Grade 7 Integrated Science

Term 2 - 56 complete lesson plans

Ready to teach, in the KICD lesson-plan format | 40-minute lessons | PDF and editable Word

ABOUT THIS PACK

56 complete, ready-to-teach Grade 7 Integrated Science lesson plans for Term 2, covering mixtures, acids, bases and indicators and human reproductive system.

TOPICS IN THIS PACK

Topic	Name	Lessons
2.1	Mixtures	18
2.2	Acids, bases and indicators	22
3.1	Human reproductive system	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

Homogeneous and heterogeneous mixtures

By the end of the lesson, the learner should be able to: a) explain the meaning of a mixture; b) classify mixtures as homogeneous or heterogeneous

> **Mixtures**
> A mixture is two or more substances mixed but not chemically joined; they can be separated.
> Homogeneous mixture: the same throughout; you cannot see the parts (salt water, air, tea with sugar).

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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Homogeneous and heterogeneous mixtures

Strand 2.0 Mixtures, Elements and Compounds > Sub-strand 2.1 Mixtures | Lesson 1 of 18 | 40 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) explain the meaning of a mixture; b) classify mixtures as homogeneous or heterogeneous

KEY INQUIRY QUESTION(S)

- How is the separation of mixtures 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	**Unity**	Learners share materials fairly and work as one team.
PCI	**Peer education and mentorship**	Developed through the activities in this lesson.

LEARNING RESOURCES

Charts of separation apparatus | Salt, sugar, water, sand | Beakers and spoons | 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

mixture | homogeneous | heterogeneous | solute | solvent | solution | evaporation | crystallisation | distillation | distillate | fractional distillation | sublimation | chromatography

THE LESSON AT A GLANCE

Introduction	Teacher models	Guided practice	On their own	Wrap-up
6 min	9 min	10 min	9 min	6 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	6	Greet the class and ask: "Key question: how is the separation of mixtures important in day-to-day life? Stir salt into water, and sand into water. What is different?" 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	9	Take learners through "Mixtures" (key ideas on the next page), explaining as you go. Use charts of separation apparatus, salt, sugar, water, sand, beakers and spoons. 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	10	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	9	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	6	Ask two or three learners to state the key idea in their own words. Give this exit question and check the answers: "Classify air."	Say the key idea in their own words and answer the exit question in the exercise book.

KEY IDEAS

Mixtures
A mixture is two or more substances mixed but not chemically joined; they can be separated.
Homogeneous mixture: the same throughout; you cannot see the parts (salt water, air, tea with sugar).
Heterogeneous mixture: the parts can be seen (sand and water, beans and maize, oil and water).
Activity: in groups, classify 10 mixtures and record them in a table.

PRACTICE QUESTIONS - WITH ANSWERS FOR THE TEACHER

No.	Question	Answer
1	Is salt water homogeneous or heterogeneous?	**Homogeneous**
2	Is a mixture of beans and maize homogeneous or heterogeneous?	**Heterogeneous**
3	What is a mixture?	**Substances mixed but not chemically joined**
4	Classify air.	**Homogeneous**

WATCH OUT FOR

Calling a cloudy liquid homogeneous; if particles can be seen or settle, it is heterogeneous.

ASSESSMENT RUBRIC - THE FOUR CBC LEVELS

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

SUPPORT AND EXTENSION

Learners who need support	Shine a torch through each mixture to see if particles scatter the light.
Learners ready for more	Is milk homogeneous or heterogeneous? Explain. (Answer: It looks the same throughout but tiny fat drops can be seen under a microscope; accept reasoned answers)
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 "homogeneous and heterogeneous mixtures" 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.

ELIMU254

Solute, solvent and solution

Strand 2.0 Mixtures, Elements and Compounds > Sub-strand 2.1 Mixtures | Lesson 2 of 18 | 40 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 define solute, solvent and solution

KEY INQUIRY QUESTION(S)

- How is the separation of mixtures 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	6	Greet the class and ask: "When sugar "disappears" in tea, where does it go?" 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	9	Take learners through "Dissolving" (key ideas on the next page), explaining as you go. Use charts of separation apparatus, salt, sugar, water, sand, beakers and spoons. 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	10	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	9	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	6	Ask two or three learners to state the key idea in their own words. Give this exit question and check the answers: "What is a solution?"	Say the key idea in their own words and answer the exit question in the exercise book.

KEY IDEAS

Dissolving
Solute: the substance that dissolves (sugar, salt).
Solvent: the substance it dissolves in (water, the most common solvent).
Solution: the homogeneous mixture formed (sugar solution).
Soluble substances dissolve (salt); insoluble ones do not (sand).
Activity: test whether salt, sugar, sand, chalk and flour dissolve in water.

PRACTICE QUESTIONS - WITH ANSWERS FOR THE TEACHER

No.	Question	Answer
1	In salt water, what is the solute?	**Salt**
2	In salt water, what is the solvent?	**Water**
3	Is sand soluble in water?	**No, it is insoluble**
4	What is a solution?	**A homogeneous mixture of a solute dissolved in a solvent**

WATCH OUT FOR

Saying the solute has disappeared; it is still there (the water tastes salty).