



# **How to save energy**

Intermediate Phase (Grade 4)

Learner activity sheet

English Home Language



## How to save energy



Dear Learner,

Electricity is produced from fuel such as coal, water, diesel and uranium which are limited resources. Building new power stations to increase the supply of electricity is costly, time consuming and is only one of the possible solutions towards producing more electricity. Increased use of electricity means we use up our limited natural resources and means we pollute more.

An immediate solution is to change the way in which we use electricity – that is using electricity wisely without wasting.

Eskom kindly asks you, the learner, to please put into practice different ways of using electricity wisely. You are going to learn a lot in energy education. Some of the things you will learn are:

- the changes in technology (use energy-saving lights instead of the traditional old lights),
- how to use technology more wisely (using the switch to switch off remote controlled appliances instead of the remote),
- other energy-wise saving tips,
- and how using energy wisely helps to care for our environment – our earth.

Do not worry, the energy education will be part of your school work. Be alert and become an example of how to use energy wisely. Share all that you learn with your friends, family and community. Remember to be energy-wise wherever you are – at home, at school and in other places.

**Thank you for taking care of our earth.**

## Activity 1: Which lights should we use?

1. Study the two pictures showing how electricity is being used.

- Write down the differences between pictures A and B.
- Number your differences as 1, 2, 3...



**Picture A**



**Picture B**



Picture A	Picture B
<p>1.</p>	<p>1.</p>

## Activity I: Which lights should we use?



2.1 How much is the electricity account in picture A? \_\_\_\_\_

\_\_\_\_\_

2.2 How much is the electricity account in picture B? \_\_\_\_\_

\_\_\_\_\_

2.3 Why do you think that the amounts on the electricity accounts are different? \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

3. Do you think it is right for the lady in Picture B to leave a light bulb on when it is already 08:00am and the sun could be providing light from outside? \_\_\_\_\_

\_\_\_\_\_

Explain why you think so? \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

4.1 Look at the expressions on the ladies' faces in both pictures. Which lady shows how you are using energy at home? \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

4.2 Write a paragraph on energy-saving lights (compact fluorescent lights – CFLs). Use the information from the table in which you have written the differences between the pictures of the 2 ladies. *[Your paragraph should not be more than 100 words].*

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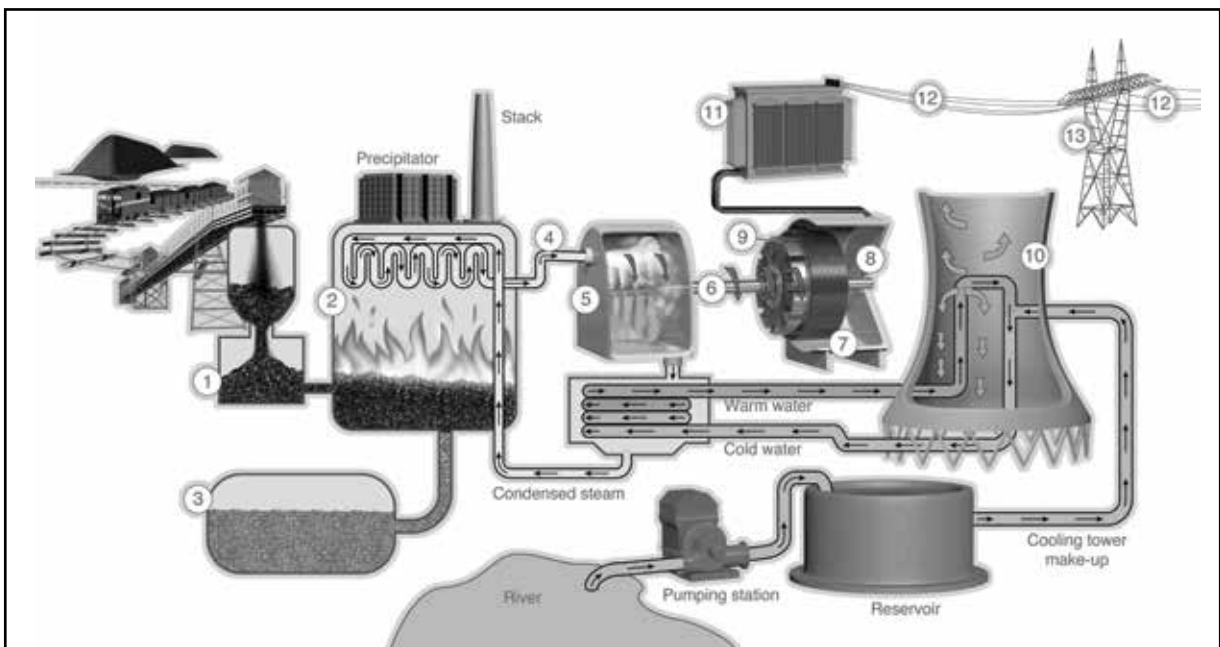
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## Activity 2: Electricity generation in South Africa.

The diagram below shows how we get **most** of our electricity in South Africa. We use a natural resource namely coal to provide energy for the process through which we get our electricity. Other sources like hydroelectric power stations, nuclear power stations and wind turbines are also used to provide electricity to a lesser extent. The diagram below shows how we get most of our electricity in South Africa. We use a natural resource namely coal to provide energy for the process through which we get our electricity. Other sources like hydroelectric power stations, nuclear power stations, wind turbines and solar panels are also used to provide electricity to a lesser extent.



1.1 Study the diagram. Discuss in your groups how we get most of our electricity in South Africa.

## **How electricity is generated**

The generation of electricity is the conversion of other forms of energy into an electrical current.

### **Electricity from coal**

In most modern power stations in South Africa, coal is burned to heat water and convert it into steam. The steam is directed onto the blades of a turbine to make it spin. This in turn spins the magnetic rotor inside the coil to generate electricity.

Once the steam has passed through the turbines, it must be cooled and condensed. The cooling process turns the steam back into water so that it can be pumped back to the boiler for reheating. In the boiler it will be turned into steam again and will restart the cycle.

Many coal-fired power stations are built right next to coal mines. The coal is transported from the mine to the power station on overland conveyor belts or by using trucks. This saves time and money and helps keep the cost of electricity down.

Electricity can also be generated from water, gas and atoms (nuclear energy)

1.2 The following words are associated with the generation of electricity. The terms teach you about sources of energy and how electricity is generated:

1. Given by nature
2. Tall structure for support
3. Things around us
4. To continue or can be made again or can be replaced (no limit)
5. Cannot be made again or cannot be replaced (limited)
6. To make dirty
7. Things we need to live
8. Motor or engine that turns e.g. by using the flow of water or gas
9. Machine that can produce or create a form of energy e.g. electricity by turning



1. Pylon \_\_\_\_\_

\_\_\_\_\_

2. Renewable \_\_\_\_\_

\_\_\_\_\_

3. Non-renewable \_\_\_\_\_

\_\_\_\_\_

4. Pollution \_\_\_\_\_

\_\_\_\_\_

5. Natural \_\_\_\_\_

\_\_\_\_\_

6. Resource \_\_\_\_\_

\_\_\_\_\_

7. Environment \_\_\_\_\_

\_\_\_\_\_

8. Turbine \_\_\_\_\_

\_\_\_\_\_

9. Generator \_\_\_\_\_

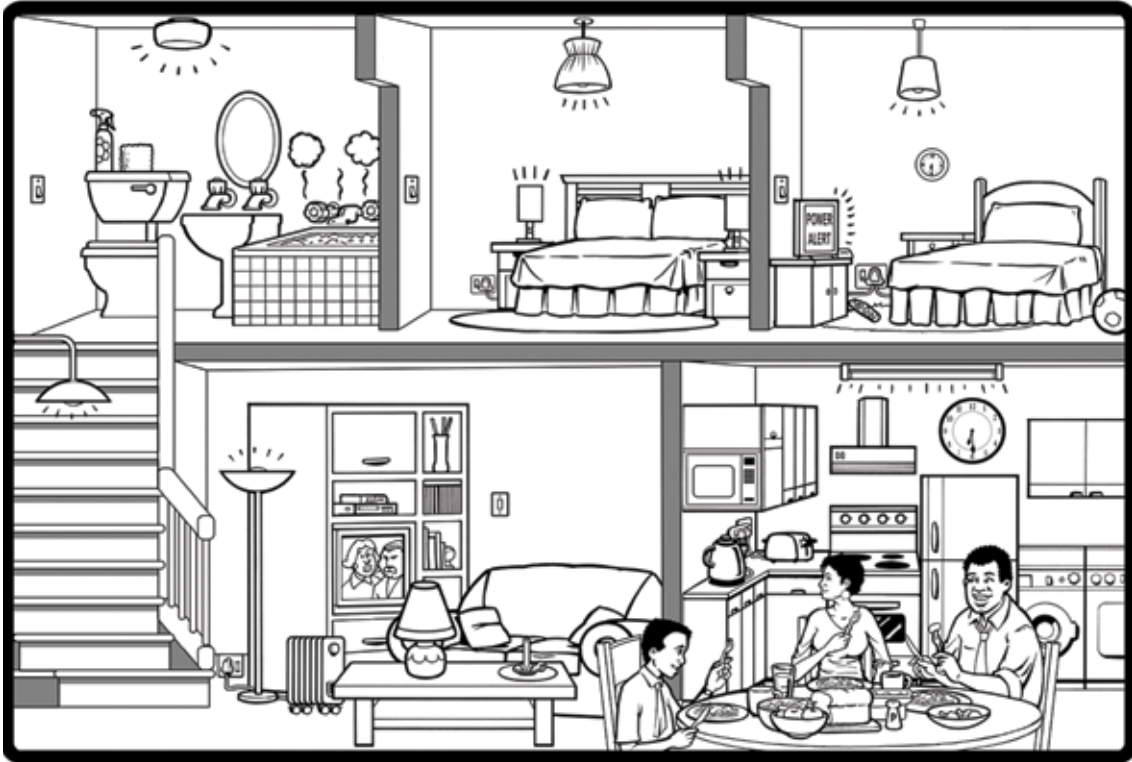
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## Activity 3: Story

### Story : Good Habits



My name is Max and this is what happened at dinner last night. Dad sat down to have dinner with mum and I. Mum had cooked a delicious dinner. Mum watched a programme on television while at the table.

Dad very politely told mum to switch off the TV. Then I shouted out, “Oh no dad, my programme is going to start now.”

Dad replied in a soft but clear voice, “Sssshhhh. Enjoy the food and not the bad thoughts that are coming from the TV. Besides it is unkind to ignore each other at the table.”

“Max,” said dad, “I noticed that you had left all the lights on upstairs. I kindly ask that you switch the lights off upstairs.” “But why dad?,” I asked.

He smiled and replied, “Every time we put something on we are using energy. We are downstairs so there is no need for the lights upstairs to be on. Nobody is watching the television upstairs. Right now we are wasting energy. Whenever we use energy and even if we are wasting energy, I have to pay for it. Besides do you know that coal is burnt to make or generate electricity? Wasting means that we are polluting the air and using up a natural resource.”

“Do not waste **food**; do not waste **water**; do not waste **energy**; do not waste **money** and do not waste **time**. Use what we have **wisely** - it is the right thing to do.”

“I listened to my dad and so did my mum. Although we did wrong, dad was patient and explained very clearly that saving and using energy wisely is a good habit.

## Activity 3: Story



1. Answer the questions on the story: Good Habits:

1.1 Who is telling the story? \_\_\_\_\_  
\_\_\_\_\_

1.2 Who are the people at the dinner table? \_\_\_\_\_  
\_\_\_\_\_

1.3 Why do you think Max was ashamed of himself? \_\_\_\_\_  
\_\_\_\_\_

1.4 What did mum do wrong? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

1.5 What are things that Max did wrong? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

1.6 Which of your responsibilities can you recognise in the story?  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

1.7 Why is it not a good practice to waste energy? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



1.8 What responsibilities did dad teach the family about energy?

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1.9 List 3 other responsibilities that dad taught the family. \_\_\_\_\_

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1.10 Was dad angry? What makes you think so? \_\_\_\_\_

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1.11 What did you like most about the story? \_\_\_\_\_

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2. What do you think is the biggest mistake Max made? Explain your answer.

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3. Max's father thinks that Max is a good boy. What do you think?

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4. There is probably a bit of Max in all of us. Write down three values that you have learnt from the story.

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# Power Alert: How it works in eight easy steps

