

KENYA CERTIFICATE OF BASIC EDUCATION



SENIOR SCHOOL ASSESSMENT

DECEMBER ASSIGNMENT 2026

GRADE 10 – POWER MECHANICS

Time: 2 Hours 30 Minutes

LEARNER'S DETAILS

Name: _____ School: _____

Assessment Number: _____ Date: _____

School Code: _____ Signature: _____

INSTRUCTIONS TO CANDIDATES

1. Write your name in the spaces provided above.
2. Write the name of your school and your stream in the spaces provided.
3. Write your admission number and the date of the assessment in the spaces provided.
4. This paper consists of two sections: A and B.
5. Answer all questions in section A and section B.
6. Answer the questions in English.
7. All answers **MUST** be written in the spaces provided in the paper.
8. Do **NOT** remove any page from this question paper.
9. For technical drawing questions, ensure **all construction steps are clearly shown**

FOR OFFICIAL USE ONLY (EXAMINER'S USE)

SECTION	SECTION A	SECTION B	% SCORE	EE1	EE2	ME1	ME2	AE1	AE2	BE1	BE2
SCORE RANGE	30 MARKS	50 MARKS		90-100	75-89	58-74	41-57	31-40	21-30	11-20	1-10
POINTS				8 POINTS	7 POINTS	6 POINTS	5 POINTS	4 POINTS	3 POINTS	2 POINTS	1 POINT
LEARNER'S TOTAL SCORE											

SECTION A (30 MARKS)

Answer **ALL** questions in this section.

1. a) Define the term **Power Mechanics** as a learning area. (2 marks)

- b) State **two areas of application** of Power Mechanics in everyday life. (2 marks)

i. _____

ii. _____

- c) State **two career opportunities** available to a learner who studies Power Mechanics. (2 marks)

i. _____

ii. _____

2. a) State **two important developments** that contributed to the evolution of the automobile from early vehicles to modern vehicles. (2 marks)

i. _____

ii. _____

b) Explain **three benefits of technological development in modern automobiles**. (3 marks)

i. _____

ii. _____

iii. _____

3. a) State **three general safety rules** that should be observed in a Power Mechanics workshop. (3 marks)

i. _____

ii. _____

iii. _____

b) Give **two examples of personal protective equipment (PPE)** used in a Power Mechanics workshop. (2 marks)

i. _____

ii. _____

4.

a. List **four** contents of a first aid box. (2 marks)

i. _____

ii. _____

iii. _____

iv. _____

b. Make a sketch of a double cut flat file. (2 marks)

5.

a. State the meaning of each of the following engine terminologies: (3 marks)

i. bore;

ii. throw;

iii. volumetric efficiency.

b. State two functions of the charging system in an engine.(2 marks)

i. _____

ii. _____

6.

a. Name three checks that must be carried out when fitting new piston rings on a dismantled single cylinder engine piston.(3 marks)

i. _____

ii. _____

iii. _____

b. Figure 1 shows two measurements A and B performed as an engine component.

