

Sun and Light Energy – Teacher Notes

Sunlight is necessary for photosynthesis in almost all plants (Photo = light, synthesis = to bring together). Plants are the basis of food chains in the oceans and on land. Energy passes from the Sun to green plants (producers) and on to animals that consume plants and further to animals that consume other animals (consumers). Decomposers consume the remains of plants and animals. Every time the energy is moved along the chains in the web there is loss due to processes within the organisms (living things) such as growth, movement, repair and reproduction.

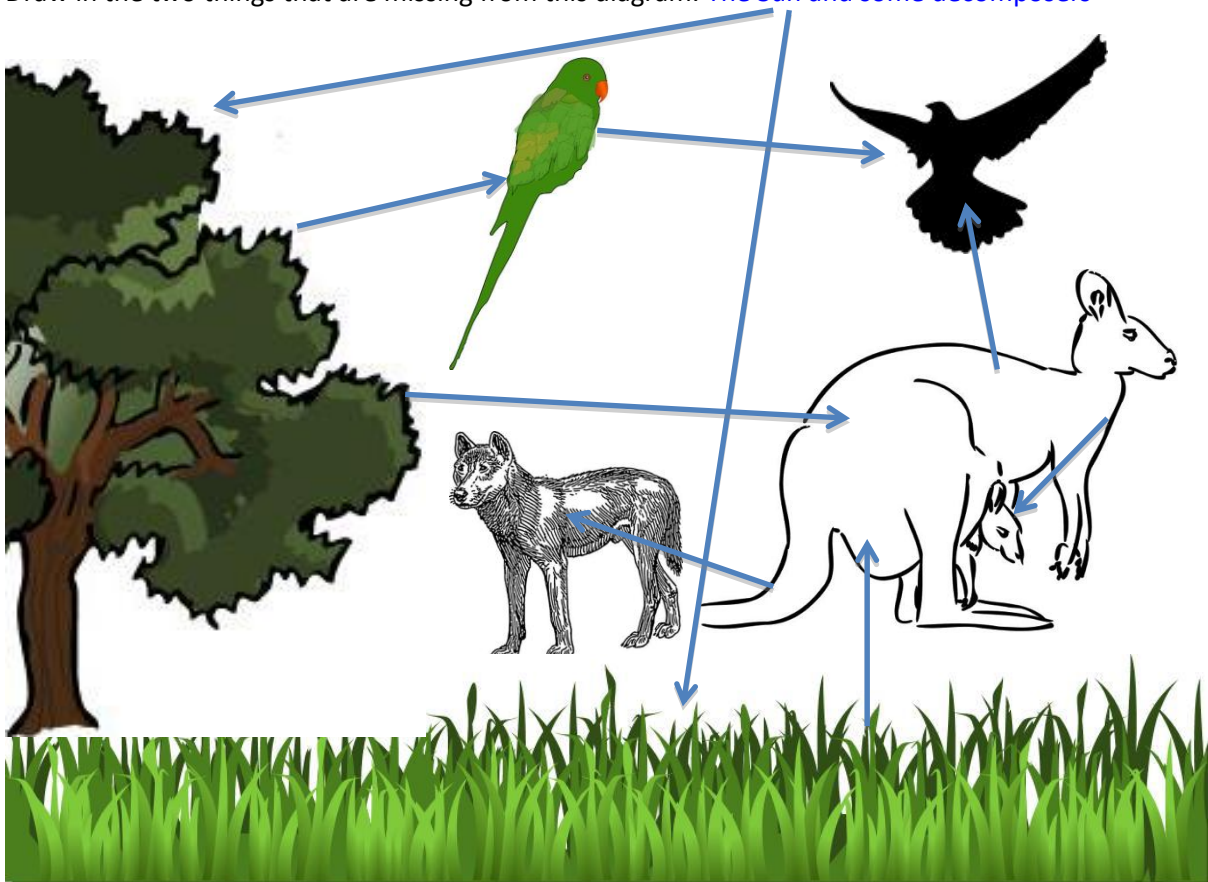
Exceptions

At great depth of the ocean where light cannot penetrate and volcanic activity creates black smokers simple microbial extremophiles such as *Pyrolobus fumarii* manage to thrive. They can make energy without sunlight by metabolising sulphur and methane. They provide energy for all the other unusual creatures that live there.

Student Activity - Energy Flowchart

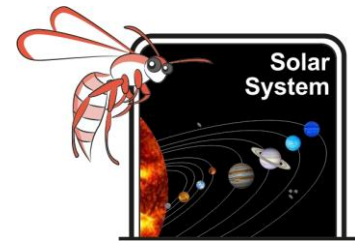
A chart demonstrating the flow of energy from the Sun through living things.

Draw in the two things that are missing from this diagram. [The Sun and some decomposers](#)



Draw arrows to show the movement of energy between each of these living things. The arrows should point in the direction to which the energy moves E.g. from the grass to the kangaroo because the kangaroo eats grass. [Arrows point from all organisms to the decomposers. Dingos occasionally eat grass. The diagram above should also have arrows pointing from each living thing to the soil to represent defecation, urination and decomposition on death.](#)

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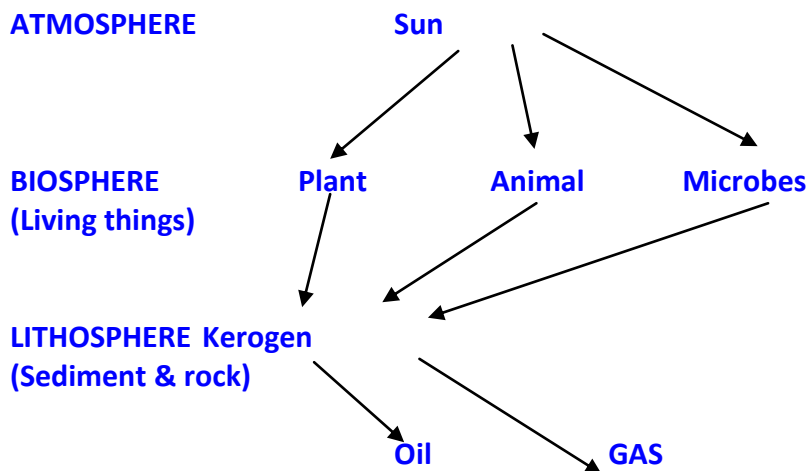


How can energy be lost by living things and not passed on?

Growth, Movement, Reproduction and Repair (and respiration – the breakdown of food to release energy requires energy itself).

Fossil fuels such as oil, gas, coal and peat derive from dead plants and animals buried in sediments.

A chart showing the flow of energy between the Atmosphere, Biosphere and Lithosphere to create oil and gas would be:



Light also powers photovoltaic cells, which produce electricity.



Interesting fact - The Sun is really white in colour. The sun emits all the colours of the rainbow (red, orange yellow, blue, green, indigo and violet) but our atmosphere filters out most of the blue and violet, which explains why the sky appears blue and the remaining colours blend into an orangey yellow colour.