Grade 10 Biology

Term 3 - 60 complete lesson plans

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

ABOUT THIS PACK

60 complete, ready-to-teach Grade 10 Biology lesson plans for Term 3, covering nutrition, transport and gaseous exchange and respiration.

TOPICS IN THIS PACK

Topic	Name	Lessons
3.1	Nutrition	12
3.2	Transport	24
3.3	Gaseous exchange and Respiration	24

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

Feeding in animals: why mouthparts and beaks differ

By the end of the lesson, the learner should be able to: a) explain what is meant by adaptation to a mode of feeding; b) state the types of feeding shown by insects and birds

> **Adaptations for feeding**
> Animals differ in the food they eat and in how they obtain it. The structures they use (mouthparts, beaks, teeth) have a shape suited to their food: this is called adaptation. Insects (the largest group of animals) all have the same basic mouthparts, but these are changed in different insects to suit their feeding methods.
> The main types of insect feeding: biting and chewing (locust, cockroach); piercing and sucking (mosquito, aphids); siphoning (butterfly, moth); sponging (housefly); cutting and sucking (tsetse fly). Birds have no teeth; their beaks are adapted to their food: seeds, nectar, flesh, fish, insects, fruits, wood and algae.

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

Feeding in animals: why mouthparts and beaks differ

Strand 3.0 Anatomy and Physiology of Animals > Sub-strand 3.1 Nutrition | Lesson 1 of 12 | 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 what is meant by adaptation to a mode of feeding; b) state the types of feeding shown by insects and birds

KEY INQUIRY QUESTION(S)

- How do insects and birds feed?

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	**Digital literacy**	Learners use a phone, tablet or the class computer to explore or check the idea.
VALUE	**Responsibility**	Learners look after shared materials and finish every task.
VALUE	**Social justice**	Every learner gets a turn and a fair chance to answer.
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, photographs and animations of insect mouthparts and bird beaks | Pictures or a field guide of local birds | Notebooks, pencils and rulers for drawings and field notes | Digital devices (where available)

ORGANISATION OF LEARNING

Pairs share hand lenses and specimens; groups of four for the discussions, drawings and comparison tables; whole class for the nature walk briefing; individual drawings and reports.

KEY WORDS

mouthparts | mandible | maxilla | labium | proboscis | stylet | beak | adaptation | herbivore | carnivore

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: "A butterfly sips nectar, a mosquito sucks blood, a locust chews leaves. How can one group of animals feed in so many ways?" 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 "Adaptations for feeding" (key ideas on the next page), explaining as you go. Use charts, photographs and animations of insect mouthparts and bird beaks, pictures or a field guide of local birds, notebooks, pencils and rulers for drawings and field notes. 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: "Explain why birds do not need teeth."	Say the key idea in their own words and answer the exit question in the exercise book.

KEY IDEAS

Adaptations for feeding

Animals differ in the food they eat and in how they obtain it. The structures they use (mouthparts, beaks, teeth) have a shape suited to their food: this is called adaptation. Insects (the largest group of animals) all have the same basic mouthparts, but these are changed in different insects to suit their feeding methods.

The main types of insect feeding: biting and chewing (locust, cockroach); piercing and sucking (mosquito, aphids); siphoning (butterfly, moth); sponging (housefly); cutting and sucking (tsetse fly). Birds have no teeth; their beaks are adapted to their food: seeds, nectar, flesh, fish, insects, fruits, wood and algae.

Different feeding modes reduce competition, because different animals can use different foods in the same habitat.

PRACTICE QUESTIONS - WITH ANSWERS FOR THE TEACHER

No.	Question	Answer
1	Define adaptation.	**A feature of an organism that suits it to its way of life or its habitat.**
2	State three modes of feeding shown by insects.	**Any three of: biting and chewing; piercing and sucking; siphoning; sponging; cutting and sucking.**

3	Explain why different feeding modes help many animals to live together in one habitat.	**They use different foods, so there is less competition.**
4	Explain why birds do not need teeth.	**Their beaks are adapted to catch, hold or break food, and the food is ground in the gizzard.**

WATCH OUT FOR

Learners think animals "chose" their mouthparts. Adaptations arise over long periods through natural selection.

ASSESSMENT RUBRIC - THE FOUR CBC LEVELS

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

SUPPORT AND EXTENSION

Learners who need support	Give pictures of an insect and a bird with a menu (leaf, nectar, blood, fish, seed) for them to match to the mouthpart or beak.
Learners ready for more	Why is it useful for a young insect and its adult form to feed differently? (Answer: They avoid competing: for example a caterpillar chews leaves while the butterfly sips nectar)
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 "feeding in animals: why mouthparts and beaks differ" 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

Biting and chewing mouthparts: locust, grasshopper and cockroach

Strand 3.0 Anatomy and Physiology of Animals > Sub-strand 3.1 Nutrition | Lesson 2 of 12 | 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) name the parts of biting and chewing mouthparts; b) state the function of each part

KEY INQUIRY QUESTION(S)

- How do insects and birds feed?

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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