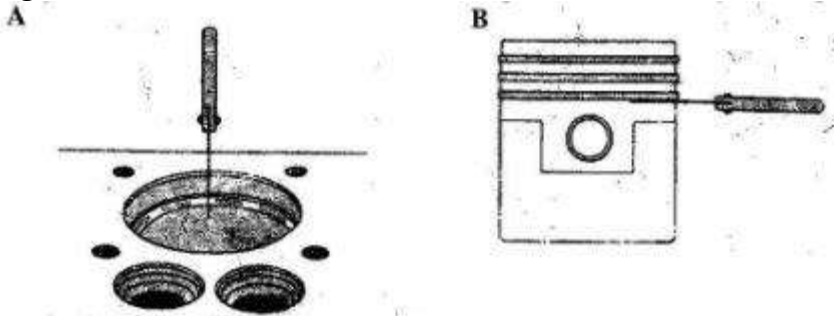


Figure 1

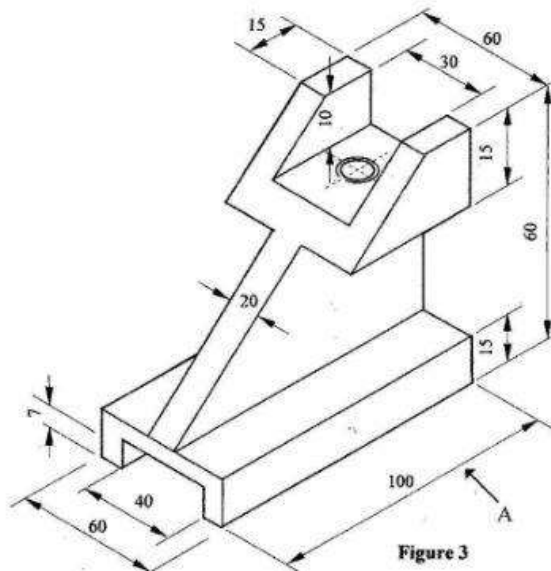
Name the measurement, the component and the tool used in each case.(2 marks)

Measurement	Component	Tool

SECTION B (50 marks)

Answer question 7 and any other FOUR questions from this section.

7. Figure 3 shows an isometric drawing of an engine mounting, Draw, full size in first angle projection the following views:
- Front elevation in the direction of arrow A;
 - End elevation;
 - Plan.(10-marks)



- 8.
- State how the size of each of the following tools is determined: (4 marks)
 - open end spanner;

- ball peen hammer.

- Make a freehand drawing of straight snips and label two main parts.(6 marks)

9. a) Name **four important areas** that may be found in a well-organised Power Mechanics workshop. (4 marks)

-
-

- ii. _____
- iii. _____
- iv. _____

b) Explain **three reasons why proper workshop layout is important**. (3 marks)

- i. _____
- ii. _____
- iii. _____

c) State **three factors that should be considered when planning the layout of a Power Mechanics workshop**. (3 marks)

- i. _____
- ii. _____
- iii. _____

10. During practical work, a learner notices that a mechanic is working beneath a vehicle supported only by a jack. Some tools are scattered on the workshop floor and used oil has been spilled near the working area.

a) Identify **three unsafe practices** in the situation described above. (3 marks)

- i. _____
- ii. _____
- iii. _____

b) Explain the possible danger associated with each unsafe practice identified in (a). (3 marks)

- i. _____
- ii. _____
- iii. _____

c) Describe **four measures** that should be taken to maintain safety and cleanliness in the workshop. (4 marks)

- i. _____
- ii. _____
- iii. _____
- iv. _____

11. a) Define the following terms as used in technical drawing:

i. **Tangency** (2 marks)

ii. **Blending of curves** (2 marks)

b) Explain **two applications of loci in Power Mechanics**. (2 marks)

i. _____

ii. _____

c) A technician is designing a curved component for a vehicle body. Explain why **tangency and blending of curves** are important when preparing the drawing of such a component. (2 marks)

d) State **two qualities of a good technical drawing**. (2 marks)

i. _____

ii. _____

12. a) Identify the three major vehicle components. (3 marks)

i. _____

ii. _____

iii. _____

b) State **two functions of the vehicle chassis**. (2 marks)

i. _____

ii. _____

c) Explain **two functions of road wheels**. (2 marks)

i. _____

ii. _____

d) State **three factors that should be considered when selecting suitable road wheels for a vehicle**. (3 marks)

i. _____

ii. _____

iii. _____

13. a) State four ways in which engines may be classified. (4 marks)

i. _____

ii. _____

iii. _____

iv. _____

b) Distinguish between the following:

i. Internal combustion engine and external combustion engine. (2 marks)

ii. Two-stroke engine and four-stroke engine. (2 marks)

c) State **two advantages of an internal combustion engine** in vehicle applications. (2 marks)

i. _____

ii. _____

14. a) State four possible causes of engine backfiring.(4 marks)

i. _____

ii. _____

iii. _____

iv. _____

b) Sketch and name two types of tyre tread patterns.(4 marks)

c) List four different components that are involved in absorbing shock when a vehicle hits a bump.(2 marks)

- i. _____
- ii. _____
- iii. _____
- iv. _____

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GRADE 10 – POWER MECHANICS

END-OF-YEAR EXAMINATION 2026

ANSWERS

SECTION A – 30 MARKS

1

a) Define Power Mechanics. (2 marks)

Power Mechanics is the study of the **principles, construction, operation, maintenance and repair of machines, engines and motor vehicles.**

Marking:

- Study of principles/construction/operation of machines or engines — **1 mark**
- Maintenance/repair/servicing of machines, engines or motor vehicles — **1 mark**

b) Two areas of application. (2 marks)

Any two:

1. Motor vehicle servicing and repair.
2. Agricultural machinery.
3. Construction machinery.
4. Transport industry.
5. Industrial machinery maintenance.
6. Automotive manufacturing.

1 mark each.

c) Two career opportunities. (2 marks)

Any two:

1. Motor vehicle mechanic/technician.
2. Automotive engineer.
3. Plant mechanic.
4. Automobile electrician.
5. Garage technician.
6. Machinery maintenance technician.
7. Motor vehicle inspector.

1 mark each.

2

a) Two important developments. (2 marks)

Any two:

1. Development of the internal combustion engine.
2. Development of the steam engine.
3. Development of pneumatic tyres.
4. Introduction of electric starting systems.
5. Development of fuel injection.
6. Development of electronic control systems.
7. Development of computer-controlled vehicle systems.

1 mark each.

b) Three benefits of technological development. (3 marks)

Any three:

1. **Improved safety** through airbags, ABS and electronic stability systems — **1 mark**
2. **Improved fuel efficiency** through improved engines and fuel-management systems — **1 mark**
3. **Reduced environmental pollution** through cleaner engines and emission-control systems — **1 mark**
4. Improved comfort.
5. Improved reliability.
6. Improved performance.
7. Reduced maintenance requirements.

3

a) Three general safety rules. (3 marks)

Any three:

1. Wear appropriate PPE.
2. Keep tools and equipment properly arranged.
3. Keep the workshop floor clean and dry.
4. Do not use damaged tools.
5. Follow correct operating procedures.
6. Do not work on a running machine unless required.
7. Disconnect power before servicing appropriate equipment.
8. Use the correct tool for the correct job.
9. Report accidents and dangerous conditions immediately.

1 mark each.

b) Two examples of PPE. (2 marks)

Any two:

- Safety goggles.
- Safety boots.
- Overalls/protective clothing.
- Protective gloves.
- Ear protection.
- Helmet where appropriate.

1 mark each.

4

a) Four contents of a first aid box. (2 marks)

Any four:

- Sterile gauze.
- Adhesive bandages/plasters.
- Cotton wool.
- Antiseptic solution.
- Roller bandages.
- Scissors.
- Disposable gloves.
- Triangular bandage.
- Safety pins.

½ mark each.

b) Sketch a double-cut flat file. (2 marks)



Award:

- Correct **flat rectangular file shape** — **1 mark**
- Correct representation of **double-cut teeth** — **1 mark**

5

a) Engine terminologies. (3 marks)

i. Bore

The internal diameter of an engine cylinder. — **1 mark**

ii. Throw

The distance from the centreline of the crankshaft to the centreline of the crankpin; it is equal to half the piston stroke. — **1 mark**

iii. Volumetric efficiency

The ratio of the actual amount/volume of air inducted into the cylinder to the theoretical cylinder capacity, usually expressed as a percentage. — **1 mark**

b) Two functions of the charging system. (2 marks)

1. Recharges/maintains the battery in a charged condition. — **1 mark**
2. Supplies electrical power to the vehicle electrical systems while the engine is running. — **1 mark**

6

a) Three checks when fitting new piston rings. (3 marks)

Any three:

1. Check the ring end gap.
2. Check ring side clearance in the piston groove.
3. Check ring groove clearance/condition.
4. Ensure the ring is fitted in the correct groove.
5. Check ring orientation/markings.
6. Check that the ring is not damaged or cracked.
7. Check ring-to-cylinder compatibility.

1 mark each.

b) Figure 1 — Measurements A and B. (2 marks)

A:

- Ring gap — ½ **mark**
- Piston ring — ½ **mark**
- Feeler gauge — ½ **mark**

B:

- Side clearance — ½ **mark**
- Piston ring — ½ **mark**
- Feeler gauge — ½ **mark**

A: Ring gap, piston ring, feeler gauge

B: Side clearance, piston ring, feeler gauge

(1 ½ x 2)

Maximum = 2 marks.

