Grade 6 Science and Technology

Term 2 - 34 complete lesson plans

Ready to teach, in the KICD lesson-plan format | 35-minute lessons | PDF and editable Word

ABOUT THIS PACK

34 complete, ready-to-teach Grade 6 Science and Technology lesson plans for Term 2, covering change of state and composition of air.

TOPICS IN THIS PACK

Topic	Name	Lessons
2.1	Change of state	18
2.2	Composition of air	16

INSIDE EVERY LESSON PLAN

- The specific learning outcomes, key inquiry question, core competencies, values and PCIs, and the resources needed.
- A timed lesson flow: what the teacher does and what the learners do, from introduction to summary.
- The key content (a worked example, notes or a practical with its expected results), then four practice questions with the answers for the teacher.
- The common mistake to watch for, and ideas for learners who need support and for those ready for more.
- A four-level CBC assessment rubric (EE, ME, AE, BE), homework, and a blank reflection space to fill in after teaching.

A TASTE OF LESSON 1

States of matter

By the end of the lesson, the learner should be able to: a) describe solids, liquids and gases; b) relate the states to particles

> **Three states**
> Solid: fixed shape and size; particles packed tightly and only vibrate (ice, stone, wood).
> Liquid: fixed size (volume) but takes the shape of its container; particles close but able to slide past each other (water, milk, oil).

You also receive this pack as an editable Word file, so you can change any lesson to suit your class before you print it. Lessons follow the order of the KICD curriculum design.

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ELIMU254

States of matter

Strand 2.0 Matter > Sub-strand 2.1 Change of state | Lesson 1 of 18 | 35 minutes

SCHOOL	TEACHER	DATE
CLASS / STREAM	TIME	ROLL (B / G)

SPECIFIC LEARNING OUTCOME(S)

By the end of the lesson, the learner should be able to: a) describe solids, liquids and gases; b) relate the states to particles

KEY INQUIRY QUESTION(S)

- How is change of state of matter important in day-to-day life?

CORE COMPETENCIES, VALUES AND PCIS IN THIS LESSON

COMPETENCY	**Communication and collaboration**	Learners explain their thinking to a partner and report their findings to the group.
COMPETENCY	**Learning to learn**	Learners say what they found easy or hard and decide their next step.
VALUE	**Respect**	Learners listen while others explain and accept correction politely.
VALUE	**Responsibility**	Learners look after shared materials and finish every task.
PCI	**Safety and security**	Learners follow safety rules when using materials and moving about.

LEARNING RESOURCES

Ice cubes | Candles | Glasses and saucers | Charts of the water cycle | Learners' exercise books

ORGANISATION OF LEARNING

Whole class for the introduction and the summary; pairs or groups of four to five for guided practice; individual work for the independent tasks.

KEY WORDS

matter | solid | liquid | gas | particles | melting | freezing | evaporation | boiling | condensation | sublimation

THE LESSON AT A GLANCE

Introduction	Teacher models	Guided practice	On their own	Wrap-up
5 min	8 min	9 min	8 min	5 min

Inside this plan: the step-by-step lesson flow with what the teacher and learners do, the key content, practice questions with answers, a common mistake to watch for, an assessment rubric on the four CBC levels, support and extension ideas, homework and a reflection page.

LESSON FLOW

Stage	Minutes	The teacher	The learners
Introduction	5	Greet the class and ask: "Key question: how is change of state of matter important in day-to-day life? Is water always a liquid?" Take two or three answers, link them to earlier work, then state today's outcome.	Answer the starter question, recall what they already know and read the outcome aloud.
Step 1: Teacher models	8	Take learners through "Three states" (key ideas on the next page), explaining as you go. Use ice cubes, candles, glasses and saucers. Ask learners to predict what comes next before you show it.	Watch, predict the next step, ask questions and note the key steps in their exercise books.
Step 2: Guided practice	9	Give questions 1 and 2. Move round the groups, ask "How do you know?" and correct errors kindly on the spot.	Work in pairs or small groups, explain each step to a partner and check one another's answers.
Step 3: Independent practice	8	Set questions 3 and 4 for individual work. Mark as you walk round and note who needs help in the next lesson.	Work on their own, then swap books with a partner to check.
Summary and conclusion	5	Ask two or three learners to state the key idea in their own words. Give this exit question and check the answers: "In which state are particles furthest apart?"	Say the key idea in their own words and answer the exit question in the exercise book.

KEY IDEAS

Three states

Solid: fixed shape and size; particles packed tightly and only vibrate (ice, stone, wood).

Liquid: fixed size (volume) but takes the shape of its container; particles close but able to slide past each other (water, milk, oil).

Gas: no fixed shape or size; fills any container; particles far apart and moving fast (steam, air).

Water can be all three: ice, water, water vapour (steam).

PRACTICE QUESTIONS - WITH ANSWERS FOR THE TEACHER

No.	Question	Answer
1	Name the three states of matter.	**Solid, liquid and gas.**
2	Which state has a fixed shape?	**Solid.**
3	Give the three states of water.	**Ice, water and water vapour.**
4	In which state are particles furthest apart?	**Gas.**

WATCH OUT FOR

Use learners acting as particles: tight group (solid), sliding (liquid), spread out (gas).

ASSESSMENT RUBRIC - THE FOUR CBC LEVELS

Level	What the learner can do
Exceeds expectations (EE)	Can describe solids, liquids and gases confidently and accurately, explain the method used, and apply the idea to new or unfamiliar problems.
Meets expectations (ME)	Can describe solids, liquids and gases accurately in familiar situations; notices and corrects slips without help.
Approaches expectations (AE)	Can partly describe solids, liquids and gases, or does so with prompts from the teacher or a partner; makes some errors.
Below expectations (BE)	Cannot yet describe solids, liquids and gases without direct help; needs the idea taught again with concrete objects.

SUPPORT AND EXTENSION

Learners who need support	Sort objects into states.
Learners ready for more	Is sand a liquid because it pours? Explain. (Answer: No; each grain is a solid with a fixed shape)
Inclusion	Seat learners with low vision near the board and read aloud whatever you write; use large, clear, tactile materials; allow extra time; pair with a patient partner; use gestures or Kenyan Sign Language for the key words.

HOMEWORK AND FOLLOW-UP

Redo questions 3 and 4 neatly in the exercise book. Then tell someone at home what you learned about "states of matter" and bring one question of your own to ask next lesson.

TEACHER SELF-CHECK

- Did every learner get a turn to handle materials or explain their thinking?
- Did most learners meet the outcome? Write down the names of those who did not.
- Was the pace right — did any step take too long or too short a time?
- Which competency and value did I see learners showing?
- What will I change the next time I teach this lesson?

REFLECTION ON THE LESSON / SELF-REMARKS

Write this after teaching - what worked, what to change, which learners need follow-up.

Heating and cooling change states

Strand 2.0 Matter > Sub-strand 2.1 Change of state | Lesson 2 of 18 | 35 minutes

SCHOOL	TEACHER	DATE
CLASS / STREAM	TIME	ROLL (B / G)

SPECIFIC LEARNING OUTCOME(S)

By the end of the lesson, the learner should be able to: a) name the changes of state; b) say whether each needs heating or cooling

KEY INQUIRY QUESTION(S)

- How is change of state of matter important in day-to-day life?

CORE COMPETENCIES, VALUES AND PCIS IN THIS LESSON

COMPETENCY	**Communication and collaboration**	Learners explain their thinking to a partner and report their findings to the group.
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KEY WORDS

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LESSON FLOW

Stage	Minutes	The teacher	The learners
Introduction	5	Greet the class and ask: "What happens to butter on a hot day?" Take two or three answers, link them to earlier work, then state today's outcome.	Answer the starter question, recall what they already know and read the outcome aloud.
Step 1: Teacher models	8	Take learners through "Changes of state" (key ideas on the next page), explaining as you go. Use ice cubes, candles, glasses and saucers. Ask learners to predict what comes next before you show it.	Watch, predict the next step, ask questions and note the key steps in their exercise books.
Step 2: Guided practice	9	Give questions 1 and 2. Move round the groups, ask "How do you know?" and correct errors kindly on the spot.	Work in pairs or small groups, explain each step to a partner and check one another's answers.
Step 3: Independent practice	8	Set questions 3 and 4 for individual work. Mark as you walk round and note who needs help in the next lesson.	Work on their own, then swap books with a partner to check.
Summary and conclusion	5	Ask two or three learners to state the key idea in their own words. Give this exit question and check the answers: "Name the change when wet clothes dry."	Say the key idea in their own words and answer the exit question in the exercise book.

KEY IDEAS

Changes of state
Melting: solid to liquid (heating): ice -> water, wax -> liquid wax.
Freezing (solidifying): liquid to solid (cooling): water -> ice.
Evaporation and boiling: liquid to gas (heating): water -> water vapour.
Condensation: gas to liquid (cooling): steam -> water droplets.
Sublimation: solid straight to gas, for example mothballs slowly disappearing.

PRACTICE QUESTIONS - WITH ANSWERS FOR THE TEACHER

No.	Question	Answer
1	What is melting?	**A change from solid to liquid.**
2	Does freezing need heating or cooling?	**Cooling.**
3	What is condensation?	**A change from gas to liquid.**
4	Name the change when wet clothes dry.	**Evaporation.**

WATCH OUT FOR

Draw a "change of state" cycle diagram.