Grade 10 Power Mechanics

Term 1 - 42 complete lesson plans

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

ABOUT THIS PACK

42 complete, ready-to-teach Grade 10 Power Mechanics lesson plans for Term 1, covering overview of Power Mechanics as a learning area, evolution of automobile, Power Mechanics workshop layout and general workshop rules and regulations.

TOPICS IN THIS PACK

Topic	Name	Lessons
1.1	Overview of Power Mechanics as a learning area	8
1.2	Evolution of automobile	8
1.3	Power mechanics workshop layout	8
1.4	General workshop rules and regulations	18

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 power mechanics is and where we meet it every day

By the end of the lesson, the learner should be able to: a) describe power mechanics as a learning area; b) give examples of machines and vehicles from power mechanics in the community

> **What is power mechanics?**
> Power mechanics is the study of engines, vehicles and machines that make or use power, and of how to look after them. It covers how they work, how they are built, how to find faults, and how to repair and service them safely.

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 power mechanics is and where we meet it every day

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 power mechanics as a learning area; b) give examples of machines and vehicles from power mechanics in the community

KEY INQUIRY QUESTION(S)

- How is power mechanics important in day-to-day life?

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	**Communication and collaboration**	Learners explain their thinking to a partner and report their findings to the group.
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	**Respect**	Learners listen while others explain and accept correction politely.
PCI	**Decision making**	Developed through the activities in this lesson.
PCI	**Career guidance**	Developed through the activities in this lesson.

LEARNING RESOURCES

Pictures of vehicles, engines and machines in use in the community | Newspaper cuttings or adverts for mechanics, garages and spare parts | Manila paper and marker pens | Notebooks and pencils

ORGANISATION OF LEARNING

Whole class for introductions and discussion; groups of four for the career and locality investigations, with a leader, a recorder, a questioner and a reporter; individual reflection on personal interests.

KEY WORDS

power mechanics | engine | vehicle | workshop | mechanic | technician | career | TVET | maintenance | repair

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: "Think of the journey you made to school today, or the last time your family used a machine such as a water pump or a generator. What made it move or work, and who keeps such machines running?" 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 "What is power mechanics?" (key ideas on the next page), explaining as you go. Use pictures of vehicles, engines and machines in use in the community, newspaper cuttings or adverts for mechanics, garages and spare parts, manila paper and marker pens. 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 must a repair be done carefully?"	Say the key idea in their own words and answer the exit question in the exercise book.

KEY IDEAS

What is power mechanics?

Power mechanics is the study of engines, vehicles and machines that make or use power, and of how to look after them. It covers how they work, how they are built, how to find faults, and how to repair and service them safely.

We meet power mechanics every day: in the matatu and the bus that carry passengers, the boda boda and the private car, the lorry that carries goods, the tractor on a farm, the generator that supplies electricity when the power is off, the water pump and the motor boat, and the lawn mower and the chainsaw. All of them need an engine or motor and other parts that carry the power to where it is needed.

In this learning area you will study the fundamentals, such as the workshop and its safety rules; the systems of a vehicle, such as wheels, body and chassis; and engines. You will also learn to use tools and measuring instruments, and to work in a careful and orderly way, because a badly repaired vehicle or machine can harm people.

PRACTICE QUESTIONS - WITH ANSWERS FOR THE TEACHER

No.	Question	Answer
1	Define power mechanics.	**The study of engines, vehicles and machines that make or use power, and of how to look after them.**
2	Name three machines or vehicles in your community that use an engine.	**For example: a matatu, a boda boda, a tractor, a generator, a water pump, a lorry.**
3	State two things you will learn in power mechanics.	**For example: how engines and vehicle systems work; how to use tools and measure; how to find faults and repair; workshop safety.**
4	Why must a repair be done carefully?	**A badly repaired vehicle or machine can fail and harm people or cause damage.**

WATCH OUT FOR

Learners think power mechanics is only about repairing cars. It also covers engines and machines in farming, industry, homes and transport of all kinds.

ASSESSMENT RUBRIC - THE FOUR CBC LEVELS

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

SUPPORT AND EXTENSION

Learners who need support	Give picture cards of machines and vehicles and let learners sort them into transport, farming, homes and industry.
Learners ready for more	Explain how a village with a broken water pump and no one able to repair it would be affected. (Answer: People would lose a supply of water, would need to walk far or pay more for water, and farms or animals could suffer, which shows how important the skills to repair machines are)
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 power mechanics is and where we meet it every day" 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.

Power mechanics in the curriculum and its links to other subjects

Strand 1.0 Fundamentals of Power Mechanics Technology > Sub-strand 1.1 Overview of Power Mechanics as a learning area | Lesson 2 of 8 | 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) describe what is studied in power mechanics; b) relate power mechanics to other learning areas

KEY INQUIRY QUESTION(S)

- How is power mechanics 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	**Self-efficacy**	Learners attempt each task with confidence and see that effort improves results.
COMPETENCY	**Digital literacy**	Learners use a phone, tablet or the class computer to explore or check the idea.
VALUE	**Unity**	Learners share materials fairly and work as one team.
VALUE	**Respect**	Learners listen while others explain and accept correction politely.
PCI	**Decision making**	Developed through the activities in this lesson.
PCI	**Career guidance**	Developed through the activities in this lesson.

LEARNING RESOURCES

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