The exact identification should follow the supplied figure; the text version of the paper does not contain the actual Figure 1.

SECTION B — 50 MARKS

The paper instructs learners to answer **Question 7 and any other FOUR questions.**

7

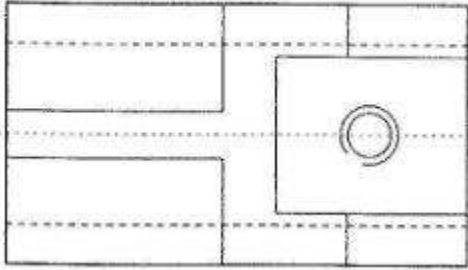
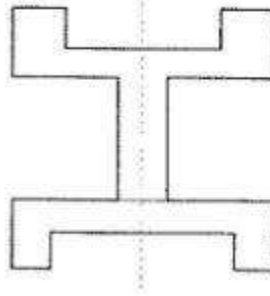
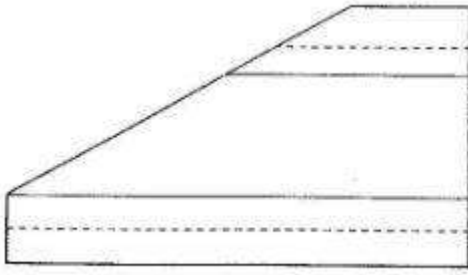
Draw the required views of the engine mounting in **first-angle projection.**

Mark allocation

- Correct front elevation — **3 marks**
- Correct end elevation — **2 marks**
- Correct plan — **3 marks**
- Correct first-angle arrangement/projection — **1 mark**
- Accuracy, line work and neatness — **1 mark**

TOTAL = 10 marks

Construction steps should be clearly shown as required by the examination instructions.



8

a) How the size of each tool is determined. (4 marks)

i. Open-end spanner

By the size of the nut or bolt head it fits, measured **across the flats**. — 2 marks

ii. Ball-pein hammer

By the **mass/weight of the hammer head**. — 2 marks

b) Freehand drawing of straight snips and two main parts. (6 marks)



Award:

- Correct overall shape of straight snips — 3 marks
- Correct blades — 1 mark
- Correct handles — 1 mark
- Correct labels/clear presentation — 1 mark

Acceptable labels:

- Blades

- Handles/grips
- Pivot
- Cutting edges

TOTAL = 6 marks

9

a) Four important workshop areas. (4 marks)

Any four:

1. Vehicle servicing/repair area.
2. Engine repair area.
3. Welding/fabrication area.
4. Tool/equipment storage area.
5. Spare-parts storage area.
6. Office/administration area.
7. Inspection/testing area.
8. Cleaning/washing area.

1 mark each.

b) Three reasons for proper workshop layout. (3 marks)

1. Improves **safety** by providing adequate working space and reducing accidents. — **1 mark**
2. Improves **efficiency/productivity** by reducing unnecessary movement of workers, tools and materials. — **1 mark**
3. Makes effective use of available **space** and facilitates proper organisation of equipment. — **1 mark**

c) Three factors considered when planning workshop layout. (3 marks)

Any three:

1. Available space.
2. Number and type of machines/equipment.
3. Safety requirements.
4. Lighting and ventilation.
5. Availability of electricity and other services.
6. Movement of vehicles and workers.
7. Accessibility of tools and equipment.
8. Fire safety and emergency exits.
9. Future expansion.
10. Waste-disposal arrangements.

1 mark each.

10

a) Three unsafe practices. (3 marks)

1. Working underneath a vehicle supported only by a jack. — **1 mark**
2. Leaving tools scattered on the workshop floor. — **1 mark**
3. Leaving used oil spilled on the workshop floor. — **1 mark**

b) Danger associated with each practice. (3 marks)

1. **Vehicle supported only by a jack:** The jack may fail or the vehicle may fall, causing serious injury or death. — **1 mark**
2. **Tools scattered on the floor:** They can cause slips, trips and falls and may become damaged. — **1 mark**
3. **Oil spilled on the floor:** It creates a slippery surface that can cause falls and may create a fire/environmental hazard. — **1 mark**

c) Four safety and cleanliness measures. (4 marks)

Any four:

1. Use approved axle stands/supports when working beneath a vehicle.
2. Return tools to their proper storage locations after use.
3. Clean oil and other spills immediately.
4. Keep walkways and working areas free from obstructions.
5. Wear appropriate PPE.
6. Dispose of waste safely.
7. Maintain adequate ventilation.
8. Inspect tools before use.
9. Display safety signs.
10. Maintain fire-fighting equipment.

