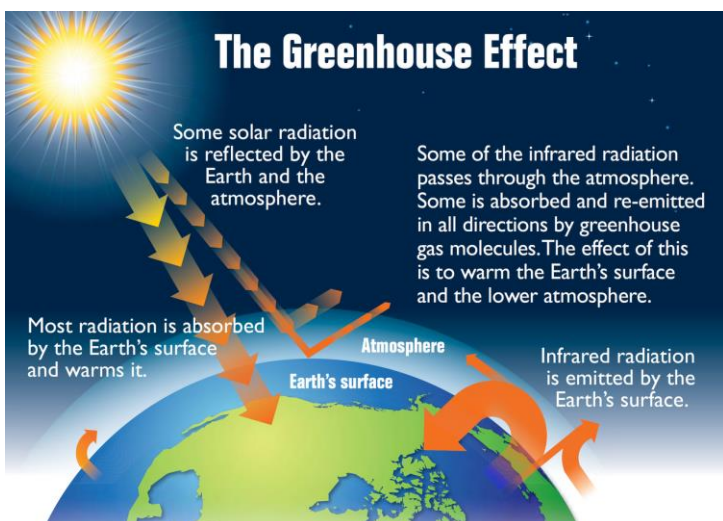


THE GREENHOUSE EFFECT

Hi Friends

In this article, we are going to take a lighter look at some of the impacts, and what effects and benefits we may expect from a growing digital world. The good news is that the global response to the COVID-19 pandemic has resulted in a reduction in greenhouse gases.

The greenhouse effect is a natural process that warms the Earth's surface. When the Sun's energy reaches the Earth's atmosphere, some of it is reflected back to space and the rest is absorbed and re-radiated by greenhouse gases. The absorbed energy warms the atmosphere and the surface of the Earth. This process maintains the Earth's temperature at around 33 degrees Celsius warmer than it would otherwise be, allowing life on Earth to exist (www.dpaw.wa.gov.au).



Credit: www.courses.lumenlearning.com

Greenhouse gases include water vapour, carbon dioxide, methane, nitrous oxide, ozone and some artificial chemicals such as chlorofluorocarbons (CFCs).

Enhanced Greenhouse Effect

- ◆ The problem we now face is that human activities - particularly burning fossil fuels (coal, oil and natural gas), agriculture and land clearing - are increasing the concentrations of greenhouse gases. This is the enhanced greenhouse effect, which is contributing to the warming of the Earth.
- ◆ A major shift in weather patterns could cause droughts, tropical storms and increase temperatures that would make some currently habitable areas of the Earth become uninhabitable. It is also thought that melting polar ice caps could cause a rise in sea levels. The melting of the ice caps could also dilute marine saline concentrations, threatening marine life.

While most scientists believe that the greenhouse effect will gradually warm the Earth's climate, some scientists predict that as the temperature rises, more water will evaporate from the oceans, resulting in more clouds. This increase in clouds could block out sunlight, causing an overall decrease in the Earth's average temperature.

Forests have been called the "lungs of the Earth" because plants take in carbon dioxide and give off oxygen in the process of photosynthesis. Animals inhale oxygen and exhale carbon dioxide in the process of breathing (respiration).

Every year a large amount of tropical forests are cut and burned to clear land for farming and livestock farming. This is a serious concern as plants help clean the air of harmful carbon dioxide gas, replacing it with oxygen. With the decreasing numbers of trees in the world, the air is not being cleaned as well.

Additionally, the carbon dioxide levels continue to increase due to increasing numbers of cars and industrial pollution. The challenge now is to find methods to reduce carbon dioxide emissions from industry and cars, and find ways to clean our polluted air.

What are some benefits of the Greenhouse Effect?

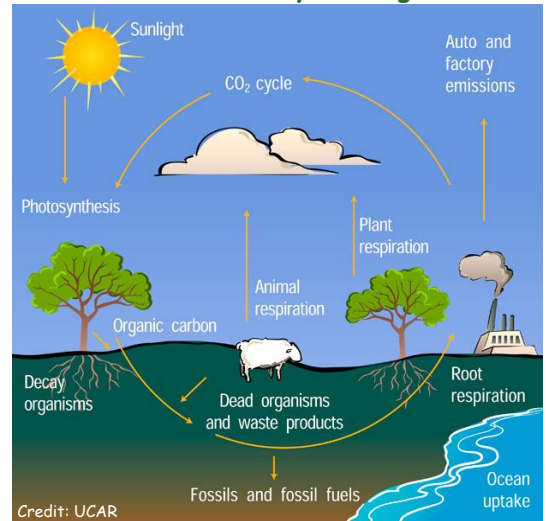
- ◆ The greenhouse effect helps the Earth maintain a decent temperature that makes this planet habitable for living beings (humans, animals, plants and other organisms).
- ◆ The greenhouse gases help block the harmful solar radiation from reaching the planet's surface.

Some disadvantages of the Greenhouse Effect

- ◆ Global warming: the increasing amount of greenhouse gases are causing a gradual rise in the Earth's temperature.
- ◆ The ice in polar regions has started melting.
- ◆ Increased levels of carbon dioxide.
- ◆ Rising sea levels.
- ◆ Marine life and other biological systems would be reduced and slowly destroyed.

Let's all do our part by taking environmental **ACTION** to save our planet Earth by reducing our use of fossil fuels.

The Carbon Cycle Diagram



'Till next time ...

The Water Wise Education Team



References for Newsletter:

- www.seccca.org.au
- www.teachengineering.org
- www.courses.lumenlearning.com
- www.dpaw.wa.gov.au

GREENHOUSE EFFECT ACTIVITY

Using the information you have read in the article, answer the following questions:

1. What is the Greenhouse Effect?

2. List any three greenhouse gases? _____

3. Why is the natural greenhouse effect important?

4. What is the cause of an enhanced Greenhouse Effect? _____

5. List 3 disadvantages of the Greenhouse Effect?

6. List 3 ways to reduce greenhouse gases?

ANSWERS:

1. The greenhouse effect is a natural process that warms the Earth's surface. When the Sun's energy reaches the Earth's atmosphere, some of it is reflected back to space and the rest is absorbed and re-radiated by greenhouse gases. The absorbed energy warms the atmosphere and the surface of the Earth. Atmospheric accumulation of gases such as carbon dioxide, methane, contain some heat emitted from Earth's surface. This radiation, tends to be absorbed raising temperatures.

2. Water vapour; carbon dioxide; methane; ozone; nitrous oxide; chlorofluorocarbons; etc.

3. Greenhouse gases keep our planet livable. They trap some of the Earth's heat energy so that it doesn't all escape into space. This trapping of heat is known as the Greenhouse Effect. Just as too little greenhouse gas makes Earth too cold, too much greenhouse gas makes Earth too warm.

4. Human activities, particularly burning fossil fuels (coal, oil and natural gas), agriculture and land clearing, are increasing the concentrations of greenhouse gases in the atmosphere.

5. Global warming; the increasing amount of greenhouse gases are causing a gradual rise in the Earth's temperature; the ice in polar regions has started melting; increased levels of carbon dioxide; rising sea levels; marine life and other biological systems would be reduced and slowly destroyed; etc.

6. Plant a tree; buy energy-efficient products; use less heaters and air conditioners; reduce, reuse and recycle; etc.

For more information on being Water Wise please contact 0860 10 10 60 or log onto www.randwater.co.za and click on the Water Wise logo

#WaterWise #RandWater #KnowBetterDoBetter



References for activity:

* www.climatekids.nasa.gov/greenhouse-effect/

YOUR FEEDBACK

It would be most appreciated if you could please give feedback on this education material by clicking on the following link:

<https://forms.gle/ePtXdPBUjTz4Um5H7>

For more information on being Water Wise please contact 0860 10 10 60 or log onto www.randwater.co.za and click on the Water Wise logo



#WaterWise
#RandWater
#KnowBetterDoBetter

