Energy Education

Intermediate Phase (Grade 4 - 6) (CAPS)

Educator Guide

Natural Science and Technology

Eskom

Energy Education

The demand for electricity is growing. An alternative to building new power stations to supply the increase in demand for electricity is to use what we have more efficiently (i.e. without wasting), one of the ways is to change the way we use electricity. Eskom's Integrated Demand Management (IDM) Energy Education programme motivates people to change the way they use electricity. Eskom has taken the approach of integrating energy education within the school curriculum.

The energy education programme is being introduced in the Intermediate Phase so that learners can see energy-saving as integral to their lives and put into practice as they grow. The activities are simple and can be adapted by the educator. The activities are within the context of the Curriculum and Assessment Policy Statement (CAPS) of the Department of Education (DoE).

The subjects in the Intermediate Phase (Grades 4,5 and 6) are:

- Home Language
- First Additional Language
- Mathematics
- Life Skills
- Natural Science and Technology
- Social Science

Note: The Eskom guides are in English. The educator will need to translate them into the Home Language.

Educators need to consult the Department of Education's CAPS policy guides for details of the skills, content and assessment within the relevant Phase and Grade.

Specific aims for Natural Science and Technology (CAPS, DoE, 2011)

There are three broad subject-specific aims in Natural Science and Technology which relate to the purpose of learning Science and Technology (CAPS, DoE, 2011). These are:

Specific Aim 1: Learning Science and Technology (investigating and problem-solving).

Specific Aim 2: Understand and connect ideas (knowledge of the subject content "theory").

Specific Aim 3: Science, Technology and Society (understanding the practical use of Natural Science and Technology in everyday life, understanding the history of scientific discoveries and the relationship between indigenous knowledge and science).

For the educator to take note:

- The energy-wise message is integral to all the activities.
- You may use the activities as they are.
- You can adapt or change the activities.
- You can use other resources where you see appropriate.
- Adapt the activities to suit the grade you teach.
- Adapt the activities according to the level of the learners (consider language or any other barriers).
- Share and discuss the activities with other educators in the same phase and grade.
- You can use activities from different grades but adapt to suit the level of your learners.
- You can design your own activities for the additional resources or activity sheets that have been provided. These may not be mentioned in the activities.
- Practice the energy-saving behaviour so you become an example of what is expected.
- Share your knowledge and practice on energy-wise education with everyone at school, at home and in the community.

Thank you for taking care of our earth

Energy-saving

Grade 4

The activity/activities which follow have reference to the extracts of content from the CAPS policy document – Natural Science and Technology: Intermediate Phase Grades 4, 5 and 6, (Department of Education, 2011).

Term 2

Strands: Natural Science: Matter and Materials
Technology: Structures
Topic: Solid Materials
Content: Properties of materials

GRADE 4 TERM 2				
STRANDS: Natural sciences: Matter & Materials				
Technology: Structures				
Time	Topic	Content & Concepts	Suggested Activities: Investigations, Practical work, and Demonstrations	Equipment and Resources
2 weeks (7 hours)	Solid materials	Raw and manufactured materials • Examples of some raw materials we use to make other useful materials – Sand is used to make glass – Clay is used to make ceramics – Coal and oil are used to make plastics, paints and fabrics – Wood and fibre from plants are used to make paper – Animal wool and hide are used to make fabrics and leather Properties of materials • Raw and manufactured materials have specific properties. These properties can include being hard or soft, stiff or flexible, strong or weak, light or heavy, waterproof or absorbent	• reading about how paper is made from plant fibres • describing the properties of raw and manufactures materials	• Examples of raw and manufactured materials to examine the properties such as glass products, leather, ceramics, fabrics, wooden items, plastic products

Activity 1: Properties of materials – Light bulbs

- This activity shows the different materials that can be used in the manufacture of a product.
- You can add your own questions as well.
- Put up an A4 poster of the traditional incandescent bulb and the compact fluorescent light (energy saving). Bring in samples of the actual bulbs as well.
- Talk about the differences in the bulbs (as given in the table below).
- Emphasise the point that one is an energy saving light (CFL) and the other is an old traditional bulb (incandescent which uses a lot of energy).
- Point to different parts of the lights e.g. the glass covering and ask the learners what type of material it is [glass].
- Ask questions like: Why do you think glass was used to make the covering instead of wood? [this glass is transparent – so light can pass through it].
- After the discussion give learners the worksheet as class or homework.
- Review the worksheet with the learners at an appropriate time.

We use different raw materials to manufacture things we use in our lives. Below is some information on raw, manufactured materials and properties of materials.

Raw and manufactured materials

Here are examples of some raw materials we use to make other useful materials:

- sand is used to make glass
- clay is used to make ceramics
- coal and oil are used to make plastics, paints and fabrics
- rigidwood and fibre from plants are used to make paper
- animal wool and hide are used to make fabrics and leather
- some metals are also used in the manufacture of products

Properties of materials

Raw and manufactured materials have specific properties. These properties can include being:

- hard or soft
- stiff or flexible
- strong or weak
- light or heavy
- waterproof or absorbent

Some materials are transparent i.e. you can see through them.

- Light bulbs are used in our daily life. Over the years we have become more aware of using electricity in a wise way. Traditional incandescent bulbs (old light bulbs) are being replaced with energy saving lights called compact fluorescent lights (energy saving).

1. Study the pictures of the lights and use all the information provided to answer the questions.

A

B

Traditional incandescent bulb	The compact fluorescent light (energy saving)
• Has a thin stiff tungsten wire inside which conducts electricity • The wire has to heat up to 2000°C before heat energy is converted to light energy • Wastes energy	• Has mercury vapour (gas) • Does not heat up as much • Saves energy

1.1 Which is the energy saving light (A or B)? Give a reason for your answer. [A – It has mercury vapour instead of a tungsten filament. It does not have to heat to a very high temperature before heat energy can change to light energy].

1.2 Which is the old light (A or B)? Give a reason for your answer.

[B. It has a tungsten filament. It has to heat up to a very high temperature before heat energy changes to light energy].

1.3 Complete the table for the materials used in the manufacture of the traditional incandescent bulbs.

Materials used	Specific properties (see under properties of materials)
1. glass (cover)	1. hard/stiff/light/strong/waterproof/transparent
2. metal (base)	2. hard/stiff/light/strong/waterproof
3. metal (tungsten filament)	3. hard/flexible/light/strong

1.4 Complete the table for the materials used in the manufacture of compact fluorescent lights (energy saving).

Materials used	Specific properties (see under properties of materials)
1. glass (cover)	1. hard/stiff/light/strong/waterproof/transparent
2. ceramic (upper base)	2. hard/stiff/light/strong/waterproof
3. metal (base)	3. hard/stiff/light/strong/waterproof

1.5. List the common materials used in the manufacture of both traditional incandescent bulbs and the compact fluorescent lights (energy saving). Next to each material write down the raw material from which it is made.

Common materials used	Raw material from which it is made
1. glass (cover)	1. sand
2. metal	2. tungsten is a hard steel-grey metal (natural)

1.6 Why do you think plastic was not used to replace the wire inside the traditional bulb? [Plastic can burn easily – the contact will be broken/ plastic will not be able withstand the high temperature. Plastic cannot conduct electricity].

1.7 Which light must we use at home to save electricity?
[Energy saving light].

Grade 4 Term 3

Strands: Energy and change
Technology: Systems and control
Topic: Energy around us
Content: Energy/Input and output energy

GRADE 4 TERM 3			
STRANDS: NATURAL SCIENCES: ENERGY & CHANGE TECHNOLOGY: SYSTEMS & CONTROL			
Time	Topic	Suggested Activities: Investigations, Practical work, and Demonstrations	Equipment and Resources
2 weeks ½ (8 ½ hours)	Energy and energy transfer	• Identifying things that people and animals do that require energy such as carrying out the life processes and all other actions • Drawing and writing about how the energy from the sun is transferred through the food made by plants, to animals/a persons body (energy chain – use arrows to show the direction in which the energy is transferred from the sun)	• Pictures and examples of a selection of machines and appliances including a kettle, stove, torch, radio, iron, fan/hair dryer, can/bicylcle,drum • Video clips from the internet
2 weeks ½ (8 ½ hours)	Energy around us	• Using pictures to identify situations where energy is involved or transformed • Describing the input of energy of a selection of machines and appliances including a kettle, stove, torch, radio, iron, fan/hair dryer, car/bicycle, drum	
Notes: * petrol, diesel, paraffin, jet fuel, candle wax are all products made from natural crude oil			

Activity 2: Energy around us – Energy transfer and input and output energy

- Give each learner a worksheet on energy and change – energy saving.
- Group the learners in pairs.
- The learners should discuss the picture in relation to energy transfer and input and output energy.
- The learners should use the picture of the Watt and Kilowatt family to answer the questions.

Notes:

- We are aware that energy is around us, including movement, heat, light and sound.
- Energy is also stored in sources such as food, wood, coal, oil products and natural gas.
- Energy can be transferred from a source to where it is needed.

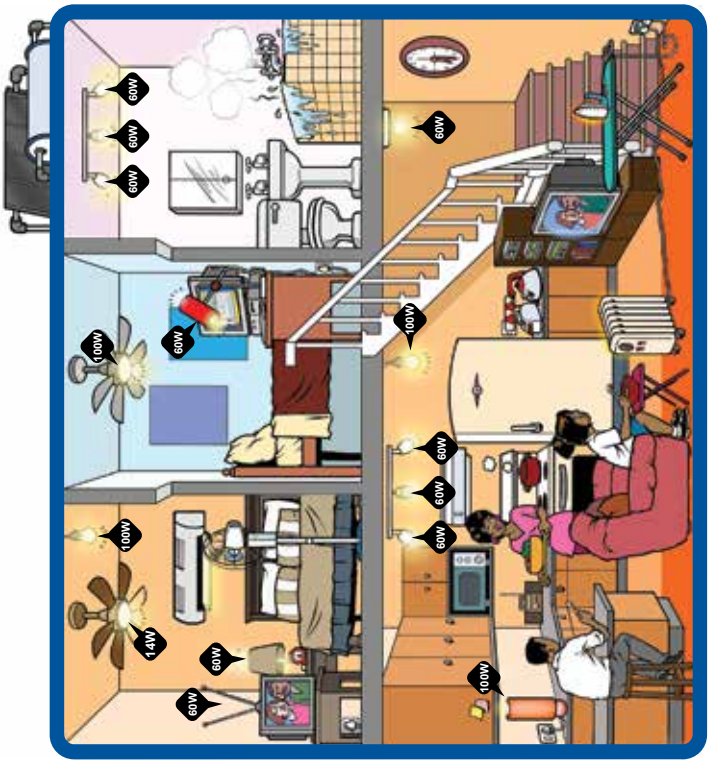
Input and output energy

- Machines and appliances need an input of energy to make them work.
- Machines and appliances provide an output of energy (work) useful to us.

Activity 2: Energy around us – Energy transfer and input and output energy

Study the picture of the two families (the Watt Family and the Kilowatt family) and answer the questions.

Kilowatt family



Watt family

Activity 2: Energy around us – Energy transfer and input and output energy

1.1 What is the main source of energy used by the Watt family? [Mains electricity/ coal – it is burnt as the first stage in the process of producing electricity].

1.2 What sources of energy is the Kilowatt family using? Give a reason for your answer? [Mains electricity: coal is used as the original input energy; solar power – they have a solar panel on the roof].

2. Give examples of appliances from the pictures for the following energy transfers.

	Energy transfer	Appliance
1.	Electrical energy to heat	Iron/stove/microwave/geyser/heater/ light bulbs/kettle
2.	Electrical energy to sound	Television/radio
3.	Electrical energy to light	Light bulbs/television/computer screen
4.	Electrical energy to movement	Fan/washing machine (inside)

3. Select one of the appliances from downstairs and draw a flow diagram to show the input energy and the output energy.

Electrical energy (input) → power station → home stove → heat energy (output)

4. Find the following appliances used by the Watt family.

   - Remote controlled television/s
   - Stove
   - Geyser
   - Refrigerator (fridge)

4.1 Which appliance do you think uses the most amount of energy in a house? Explain why you have chosen that appliance. [Geyser – it is on for 24 hours – water loses heat/when hot water is used – the geyser has to work to heat the cold water which fills it up].

4.2 While there is some energy loss (wasted energy) like in the heating of the fridge motor, list some of the ways in which the Kilowatt family is wasting. [The lights upstairs are on when there is no one upstairs; the TV is on while they are eating; the hot water in the bath is getting cold – electricity has been used to heat the water].

5. Based on what you have learnt about energy transfer, what advice would you give the Watt and Kilowatt families to save energy. [Use CFLs; only switch on appliances when you need to use them; heated water should be used immediately – if there may be need to reheat – you are wasting energy].

6. Using what you have learnt about energy write down an energy saving behaviour you will put into practice at home or school from today. Write down the behaviour on a piece of paper/cardboard and keep it in a place where it will serve as a reminder to you every day.

For example:

I will switch off lights that I am not using.

Energy-saving

Grade 5

The activity/activities which follow have reference to the extracts of content from the CAPS policy document – Natural Science and Technology: Intermediate Phase Grades 4, 5 and 6, (Department of Education, 2011).

Term 3

Strands: Natural Science: Energy and Change
Technology: Systems and control
Topic: Energy and electricity
Content: Mains electricity and safety with electricity

GRADE 5 TERM 3				
STRANDS: Natural sciences: Matter & Materials				
Technology: Structures				
Time	Topic	Content & Concepts	Suggested Activities: Investigations, Practical work, and demonstrations	Equipment and Resources
3 weeks (10½ hours)	Energy and electricity	Cells and batteries • Energy can be stored in torch cells and batteries • A circuit id a system that transfers electrical energy to where it is needed Mains electricity • Electricity from a power station is transferred in a circuit to our homes and back to the power station • A power station needs a source of energy • The source of energy in a power station can be a fuel such as coal Safety with electricity • Safety precautions should be taken when using electricity	• Conneting up a cell, wire and a light bulb to make a simple circuit • Drawing and writing to trace how the electricity comes from the power station to our homes/schools, including power stations, pylons, substations, electricity boxes, wall sockets, plugs and appliances	• Cells (batteries) lengths of wire, light bulbs
Notes: The focus here is on coal fired power stations. There are also other power stations such as hydro-electric and nuclear power stations				

Activity 1: Energy and electricity – Mains electricity

- Give each learner a worksheet.
- Discuss how electricity from the power station is transferred in a circuit to the home. Use the picture provided. Ask questions like which raw material is used get the machines working in the power station?
- Ask the learners to complete the worksheet after the discussion.

Cells and batteries

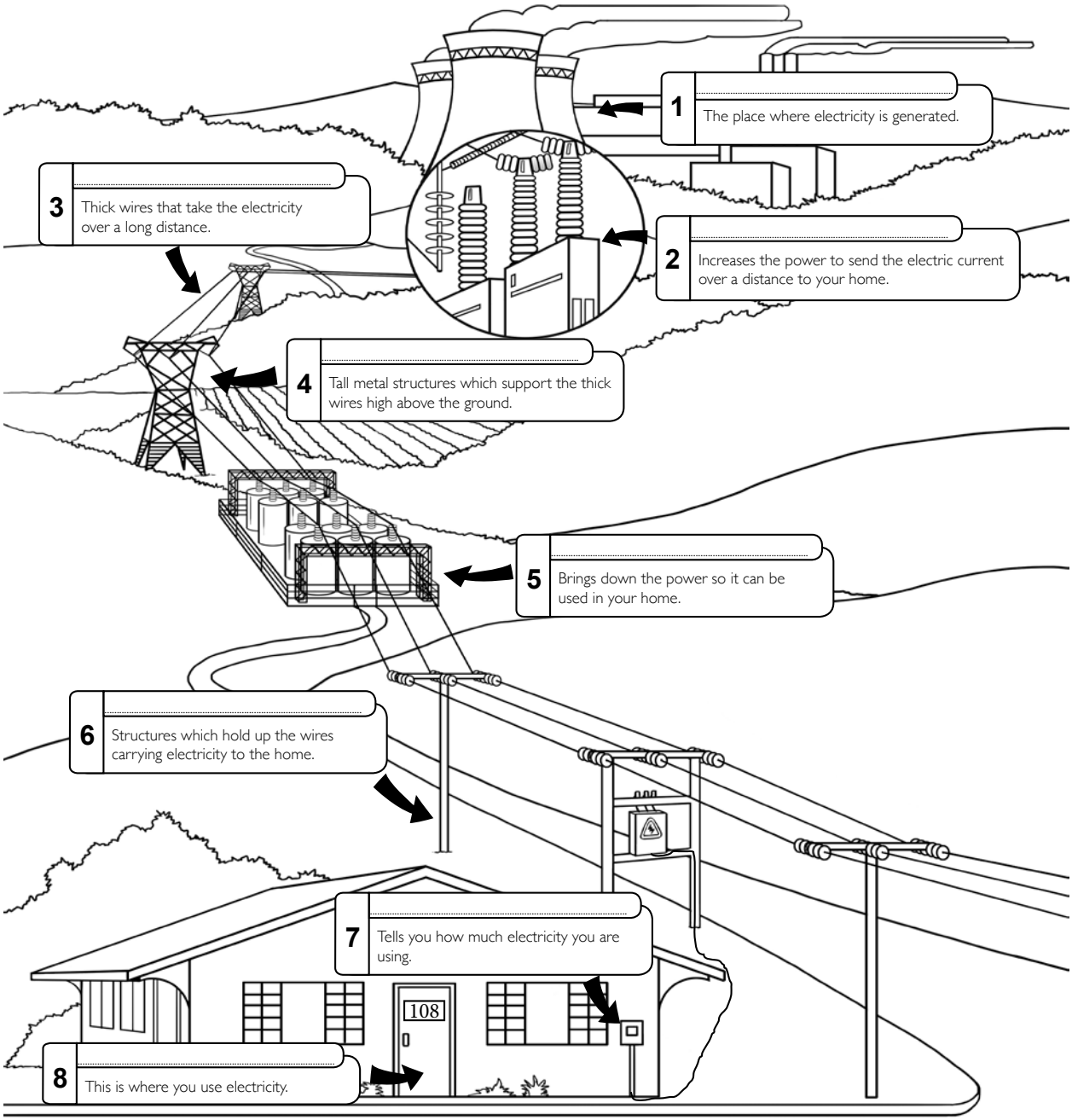
- Energy can be stored in torch cells and batteries and in energy sources.
- A circuit is a system that transfers electrical energy to where it is needed.

Mains electricity

- Electricity from the power station is transferred in a circuit to our homes.
- A power station needs a source of energy.
- The source of energy in a power station can be a fuel such as coal.

1. The diagram shows how electricity gets from a coal fired power station to the home.

How does electricity get to you?



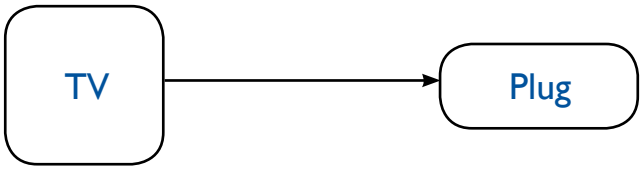
1.1 Fill in the labels in the diagram.

1. Coal fired power station	5. Step-down transformers
2. Step-up transformer	6. Wooden poles
3. Cables	7. Meter box
4. Pylons	8. Use in the home

1.2 Why is coal the "fuel"? [Coal is the original source – it is burnt to produce heat energy which heats water into steam to turn the machines (turbines)].

1.3 Explain why the following statement is incorrect: "Electricity comes from coal itself." [Coal is burnt to produce heat energy which heats water into steam to turn the machines (turbines). The magnets and machines with copper coils produce electricity].

1.4 Using an example of an appliance at home (like the TV) draw a simple diagram to show what happens to the electricity at number 8 on the diagram.



The TV is linked to a plug point by a plug and cord. When the switch at the plug point is switched on – electricity flows to the TV. When the TV is switched on the electricity flows to the parts in the TV making it function.

2. Here is a simple example of how electricity is used in the home.

2.1 Explain why the person who lives in this house is wasting electricity. [No one is in the bedroom but the TV and the lights are on].

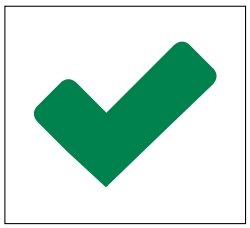
2,2 Using your knowledge of how electricity goes from the plugs to appliances (or lights) explain how one can save electricity? [Appliances or lights which are not in use should be switched off].

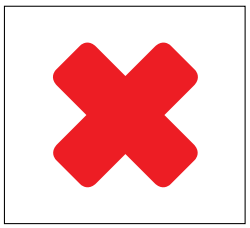
2.3 Why do you think one should not leave remote controlled appliances like the TV or DVD machine on standby mode (or even the microwave oven) especially when no one is at home? [In the remote mode an appliance is not switched off completely – there is still a light or a timer on – as long as a light is on it means that power is coming through].

2.4 What is the correct way to switch off remote controlled appliances like the TV to save electricity? [Switch them off at the plug].

Activity 2: Energy and electricity – Mains electricity and safety

Safety when using electricity:





Safety precautions should always be taken when using electricity, working with electricity or being around areas supplying electricity.

- List ways in which one can use electricity in a safe way.
- Draw diagrams or stick in pictures to show safety when using electricity.
- You can also stick in pictures which show the dangerous use of electricity but put a big cross (X) over them.
- Compare notes with your friends to add to your list.
- You can demonstrate your safety tips to the class.

Ways one can use electricity in a safe way.

- Do not overload plug points by using many adaptors.
- Wires in cords should not be exposed – they should be well insulated with insulation tape at the joints.
- Make sure the plug has been properly wired.
- Get an electrician to check and repair all faulty wiring or plug points.
- Technicians should repair electrical appliances.
- There should be no illegal connections.
- Do not touch electrical appliances with wet hands – water conducts electricity. Your hands should be dry.
- Do not allow water to go into plugs or splash on plug points. Plugs and plug points should always be dry.

- Switch off electrical appliances like the television when there is a thunderstorm. Lightning can cause damage to these appliances or may cause them to explode or even start a fire.
- Play away from electrical substations.
- Keep away from electrical wires that have been cut whether at home or on the roads.
- If someone is experiencing an electrical shock – do not touch them, use a piece of wood to switch the mains/electricity supply off.

Energy-saving

Grade 6

The activity/activities which follow have reference to the extracts of content from the CAPS policy document – Natural Science and Technology: Intermediate Phase Grades 4, 5 and 6, (Department of Education, 2011).

Term 3

Strands:	Natural Science: Energy and Change
Technology:	Systems and control
Topic:	Energy and electricity
Content:	Fossil Fuels and electricity/Cost of electricity and saving electricity.

Activity 1: Energy – Mains electricity – The coal fired power station

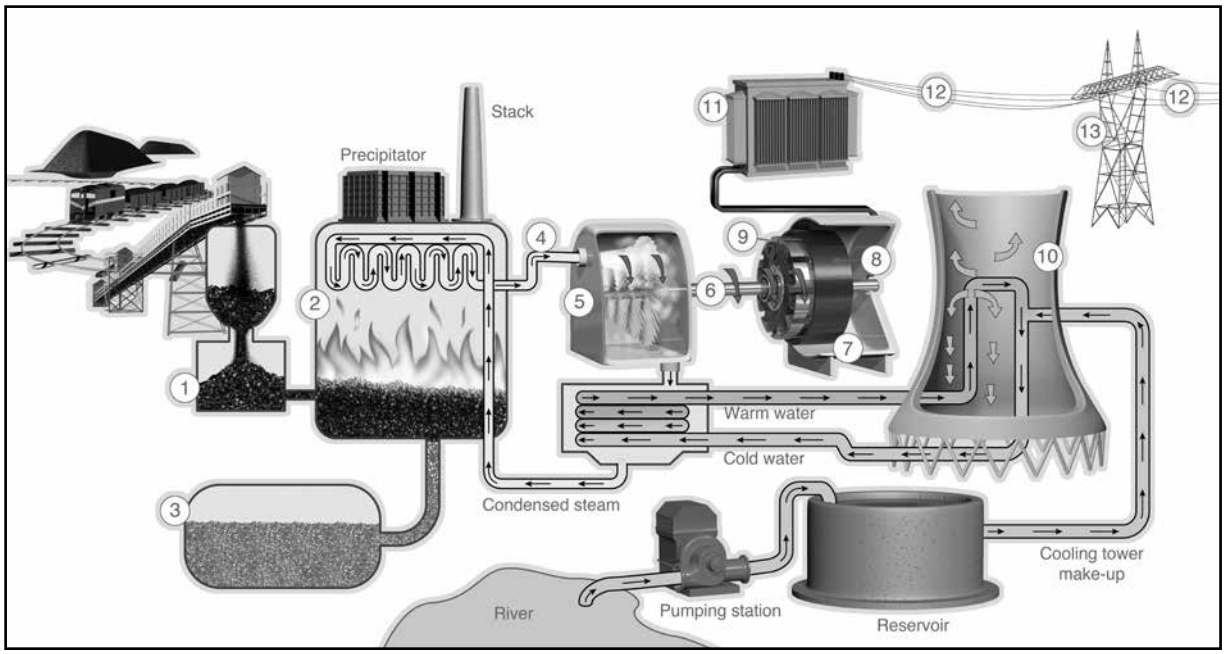
- Give each learner a worksheet.
- Ask the learners in groups (of 4) to draw a flow diagram or picture to explain to the class how electricity from the power station is transferred in a circuit to the home.
- Get a group of the learners to come to the front of the class to explain their picture or flow diagram.
- All groups need not present as this will be time consuming.
- Build on the knowledge as each group presents by asking further questions and by asking other groups whether they agree or disagree with what was presented.
- Hand out a worksheet to each learner. Use the diagram provided to discuss the process of how electricity is produced in a power station using coal.
- Discuss the term "non-renewable" with the class.
- Ask the learners to complete the worksheet after the discussion.

Fossil fuels and electricity

- Fossil fuels were formed in the Earth's crust millions of years ago from dead plants and animals.
- Coal, oil and natural gas are fossil fuels.
- In South Africa coal is the most used fuel in power stations.
- Coal is formed from fossilised plants which got their energy from the sun originally.
- In a coal fired power station coal is used as the fuel in the process of generating ("making") electricity.
- Fossil fuels are non-renewable resources.

Activity 1: Energy – Mains electricity – The coal fired power station

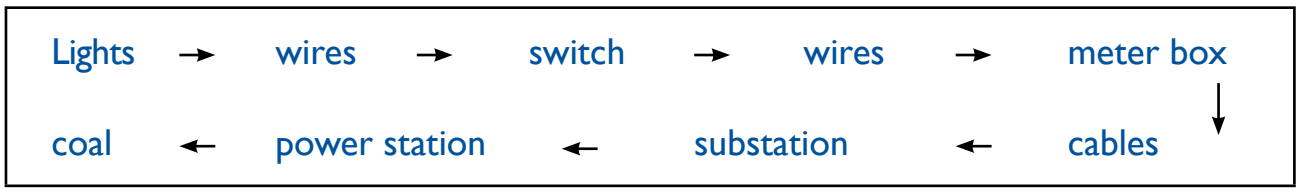
1. Study the diagram on how electricity is generated (made) using coal and answer the questions.



1.1 Provide labels for numbers 1 to 13 on the diagram.

1. Coal pulveriser (coal mill)
2. Boiler
3. Ash (burnt coal)
4. Water to steam
5. Turbine
6. Rotating shaft linking the turbine and generator
7. Generator made up of a spinning rotor
8. Coil of copper wire
9. Magnet inside a coil of copper
10. Cooling tower
11. Step-up transformer
12. Transmission cables/lines
13. Pylon

1.2 Draw a flow diagram to trace right back where the electricity for lights in a home comes from.



2. Fossil fuels are non-renewable resources. Non-renewable resources are not limitless – these resources get used up. Fossil fuels can take millions of years to form.

2.1 Is coal a renewable or non-renewable resource? Give reasons for your answer. [Non-renewable – it takes millions of years to form from dead plant material].

2.2 Which resource is used as the main fuel in the process of generating (making) most of the electricity in South Africa? [Coal]

2.3 Why is it a disadvantage to use coal as a resource in the process of generating (making) electricity? [Coal has to be mined – there is disturbance to the natural environment/burning of coal results in pollution in the environment/the supply of coal may run out at some point].

2.4 Explain why it is necessary to use electricity wisely?
[Coal is the main source of energy to produce electricity in South Africa – coal is a non-renewable resource – the more electricity we use the more coal is burnt – the supply can run out sooner/wasting electricity means unnecessary pollution to the environment/producing electricity costs money – wasting electricity means you are wasting money].

3. People are looking for ways to use renewable resources to generate electricity.

3.1 Write down which are renewable sources of energy from the following list: wind/wood/water/coal/natural gas/oil/solar energy/ nuclear energy/steam. [Solar energy/wind].

3.2 Select which resource is better to use in South Africa: solar energy or wind. Explain why you chose that resource. [Check the learners reasons for the answer. Solar although costly, may be better, as the whole of South Africa gets enough sunlight which is not the case with wind/the sun is also a more consistent source of energy than wind].

Activity 2: Energy – Cost of and saving electricity

- Use an example like the box of compact fluorescent lights/sample to show the Watt rating. [Watt shows the power – the greater the Watt value the more electricity the appliance uses].
- Give each learner a worksheet.
- Ask the learners to complete the worksheet.

Cost of electricity

- Electricity is costly because it requires infrastructure which include coal mines, transport, power stations, pylons, substations, cables and wiring and persons to construct and maintain the services.
- Some electrical appliances require more electricity than others (heating appliances use the most electricity).
- The more electricity we use the more we pay and the more coal is used.
- We can save energy in many ways.

Activity 2: Energy – Cost of and saving electricity

1. The labels on appliances usually tell you the power rating of an appliance e.g. kettle – 2000W or television – 300W. Sometimes this information is given in advertisements.

   Find advertisements showing the following appliances and write down the power ratings. If you have these appliances at home ask an adult to help you get the ratings. Please be careful when checking appliances. Make certain the switch is off.

Appliance	Power in watts	Power in watts (appliance in an advertisement or in your home)
Television	300W	
Energy saving light (compact fluorescent light – CFL)	11W	
Electric kettle	1850W	
Old light bulb (incandescent)	60W	
Iron	1400W	

Activity 2: Energy – Cost of and saving electricity

1.1 From the information given in the table write down the amount of electricity the appliances use in order, from lowest to highest. Let us assume that all the appliances are switched on at the same time for the same period (e.g. for 2 hours). The power ratings will indicate which uses the lowest and the highest electricity. Do the same for what you have found at home.

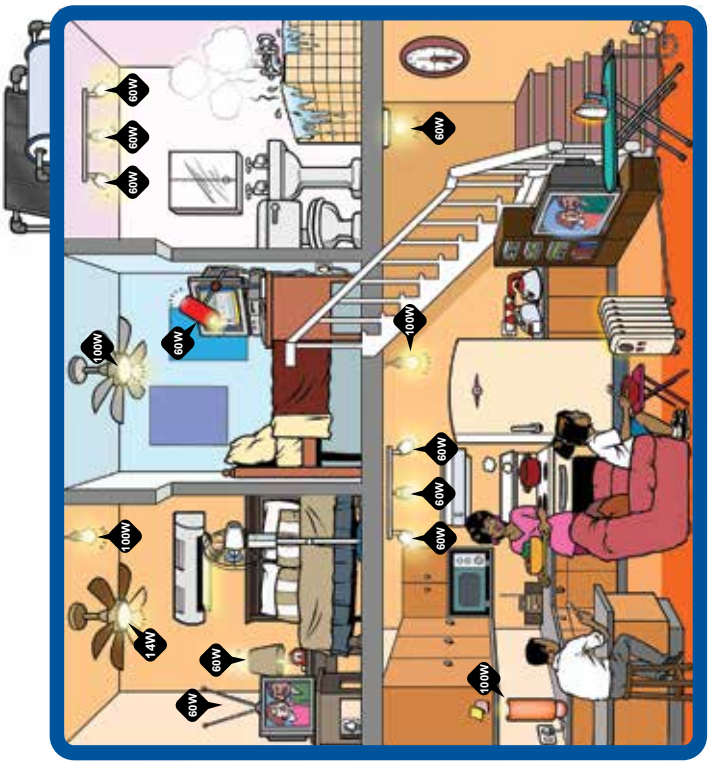
	Power in watts (lowest to highest)	Appliance
1.	11W	Energy saving light (compact fluorescent light - CFL)
2.	60W	Old light bulb (incandescent)
3.	300W	Television
4.	1400W	Iron
5.	1850W	Electric kettle

1.2 Write down how one can use each appliance in a way that will save electricity. First discuss the energy saving tips with your friends.

	Appliance	Energy saving ways to use the appliance
1.	Energy saving light (compact fluorescent light - CFL)	Switch on when needed. Use the lowest watt light wherever possible.
2.	Old light bulb (incandescent)	Replace with the CFL. Switch on when needed.
3.	Television	Switch off at the switch and plug. Watch less TV – be selective about what you watch.
4.	Iron	Get all the clothes together before ironing. Looking for the clothes while the iron is on wastes electricity and is also dangerous.
5.	Electric kettle	Boil only the amount of water required.

2. Study the picture of the two families (the Watt Family and the Kilowatt family) and answer the questions which follow.

Kilowatt family



Watt family

Activity 2: Energy – Cost of and saving electricity

2.1 What is the main source of energy used by the Watt family? [Mains electricity].

2.2 What sources of energy is the Kilowatt family using? Give a reason for your answer? [Mains electricity; solar energy – they have a solar panel].

2.3 Do you think the Watt and Kilowatt families are using electricity wisely, are they wasting or saving energy? Give reasons for your answer. [They are wasting energy – they have lights on upstairs when there is no one upstairs; the TV is on while they are eating; the TV upstairs is on – no one is watching; the hot water is getting cold in the bath – electricity has been used to heat the water].

2.4 Why should both families save electricity? [In South Africa coal is mostly used to generate electricity – if we waste electricity, we are wasting coal which is a non-renewable resource].

2.5 List ways in which these two families can save electricity. [Switch off lights that are not in use; switch off the television at the switch; use hot water when needed].

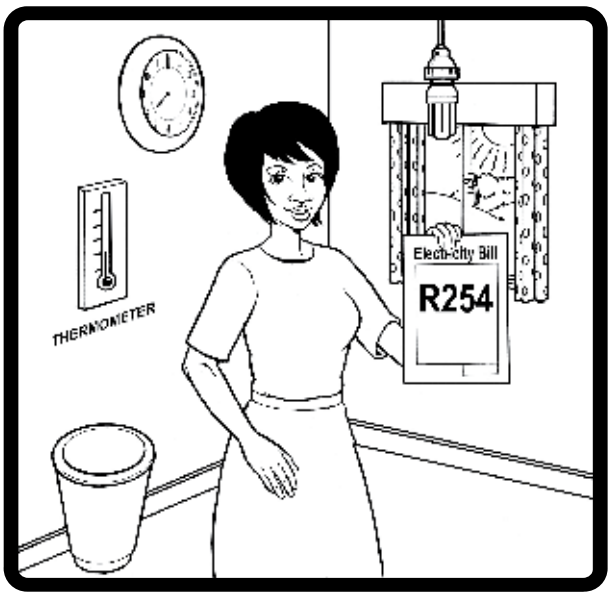
2.6 Write down other ways one can save electricity. [e.g. Buy energy saving and efficient products/use energy saving lights].

2.7 In order to use our coal resources wisely and save electricity, what do you think should be the golden rule for the use of electricity? [Complete the rule]. Switch it off if you are not using it.

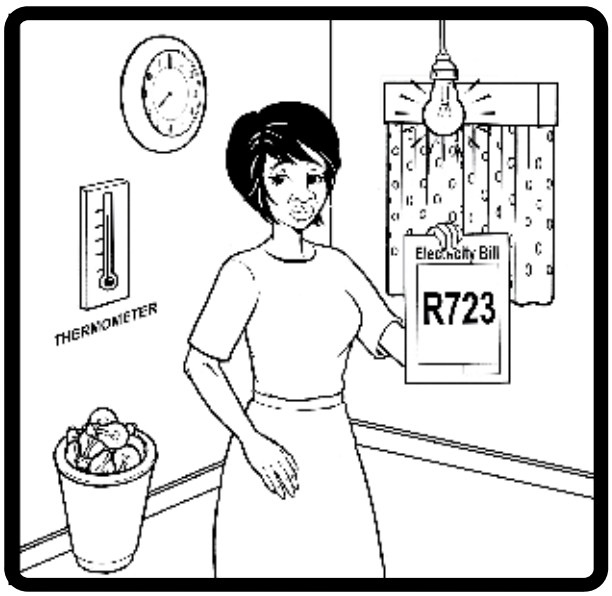
Activity 3: Energy and electricity – Saving electricity

- Use examples e.g. box of a compact fluorescent light/sample to show the differences between these two kinds of lights.
- Give each learner a worksheet.
- Ask the learners to complete the worksheet.
- Discuss the answers after they have completed the worksheet.

Study pictures A and B and answer the questions.



A



B

Activity 3: Energy and electricity – Saving electricity

2.1 List the differences between picture A and picture B.

Picture A	Picture B
1. Energy saving light	1. Incandescent bulb
2. Low light account	2. High light account
3. Bin is empty	3. Bin is full
4. Thermometer reading is low	4. Thermometer reading is high
5. 8.00am – the light is off	5. 8.00am – the light is on
6. 800.am – curtain is open for natural light	6. 800.am – curtain is drawn
7. Lady is happy/smiling	7. Lady is unhappy
8. Lady's hair is black	8. Lady's hair has streaks of grey

2.2 What shows you that the old light bulb gives off a lot of heat?
[The thermometer reading is higher].

2.3 The lady in picture B decided that she could make some money by selling electricity to people living in an old building on a piece of vacant land next to her house. She got a friend (who was not an electrician) to make the electrical connection to the building next door. The cables or wires that connected the two buildings were not properly covered. Children usually played in the vacant land.

Activity 3: Energy and electricity – Saving electricity

2.3.1 Did the lady in picture B do the right or wrong thing? [Wrong thing].

2.3.2 What are your reasons for saying yes or no in 2.3.1?
[She is doing something illegal and dangerous].

2.3.3 What are the consequences of what the lady in picture B did?
[She could get prosecuted or go to jail; others can suffer injury/get shocked/electrocuted from incorrect connections].

2.3.4 Do you think it would be alright if she got a qualified electrician to make the connection? What is the reason for your answer? [No – she is still doing something illegal].

2.4 List ways in which the lady in picture A is saving electricity.
[She is using energy saving lights/8.00am – the light is off/
8.00am – curtain is open to allow natural light in].

2.5 How can the lady in picture B save electricity and bring her electricity account down? [Use energy saving lights/8.00am – switch the light off/
8.00.am – open the curtain to allow natural light in].