1 mark each.

11

a) Definitions. (4 marks)

i. Tangency

The condition where two curves, or a curve and straight line, meet at exactly one point without forming a sharp corner. — **2 marks**

ii. Blending of curves

The process of joining curves or lines smoothly so that there is a continuous and smooth transition. — **2 marks**

b) Two applications of loci in Power Mechanics. (2 marks)

Any two:

1. Determining the movement/path of mechanical components.
2. Designing linkages.
3. Designing mechanisms.
4. Locating positions of components during movement.
5. Assisting in the design of machine parts.
6. Determining the movement of suspension components.

1 mark each.

c) Importance of tangency and blending of curves. (2 marks)

Any two explained:

1. Produce smooth transitions between surfaces/components.

2. Reduce sharp edges and stress concentration.
3. Improve appearance and accuracy.
4. Facilitate manufacture and finishing.
5. Improve aerodynamic characteristics where applicable.

1 mark each.

d) Two qualities of a good technical drawing. (2 marks)

Any two:

- Accurate.
- Clear.
- Neat.
- Properly dimensioned.
- Correctly labelled.
- Uses appropriate drawing conventions.
- Easy to interpret.
- Drawn to an appropriate scale.

1 mark each.

12

a) Three major vehicle components. (3 marks)

1. Vehicle body.
2. Chassis/frame.
3. Road wheels.

1 mark each.

b) Two functions of the chassis. (2 marks)

Any two:

1. Supports the vehicle body.
2. Supports the engine and other major components.
3. Provides structural strength.
4. Carries and distributes vehicle loads.
5. Provides mounting points for suspension and other components.
6. Maintains structural alignment.

1 mark each.

c) Two functions of road wheels. (2 marks)

Any two:

1. Support the weight of the vehicle.
2. Provide contact between vehicle and road.
3. Enable vehicle movement.
4. Transmit driving forces to the road.
5. Assist steering.

6. Transmit braking forces to the road.

1 mark each.

d) Three factors when selecting suitable road wheels. (3 marks)

Any three:

1. Vehicle load/carrying capacity.
2. Vehicle type and application.
3. Wheel size.
4. Tyre size and specification.
5. Road conditions.
6. Speed rating.
7. Manufacturer's specifications.
8. Cost.
9. Durability.
10. Compatibility with braking and suspension systems.

1 mark each.

13

a) Four ways engines may be classified. (4 marks)

Any four:

1. According to method of combustion — internal/external combustion.
2. According to cycle — two-stroke/four-stroke.
3. According to fuel used — petrol/diesel.
4. According to cooling method — air-cooled/liquid-cooled.
5. According to number of cylinders — single/multi-cylinder.
6. According to cylinder arrangement — in-line, V, horizontally opposed, etc.
7. According to method of ignition — spark/compression ignition.

1 mark each.

b) Distinguish between: (4 marks)

i. Internal and external combustion engines. (2 marks)

Internal combustion engine:

Combustion takes place **inside the engine/combustion chamber**, producing gases that act directly on the moving components. — **1 mark**

External combustion engine:

Fuel is burned **outside the engine's working cylinder/chamber**, with heat transferred to a separate working fluid. — **1 mark**

ii. Two-stroke and four-stroke engines. (2 marks)

Two-stroke engine:

Completes one operating cycle in **two piston strokes or one crankshaft revolution**. — **1 mark**

Four-stroke engine:

Completes one operating cycle in **four piston strokes or two crankshaft revolutions.** — **1 mark**

c) Two advantages of internal combustion engines. (2 marks)

Any two:

1. Compact and relatively lightweight.
2. High power-to-weight ratio.
3. High power output.
4. Suitable for mobile applications.
5. Relatively quick starting.
6. Can operate vehicles over long distances.
7. Fuel can be stored and carried in the vehicle.

