

# *Sustainability*

## For Years 5-6



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# Teachers' Notes

Sustainability is the ongoing capacity of Earth to maintain all life. Sustainable patterns of living meet the needs of the present without compromising the ability of future generations to meet their needs. Actions to improve sustainability are both individual and collective endeavours shared across local and global communities. They necessitate a renewed and balanced approach to the way humans interact with each other and interact with the environment.

Education of sustainability develops the knowledge, skills, values and world views necessary for people to act in ways that contribute to more sustainable patterns of living. Being educated about sustainability enables individuals and communities to reflect on ways of interpreting and engaging with the world. Sustainability is future-orientated, focusing on protecting environments and creating a more ecologically and socially just world through informed action. Actions that support more sustainable patterns of living require consideration of environmental, social, cultural and economic systems and their interdependence.

*Sustainability For Years 5 - 6* comprises student information and activity pages. As students work their way through this resource, they will demonstrate their understanding of the organising ideas in a variety of ways. Answers to the tasks are provided at the back of the book.

Sample



Read the information on page 7, then complete this activity sheet.

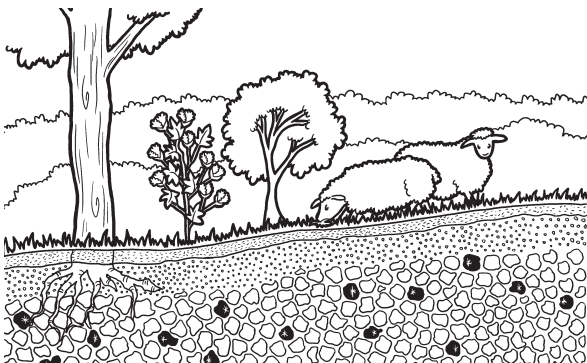
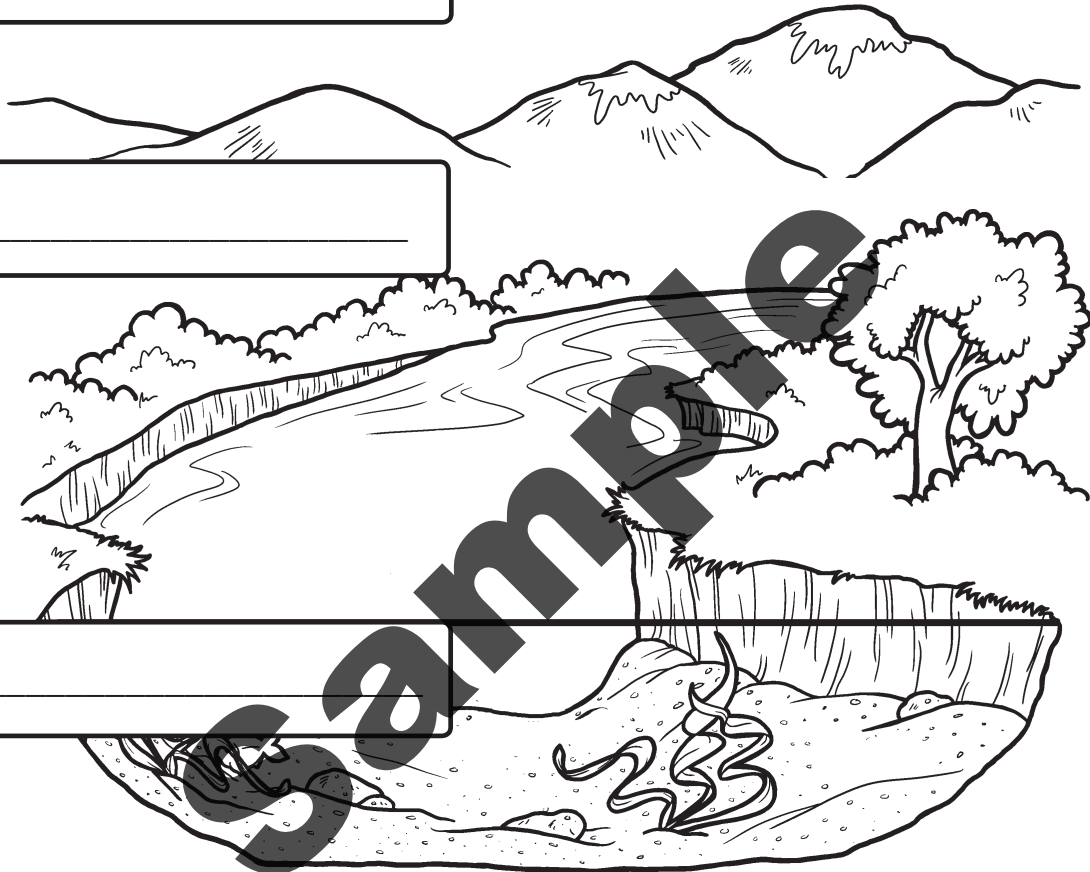
The biosphere is made up of different parts. Label the diagram.

