Subject: Science

Level: Standard 4

Strand: Conservation and Sustainability

Topic: The Greenhouse Effect.

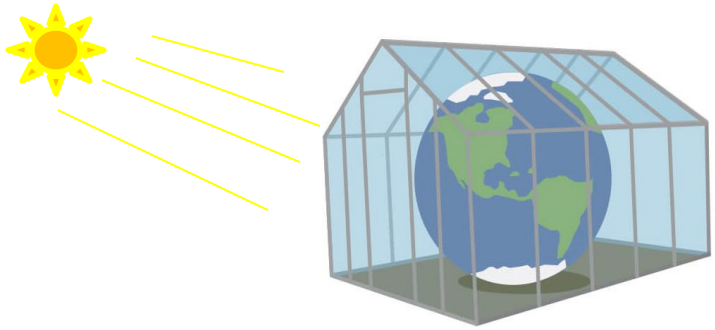
Key Points:

- Greenhouses are used to maintain the temperature of the environment so plants survive extreme weather conditions.
- Greenhouses are usually made of glass or similar transparent material.
- The transparent material allows sunlight into the greenhouse but prevents it from leaving so the heat remains trapped in the greenhouse and keeps inside warm.
- The greenhouse effect is the name given to a natural environmental occurrence.
- It is caused by gases called greenhouse gases such as Carbon Dioxide
- These greenhouse gases create a barrier between the sun and earth
- The sun emits heat and light which enters the earth's atmosphere
- Some of that heat, is trapped by the layer of greenhouse gasses in the earth's atmosphere.
- The trapped heat keeps the earth warm and therefore helps sustain life on earth

Activity

1. Why is the term Greenhouse Effect used?

In the daytime, sunlight shines into the greenhouse and warms the plants and air inside. At night-time, it's colder outside, but the greenhouse stays pretty warm inside. That's because the glass walls of the greenhouse trap the Sun's heat.



https://climatekids.nasa.gov/greenhouse-effect/

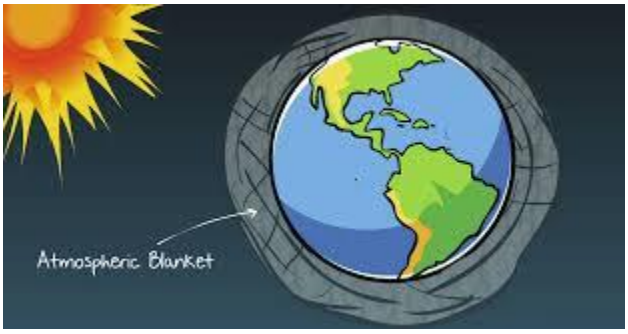
Complete the sentences by filling the space:

The glass in a Greenhouse has the same effect as the _____ on Earth.

This is called the _____ Effect

2. Effect of the atmosphere

The atmosphere can also be described as a blanket which surrounds the earth. This is shown in the picture below.



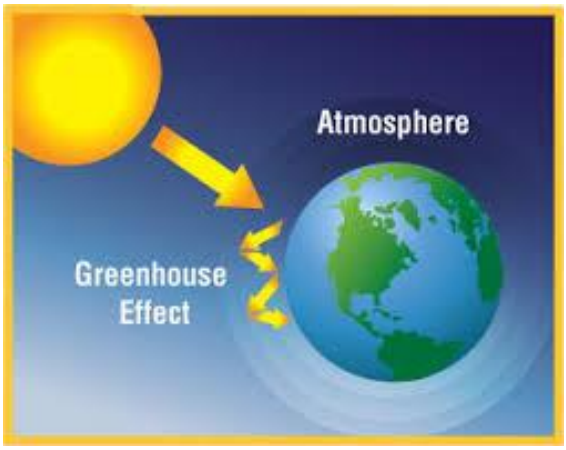
http://www.neaq.org/wp-content/uploads/2016/06/LEARN_3-7_BI_intro_answers.pdf

(i) How you feel under a blanket?

_____

(ii) How does the atmosphere "blanket" affect the earth?

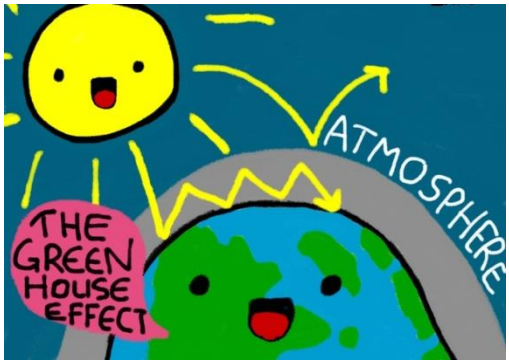
_____



The Greenhouse Effect - What is the Effect?
greenhouseeffectsite.weebly.com

3. The Greenhouse Effect

During the day, the Sun shines through the atmosphere. Earth's surface warms up in the sunlight. At night, Earth's surface cools but some of the heat is trapped by the greenhouse gases such as carbon dioxide in the atmosphere. That's what keeps our Earth a warm. The effect of the atmosphere keeping the earth warm is called the Greenhouse Effect. This is a natural process and without it, Earth will be very cold. The Greenhouse Effect is one of the things that make Earth a comfortable place to live.



The trapping of the suns' warmth in a planet's lower atmo...
thinglink.com

(i). Why is the Greenhouse Effect important to Earth?

_____

(ii). Name the main Greenhouse gas?

_____

(iii) What are two ways carbon dioxide is produced? (*you may need to res*earch)

_____

_____

4.

Assessment

5. An investigation was done to demonstrate the Greenhouse Effect, to students. This investigation is shown below.

4 interesting weather experiments to try at home | Weather ...
pinterest.com

(i) What does the soda bottle represent in the Greenhouse Effect?

_____

(ii) Complete the following statements by **circling** the appropriate word.

- The thermometer in the covered jar will have a _____ **(lower/ higher)** reading than the thermometer in the jar that is uncovered.
- The temperature in the covered jar indicates that inside the covered glass jar is **_____ (cooler/ warmer)** than inside the uncovered jar.
- Therefore _____ (**less/ more**) heat is lost from the covered jar than the uncovered.

Answer Key

1 The glass in a Greenhouse has the same effect as the **atmosphere** on Earth.
This is called the **Greenhouse** Effect.

2 (i). I feel warm when I am under a blanket.

(ii). The atmosphere "blanket" keeps in/traps some heat from the sun so the Earth is warm.

3 (i). The Greenhouse Effect is important as it keeps our Earth warm. This is a natural process and without it, Earth will be very cold. The Greenhouse Effect is one of the things that makes Earth a comfortable place to live.

(ii). The main Greenhouse gas is carbon dioxide.

(iii) Carbon dioxide is produced from burning most plant or animal based materials, from exhaust of cars, by plants especially at night

4. (i) The soda bottle represent in the **atmosphere** in the Greenhouse Effect?

(ii)

- The thermometer in the covered jar will have a _____ (**lower/ higher**) reading than the thermometer in the jar that is uncovered.
- The temperature in the covered jar indicates that inside the covered glass jar is _____ **(cooler/ warmer)** than inside the uncovered jar.
- Therefore _____ (**less/ more**) heat is lost from the covered jar than the uncovered.