1 mark each.

14

a) Four causes of engine backfiring. (4 marks)

Any four:

1. Wrong/incorrect ignition timing.
2. Wrong spark-plug range.
3. Too lean air-fuel mixture.
4. Too rich air-fuel mixture.
5. Carbon deposits.
6. Engine overheating.
7. Faulty condenser.
8. Incorrect valve timing.
9. Faulty ignition system.
10. Faulty fuel injector/carburettor.
11. Vacuum leaks.
12. Poor engine tuning.

1 mark each.

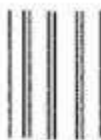
b) Sketch and name two tyre tread patterns. (4 marks)

Any two correctly drawn and named:

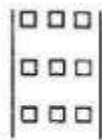
1. **Rib tread pattern** — **2 marks**
2. **Lug tread pattern** — **2 marks**



ZigZag



Straight



Square

Other acceptable patterns:

- Block tread.
- Directional tread.
- Rib-and-lug tread.
- Mud/snow tread.

c) Four components involved in absorbing shock. (2 marks)

Any four:

1. Road tyre.
2. Coil/leaf spring.
3. Shock absorber/damper.
4. Suspension linkage/control arm.
5. Rubber bushes.
6. Strut assembly.

½ mark each.

KENYA CERTIFICATE OF BASIC EDUCATION

SENIOR SCHOOL ASSESSMENT

TERM 3 PROJECT BASED ASSESSMENT 2026

GRADE 10 – POWER MECHANICS

LEARNER'S DETAILS

Name: _____ . School: _____ .

Assessment Number: _____ . Date: _____ .

School Code: _____ . Signature: _____ .

PROJECT TITLE:

DESIGN AND CONSTRUCTION OF A SIMPLE VEHICLE CHASSIS MODEL

Time: 2–3 weeks

Total Marks: 20

PROJECT TASK

Working **individually or in groups of not more than four learners**, design and construct a **simple scale model of a motor vehicle chassis** using locally available and safe materials.

The model should demonstrate an understanding of the Grade 10 Power Mechanics concepts of **vehicle chassis, road wheels, vehicle body, technical drawing, measurement, joining processes and workshop safety**.

MATERIALS

Learners may use suitable locally available materials such as:

- Cardboard or light sheet material
- Wooden strips
- Wire
- Bottle caps or suitable wheel substitutes
- Adhesive
- String
- Nuts and bolts where available
- Ruler and pencil
- Cutting tools under appropriate supervision

PROJECT REQUIREMENTS

The completed model should include:

1. A clearly identifiable **chassis/frame**.
2. At least **four road wheels** or suitable wheel representations.
3. A simple **vehicle body representation**.
4. Appropriate **joining methods**.
5. Accurate measurements based on a selected scale.

6. Neat finishing and proper labelling.
7. A preliminary **technical sketch** showing the intended design.

ASSESSMENT RUBRIC — 20 MARKS

Assessment Area	Marks
1. Project planning and technical sketch	3
Clear preliminary sketch	1
Appropriate dimensions/scale	1
Logical design plan	1
2. Chassis construction	4
Correct chassis structure	2
Strength and stability	1
Accuracy of construction	1
3. Road wheels and vehicle body	4
Four suitable road wheels provided	2
Vehicle body appropriately represented	1
Proper positioning/alignment	1
4. Joining processes and workmanship	3
Appropriate joining method selected	1
Strength of joints	1
Neat workmanship/finishing	1
5. Application of Power Mechanics knowledge	3
Correct identification of components	1
Correct explanation of functions	1
Relates model to a real vehicle	1
6. Workshop safety and environmental responsibility	2

Safe use of tools/materials	1
Proper handling/disposal of waste	1
7. Presentation and learner reflection	1
Clear presentation and reflection on challenges/solutions	1
TOTAL	20

PROJECT REPORT

Each learner/group should submit a brief report containing:

A. Project Title

Design and Construction of a Simple Vehicle Chassis Model

B. Objectives

State **three objectives** of the project.

C. Materials and Tools

List the materials and tools used.

D. Procedure

Describe the main steps followed from **planning** → **drawing** → **measuring** → **cutting/forming** → **joining** → **assembling** → **finishing**.