Draw an animal living in each part of the biosphere.

a \_\_\_\_\_

l \_\_\_\_\_

h \_\_\_\_\_



Look at the picture and tick the correct answer/s.

- Are the sheep living in the biosphere's atmosphere or hydrosphere?
- Are the tree roots in the atmosphere, hydrosphere or lithosphere?
- What organisms are in the picture?  
sheep soil trees rocks

**Extra!**

Literacy: Pair up and test each other on the spellings: biosphere, lithosphere, hydrosphere, and sustainability.

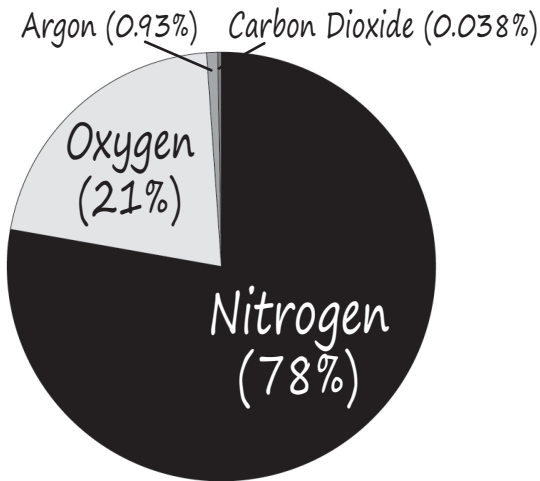




### What is the atmosphere?

We can't see the wind but we know that it exists because we can see objects such as branches moving. The atmosphere is similar. We can't see it but it is all around us. The atmosphere is made up of invisible gases. Each of these gases protects life on Earth.

### Gases in the Earth's atmosphere



The atmosphere is a thin layer of gases that surrounds the Earth. It is the control centre of the Earth's temperature, ozone and weather patterns. Study the pie chart (left) to discover which gases make up the Earth's atmosphere.

### How does the atmosphere help us to survive?

#### Job 1:

The atmosphere keeps the Earth warm by absorbing heat from the Sun. Organisms need the right amount of heat to live.



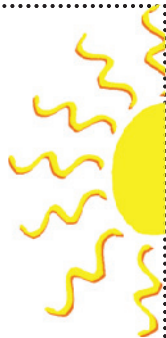
#### Job 2:

The atmosphere prevents the Earth from being too cold. If the Earth is too cold, it cannot sustain life.



#### Job 3:

The atmosphere blocks the Earth from much of the Sun's harmful ultraviolet rays.



#### Job 4:

The atmosphere provides the air that humans, animals and plants breathe in to survive.



### Fast Fact

The atmosphere is 480 km thick. 80% of the atmosphere is within 16 km of the surface of the Earth. There is no exact place where the atmosphere ends, it just gets thinner and thinner until it merges with outer space.



Before reading *How Do People Affect Ecosystems?* on page 20, look at the questions on the Think Sheet below and predict the answers.

# Think Sheet



Name: \_\_\_\_\_ Date: \_\_\_\_\_

## Question 1

What are some actions that people do which harm the environment and delicate ecosystems?

**Prediction** (before reading): \_\_\_\_\_  
\_\_\_\_\_

**What The Text Says** (after reading): \_\_\_\_\_  
\_\_\_\_\_

## Question 2

Explain what overfishing means.

**Prediction** (before reading): \_\_\_\_\_  
\_\_\_\_\_

**What The Text Says** (after reading): \_\_\_\_\_  
\_\_\_\_\_

## Question 3

How do humans pollute the air?

**Prediction** (before reading): \_\_\_\_\_  
\_\_\_\_\_

**What The Text Says** (after reading): \_\_\_\_\_  
\_\_\_\_\_

Read *How Do People Affect Ecosystems?* on page 20, then complete the second part to each question above. How do your predictions compare to the actual text? Discuss any similarities or differences with a partner.

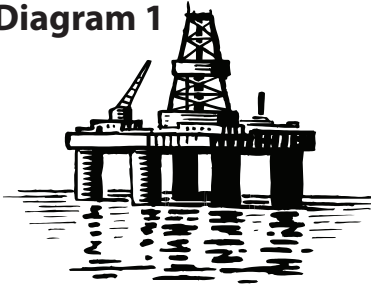


Over time the way in which humans have moved around the Earth has changed dramatically. Before vehicles, people walked and rode on horses, camels or even on elephants, depending on where they lived. Once the wheel and the wagon were invented people had their first means of transportation which could carry many people or many goods at once. After the wagon, came the invention of automobiles.

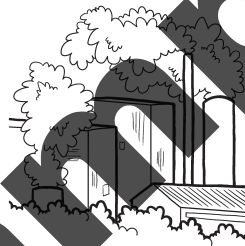


Henry Ford, the inventor of Ford Automobiles, invented the concept of the production-line in the early 1900s. This meant that many vehicles could be produced at the same time by each person working on their own specific part of the car. This process also brought down the costs involved of producing automobiles and the car became much more affordable for everyday people around the world and consequently the popularity of cars grew on a global basis. Along with the car came the global need for petrol - manufactured from oil.

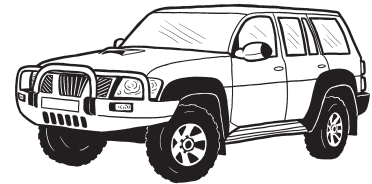
**Diagram 1**



Oil is pumped from non-renewable supplies in the ground around the world.



Oil is then transported to refineries and converted into different forms of oil all over the globe.



One day the world will run out of oil and alternate methods will need to be used to power vehicles.

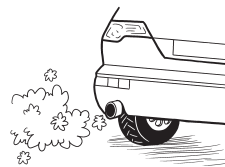
**Diagram 2**



As communities around the world continue to grow and people get busier and busier, the need to travel from place to place gets greater and greater.



Over time the world has become more connected. Many people travel from country to country doing business and improving relationships. This means that world travel has grown.



In the past, little attention was paid to sustainability. At first, people did not realise how much damage railways, planes, trams, cars and trucks would do to the environment.



Now leaders all around the world are banding together to create sustainable transport methods and regenerate old transport links.



# Fly Carbon Neutral Activity

Read the information on page 34, to help you to complete this activity sheet.

It is important that large global companies take action to be sustainable. By taking sustainable measures, global companies show others that being sustainable is important.

## Questions

1. What type of global company on page 34 is taking action to be sustainable?

\_\_\_\_\_

2. What action is this type of global company taking? \_\_\_\_\_

\_\_\_\_\_

3. Why does this type of company have a responsibility to be sustainable?

\_\_\_\_\_

\_\_\_\_\_

## Think Tank

As a class, brainstorm local, national and global companies who are large polluters of the Earth.

LOCAL	NATIONAL	GLOBAL

Explain how one of these companies listed above could be greener.

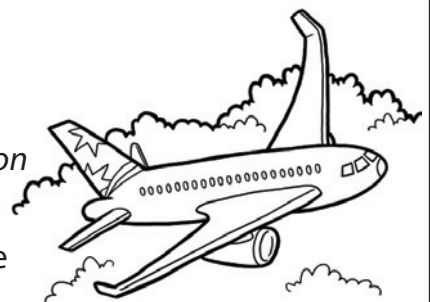
\_\_\_\_\_

\_\_\_\_\_

## Internet Research

Use the internet or classroom resources to make a list of 10 projects that airlines have contributed to with their *fly carbon neutral* or *offset* schemes.

Find out what type of fuel planes could use which would be more environmentally friendly.





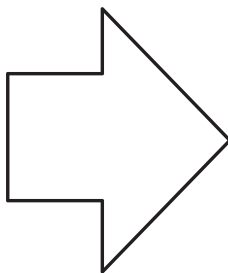
Reading the information on the previous page and below will help you to complete the task. Even though some items can't be recycled in your home bin, councils and businesses do provide many local recycling opportunities. You just need to be aware of them.

WHAT	WHERE	WHAT HAPPENS
<b>food waste</b>	Home composting system.	Converts naturally to plant food.
<b>green waste from the garden</b>	Home composting or council verge pick up.	Converts naturally to plant food or shredded and composted for re-use as mulch.
<b>batteries</b>	Local councils may have a drop-off point; battery and mechanic shops.	Some parts can be separated into plastic and metal to be recycled.
<b>printer cartridges</b>	Planet Ark provides recycling boxes at post offices and some major retail stores.	Made into cartridges.
<b>computers, iPads, electronics, printers, photocopiers</b>	Some computer stores provide a recycling box. Council verge collection.	Made into new computers or plastic components are recycled.
<b>furniture</b>	Free-cycle, salvage yards and council verge collection.	Up-cycled into new furniture and resold.
<b>appliances (fridges, washing machines, dishwashers, T.Vs, etc.)</b>	Council verge collection and free-cycle.	Separated for various valuable components that are recycled to make new appliances.

Choose two items listed above or on page 40 and illustrate the items once recycled.

**Item 1**

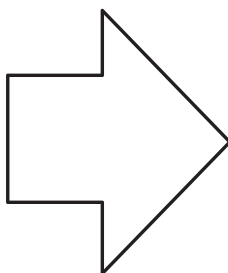
**Before recycled**



**After recycled**

**Item 2**

**Before recycled**



**After recycled**