Energy

Lesson plan and teacher's notes · Grade 1 Science · 1 period of 40 minutes

School	(write school name)	**Teacher**	(write name)
Date	(date)	**Class**	Grade 1
Subject	Science	**Enrolment**	Boys ___ Girls ___ Total ___
Time	40 minutes	**Topic**	Energy

Learners are led from everyday situations, such as feeling weak when hungry or a torch going off, to the meaning of energy. They then identify sources of energy from pictures, say how each is used, and draw or model one source. One period.

Specific outcomes

By the end of the lesson, learners should be able to:

1. Say that energy is what makes things move, work or change
2. Name at least four sources of energy: food, sun, wind, water, firewood or fossil fuels
3. Say how a source of energy is used
4. Draw or make a model of a source of energy
5. Say that burning many trees can harm the environment

Prior knowledge

- Learners know that food gives them strength
- Learners know a torch, a stove and a light and what they are used for
- Learners can draw and describe a picture in simple words

Teaching and learning materials

- Chalk and board
- Pictures of the sun, wind, water, food and firewood
- A solar kit, a torch with batteries, small toys, food and drinks if available
- Paper, crayons, clay or sticks for drawing and models

References

Ministry of Education (CDC) Grade 1 Science syllabus and module; 25Schools learners' note: Energy.

Lesson development

Stage and time	Teacher activities	Learner activities
Hook and discussion 10 min	Ask situation questions. How do you feel when you have not eaten for a long time. What makes us feel stronger. A torch suddenly goes off, why. You are cooking and the stove goes off, why. If there is no electricity or gas, what else can we use to cook. Accept firewood and charcoal and add a caution about the environment and climate change.	Answer in pairs and then to the class, giving reasons.
Meaning of energy 5 min	From the answers, lead learners to say that energy is what makes things move, work or change. Write it on the board and let learners repeat it.	Say the meaning in their own words.
Things that need energy 5 min	Ask learners to name things that need something to work, for example a torch. Write each thing and what it needs.	Name things and say what they need.
Sources of energy from pictures 10 min	Display pictures of the sun, firewood, wind, water and food. In groups, learners say which source each picture shows and how energy comes from it. Learners then say what each source is used for and why.	Work in groups, identify the sources and explain to the class.
Draw or model 8 min	Ask each learner to draw a source of energy, or to make a model of one. Walk round and ask what it is used for.	Draw or make a model and say what it is used for.
Conclusion 2 min	Ask three learners to match a source with a use. Summarise and give the homework.	Match sources with uses.

Teacher's content notes

Read these before the lesson. They are what you need to know, not what to copy onto the board.

Energy

Lead learners from the discussion to the meaning of energy: things that cause work to be done. In the glossary, energy is what makes things move, work or change, such as light energy from the sun, heat energy from fire and movement energy in a running child.

Sources of energy

Sources named in the module are food, the sun, wind, water and fossil fuels, with firewood in the pictures. Learners identify them, say how energy is produced from them and state the uses of each.

Learning activities

Learners work in groups to identify sources from pictures, explain to the class, then draw or make a model of one source and state its uses. The expected standard is that sources of energy are explored appropriately.

Caution

When firewood and charcoal are named as answers, accept them and give a caution about environmental effects and climate change.

Questions to ask during the lesson

Question	Expected answer
A girl is hungry and tired after walking to school. After eating she feels stronger. (a) What gave her energy. (b) Is food a source of energy. (c) Name another source.	(a) Food. (b) Yes. (c) The sun, wind, water or firewood.
A torch suddenly goes off at night. A boy shakes it and it does not come on. (a) What could be the problem. (b) What does a torch need to work. (c) What should he do.	(a) The battery is finished. (b) A battery. (c) Change the battery or ask an adult.
A family has no gas or electricity. They want to cook. (a) What can they use. (b) What harm can come if many trees are cut. (c) Name a source of light energy.	(a) Firewood or charcoal. (b) Harm to the environment and climate change. (c) The sun.

Worked examples for the board

Matching sources and uses

Step 1: Show the pictures of food, firewood and the sun. Step 2: Ask what each one is used for. Step 3: Food gives strength to the body. Firewood is used to cook. The sun gives light. Step 4: Learners match each source with its use.

Finding what a thing needs

Step 1: Hold up a torch. Step 2: Ask what it needs to work. Step 3: Learners say a battery. Step 4: Do the same for a stove, which needs gas, paraffin or firewood.

Board plan

Write the title and the meaning of energy. Draw two columns, SOURCE and WHAT WE USE IT FOR, and fill them with learners' answers, for example food and strength, firewood and cooking, sun and light.

Source	What we use it for
Food	Strength for our body
Firewood	Cooking
Sun	Light
Battery	A torch

The finished board: sources of energy and their uses

Mistakes to expect

Learners often think	Put it right
Energy is only for people.	Show that a torch also needs a battery and a stove needs gas, paraffin or firewood. Ask: What does it need to work.
Energy is the same as food.	Food is one source of energy. Show the pictures of the sun, wind, water and firewood as other sources.
Burning firewood has no problems.	Tell learners that cutting and burning many trees harms the environment and adds to climate change. Ask how we can use energy with care.

Differentiation

Learners who struggle

Start with food, the sun and firewood only. Hold up each picture and say: This is a source of energy. Give learners the sentence: We use ... for ...

Learners who finish early

Ask learners to find five things at home that need energy and say what energy each one uses. Ask them to say why we must use energy with care.

Hearing or visual impairment

For learners with a visual impairment, let them hold the real objects and name each one aloud. For learners with a hearing impairment, face them, use pictures and real objects, and write the key words on the board.

No projector, no printing

Use drawings on the board in place of pictures. Use real objects: a piece of firewood, a cup of water, food, and a torch. Do the discussion questions orally if there is no solar kit.

If time is short

Keep the hook, the meaning of energy and the picture matching. Move the drawing and models to the next lesson.

Evaluation

Question or task	A correct answer shows
Mrs Phiri cooks on a stove and the gas finishes. She still wants to prepare nshima. (a) What can she use instead. (b) Is this a source of energy. (c) Why should many people not cut too many trees.	(a) Firewood or charcoal. (b) Yes. (c) It harms the environment and adds to climate change.
A boy plays football and gets tired. His mother gives him food and he feels stronger. (a) What gave him strength. (b) Name another source of energy. (c) What is energy.	(a) The food. (b) The sun, wind, water or firewood. (c) What makes things move, work or change.

Homework

At home you see a torch, a stove and a lamp. (a) Say what each one needs to work. (b) Say one source of energy. (c) Draw it.

Extra practice with answers

Question	Answer
1. Chanda sees a stove, a torch and a child running. (a) What does the torch need. (b) What does the child need. (c) What does the stove need.	(a) A battery. (b) Food. (c) Gas, paraffin or firewood.
2. The teacher shows pictures of the sun, wind and water. (a) Which one gives light. (b) Are all three sources of energy. (c) Draw one of them.	(a) The sun. (b) Yes. (c) A correct drawing of the sun, wind or water.
3. A group draws a source of energy and tells the class what it is used for. (a) Name one source they could draw. (b) Say what it is used for. (c) Why should they explain.	(a) Food, firewood, the sun, wind or water. (b) A correct use, for example firewood for cooking. (c) So everybody understands.
4. A mother cooks with firewood every day. The teacher says we must use energy with care. (a) What is the source she uses. (b) Why must we be careful. (c) What is energy.	(a) Firewood. (b) Burning many trees harms the environment and adds to climate change. (c) What makes things move, work or change.

Answers to the learners' check-yourself questions

1. What is energy.
   What makes things move, work or change.
2. Name one source of energy.
   Any of: food, the sun, wind, water, firewood.
3. What gives your body energy.
   Food.
4. What does a torch need to work.
   A battery.
5. A boy has not eaten all day. He feels weak when he plays. (a) What does his body need. (b) Is food a source of energy. (c) Name another source of energy.
   (a) Food, for energy. (b) Yes. (c) The sun, wind, water or firewood.
6. A family has no gas or electricity. The mother wants to cook. (a) What can she use to cook. (b) Why must we be careful when we burn many trees. (c) Name a source of light energy.
   (a) Firewood or charcoal. (b) It can harm the environment and add to climate change. (c) The sun.

Teacher's reflection

What went well:

What I will change next time:

Learners who need follow-up: