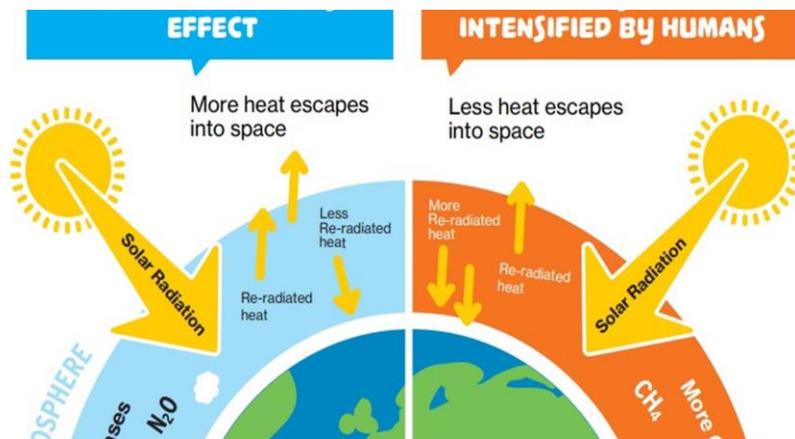
We burn fossil fuels, such as coal, oil and gas to meet our energy needs. This creates a build up of CO<sup>2</sup> and other greenhouse gases in the atmosphere. This leads to global warming. We can see below that the CO<sup>2</sup> is part of a natural cycle, involving nature, like the water cycle you may have learned about. But our activity is changing the balance of the cycle.

This means that the Fossil Fuel Energy is broken. The chain is not continuous between the steps. It takes million of years for nature to re make coal oil and gas, this can not happen in our lifetime



# Energy Chains

## The Wood Chain



When we burn fossil fuels we release gasses like CO<sub>2</sub> – known as green house gasses. These gasses change how heat is trapped in the earth's atmosphere. The greenhouse effect is like Earth wearing a blanket which traps some of the sun's warmth to keep our planet nice and warm for us to live, but when we add too many gases from things like cars and factories, the blanket gets too thick, trapping too much heat and making Earth too hot.

**The Wood Chain.** Trees play an important role in capturing CO<sub>2</sub> and helping combat climate, they are also a semi – renewable source of energy. We can always plant new trees. A chain that can be repeated again and again. Let's play a little game, we call it the Seed Game. The aim of the game is to teach how seeds become new Trees.

When we use wood as an energy resource we need to plant more trees. More Trees also helps take more CO<sub>2</sub> from the atmosphere and helps fight Climate Change.

- **Aim: the game teaches how seeds become new Trees, when they have the right conditions.**
- **Age: 6-12 years**
- **Duration: 15-30 mins**
- **Learning Objectives: The children will learn**
  - **tree produce seed, that grow into trees**
  - **what trees need to grow**
  - **how seeds disperse**
  - **about the role of CO<sub>2</sub> in the Wood Energy chain.**
  - **the role of planting trees in climate action**
  - **the role of the Sun as our primary source of Energy**

# Energy Chains

## The Wood Chain



### Activity :

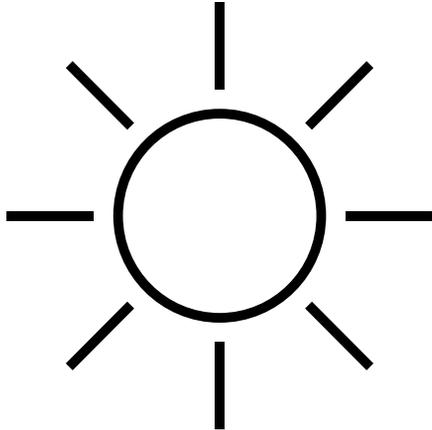
- Starting in a central point, tell the children that they are going to be seeds.
- They have to travel from their parent tree (central point) with the help of an animal, the wind or water (depending on what type of seed they are) and have landed somewhere on the forest floor.
- Ask the children to spread out from each other about 3 to 4 meters apart (this will involve them running around to find their own space, it is advised to set limits to their space).
- Tell them to crouch down and pretend they are seeds, they are then not allowed to walk away from their chosen place.
- Tell them it has rained a little, there is air in the soil and it is now the correct temperature for them to germinate, so they can 'grow' into a small seedling (germinate)– wiggling their toes as roots, and stretching to become seedlings, standing up with their first two leaves. Now they are seedlings and still cannot move around (because real seedlings don't walk), but they can lean from side to side.
- **Randomly sprinkle the seed cards on the floor among the children and tell them they need to lean over to collect as many seed cards as they can reach. In order to survive, they will need to collect at least one of each.**
  - Alternatively dictate which areas that children have placed themselves has the right conditions, i.e. has enough sun, soil, water and air. Give reasons why they might not. i.e. they are in shade, the soil is pure in nutrients, we are in draught...

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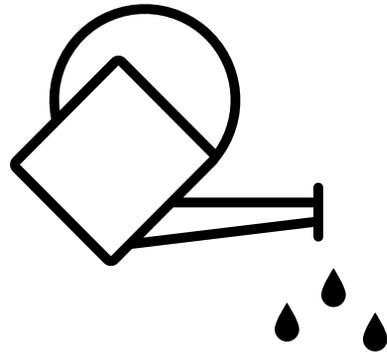
## The Wood Chain



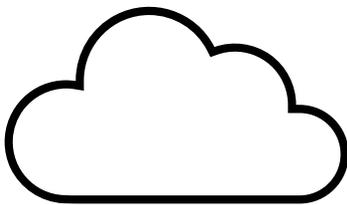
Sun



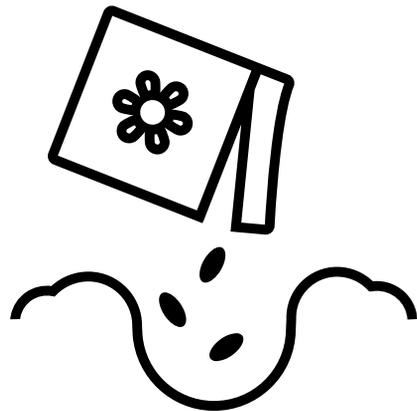
Water



Air / CO<sup>2</sup>



Soil



**Seed Cards:** the seeds need all 4, sun, soil, water and Air to survive.

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## The Wood Chain



### Points of discussion:

- Talk to the children how the Sun is the primary source of Energy, and how the Tree's make energy through photosynthesis.
- Talk with the children about the Use of wood as a source of Energy and the alternatives to Fossil Fuels. Ask them to name the renewable Energy sources.
- Talk to the children about  $CO_2$ , how it is a product of some Energy chains and how planting Tree's can help.