Existence of Matter

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

School	(write school name)	**Teacher**	(write name)
Date	(date)	**Class**	Grade 2
Subject	Science	**Enrolment**	Boys ___ Girls ___ Total ___
Time	80 minutes	**Topic**	Existence of Matter

Learners with visual impairment feel ice, water and warm steam from a safe distance to learn that matter is solid, liquid or gas. They match Braille cards and arrange ice, water and steam in order. Two periods of 40 minutes.

Specific outcomes

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

1. Say that matter is solid, liquid or gas
2. Identify ice, water and steam by touch and feel
3. Explain how ice becomes water and water becomes steam

Prior knowledge

- Learners have felt cold water
- Learners know that water can be hot

Teaching and learning materials

- Ice cubes wrapped in cloth
- Bowl and cup of water
- Kettle with warm steam felt at a safe distance
- Braille or large print cards: Solid, Liquid, Gas
- Tactile diagrams
- Audio recordings

References

Ministry of Education (CDC) Grade 2 Science syllabus and module; 25Schools learners' note: Existence of Matter.

Lesson development

Stage and time	Teacher activities	Learner activities
Period 1 **Present** **20 min**	Give each learner ice wrapped in cloth to feel its hardness and coldness. Let them feel water flowing and taking the shape of the container. Hold learners' hands safely near warm steam from a kettle, not too close, to feel warmth and moisture. Explain: ice is solid water, liquid water flows, steam is water as a gas.	Touch ice and water and feel the steam safely.
Period 1 **Practice** **20 min**	Give cards labelled Solid, Liquid and Gas. Learners match each card with a form of water. Ask: how does ice feel, what happens when you pour water, what do you feel near steam. Place ice in a cup and let learners feel it melt.	Match cards and answer questions.
Period 2 **Produce** **30 min**	Learners explain in their own words what happens when ice melts: ice becomes water, and when water is heated, water becomes steam. Learners say: Ice melts into water. Water boils into steam. They arrange objects in order and describe each state.	Explain and arrange the sequence.
Period 2 **Closure** **10 min**	Let learners touch ice and water and feel steam once more. Ask them to recall the names of each state: solid, liquid, gas.	Name each state.

Teacher's content notes

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

Matter

Matter exists everywhere. It is anything that takes up space and has weight, whether solid, liquid or gas.

Water

Ice is a solid, hard and cold. Water is a liquid that flows and takes the shape of its container. Steam is a gas, invisible and warm.

Changes

Ice melts into water. Water boils into steam.

Questions to ask during the lesson

Question	Expected answer

The teacher gives a learner a piece of ice wrapped in cloth and asks what it feels like, then asks about the same piece of ice left in a cup. (a) How does ice feel. (b) What form is ice. (c) What will it become in the cup.	(a) Hard and cold. (b) A solid. (c) Water.
The teacher pours water from a jug into a cup and then into a bowl, and asks learners what happens to the water each time. (a) Does it flow. (b) What shape does it take. (c) What form of matter is it.	(a) Yes. (b) The shape of the container. (c) A liquid.
The teacher holds learners' hands at a safe distance from a kettle on a stove and asks what they feel. (a) What is rising. (b) How does the air feel. (c) What form of matter is steam.	(a) Steam. (b) Warm and wet. (c) A gas.

Worked examples for the board

Ice to water

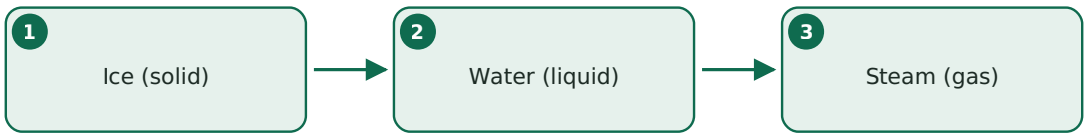
Step 1: Put ice in a cup. Step 2: Feel it. It is hard and cold. Step 3: Wait. Step 4: Feel again. It becomes water.

Water to steam

Step 1: Heat water in a kettle. Step 2: Keep your hands at a safe distance. Step 3: Feel the warm, wet air. This is steam.

Board plan

Write the title Existence of Matter. Draw a three-step chain: ice, water, steam, with solid, liquid, gas under each.



The finished board

Mistakes to expect

Learners often think	Put it right
Steam is not water.	Show that water boils into steam and that steam is water as a gas.
Ice and water are different things.	Let learners feel ice melt in a cup and become water.

Differentiation

Learners who struggle

Use only ice and water first. Add steam after learners can match solid and liquid.

Learners who finish early

Ask learners to sort other items around the room into solid, liquid or gas.

Hearing or visual impairment

Always keep learners' hands at a safe distance from steam. Describe each change aloud, use Braille labels and cold cloth-wrapped ice.

No projector, no printing

Use ice from a freezer or cold water in a tin, a pot of hot water for steam and handmade cards.

If time is short

Keep touching ice, water and steam, and matching the three cards. Do the sequence arranging next lesson.

Evaluation

Question or task	A correct answer shows
The teacher asks Bupe questions after she touches ice and water. (a) What happens to water in the freezer. (b) What happens to ice left in the sun. (c) What do we call water when it becomes steam.	(a) It becomes ice. (b) It melts into water. (c) Gas.
The teacher gives Mwamba items to sort and to name by touch. (a) Name a solid. (b) Name a liquid. (c) Name the gas formed when water boils.	(a) Ice or a stone. (b) Water. (c) Steam.

Homework

Njavwa's grandmother boils water on the fire for tea. Njavwa watches the pot and sees the water change when it is hot. Her little brother puts ice from a neighbour into a cup. (a) What does boiling water become. (b) What does the ice become. (c) Name the three forms of matter.

Extra practice with answers

Question	Answer
1. Mulenga's family keeps fish in a cooler with ice at the market in Feira. He touches the ice and the water in the cooler. (a) Which one is hard. (b) Which one flows. (c) What happens to the ice when the sun is hot.	(a) Ice. (b) Water. (c) It melts.
2. Chanda sorts a stone, a cup of water and steam from a pot into groups for her teacher at school. (a) Which is a solid. (b) Which is a liquid. (c) Which is a gas.	(a) The stone. (b) The water. (c) The steam.
3. The class boils water for tea and learners feel warmth from the steam at a safe distance. A learner asks where the water goes. (a) What does boiling water become. (b) Is steam visible. (c) What is the safe way to feel it.	(a) Steam. (b) No, it is invisible. (c) Keep hands at a distance.

4. Bupe puts a cup of water in the freezer at school and checks it the next day with the teacher. (a) What is it now. (b) What is the form. (c) What will happen when it is left out.

(a) Ice. (b) Solid. (c) It melts into water.

Answers to the learners' check-yourself questions

1. What do we call water when it becomes steam.
   A gas.
2. How does ice feel.
   Hard and cold.
3. What happens to ice left in the sun.
   It melts into water.
4. What happens when you pour water into a cup.
   It flows and takes the shape of the cup.
5. Mulenga's mother puts a bowl of water in the freezer in the evening, and in the morning he feels the bowl and finds something hard and cold. (a) What has the water become. (b) What form of matter is it. (c) What will happen if it is left in the sun.
   (a) Ice. (b) A solid. (c) It melts into water.
6. Chanda stands near a kettle on a fire at home and feels warm, wet air rising from it, while her mother tells her to keep her hands away. (a) What is rising from the kettle. (b) What form of matter is it. (c) Why must she keep her hands away.
   (a) Steam. (b) A gas. (c) It is hot and can hurt.

Teacher's reflection

What went well:

What I will change next time:

Learners who need follow-up: