Natural resources

Lesson plan and teacher's notes · Form 1 Geography · 1 period of 40 minutes

School	(write school name)	**Teacher**	(write name)
Date	(date)	**Class**	Form 1
Subject	Geography	**Enrolment**	Boys ___ Girls ___ Total ___
Time	40 minutes	**Topic**	Natural resources

Learners say what natural resources are, tell renewable from non-renewable resources, name the main groups of resources and the methods used to identify them, explain why identifying resources matters and what makes it hard, and describe ways of avoiding depletion. Examples come from the school surroundings, forests and water sources in Zambia.

Specific outcomes

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

1. Say what natural resources are and give examples
2. Tell renewable from non-renewable resources
3. Name the main groups of natural resources and the methods used to identify them
4. Explain why identifying natural resources is important and what makes it difficult
5. Describe ways of avoiding the depletion of natural resources

Prior knowledge

- Living and non-living things
- Water, soil, trees and rocks in the environment
- Why people use resources at home

Teaching and learning materials

- chalk and board
- exercise books
- pictures or samples of natural resources such as soil, stones, leaves and water
- charts if available

References

Ministry of Education (CDC) Form 1 Geography syllabus and module; 25Schools learners' note: Natural resources.

Lesson development

Stage and time	Teacher activities	Learner activities
Introduction 5 min	Ask where the desk, the clothes and the nshima and bread learners eat come from. Lead learners to say that they all begin in nature. Write the title and key words.	Suggest where everyday things come from and copy the title and key words.
Development: types of resources 10 min	Define natural resources and explain living and non-living resources. Define renewable and non-renewable resources with examples, and name the groups: water, forests, energy, soil and agricultural resources, fossil fuels, and minerals and metals.	Copy the definitions and sort resources from the school surroundings into living and non-living, then renewable and non-renewable.
Development: identifying resources 10 min	Name the methods of identifying resources: geological surveys, remote sensing, exploratory drilling, sampling and analysis, field surveys and laboratory analysis. Explain the three reasons it is important and the three challenges.	List the methods, the reasons and the challenges in their books.
Practice 10 min	Give the scenarios on the school grounds and on population pressure. Move around and check that learners separate living from non-living and renewable from non-renewable.	Work the scenarios in groups, then share answers.
Conclusion 5 min	Ask groups to name two actions that avoid depletion, such as planting trees and making posters. Set the homework.	Answer orally and copy the homework.

Teacher's content notes

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

What natural resources are

Natural resources are things found in nature that people use to live and grow. They include water, air, soil, trees, wildlife and minerals, and people use them to build homes, make electricity and grow food.

Living and non-living

Some natural resources are living, such as plants and animals. Others are non-living, such as rocks, soil and water.

Renewable and non-renewable

Renewable resources replenish naturally and can be used again and again, such as sunlight, wind, water, land, wildlife and forests. Non-renewable resources are finite and cannot be replaced after use, such as oil, coal, other fossil fuels and minerals.

Groups of resources

Water resources include rivers, lakes, groundwater and rainwater. Forest resources include trees, medicinal plants and bamboo. Energy resources include solar, wind, hydro, geothermal and biomass. Fossil fuels include coal, oil and natural gas. Minerals and metals include copper and gold.

Identifying resources

Methods include geological surveys, remote sensing, exploratory drilling, sampling and analysis, field surveys and laboratory analysis. Identifying resources brings economic benefits, supports sustainable management and helps environmental conservation. Challenges are technological limitations, lack of knowledge, and social and economic factors.

Avoiding depletion

Learners can discuss how resources could be depleted and explain the dangers. Displaying posters and planting trees help avoid depletion. As Zambia's population grows, replanting trees, protecting water sources and reducing pollution support both present and future generations.

Questions to ask during the lesson

Question	Expected answer
A teacher near Feira asks learners where the desk they sit on and the nshima they eat come from. (a) Say where they begin. (b) Name one living and one non-living natural resource. (c) Say why people need natural resources.	(a) In nature, in natural resources. (b) Living: a plant or an animal. Non-living: rocks, soil or water. (c) People use them to live and grow, to build homes, make electricity and grow food.
Learners at a school in Luangwa discuss a river, a forest, sunlight and a copper mine. (a) Name the renewable resources. (b) Name the non-renewable resource. (c) Explain the difference between the two types.	(a) The river, the forest and sunlight. (b) Copper, a mineral. (c) Renewable resources replenish naturally and can be used again and again, while non-renewable resources are finite and cannot be replaced after use.
A group near Feira wants to find out what minerals lie under a hill and takes pieces of rock to be tested in a laboratory. (a) Name the two methods the group is using. (b) Say what laboratory analysis confirms. (c) Say why identifying the minerals is important.	(a) Sampling and analysis, and laboratory analysis. (b) The composition and quality of the resource. (c) It brings economic benefits, supports sustainable management and helps environmental conservation.

Worked examples for the board

Sorting resources into living and non-living

A group lists a stream, some trees, soil, stones and goats. Trees and goats are plants and animals, so they are living. The stream, soil and stones are rocks, soil and water, so they are non-living.

Deciding renewable or non-renewable

Sunlight, wind, water, land, wildlife and forests replenish naturally, so they are renewable. Oil, coal, natural gas and minerals take a long time to form and cannot be replaced after use, so they are non-renewable.

Board plan

Write the title and key words. Left: living and non-living resources. Centre: renewable and non-renewable resources with examples. Right: methods of identifying resources and the three reasons it matters.

Type	Meaning	Examples in the note
Renewable	Replenish naturally and can be used again and again	Sunlight, wind, water, land, wildlife, forests
Non-renewable	Finite and cannot be replaced after use	Oil, coal, natural gas, minerals

Renewable and non-renewable resources

Mistakes to expect

Learners often think	Put it right
All natural resources will never run out.	Non-renewable resources such as oil, coal and minerals are finite and cannot be replaced after use, so they can run out.
Renewable resources can be used without any care.	Resources must be used wisely so that they last for future generations. Planting trees helps avoid the depletion of forests.
Natural resources are only things under the ground.	They include water, air, soil, trees, wildlife and minerals, both living resources such as plants and animals and non-living ones such as rocks, soil and water.
Population growth does not affect natural resources.	As Zambia's population grows, more resources are needed for food, energy and development, which puts pressure on natural resources.

Differentiation

Learners who struggle

Give learners a two-column table headed living and non-living and a list of resources from the school surroundings, and let them copy each resource into the correct column before they label it renewable or non-renewable.

Learners who finish early

Ask learners who finish early to explain why remote areas and lack of knowledge make it hard to identify resources, and which method they would use first in a field near the school.

Hearing or visual impairment

For learners with visual impairment, let them handle samples of soil, stones and leaves and describe them aloud. For learners with hearing impairment, write each key word and each method on the board and use the sorting table.

No projector, no printing

Use soil, stones, leaves, water and trees from the school surroundings as the samples and draw the tables on the board. Learners work in groups without charts.

If time is short

Skip the identification methods stage and work only the living and non-living and renewable and non-renewable scenarios; set the rest as homework.

Evaluation

Question or task	A correct answer shows
A group of learners at a school near Feira walks around the school grounds and lists a stream, some trees, soil, stones and a few goats. (a) Sort the items into living and non-living resources. (b) Name one renewable resource on the list. (c) Say why careful use of the trees matters.	(a) Living: trees and goats. Non-living: the stream, soil and stones. (b) Any one of the stream, trees or goats. (c) Trees are renewable only if they are replaced, so replanting and wise use help them last for future generations.
A community in Zambia notices that the population is growing and that more wood, water and land are being used for food and energy. (a) What happens to natural resources as the population grows. (b) Name two actions the community can take. (c) Say why these actions help future generations.	(a) More resources are needed, which puts pressure on them. (b) Any two of replanting trees, protecting water sources and reducing pollution. (c) They keep resources and the environment healthy so that future generations can also meet their needs.
A teacher near Feira says that oil and copper can run out but that sunlight and wind will not. (a) Do you agree. (b) Name the type of resource oil and copper belong to. (c) Explain why they can run out.	(a) Yes. (b) Non-renewable resources. (c) They are finite and cannot be replaced after use.

Homework

A learner at a school near Feira wants to find out what resources lie in a remote area and meets problems with reaching it and with knowing what is there. (a) Name two methods that could be used to identify the resources. (b) Give two challenges in identifying natural resources. (c) Give one reason why identifying them is important.

Extra practice with answers

Question	Answer

1. A group of learners at a school near Feira walks around the school grounds and lists a stream, some trees, soil, stones and a few goats. (a) Sort the items into living and non-living resources. (b) Name one renewable resource on the list. (c) Say why careful use of the trees matters.	(a) Living: trees and goats. Non-living: the stream, soil and stones. (b) Any one of the stream, trees or goats. (c) Trees are renewable only if they are replaced, so replanting and wise use help them last for future generations.
2. A community in Zambia notices that the population is growing and that more wood, water and land are being used for food and energy. (a) What happens to natural resources as the population grows. (b) Name two actions the community can take. (c) Say why these actions help future generations.	(a) More resources are needed, which puts pressure on them. (b) Any two of replanting trees, protecting water sources and reducing pollution. (c) They keep resources and the environment healthy so that future generations can also meet their needs.
3. A teacher near Feira says that oil and copper can run out but that sunlight and wind will not. (a) Do you agree. (b) Name the type of resource oil and copper belong to. (c) Explain why they can run out.	(a) Yes. (b) Non-renewable resources. (c) They are finite and cannot be replaced after use.
4. A learner at a school near Feira wants to find out what resources lie in a remote area and meets problems with reaching it. (a) Name the challenge that makes it hard to reach the area. (b) Name two methods of identifying resources. (c) Give one reason why identifying resources is important.	(a) Technological limitations. (b) Any two of geological surveys, remote sensing, exploratory drilling, sampling and analysis, field surveys, laboratory analysis. (c) Any one of economic benefits, sustainable management and environmental conservation.

Answers to the learners' check-yourself questions

1. What is a natural resource.
   A thing found in nature that people use to live and grow.
2. Name two renewable and two non-renewable resources.
   Renewable: any two of sunlight, wind, water, forests, wildlife. Non-renewable: any two of oil, coal, natural gas, minerals.
3. Name three methods used to identify natural resources.
   Any three of geological surveys, remote sensing, exploratory drilling, sampling and analysis, field surveys, laboratory analysis.
4. Give two reasons why identifying natural resources is important.
   Any two of economic benefits, sustainable management and environmental conservation.
5. A group of learners at a school near Feira walks around the school grounds and lists a stream, some trees, soil, stones and a few goats. (a) Sort the items into living and non-living resources. (b) Name one renewable resource on the list. (c) Say why careful use of the trees matters.
   (a) Living: trees and goats. Non-living: the stream, soil and stones. (b) Any one

of the stream, trees or goats. (c) Trees are renewable only if they are replaced, so replanting and wise use help them last for future generations.

6. A community in Zambia notices that the population is growing and that more wood, water and land are being used for food and energy. (a) What happens to natural resources as the population grows. (b) Name two actions the community can take. (c) Say why these actions help future generations.
   (a) More resources are needed, which puts pressure on them. (b) Any two of replanting trees, protecting water sources and reducing pollution. (c) They keep resources and the environment healthy so that future generations can also meet their needs.
7. A teacher near Feira says that oil and copper can run out but that sunlight and wind will not. (a) Do you agree. (b) Name the type of resource oil and copper belong to. (c) Explain why they can run out.
   (a) Yes. (b) Non-renewable resources. (c) They are finite and cannot be replaced after use.

Teacher's reflection

What went well:

What I will change next time:

Learners who need follow-up: