Grade 8 Integrated Science

Term 2 - 36 complete lesson plans

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

ABOUT THIS PACK

36 complete, ready-to-teach Grade 8 Integrated Science lesson plans for Term 2, covering the cell and movement of materials in and out of the cell.

TOPICS IN THIS PACK

Topic	Name	Lessons
2.1	The Cell	20
2.2	Movement of materials in and out of the cell	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

Cells: the building blocks of life

By the end of the lesson, the learner should be able to: a) state that all living things are made of cells; b) name some unicellular and multicellular organisms

> **The basic unit of life**
> A cell is the smallest unit of a living thing that can carry out the processes of life.
> Some organisms have only one cell (unicellular), for example amoeba and some bacteria. Others have millions of cells (multicellular), such as people, cows and maize plants.

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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Cells: the building blocks of life

Strand 2.0 Living Things and the Environment > Sub-strand 2.1 The Cell | Lesson 1 of 20 | 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) state that all living things are made of cells; b) name some unicellular and multicellular organisms

KEY INQUIRY QUESTION(S)

- What makes up plant and animal cells?

CORE COMPETENCIES, VALUES AND PCIS IN THIS LESSON

COMPETENCY	**Learning to learn**	Learners say what they found easy or hard and decide their next step.
COMPETENCY	**Self-efficacy**	Learners attempt each task with confidence and see that effort improves results.
VALUE	**Unity**	Learners share materials fairly and work as one team.
VALUE	**Responsibility**	Learners look after shared materials and finish every task.
PCI	**Environmental conservation**	Examples link to caring for the school and home environment.

LEARNING RESOURCES

Light microscope | Charts of plant and animal cells | Hand lens | 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

cell | light microscope | eyepiece lens | objective lens | slide | cover slip | cell wall | cell membrane | cytoplasm | nucleus | vacuole | chloroplast | magnification

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: what makes up plant and animal cells? First, what are living things made of?" 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 "The basic unit of life" (key ideas on the next page), explaining as you go. Use light microscope, charts of plant and animal cells, hand lens. 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: "Why do we need a microscope to study cells?"	Say the key idea in their own words and answer the exit question in the exercise book.

KEY IDEAS

The basic unit of life

A cell is the smallest unit of a living thing that can carry out the processes of life.

Some organisms have only one cell (unicellular), for example amoeba and some bacteria. Others have millions of cells (multicellular), such as people, cows and maize plants.

Most cells are too small to see without a microscope.

PRACTICE QUESTIONS - WITH ANSWERS FOR THE TEACHER

No.	Question	Answer
1	What is a cell?	**The smallest unit of a living thing that carries out life processes.**
2	What is a unicellular organism?	**An organism made of one cell.**
3	Give one example of a unicellular organism.	**For example amoeba.**
4	Why do we need a microscope to study cells?	**Most cells are too small to see.**

WATCH OUT FOR

Learners think only animals are made of cells. Plants are too.

ASSESSMENT RUBRIC - THE FOUR CBC LEVELS

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

SUPPORT AND EXTENSION

Learners who need support	Compare cells to bricks in a wall.
Learners ready for more	Is a hen's egg yolk a single cell? (Answer: Yes, it is one very large cell (the ovum with stored food))
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 "cells: the building blocks of life" 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.

Parts of the light microscope

Strand 2.0 Living Things and the Environment > Sub-strand 2.1 The Cell | Lesson 2 of 20 | 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) identify the parts of a light microscope; b) state the function of each part

KEY INQUIRY QUESTION(S)

- What makes up plant and animal cells?

CORE COMPETENCIES, VALUES AND PCIS IN THIS LESSON

COMPETENCY	**Learning to learn**	Learners say what they found easy or hard and decide their next step.
COMPETENCY	**Self-efficacy**	Learners attempt each task with confidence and see that effort improves results.
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KEY WORDS

cell | light microscope | eyepiece lens | objective lens | slide | cover slip | cell wall | cell membrane | cytoplasm | nucleus | vacuole | chloroplast | magnification

THE LESSON AT A GLANCE

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LESSON FLOW

Stage	Minutes	The teacher	The learners
Introduction	6	Greet the class and ask: "How does a hand lens help you see small things?" 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 "The microscope" (key ideas on the next page), explaining as you go. Use light microscope, charts of plant and animal cells, hand lens. 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 controls the amount of light?"	Say the key idea in their own words and answer the exit question in the exercise book.

KEY IDEAS

The microscope

Eyepiece lens: the lens you look through; it magnifies. Objective lenses: low, medium and high power, on a turning nosepiece.

Stage: holds the slide, with clips. Mirror or lamp: sends light up through the specimen. Diaphragm: controls the amount of light.

Coarse adjustment knob: focuses at low power. Fine adjustment knob: sharp focusing at high power. Arm and base: for carrying and support.

PRACTICE QUESTIONS - WITH ANSWERS FOR THE TEACHER

No.	Question	Answer
1	Which lens do you look through?	**The eyepiece lens.**
2	What is the function of the stage?	**To hold the slide.**
3	Which knob is used for focusing at high power?	**The fine adjustment knob.**
4	What controls the amount of light?	**The diaphragm.**

WATCH OUT FOR

Learners confuse the two adjustment knobs.