Grouping things

Lesson plan and teacher's notes · Grade 2 Mathematics · 2 periods of 40 minutes

School	(write school name)	**Teacher**	(write name)
Date	(date)	**Class**	Grade 2
Subject	Mathematics	**Enrolment**	Boys ___ Girls ___ Total ___
Time	80 minutes	**Topic**	Grouping things

Learners take a nature walk, identify natural resources, sort them into groups, and learn the set ideas is a member of and is not a member of, with the signs ∈ and ∉. The lesson uses a walk, picture sorting, a ground game and a basket of fruits. Two periods.

Specific outcomes

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

1. Name natural resources: plants, animals, water bodies, land and minerals
2. Sort natural resources into groups and give a reason
3. Say whether a thing is or is not a member of a set
4. Read and write the signs ∈ and ∉
5. Say why we need natural resources and how to care for them

Prior knowledge

- Learners can name common plants and animals
- Learners know that some things are living and some are not
- Learners can sort objects into two groups

Teaching and learning materials

- Chalk and board
- Picture cards of plants, animals, water bodies, land and minerals
- Real leaves, stones and soil
- Name cards such as cow, river, goat, lake, bird, fish, dam, guava tree, mango tree
- A basket and fruits such as a banana, an orange and a guava, and a toy car
- A camera or phone, if available

References

Ministry of Education (CDC) Grade 2 Mathematics syllabus and module; 25Schools learners' note: Grouping things.

Lesson development

Stage and time	Teacher activities	Learner activities
P1 Hook and safety 5 min	Ask: What things do you see when you are outside. Say there are many things around us and we will go to find out what kinds. Check the walking area before the lesson. Warn learners about things that can harm them.	Answer the hook and listen to the safety rules.
P1 Nature walk 12 min	Take learners on a short walk around the school. Ask: What things do you see. Do you know what they are. Which are natural and which are made by people. Which are living and which are not living. Guide learners on what is safe to pick and collect a few things. Take pictures if possible.	Observe, answer questions, collect safe natural things.
P1 Back in class: describe and group 10 min	Review the walk with questions. Ask learners to describe each thing they collected. Show pictures of animals, water bodies, forests, minerals and land. Ask: In which ways can we group these. Draw a circle for each group.	Describe things and say the groups.
P1 Picture sorting and conclusion 13 min	In groups, learners sort picture cards by type and explain why. Summarise: natural resources are things in the environment not made by people. Ask why we need them and how to care for them. Set the assessment: draw and colour one animal, one plant and one water body.	Sort cards in groups, explain and begin the drawing.
P2 Grouping chart 10 min	Give each group picture cards and a chart with columns for animals, water bodies, plants, minerals and land. Ask learners to place each picture and explain why the groups are different. Mention other ways: living and non-living, renewable and non-renewable, or by use.	Place cards in the chart and explain.
P2 I belong game 12 min	Draw three circles on the ground for animals, plants and water bodies. Give each learner a name card. When a card is called, the learner says I am a member of the set of animals, and moves into the right circle. Then give a learner the card Rock and ask whether it is a member of each set.	Play the game and say the full sentence.

P2 Symbols 14 min	Put a basket labelled Set A with a banana, an orange and a guava. Ask if an orange is a member of Set A. Write the sign ∈ and read it. Put a toy car outside the basket and ask if it is a member. Write the sign ∉ and read it. Give work cards to groups and ask about members of a set of numbers.	Read the signs after the teacher and use them on work cards.
P2 Conclusion 4 min	Ask which sign we use when a thing is in a set and which when it is not. Summarise and give homework.	Answer and say the two signs.

Teacher's content notes

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

Skills for grouping

To group things, learners observe, identify, classify and deduce from similarities and differences. They also use set notation to show membership and use whole numbers in different ways.

Natural resources

Natural resources are things in the environment not made by people, such as plants, animals, water bodies, land and minerals. Plants are living things with roots, a stem and leaves. Animals are living, move on their own, breathe and feed. Water bodies, rocks and land are non-living.

Other ways of grouping

Natural resources can also be grouped as living and non-living, as renewable and non-renewable, or by use such as energy resources and food resources.

Membership

Introduce is a member of and is not a member of through practical play first, then the signs ∈ and ∉. Use sets of fruits and later sets of numbers. Safety on the nature walk: pre-inspect the area and caution learners against things that can harm them.

Questions to ask during the lesson

Question	Expected answer
On a nature walk Mulenga sees a goat, a river, a tree and a stone. His teacher asks him to group them. (a) Which one is a plant. (b) Which one is a water body. (c) Which one is a living thing that moves on its own.	(a) The tree. (b) The river. (c) The goat.

In the I belong game a learner holds the card mango tree and goes into the circle for animals. The teacher asks the class to check. (a) Which circle is correct. (b) Is a mango tree a member of the set of animals. (c) Why.	(a) Plants. (b) No. (c) A mango tree is a plant, not an animal.
The teacher places a basket labelled Set A with a banana and an orange, and holds up a toy car. (a) Is a banana a member of Set A. (b) Which sign shows that. (c) Which sign is used for the toy car.	(a) Yes. (b) $\in$. (c) $\notin$.

