

6.34 Introducing energy sources

Topic: Conservation

Subtopic: Energy sources

Activity type/skill: Orientation

Literacy focus: Vocabulary

Objective

- Orientation to the subtopic.
- Make links to prior knowledge.
- Link to the science and social studies curricula.

What you need

- Student worksheet (see next page)
- [Audio track 6.34](#)

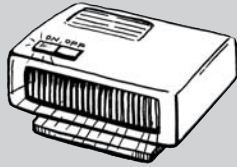
What to do

1. Look at the first and second pages of the student worksheet and discuss the concept of energy. Look at each section in turn, drawing out the students' knowledge of the subject. Praise all thoughtful answers and write the key words on the board. Ask questions like
 - 'What else provides us with heat energy?'
 - 'What can you see in this room that contains stored energy?'
 - 'The heater over there changes electrical energy to heat energy. What does the light bulb do?'
 - 'Can you think how the energy in that heater could come from the sun?'
2. Look at the third, fourth, fifth and sixth pages of the student worksheet and play track 6.34 (Track 10 for this topic). Have the students read and listen to the text.
3. Talk about the text. Ask them if they have each of the energy sources in their country. Ask them how it is used, where it is used and who uses it. Tell them how each energy source is used in New Zealand.
4. Look at the seventh page of the student worksheet and have the students complete the first set of boxes with pictures of the sources of energy used in their countries, for example, a picture of a nuclear power plant producing electricity, a forest of trees or a coalmine.
5. After more discussion and reference to local websites (such as www.nzs.com/new-zealand-articles/technology/energy.html), have them complete the boxes for New Zealand.
6. Discuss the terms in the glossary.

Extending the activity

- Find simple books and websites about energy, for example, www.eia.doe.gov/kids/, www.re-energy.ca and <http://geothermal.marin.org/>.

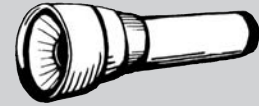
Energy can be...



heat



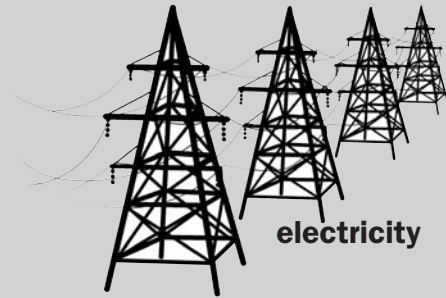
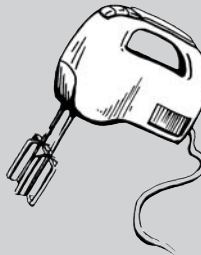
sound



light



movement



electricity

and it can be stored.

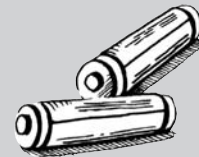
Energy can be stored in these ways.

As chemical energy

There is chemical energy in things like



food



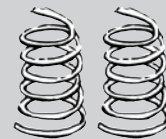
a battery

As elastic energy

There is elastic energy stored in things like



elastic bands



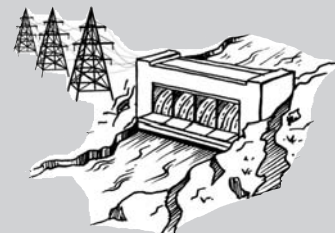
springs

As gravity (falling energy)

There is gravitational energy stored in things like



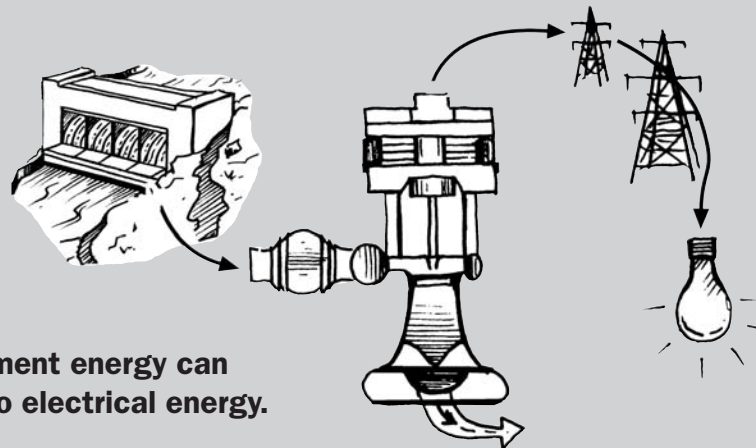
a bird sitting on a tree



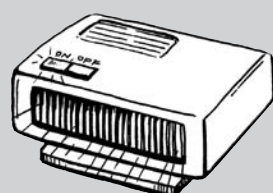
water behind a dam

Nearly all energy comes from the sun.

Energy can change from one form to another.



Movement energy can change to electrical energy.



Electrical energy can change to heat energy.



Track 10

Energy resources

The world's energy comes from these resources.

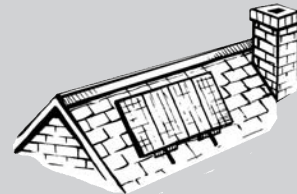
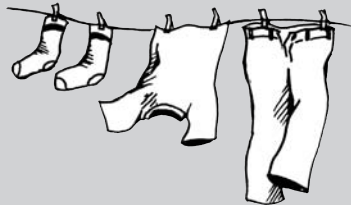
1. living things



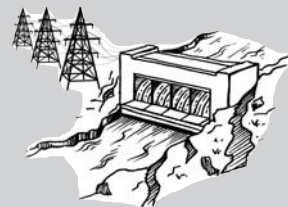
2. fossil fuels



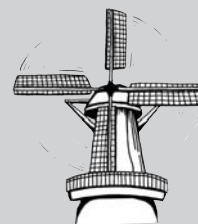
3. solar power



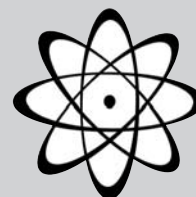
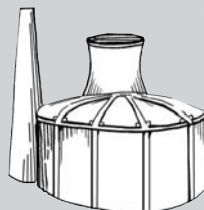
4. water power



5. wind power



6. nuclear power



The sun provides the energy in living things.

The energy in plants and animals comes from the sun. Plants use the sun's energy to make their own food. Animals eat plants or other animals that eat plants and get the sun's energy in this way.

Living things (or things that have recently died) provide us with things like:

- food which gives us energy to move and keep warm
- wood which we burn to keep warm
- decaying plants which make gas which can be used to make electricity.



The sun provides the energy in fossil fuels.



Fossil fuels are coal, oil and natural gas.

Plants take energy from the sun and use it to make their food.

Animals feed on plants and get the sun's energy from them.

Layers of plant and animal remains that have been buried underground for millions of years have turned into coal, oil and natural gas. These fuels contain energy from the sun.

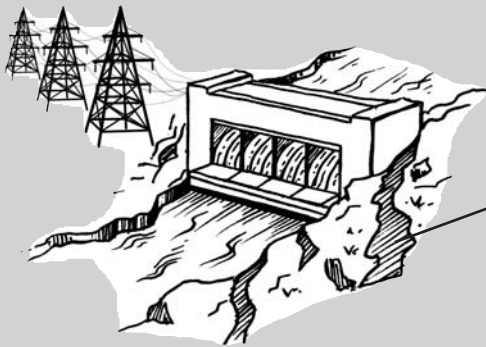
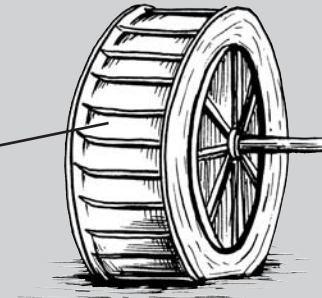
Fossil fuels provide us with:

- coal to heat our homes with fires, provide heat to make things like paper and steel and to make electricity.
- oil for transport. Cars, tractors, trucks, trains and planes run on forms of oil.
- natural gas heats our homes, businesses and factories. We also use it to make electricity.

The sun provides the energy for water power.

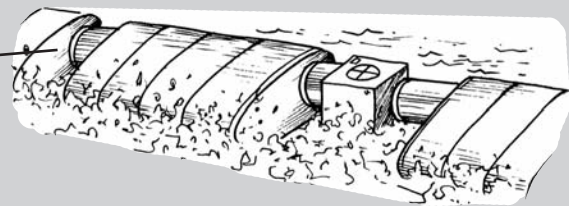
The sun causes the water cycle. Moving water is used to provide energy. Hot water from under the ground is also used to provide energy. The movement of the sea is used to provide energy.

- water machines (usually water mills and pumps) use the moving water in a river to move machinery.



- when a river is dammed and water falls down through turbines electricity is generated. This is called hydro-electricity.

- the movement of the tides is used to move turbines to generate electricity.

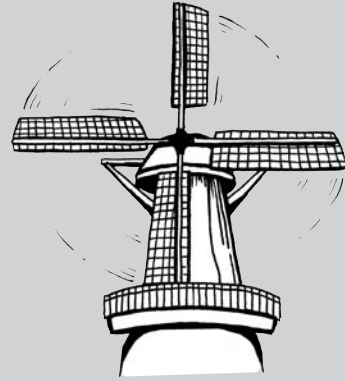


- hot water from under the earth is used to move turbines to generate electricity. This is called geo-thermal electricity.

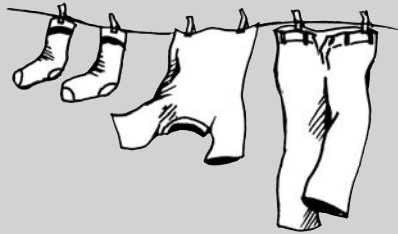
The sun provides the energy for wind power.

The sun heats different parts of the earth differently. This causes air to move. This moving air causes wind.

- windmills use wind to move machinery
- wind turbines use wind to move turbines which generate electricity.

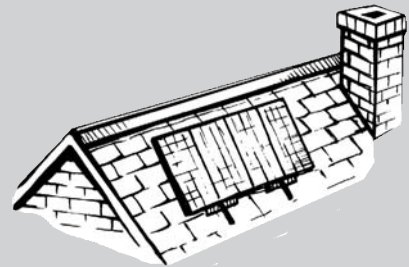


The sun provides the energy for solar power.

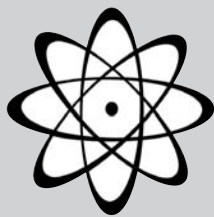


The sun keeps us warm and gives us light. We can store the sun's energy and use it when the sun is not out.

- sunlight lights and heats our homes and dries our washing
- solar panels use the sun's energy to heat water
- solar cells use sunlight to make electricity.



The sun does not directly provide the energy for nuclear power.



Nuclear energy is produced from a substance called uranium.

Atoms of uranium are split and huge amounts of energy are released.

Nuclear power provides people with electricity. There is no nuclear power used in New Zealand.

Three energy resources in my country

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Three energy resources in New Zealand

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Glossary

An **energy resource** contains energy, usually obtained from the sun. We use an energy resource to provide us with food or heat or light or to make things move. Energy can be stored and one form of energy can be changed to another. For example we can store chemical energy in batteries. Energy from water can be made into electrical energy.

Fossil fuels are fuels made from fossils. (Fossils are the remains of living things found underground.) Fossil fuels were formed from the bodies of dead plants and animals buried millions of years ago. Mud and rock pressed down on the plants and animals and they slowly changed into gas, oil and natural gas.

Fossil fuels are: coal, natural gas, oil.