Grade 10 Biology

Term 1 - 64 complete lesson plans

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

ABOUT THIS PACK

64 complete, ready-to-teach Grade 10 Biology lesson plans for Term 1, covering introduction to Biology, scientific investigations in Biology, cell structure and specialization and chemicals of life.

TOPICS IN THIS PACK

Topic	Name	Lessons
1.1	Introduction to Biology	6
1.2	Scientific investigations in Biology	14
1.3	Cell structure and Specialization	20
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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

What is Biology? Living things and their characteristics

By the end of the lesson, the learner should be able to: a) define Biology as the study of living things; b) state the characteristics that show something is alive

Biology and the characteristics of living things

Biology is the scientific study of living things (organisms): how they are built, how they work, how they relate to each other and to their environment.

All living things show seven characteristics: nutrition (taking in food), respiration (releasing energy), excretion (removing wastes made in the body), movement, growth, reproduction and sensitivity (responding to changes in the surroundings). A helpful way to remember them is "MRS NERG".

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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What is Biology? Living things and their characteristics

Strand 1.0 Cell Biology and Biodiversity > Sub-strand 1.1 Introduction to Biology | Lesson 1 of 6 | 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) define Biology as the study of living things; b) state the characteristics that show something is alive

KEY INQUIRY QUESTION(S)

- Why is it important to study Biology?

CORE COMPETENCIES, VALUES AND PCIS IN THIS LESSON

COMPETENCY	**Imagination and creativity**	Learners make up their own examples, patterns or ways of showing the idea.
COMPETENCY	**Self-efficacy**	Learners attempt each task with confidence and see that effort improves results.
VALUE	**Respect**	Learners listen while others explain and accept correction politely.
VALUE	**Responsibility**	Learners look after shared materials and finish every task.
PCI	**Environmental conservation**	Examples link to caring for the school and home environment.
PCI	**Safety and security**	Learners follow safety rules when using materials and moving about.

LEARNING RESOURCES

Charts and pictures of people using Biology in their work | Manila paper and markers | Flash cards for fields of study and careers | Digital devices with safe internet access (where available) | Locally available materials (cardboard, bottle tops, string) for a career wheel | Chalkboard and chalk

ORGANISATION OF LEARNING

Whole class for the introduction and summary; groups of four to five for searching, discussion and making a career wheel; individual work for the written questions.

KEY WORDS

Biology | organism | botany | zoology | ecology | taxonomy | biotechnology | genetics | career

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

LESSON FLOW

Stage	Minutes	The teacher	The learners
Introduction	6	Greet the class and ask: "Look at a goat, a maize plant and a stone. Which ones are alive, and what tells you so?" 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 "Biology and the characteristics of living things" (key ideas on the next page), explaining as you go. Use charts and pictures of people using Biology in their work, manila paper and markers, flash cards for fields of study and careers. 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: "A car moves and uses fuel. Explain why it is not a living thing."	Say the key idea in their own words and answer the exit question in the exercise book.

KEY IDEAS

Biology and the characteristics of living things

Biology is the scientific study of living things (organisms): how they are built, how they work, how they relate to each other and to their environment.

All living things show seven characteristics: nutrition (taking in food), respiration (releasing energy), excretion (removing wastes made in the body), movement, growth, reproduction and sensitivity (responding to changes in the surroundings). A helpful way to remember them is "MRS NERG".

A non-living thing may show one or two of these (a car moves and uses fuel; fire grows) but never all of them. Only living things do all seven, and only living things are made of cells.

PRACTICE QUESTIONS - WITH ANSWERS FOR THE TEACHER

No.	Question	Answer
1	Define Biology.	**Biology is the scientific study of living things and how they interact with each other and with their environment.**
2	State four characteristics of living organisms.	**Any four of: nutrition, respiration, excretion, movement, growth, reproduction, sensitivity.**

3	A touch-me-not plant (Mimosa) folds its leaves when touched. Which characteristic of living things does this show?	**Sensitivity (irritability): it responds to a change in its surroundings.**
4	A car moves and uses fuel. Explain why it is not a living thing.	**It does not grow, reproduce, excrete or respond to its surroundings like an organism, and it is not made of cells.**

WATCH OUT FOR

Learners think "alive" only means "moves". Plants move too, but slowly, and a rolling stone moves without being alive. Always ask for ALL seven characteristics.

ASSESSMENT RUBRIC - THE FOUR CBC LEVELS

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

SUPPORT AND EXTENSION

Learners who need support	Give a card-sort activity: pictures of a goat, a tree, a stone, a motorbike and a mushroom for learners to place under "living" or "non-living" and defend.
Learners ready for more	Fire grows, moves and needs oxygen. Explain why it is not a living thing. (Answer: Fire has no cells, does not reproduce, excrete or respond, and "grows" only by burning more fuel; it does not take in food and release energy by respiration)
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 "what is Biology? Living things and their characteristics" 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.