

The value of our electricity

Foundation Phase (Grade 3)
Educator Guide

Home Language, First Additional Language,
Mathematics, Life Skills



How to save energy

Electricity is produced from fuel such as coal, water, diesel and uranium which are limited resources. 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 Basic Education (DBE).

The subjects in Grade 3 are:

- Home Language
- First Additional Language
- Mathematics
- Life Skills

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 Grades.

Home Language

The skills in the Home Language are (CAPS, DBE, 2011):

<ul style="list-style-type: none">• Listening and speaking• Reading and phonics• Writing and handwriting	Thinking, reasoning and language structure and use are integrated into all four language skills (listening, speaking, reading and writing).
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An integrated approach is taken to develop the skills required in Home Language within the context of energy education.

Mathematics

In earlier grades children should be exposed to mathematical experiences that give them many opportunities to “do, talk and record” their mathematical thinking (CAPS, DBE, 2011, p10). The energy education activities can be done during teacher-guided numeracy learning opportunities offered during ring time. The Eskom Energy Education programme has been designed in line with the to “do, talk and record” approach.

Life Skills

The Life Skills subject is aimed at guiding and preparing learners for life and its possibilities, including equipping learners for meaningful and successful living in a rapidly changing and transforming society (CAPS, Life Skills Gr 1 - 3, DBE, 2011, p8). Through Life Skills learners are exposed to a range of knowledge, skills and values. Structured Life Skills activities should be short teacher-guided activities (CAPS, Life Skills Gr 1 - 3, DBE, 2011, p11). The activities within the Eskom Energy programme can be adapted by the educator to suit the Grade 3 programme.



This icon means you should read carefully and carry out the relevant educator action in the activity.

For the educator to take note:

- Being energy-wise is the message that 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 the different grades but adapt to suit the level of your learners.
- You can design your own activities that best suit the level of learners and grade you are teaching.
- 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, home and in the community.
- Saving energy means we don't have to produce so much, using our limited natural resources and limiting the amount of pollution we create, thus taking better care of our environment.

Thank you for taking care of our earth

Energy-saving

Activity I Energy-saving lights

[Educator] Introduction for the learners:

Learners in the Foundation Phase learn best when they are able to see concrete objects. The educator should start with the following introduction.



- Show the learners the actual old light bulb (incandescent) and the energy-saving light (compact fluorescent light - CFL). Do not use the words incandescent or compact fluorescent light.
- You can also place A4 pictures of the lights next to each other.



**Incandescent light
Old traditional
light bulb**



**Compact fluorescent
light (CFL)
Energy-saving light**



Making reference to the energy-saving light:

- The energy-saving light does not get as hot as the old light bulb.
- It has a gas inside.
- The energy-saving light lasts far longer than the old light bulb.
- We should use the energy-saving light - it uses less energy.



Making reference to the old light bulb:

- The old light bulb has a thin wire inside.
- It gets very hot... it uses more energy.
- We should not use the old light bulb - it uses more energy.

[Note: The safe disposal of CFL or energy savers is crucial for South Africa. CFLs disposed of en masse in land fill sites could be detrimental in years to come to water resources. The energy-saving light has mercury vapour in it, and should it break, the educator would have to clean it up with specific precautions and evacuate the class for 15 minutes].

English - Home Language

Component	Activity	Term	Resource
<ul style="list-style-type: none"> - Listening and speaking - Reading and phonics 	<ul style="list-style-type: none"> - Listening to the differences between the bulbs - Answering questions orally on the bulbs - Using visual cues to talk about graphical text 	I	<ul style="list-style-type: none"> - Actual light bulbs - A4 picture of an energy-saving light - A4 picture of the old light bulb - Picture of the 2 ladies



- Use prestik or a magnet to place the A4 pictures of the energy-saving light and the old light bulb next to each other on the board.
- Refer to the picture of the energy-saving light as A and the old light bulb as B.
- Tell the learners that you are going to ask questions on the lights and that they should put up their hands if they want to answer.
- You can add on more relevant questions.



Questions:

- 1.1 Which picture shows the energy-saving light? [A]
- 1.2 Which picture shows the old light bulb? [B]
- 1.3 Which light should be used at home? [A - energy-saving light].
- 1.4 Why is it not good to use the old light bulb? [It gets very hot, uses a lot of energy, does not last long].
- 1.5 Should children play or change the light when it burns out? [No]
- 1.6 Who should change the light when it burns out? [Parents or an adult].
- 1.7 Why don't more people use the energy saving lights if they are going to save you energy? [They are more expensive to buy]
- 1.8 Why should we use the energy saver rather than the old light bulb? [It will save energy and thus also save on your electricity bill].
- 1.9 What do you think you can tell the people that live in your house about light bulbs? [Use the energy savers, they save electricity, they save you money]
- 1.10 Which light bulb would you choose if you had your own house?[Energy savers]



- Give each learner an A4 worksheet of the ladies.
- The picture on the right is A and the picture on the left is B.
- Tell the learners that they need to find differences between picture A and picture B on their own.
- Learners need to put a shaded dot (•) next to the corresponding differences on each picture.
- Give the learners about 10 minutes to complete the activity.
- Use prestik or a magnet to place an A2 poster of the 2 ladies on the board.
- Tell the learners to talk about the differences between the pictures. They have to come to the board and point out each difference on the poster.
- Write out each of the differences given by the learners on the board.
- Learners should read with you the differences for picture A and B.



Picture A



Picture B

Picture A	Picture B
1. Uses energy-saving lights	1. Uses old light bulbs
2. The bin is empty	2. The bin is full
3. The lady is smiling	3. The lady is sad
4. The lady's hair is black	4. The lady's hair is grey/white
5. The account is low	5. The account is high
6. The temperature is low	6. The temperature is high



Here are questions you can ask learners orally:

- Why do you think the lady in picture A is smiling? [She is saving energy].
- Why is the bin in picture B full? [The old light bulbs do not last long].
- Which bulb gets very hot? [Old light bulb - picture B].

Activity 2 Use energy wisely... Do not waste energy (Pictograph I)

Mathematics			
Component	Activity	Term	Resource
Data handling	<ul style="list-style-type: none">- Collect and organise data- Represent data- Pictograph- Analyse and interpret data	I	Picture of the family

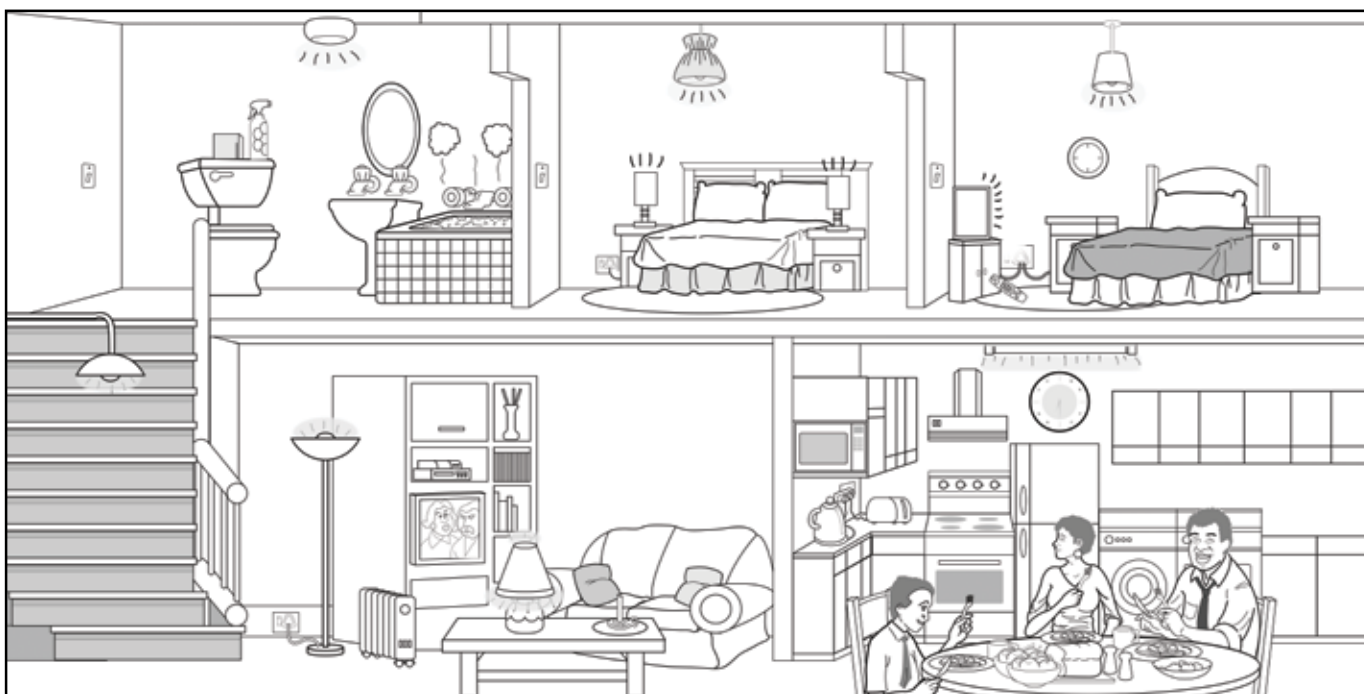
A pictograph is a way of showing information using pictures or images. This is a simple way of introducing learners to present information in tables and graphs later on.

To draw a pictograph one needs information. The information can be obtained from the learners on a specific topic or theme, or the educator can provide the information. In this activity information on aspects of energy use are used to draw pictographs.



Pictograph I

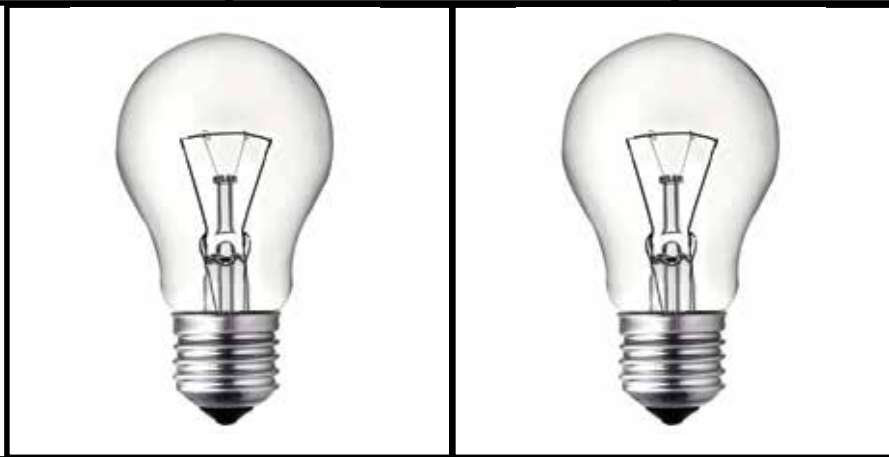
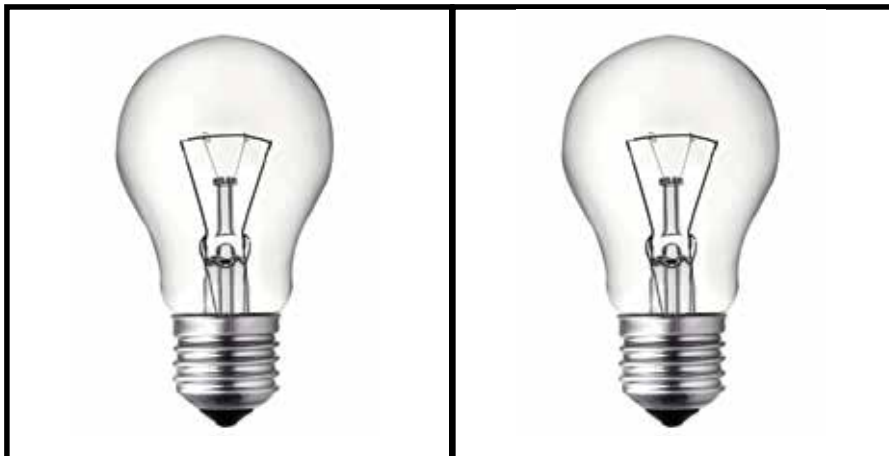
Use the picture of the family: "Use energy wisely".

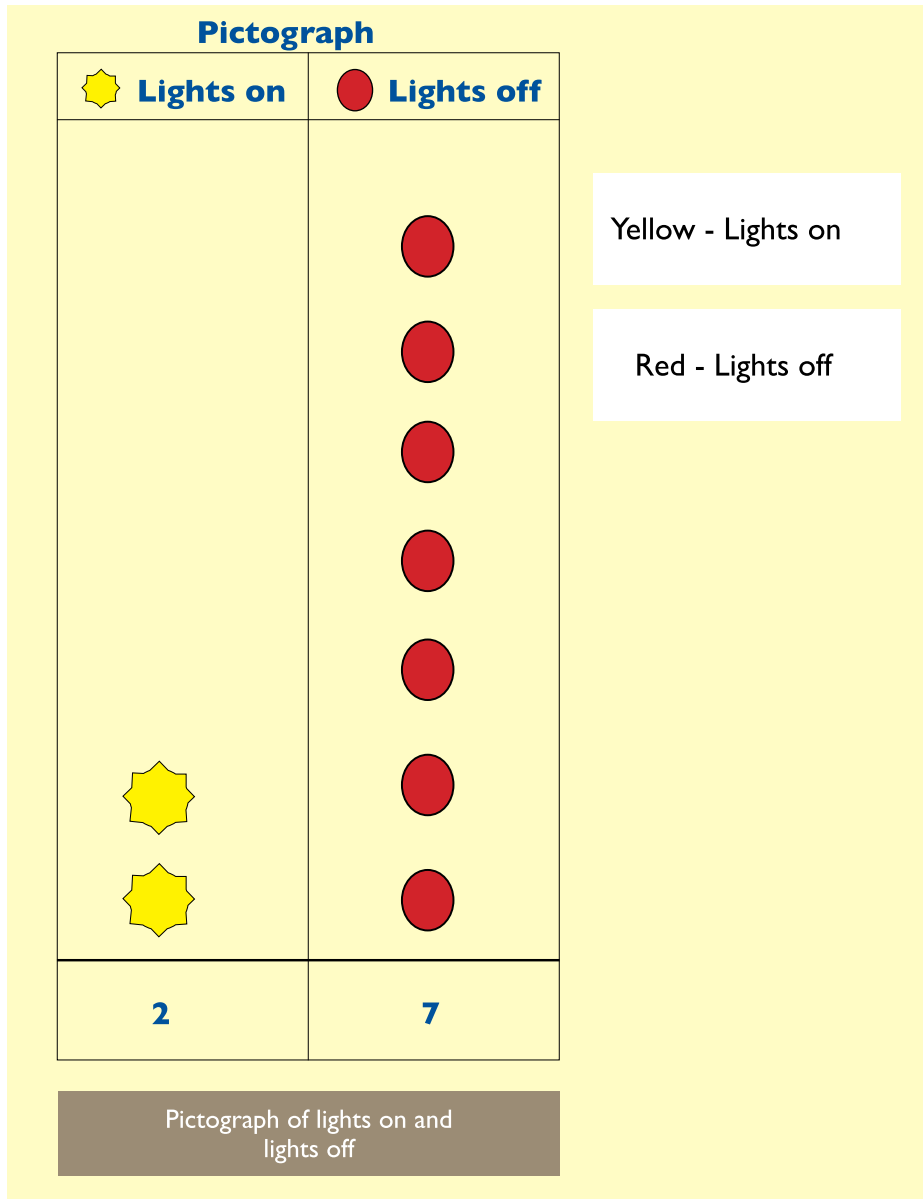


- 2.1 Colour in the lights that you think should be off in red. [bathroom, middle bedroom, right hand bedroom, 2 in lounge]
- 2.2 Count the number of lights that should be on. [3 - kitchen/dining room, stairs. Write the number on the board.]
- 2.3 Count the number of lights that should be off. [6 - bathroom, 2 in middle bedroom, right hand bedroom, 2 in lounge. Write the number on the board.]
- 2.4 Let us put all the information on a pictograph. Tell the learners what a pictograph is.
 - Use the pictograph template provided.
 - Decide on a symbol/picture for the lights that should be on.
 - Decide on a symbol/picture for lights that should be off.
 - Draw the key to the graph - draw the picture or the correct symbol next to the word on and off.
 - Label the graph. [Use simple words for the labels - on, off. Caption: lights on - off].
 - Draw the picture or the correct symbol next to the word on and off in the table.
 - Draw in the correct number of lights in the correct column.
 - Refer to the examples given.



Energy saving and old lights





The pictograph above is an example of how a pictograph can be laid out. You can use other ways. Another example is given below.

On		2
Off		7
Lights - on or off		



Activity 2 Use energy wisely... Do not waste energy (Pictograph 2)

Pictograph 2

This pictograph involves getting the information from the learners.



How many learners only have energy-saving lights at home? [Ask the learners to raise their hands and count loudly together. Write the number on the board].



How many learners only have old light bulbs at home? [Ask the learners to raise their hands and count loudly together. Write the number on the board].

Let us put all this information on a pictograph.

- Refer to the template that is provided.
- Decide on a symbol/picture for an energy-saving light.
- Decide on a symbol/picture for the old light bulb.
- Label the graph. [Use simple words for the labels - save, waste. Caption: lights at home].
- Draw the picture or the correct symbol next to the label.
- Draw the key to the graph.
- Draw the correct number of lights in the correct column.
- Refer to the previous example.

Information to be written on the board (NB. This is only an example):

Questions	Number of learners
1. How many learners only have energy-saving lights at home?	3
2. How many learners only have old light bulbs at home?	2
3. Learners who did not raise their hands?	5
Total number of learners in class	10

Learners - Energy-saving lights		3
Learners - Old light bulbs		2
Learners - Energy-saving or old light bulbs		

Activity 2 Use energy wisely... Do not waste energy (Pictograph 3)

Pictograph 3

This pictograph involves getting the information from the learners.



Ask the learners how many have televisions at home. [Write this down on the board].

Ask the learners how many do not have televisions at home. [Write this down on the board]. Be sensitive as you do not want these learners to feel left out. Indicate that sometimes not having a television at home is an advantage. You have more time do so many other things like playing, drawing and talking to your family.

Those learners who said that they have televisions at home - put your hands up if you switch the TV on and off with the remote control? [Demonstrate using a remote control]. [Write down the number of learners on the board].

Those learners who said that they have televisions at home - put your hands up if you switch the TV on and off using the television switch? [Demonstrate showing switching the television on and off using the television switch]. [Write down the number of learners on the board].




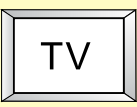
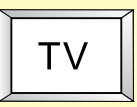


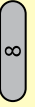

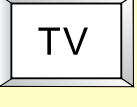





What is the right way to switch the TV **on** and **off**? Why do you think so? [Correct way - switch the television on and off using the switch on the television. When the television is switched off with the remote control the television is not completely off - we can still see a small light on - we are wasting energy].


Let us represent the information on a pictograph.




- Refer to the template that is provided
- Decide on a symbol/picture for the remote control.
- Decide on a symbol/picture for using the television switch.
- Label the graph. [Use simple words for the labels - remote, TV switch. Caption: TV on or off].
- Draw the picture or the correct symbol next to the label.
- Draw the key to the graph.
- Draw the correct number of remote/TV in the correct column.
- Write in the caption for the graph.
- Refer to the examples given.

Pictograph



Remote	TV switch
  	 
  	 
  	 
9	6

 Switching the TV off with the TV switch.

 Switching the TV off with the remote

Pictograph of switching the TV off with the remote or with the TV switch

The above is an example of how a pictograph can be laid out. You can use other ways. Another example is given below.

Remote 		
TV switch 		
TV on and off - remote or switch		

Activity 3 Presentation/Role-play/Drama

English - Home Language			
Component	Activity	Term	Resource
Listening and speaking (oral)	Makes an oral presentation	3	<ul style="list-style-type: none"> - Picture of an energy-saving light - Picture of the 2 ladies

3.1 Learners are to do an oral presentation of an energy-saving light or an old light bulb.



- Put up A4 pictures of the old light bulb and an energy-saving light.
- Tell the learners to look at the picture of the old light bulb and an energy-saving light and think about the differences between the lights.
- Call on any learner/s to choose a picture and talk about it.

3.2 Learners are to do an oral presentation/role-play using the pictures of the 2 ladies.



- Put up an A2 poster of the 2 ladies.
- Tell the learners to think about the differences between the pictures of the 2 ladies.
- Call any learner/s to talk about the pictures.

Provide the sentences below to the learners to use in their presentation.

1. I am an energy-saving light.
2. I give off light (show flicking action).
3. Everyone should use lights like me.
4. I use less energy.
5. I can be dangerous - I break easily.
6. Children should not touch me.
7. I care for the earth therefore I use less energy.
8. **But** remember, **children should never touch me.**

Example dialogue which can be used to guide learners in their role play.

Energy saver:[Happy voice]. Hi, I'm an energy saver, I save your household money.What do you do?

Old light bulb:Hi, I'm an old energy wasting light bulb. I make light, but I spend lots of my energy getting warm.

Energy saver:If you are a light bulb, why do you use your energy getting warm? Are you a heater?

Old light bulb:[Cross voice]. No, I'm not a heater, but the wire that I use to make light, also gets hot, so then I end up making heat as well as light.

Energy saver: [Happy voice]. But if you are making heat at well, thats good isn't it?

Old light bulb:[Disappointed tired voice]. No, not at all. People buy me to make light. In making light I also make heat, and this uses all my energy.When people want heat, they buy a heater. I'm supposed to only make light, but the wire inside me gets so hot, I also make heat.

Energy saver: I have not seen you here before?

Old light bulb:I know, I have not been here long. I don't last as long as you do.You have been here a long long long time. I can't burn that long, then I have to be replaced.

Energy saver:[Happy encouraging voice]. But at least you are cheaper, that's good isn't it?

Old light bulb:[Sad voice]. No, not really. People like to buy me because Im cheaper but I use lots and lots of energy, so the money they saved by buying cheaper is anyway used to pay for the energy I use. I think you are much better, because even though you are more expensive, you last longer and you don't use so much energy.

Energy saver: [Impressed voice]. I have mercury vapour gas!

Old light bulb:Wow, is that dangerous? I'm not going to touch you!

Energy saver:[Stern voice]. Its not dangerous, unless you drop me and I break. [Pointing a finger at the old light bulb].You should not breath in my mercury vapour gas!

Old light bulb:[Laughing]. Aaah, if you break, we will just thow you in the dustbin!

Energy saver:No! You should never throw me in the dustbin. My mercury should never end up on the rubbish dump. I have to go to the shops where they collect old bulbs, or you can put me in a sealed container to the rubbish dump.

Old light bulb:You are really special? Why are you so special?

Energy saver: [Proud voice, chest out].Yes, I am! I'm special because energy is scarce and expensive, and I don't use a lot.

Old light bulb:You really are clever, I have learned a lot from you. I hope we can be friends.

Energy saver:I'm sorry, I don't think so, because you wont be around long enough.

Old light bulb:[Sad voice]. Eventually they won't make me anymore will they?

Energy saver:I like you as a friend, but no, they won't make you anymore because we have to save energy otherwise there won't be enough for everyone.

Old light bulb:I understand my friend, we have to do this to save our earth.

Activity 4 Role-play/Drama

Use the picture of the A4 energy-saving light for this activity.

Life Skills			
Component	Activity	Term	Resource
Creative Arts	Improvise and interpret - dramatise in groups using an existing story based on appropriate topics, to develop their own endings	2	Picture of the family

Dramatisation: Dramatisation involves learners performing actions to show something. The learners can make up a short story of no more than a few sentences based on a box of interesting objects - an object is selected and imagined to be **alive**.

Learners are to dramatise/do an oral presentation of an energy-saving light and/or an old light bulb. Learners should not be allowed to touch the bulbs as they are fragile and break easily. The energy-saving light has mercury vapour in it and can be harmful.

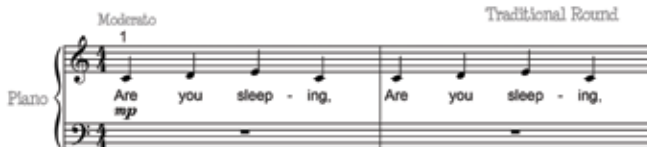


- Put up the A4 picture of the energy-saving light and the old light bulb.
- Tell the learners to look at the picture of the old light bulb.
- The educator reads the first verse of the song and demonstrates the tune. (The song is sung to the tune of Father Jacob, Bana ba Sekolo and Frere Jacque)
- **The learners are to sing the first verse of the song when the educator claps.**
[Educator claps] - learners sing the song as the educator claps
- Repeat the same for each line on the next page.
- Tell the learners to look at the energy saver light.
- Reads the second verse of the song as was done in the first verse.
- The children sing the second verse when the teacher claps.
- Then the whole song is repeated until the children can sing it on their own. Ask the class who wants to sign it for everyone.



**In-can-de-scents!
In-can-de-scents!
They waste rands, they waste rands.
They use lots of energy, they use lots of energy
Don't use them, don't use them!**

**C-F-L's
C-F-L's
They last long, they last long
They are energy savers, they are energy savers,
Change and save, change and save.**



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Activity 5 Story telling and role-play

English - Home Language			
Component	Activity	Term	Resource
Listening and speaking (oral)	<ul style="list-style-type: none"> - Listens to stories. - Uses visual cues to talk about graphical text, e.g. looks at a photograph, and discusses what it is about, where it was taken, etc. 	3/4	<ul style="list-style-type: none"> - Picture of the family - Story
Reading and phonics	<ul style="list-style-type: none"> - Recognises cause and effect in a story. The boy got into trouble because he left the lights on. - Answers open-ended questions based on the passage read. 	4	- Story
Life Skills			
Component	Activity	Term	Resource
Creative arts	Improvise and interpret - dramatise in groups using an existing story based on appropriate topics, to develop own endings.	2	Story
Beginning knowledge, personal and social well-being	Topic: Rights and responsibilities - 6 hours: <ul style="list-style-type: none"> • Learners' rights and responsibilities • Rights and responsibilities of other people: <ul style="list-style-type: none"> - At home - At school - In our community - In the environment. 	1	<ul style="list-style-type: none"> - Picture of the family - Story



Use the picture of the family “Use energy wisely” to help learners visualise the story.



- You can use prompting questions to keep the learners attention.
- When reading the story, repeat the lines that show moods (as a prompting question) for the learners to show action for the mood - e.g. Dad replied in a soft but clear voice, “ssshhhhh.” The educator should ask the learners - **What did dad say?** The learners are to put their index finger on their lips and say, “ssshhhhh”.
- Read the story to the learners with action and emotion.
- Educators are encouraged to use props for story telling.
- Replace or explain words that might be difficult.
- You can make up your own short story using the picture of the family. [Relate the story to saving energy].

Good Habits

My name is Max and this is what happened at dinner last night. Dad sat down to have dinner with mummy and I. Mummy cooked a delicious dinner.

Mum watched a programme on television while at the table. Dad very politely told mummy to switch off the TV. Then I shouted out, "Oh no dad, my programme is going to start just now."

Dad replied in a soft, but clear voice, "Sssshhhhh. We should not eat and watch television at the same time. It is not a good habit. Enjoy the food and let's not watch the TV while eating. Besides it is unkind to ignore each other at the table."

"Max," said dad, "I noticed that you had left all the lights and the television on upstairs. Son, 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 television upstairs. Right now we are wasting energy. Whenever we use energy and even if we are wasting it, I have to pay for it."

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 mummy. Although we did wrong, dad was patient and explained very clearly that saving and using energy wisely is a good habit."



1. Questions on the story:

Since these are Grade 3 learners the questions should be asked orally. Go slowly and give the learners time to answer. When asking the questions point at the picture - "Use energy wisely".

- 5.1 Who are the people sitting at the dinner table? [Mum, dad and Max].
- 5.2 What did mum do wrong? [She was watching television while eating].
- 5.3 What did Max do wrong? [He shouted at the table; he also wanted to watch television while eating; he left the lights on upstairs; he left the television on upstairs].
- 5.4 What did dad teach the family about energy? [When you switch anything on, you are using energy; you pay for energy; switch off what you are not using].
- 5.5 Name 3 other things that dad taught the family. [Do not waste water, do not waste food, do not waste time, do not eat while watching television, be calm].
- 5.6 Was dad angry? What makes you think so? [No. Dad talked calmly and softly].
- 5.7 What are all the things that you have learnt from the story? [Do not waste; talk calmly; ...]
[Listen to answers from the learners].

You can add other related questions to the story.



2. Role-play

Tell the learners you want them to act out the story.

Divide the learners into groups of 3.

Each one will have a role - mother/father/child.

Give the learners time to practice their roles according to the story.

Set up a dinner table with 3 chairs in front of the class.

Get one group to go to the front.

Prompt the learners with the story if they need help.

OR



Tell the learners you want them to act out the story.

Set up a dinner table with 3 chairs in front of the class.

Ask the learners, who wants to play the father - call the learner to the front.

Ask the learners, who wants to play the mother - call the learner to the front.

Ask the learners, who wants to play the child/son (a female/girl can also play this role) - call the learner to the front.

Ask them to act the story out.

Prompt the learners with the story if they need help.

Story writing

Tell the learners you want them to write a short story (5 lines).

The learners need to use the picture of the family (“Use energy wisely”) to help them.

Get some of the learners to read their stories to the class.

Worksheet

Give each learner a worksheet on the story.

Read the story.

Read through the questions in the worksheet with the learners.

Get the learners to write down their answers.

Give the learners time to answer the questions.

Go over the answers with the learners.

You can also design your own worksheet or add open-ended questions e.g. Why do you think Max is a good boy?

OR

Give each learner a worksheet on the story.

Read the story but pause at the point of the relevant question - read the question from the worksheet e.g. *I am going to read you a story. The name of the story is Good habits.*

Then ask the learners: *What is the name of the story - now write that down in your worksheet.*

Get the learners to write down their answers.

Give the learners time to answer the questions.

Continue reading the story until the next relevant question.

Go over the answers with the learners.

You can also design your own worksheet or add open-ended questions e.g. Why do you think Max is a good boy?



What is the name of the story?

Who are the people in the story?

What are they doing?

Dad taught Max to _____ energy. save waste

Put _____ lights you are not using. on off

water energy money food time

Dad said:

Do not waste _____. Do not waste _____.

Do not waste _____. Do not waste _____.

Do not waste _____.

Why do you think Max is a good boy?



