

ECO

**World
Savers**

SUSTAINABLE DEVELOPMENT

G4008

Activities To Build Awareness & Understanding



Liz Foxwell and Les Ray

Acknowledgements

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SUSTAINABLE DEVELOPMENT

What Is 'Sustainable Development'?

Teacher's Guide & Planning

The Key Issues

- Sustainable development is about what we can all do in our everyday lives so that we do not destroy our environment.
- This environment is not only local – it is international. We can all make a difference by doing small things.

Additional Activities

Language

- Write down what you think sustainable development is and what you can do to help.
- Create an argument for or against why sustainability is important.
- Write a letter to a company that plants trees thanking them and explaining why they are doing a good job.

Maths and Science

- Investigate the qualities of carbon dioxide. How does it create global warming? How important is it to living things?
- Carry out experiments to show what gasses are given off by plants during photosynthesis.
- Survey people in your class about their recycling habits. Use the data to make graphs and charts.

Art and Humanities

- Create a poster for classroom use to highlight the key areas of concern about sustainability in the world and what the class can do about them.
- Research global warming. Find out its causes.
- Identify the Arctic and Antarctic regions on a map. Who or what lives there? What kind of lives do they lead? What will be the effect of global warming on them? What will be the effect of this global warming on us?

Research

- Find out what percentage of waste your area recycles in relation to other neighbouring areas. Which is the best?
- Find out how methane gas and poisons get into the air and soil at landfill sites. Why are they dangerous to nearby residents?

More Information

When creating sustainable policies we need to make sure all people throughout the world can satisfy their basic needs and improve their quality of life, without stopping future generations from being entitled to the same.

SUSTAINABLE DEVELOPMENT

What Is 'Sustainable Development'?



Mr World saver says: Sustainable development is about what we can all do in our everyday lives so that we do not destroy our environment.

- Look at the five dangers to our environment below. Complete the chart.

Danger	Problem caused by	What I can do
Too much carbon dioxide in the air causing global warming.		
Cutting down too many trees – too much carbon dioxide and soil erosion.		
Raw materials will eventually be exhausted.		
Fossil fuels: oil, gas and coal will soon be gone.		
Too much waste in landfill causing methane gas and poisoning the soil.		

- Give examples about what you can do at home and school that will help people and wildlife in other countries.

Teacher's Guide & Planning

The Key Issues

- Organic farming uses no artificial fertilizers, insecticides, pesticides and additives, but only natural means to produce food.
- Food chains exist at every level of human and animal evolution. Human intrusion into this chain may be doing us all harm.

Additional Activities

Language

- Find out the meanings of words, such as: organic, artificial, fertiliser, insecticide, pesticide and additive.
- Produce an organic food fact sheet for younger students to understand.
- Write a letter to a young person's magazine, explaining why you have decided to only eat organic.

Maths and Science

- Research what a plant needs from the soil to grow. Devise experiments to prove what you find.
- Find out what are the useful chemicals or vitamins to animals in grass. What vitamins do humans need to survive?
- Which foods do these come from?

Art and Humanities

- Pick two fruits and two vegetables. Taste them, look at the texture, cut in half and draw the structure. Classify them.
- Look at food packaging. Which foods say that they are 'organic'? Are they more expensive than similar foods? Why?
- Look at where food that you eat comes from in the world. Work out how many miles the food has to travel. How much fuel would this use?

Research

- Find out what 'food miles' are. How can we reduce these?
- Research what a plant needs from the soil.

More Information

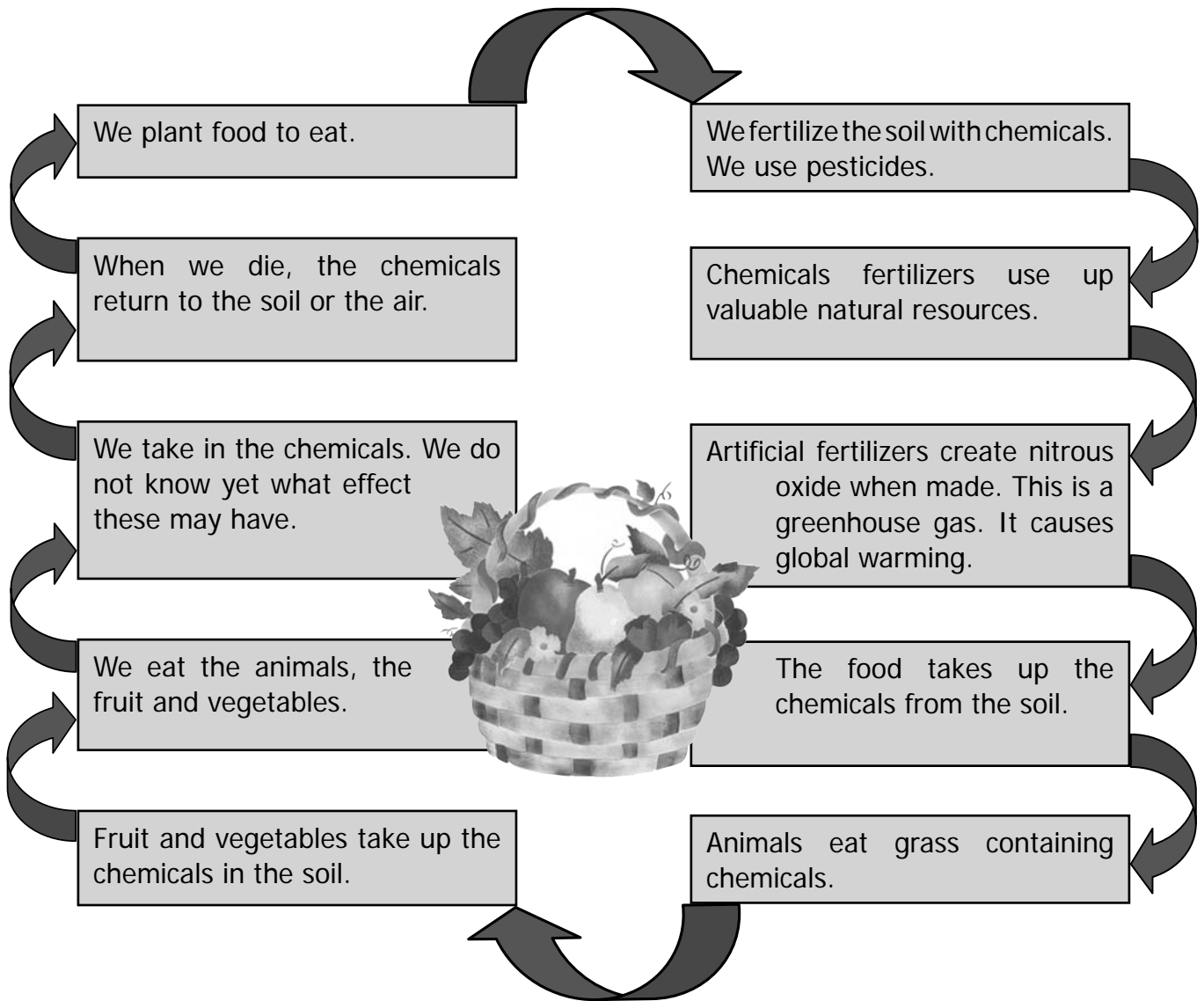
Organic food saves food miles and so cuts down on greenhouse gasses. It will not have travelled hundreds of miles to reach you, and will have used the natural farm processes to control pests and make sure the soil is fertilised. It helps keep the surrounding countryside and wildlife safe, whilst causing less pollution and waste. Scientists are still discovering the negative impact of chemical fertilizers and insecticides on humans.

SUSTAINABLE DEVELOPMENT

Growing Organic

Organic food is produced with no artificial fertilizers, insecticides, pesticides, or additives.

- Read and talk about what can happen.



- Look at the diagram. Explain why more people are growing and buying organic food.

For their own health	For the good of the soil	For the good of the planet

SUSTAINABLE DEVELOPMENT

Sustainable Food

Teacher's Guide & Planning

The Key Issues

- The way we produce food will have an impact on the environment.
- Organic farming uses less energy to produce the same amount of food.
- Eating food when it is in season means that it has a better flavour and involves fewer heated greenhouses and fewer food miles.

Additional Activities

Language

- Create a menu using only organic foods.
- Create a menu using foods produced within 50 km radius of your school.
- Produce some recipes for cooking this food. Use instructional writing, using its necessary features.
- Create a storyboard for a one-minute advertisement to promote local organic food.

Maths and Science

- Find out more about calories. Analyse the food intake of various children and compare their calorie intake.
- Take an example of a simple salad product and analyse what is needed to make it grow in order that it can be sold in a supermarket. How many chemicals are used in this process? What are they?

Art and Humanities

- Find out what the staple foods are of four different countries. What conditions are necessary to make them grow?
- Look at three staple products in a supermarket, e.g., milk, bread, fruit. Are there organic alternatives? Map where these are from. What makes them 'organic'?

Research

- Find out how to create a wormery. Why is it advantageous to soil?
- Find out about any organic farming areas in your area. What crops/products do they grow/produce?
- What are 'food miles'? Calculate how far products in your refrigerator have had to travel to reach you.

More Information

Buying and using foods that are grown locally means fewer food miles, less fossil fuel being used, more resilient crops to the local climate and not relying on other countries to grow our food. We can become more sustainable locally by making food choices. This will impact on many other areas of the world. When we farm intensively, to create one calorie of food, we need 10 calories of energy. Therefore, alternative methods need to be found to create a sustainable environment.

SUSTAINABLE DEVELOPMENT

Sustainable Food



- Look at the cards below. Help Mr WorldSaver. Suggest a solution to each of these problems in order to achieve sustainable food.

(Data from The Soil Association)

Agriculture is responsible for between 17–32% of the world's total greenhouse gasses.

 A large, empty speech bubble with a tail pointing towards the bottom left, intended for writing a solution to the first problem.

The production and use of artificial fertilisers are the largest single source of nitrous oxide, a greenhouse gas.

 A large, empty speech bubble with a tail pointing towards the bottom left, intended for writing a solution to the second problem.

To make one tonne of artificial fertiliser takes 108 tonnes of water, emits 7 tonnes of carbon dioxide, and uses one tonne of oil.

 A large, empty speech bubble with a tail pointing towards the bottom left, intended for writing a solution to the third problem.

Organic farming typically, uses 26% less energy to produce the same amount of food as non-organic farming.

 A large, empty speech bubble with a tail pointing towards the bottom left, intended for writing a solution to the fourth problem.

- Look at food labels. How many products are organic? How many products come from overseas? How are these foods sustainable?

SUSTAINABLE DEVELOPMENT

Why We Need To Save Energy

Teacher's Guide & Planning

The Key Issues

- We need to save energy because fossil fuels will eventually run out.
- Fossil fuels cause greenhouse gasses and so may add to global warming.

Additional Activities

Language

- Create a storyboard showing how coal is made.
- Develop a 'Saving Energy' campaign in your school. Back up your ideas with why we should be saving energy.
- Find objects that are made from different raw materials, e.g., sand for glass, oil for plastic. Write a website page for a non-specialist about the energy needed to make them.

Maths and Science

- Find out what the symbols for carbon dioxide and oxygen are. What do you notice?
- Find out in which countries the temperature has risen in the last 20 years and create a bar graph. If the sea levels were to rise, list the things that would happen or change. What would be the impact?

Art and Humanities

- Produce a poster with instructions on how to save energy at home. Invent a cartoon character who can lead the campaign.
- Find out which countries use the most energy in the world and why. Are these the same countries that produce the most pollution or the most greenhouse gasses?

Research

- Find out how much coal and oil is estimated to be left in the ground and how many years it will last.
- Generate a set of facts about gasses that cause pollution.

More Information

If we do not save energy and change our energy habits, it will lead to more greenhouse gasses and therefore add to global warming. If global warming continues, major floods could happen as polar icecaps melt; lowland areas will be at greater risk of flooding; exposure to higher levels of UV light could cause extra deaths from skin cancer; climate change could lead to some land animals and plants becoming extinct.

SUSTAINABLE DEVELOPMENT

Why We Need To Save Energy

Read what Mr Worldsaver says why it is important to save energy.

- Write what you can do to help.

A. The energy we use all the time, such as gas and electricity are made from **fossil fuels**. These are being used up. Then there will be no more.

B. When we make energy from coal and gas we make carbon dioxide and other gasses. These cause **pollution**.



C. Carbon dioxide is produced from burning fossil fuels for energy. This is a greenhouse gas. Too much of this can **affect the climate**.

A. I can ...

B. I can ...

C. I can ...

- Which do you think is the most important to do something about quickly? Why?

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