Worked examples for the board

Sorting natural resources

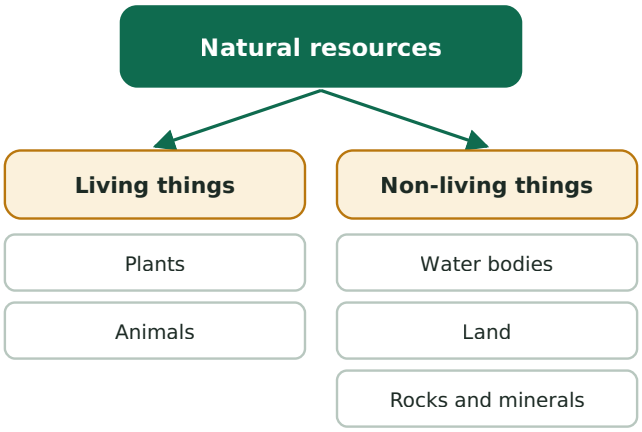
Step 1: Look at pictures of a cow, a lake, a mango tree and a stone. Step 2: Put the cow under Animals, the lake under Water bodies, the mango tree under Plants and the stone under Minerals. Step 3: Say why: a cow moves and feeds, a lake is where water is found, a mango tree grows in the soil, a stone is a hard natural material.

Using the signs

Step 1: Set A is a set of fruits: banana, orange, guava. Step 2: An orange is a member of Set A, so we write orange $\in$ Set A. Step 3: A toy car is not a fruit, so we write toy car $\notin$ Set A. Step 4: Read each statement aloud with the learners.

Board plan

Write the title. Draw a circle for each group: Animals, Plants, Water bodies. Write members inside each circle. Below, write orange $\in$ Set A and toy car $\notin$ Set A, with the words is a member of and is not a member of.



The finished board: groups of natural resources

Mistakes to expect

Learners often think	Put it right

Water bodies are living things.	Water bodies are natural places where water is found. They are not living. Compare a river with an animal that moves, breathes and feeds.
Everything natural is the same kind of thing.	Sort pictures into columns and ask why each group is different, for example plants grow in the soil and make their own food, while rocks do not.
A thing can belong to every set.	Use the circles on the ground. Ask: Is a rock a member of the set of animals. Show that it is not a member.

Differentiation

Learners who struggle

Use only three groups at first: animals, plants and water bodies, with real objects or large pictures. Give a sentence frame: A ... is a member of the set of ... Let learners point before they speak.

Learners who finish early

Ask learners to make their own sets from things in the classroom, such as pencils or erasers, and say what is a member and what is not. Ask them to say another way to group natural resources, such as living and non-living.

Hearing or visual impairment

For learners with a visual impairment, let them hold real leaves, stones and fruits and name each. Describe each picture aloud. For learners with a hearing impairment, face them, use real objects, pictures and the circles on the ground, and write each set name on the board.

No projector, no printing

Draw circles on the ground with a stick instead of using chart paper. Use leaves, stones, soil and drawings on the board instead of cameras and cards. Write name cards on pieces of paper or card from used boxes.

If time is short

Keep the nature walk, the I belong game and the signs. Move the grouping chart and the other ways of grouping to the next lesson.

Evaluation

Question or task	A correct answer shows
Bwalya's teacher draws three circles on the board for animals, plants and water bodies. Bwalya is given cards with goat, dam and guava tree. (a) Which circle does the goat belong to. (b) Which circle does the dam belong to. (c) Is the guava tree a member of the set of animals.	(a) Animals. (b) Water bodies. (c) No, the guava tree is not a member of the set of animals. Learners use the words is a member of correctly.

In class Set A is a basket holding a banana, an orange and a guava. A girl puts a toy car beside the basket. (a) Is an orange a member of Set A. (b) Is the toy car a member of Set A. (c) Write the sign for is not a member of.	(a) Yes, ∈. (b) No, the toy car is not a member of Set A. (c) ∉.

Homework

At home find four things around your house. (a) Say which are natural. (b) Draw one animal and one plant you see. (c) Say one thing that is a member of the set of plants and one that is not.

Extra practice with answers

Question	Answer
1. A girl collects a leaf, a stone and a feather on the school walk. Her teacher asks her to say what each one is. (a) Which one is from a plant. (b) Which one is a mineral or rock. (c) Which one comes from an animal.	(a) The leaf. (b) The stone. (c) The feather (from a bird).
2. The class draws circles for the set of animals, the set of plants and the set of water bodies. A boy holds the card fish. (a) Which circle does he go into. (b) Is a fish a member of the set of plants. (c) Name another member of the same set as the fish.	(a) Animals. (b) No. (c) A cow, goat, bird or insect.
3. A teacher shows a basket with a banana, an orange and a guava as Set A. A learner says a pencil is a member of Set A. (a) Is she correct. (b) Why not. (c) Write the sign to show a pencil is not a member.	(a) No. (b) A pencil is not a fruit. (c) ∉.
4. The class sees a river, a dam and a pond near the school. The teacher says they are water bodies and asks why we need them. (a) Name another water body. (b) Is a water body a living thing. (c) Say one way to care for water bodies.	(a) A stream. (b) No. (c) Keep them clean and do not throw rubbish in them.

Answers to the learners' check-yourself questions

1. Name two natural resources.
   Any two of: plants, animals, water bodies, land, rocks and minerals.
2. Is a river a member of the set of water bodies.
   Yes.
3. What does the sign ∈ mean.
   Is a member of.
4. What does the sign ∉ mean.
   Is not a member of.
5. On a nature walk Chanda sees a goat, a mango tree, a pond and a stone. His teacher asks him to sort them. (a) Which one is an animal. (b) Which one is a water body. (c) Is the goat a member of the set of plants.
   (a) The goat. (b) The pond. (c) No, the goat is not a member of the set of plants.

6. In the I belong game three circles are drawn for animals, plants and water bodies. Mutinta holds the card lake and Bwalya holds the card cow. (a) Which circle should Mutinta go into. (b) Which circle should Bwalya go into. (c) Is a cow a member of the set of water bodies.
   (a) Water bodies. (b) Animals. (c) No.

Teacher's reflection

What went well:

What I will change next time:

Learners who need follow-up: