

## The Energy to Keep Going Sharing and Activity Sheet for Students

### Gardens by the Bay Avatar:

- Engineer

### Level/ Subject(s):

- Upper Primary/ Science, Social Studies

### Learning Objectives:

- Know the definition of global warming and its impact on the environment
- Understand the concept of environmental sustainability



Hello students! My name is Eric. I'm an engineer and I've been working at Gardens by the Bay for 5 years! Today I'll be sharing with you about global warming and climate change and the importance of energy sustainability using our iconic Supertrees as an example.

Global Warming is the gradual increase in the overall temperature of the Earth's atmosphere generally attributed to the greenhouse effect caused by increased levels of greenhouse gases e.g. carbon dioxide and methane, and other pollutants. Look at the infographic below, and see if you can identify the different causes of global warming.

Global warming has detrimental and far-reaching repercussions. A rise in the average temperature of the Earth's climate has caused the melting of polar ice caps and glaciers, which in turn causes a rise in sea levels. Such changes mean that natural habitats will be affected, resulting in a shift in the balance of flora and fauna populations around the world. Coastal areas will suffer. High levels of carbon dioxide make oceans too acidic, making life impossible for many marine species.

There will also be extreme changes in the weather, since the amount of water found in the atmosphere has changed. Certain areas will become wetter, or experience longer, colder winters, while others, heatwaves and scorching summers.

# GLOBAL WARMING

## INFOGRAPHIC



Causes of global warming

### Living Sustainably

#### Energy

One of the major causes of climate change and global warming is the burning of fossil fuels e.g. coal, oil and natural gas. These fossil fuels have a high carbon content, so burning them releases carbon dioxide into the atmosphere. This causes the Earth's atmosphere to trap excess heat energy from the Sun within our atmosphere, instead of allowing it to be radiated back into space, causing the average temperature of the Earth to rise.

Many things we do in our everyday lives require energy generated from the burning of fossil fuels. The electricity we use locally is generated in power plants fuelled by natural gas and oil. Switching off the lights and other electronic gadgets when leaving the room will help to conserve energy.

#### Water

Less than 1% of water on Earth is freshwater that is accessible for drinking. Many cities face the lack of freshwater and others have diverted fresh water from lakes and rivers, drying up supplies and killing off organisms dependant on the water. Through the better management of water, such as using water efficient appliances, and reducing usage and wastage, we can reduce the risk of water shortage.

#### Reduce, Reuse and Recycle

By reducing, reusing and recycling in our daily lives and at the workplace, we can reduce the amount of resources we take from nature and decrease the amount of waste we produce.

### Activity 1 – Cool Down

Based on what you have learnt so far, list three things that you can do to make a difference to slow down global warming.

### Did You Know?

We have 18 Supertrees in Gardens by the Bay ranging from 25 to 50 metres in height! 11 of the Supertrees have canopies embedded with environmentally sustainable functions.

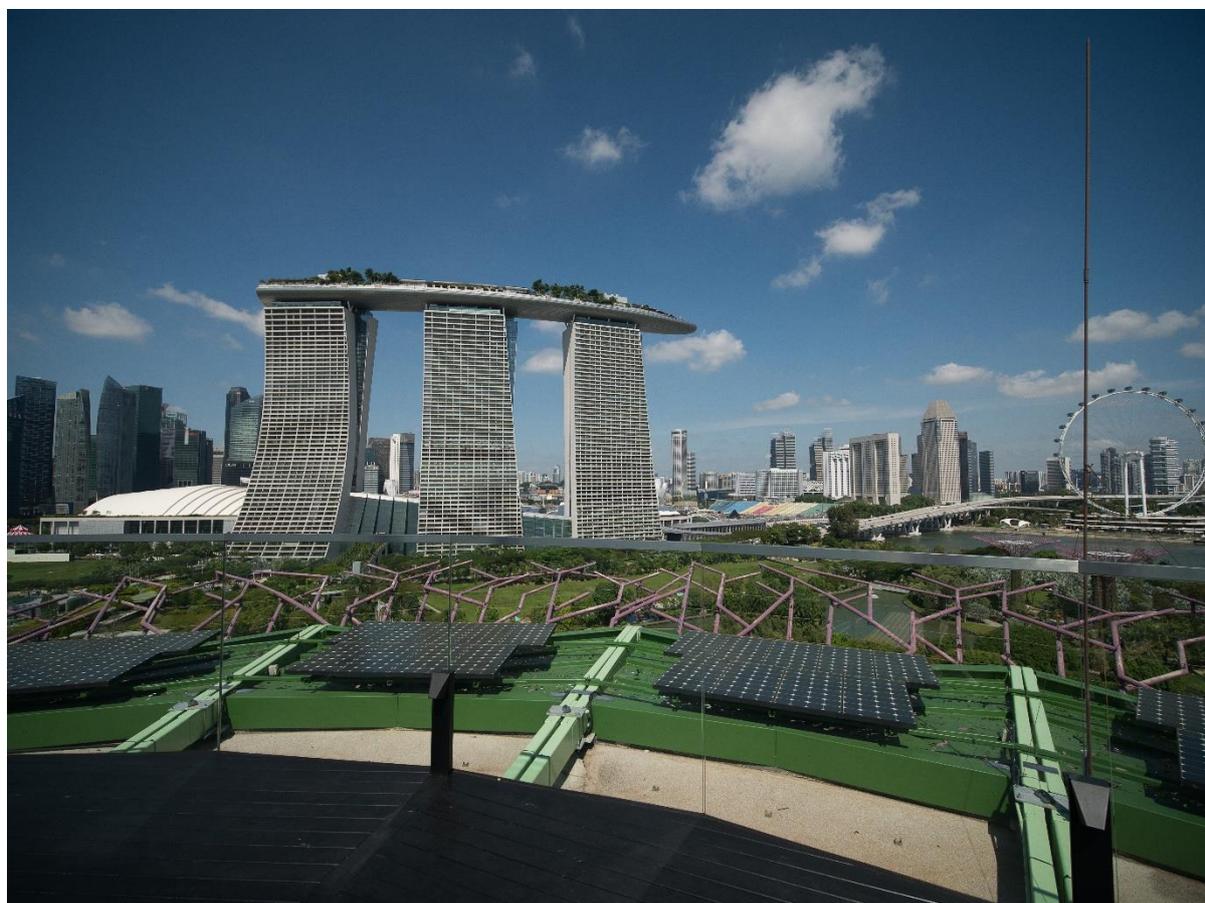


Supertrees at Supertree Grove

Do you know what the term “sustainable” means? It means to keep something at a certain level. So, when we talk about environmental sustainability, it simply refers to living in a way that keeps the environment at a constantly healthy level.

One way to help the Earth is to cut down on the burning of fossil fuels. This can be done through finding alternative energy sources.

Photovoltaic cells/ solar panels on the roof of some of our Supertrees help to draw energy from the sun and convert it to electricity. This electricity can then be used to power different things in the Gardens, like the lights on the Supertrees.



Photovoltaic cells/ solar panels on the roof of a Supertree

### Activity 2 – Powered by the Sun

Unscramble the letters to obtain the information below!

The **utpereseSr** at Gardens by the Bay are between 25 and 50 metres tall, which is 9 to 16 **tserosy** high!

There are **ootvpoltcai lsecl** at the crown of the Supertrees to harness **raslo** energy for **ntglhiig** them. This makes them **nevomirnyntalel** sustainable.

Code	Answer
<u>utpereseSr</u>	S
<u>tserosy</u>	s
<u>ootvpoltcai lsecl</u>	p
<u>raslo</u>	s
<u>ntglhiig</u>	l

nevomirnyntalel

e



We've come to the end of our sharing today! I hope you've enjoyed learning about global warming and its impact on the environment. I hope to see you at the Gardens again soon!