E. Technical Drawing

Attach the preliminary sketch of the proposed vehicle chassis and indicate important dimensions.

F. Joining Process

Identify the joining method(s) used and explain why they were selected.

G. Challenges and Solutions

State **two challenges** encountered and how they were solved.

H. Reflection

Explain what you learnt from undertaking the project.

TEACHER'S ASSESSMENT RECORD

Learner/Group: _____

Class: Grade 10

Project: Vehicle Chassis Model

Criterion	Score
Planning and technical sketch	/3
Chassis construction	/4
Road wheels and vehicle body	/4
Joining and workmanship	/3
Application of Power Mechanics knowledge	/3
Safety and environmental responsibility	/2
Presentation and reflection	/1
TOTAL	/20

Teacher's Comment:

Teacher's Name: _____

Signature: _____ **Date:** _____

Learner's Signature: _____

GRADE 10 POWER MECHANICS

ANSWERS / MARKING SCHEME

TOTAL: 20 MARKS

PROJECT: DESIGN AND CONSTRUCTION OF A SIMPLE VEHICLE CHASSIS MODEL

1. PROJECT PLANNING AND TECHNICAL SKETCH — 3 MARKS

Expected evidence

The learner should present a preliminary technical sketch similar to:

Marking

Requirement	Marks
Clear and recognisable preliminary sketch	1
Appropriate dimensions/scale indicated	1
Logical design showing arrangement of major components	1
Total	3

Accept any neat, technically meaningful alternative sketch.

2. CHASSIS CONSTRUCTION — 4 MARKS

Expected outcome

The completed model should have a clearly identifiable chassis/frame which:

- Has a suitable structural arrangement.
- Is sufficiently strong.
- Supports the body and wheels.
- Is reasonably accurate and symmetrical.

Marking

Requirement	Marks
Correctly constructed and identifiable chassis/frame	2
Chassis is reasonably strong and stable	1
Accurate construction according to the learner's plan	1

Total	4
--------------	----------

Performance guide

2 marks: Chassis clearly constructed and performs its intended structural function.

1 mark: Chassis exists but has minor structural/design weaknesses.

0 marks: No identifiable chassis or construction is substantially incomplete.

3. ROAD WHEELS AND VEHICLE BODY — 4 MARKS

Expected outcome

The model should have:

- Four appropriately positioned wheels.
- A recognisable vehicle body.
- Wheels reasonably aligned with the chassis.

Marking

Requirement	Marks
Four suitable road wheels provided	2
Recognisable vehicle body	1
Wheels correctly positioned/aligned	1
Total	4

Acceptable wheel materials

Any safe, suitable material may be accepted, including:

- Bottle caps.
- Wooden discs.
- Cardboard discs.
- Plastic wheels.
- Other locally available suitable materials.

Do not award marks based on the cost or sophistication of materials.

4. JOINING PROCESSES AND WORKMANSHIP — 3 MARKS

Expected answers

The learner may identify and use joining processes such as:

- Adhesive bonding.
- Bolting.
- Screwing.
- Riveting.
- Welding, where appropriate and performed under proper supervision.

Marking

Requirement	Marks
Appropriate joining process selected and identified	1
Joints are sufficiently strong/secure	1
Neat workmanship and finishing	1
Total	3

Example learner response

“I used adhesive bonding to join the cardboard body to the chassis because it was suitable for the materials used and provided a firm joint.”

Award 1 mark for an appropriate joining process with a reasonable explanation.

5. APPLICATION OF POWER MECHANICS KNOWLEDGE — 3 MARKS

The learner should be able to identify the major components of the model and explain their functions.

Expected answers

Chassis:

Provides the main supporting structure of the vehicle and supports major components.

Road wheels:

Support the vehicle and provide contact with the road to allow movement.

Vehicle body:

Provides the outer structure and protects/accommodates occupants and components.

Marking

Requirement	Marks
Correct identification of major components	1
Correct explanation of component functions	1
Clearly relates the model to an actual motor vehicle	1

Total	3
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6. WORKSHOP SAFETY AND ENVIRONMENTAL RESPONSIBILITY — 2 MARKS

Expected evidence

The learner should demonstrate safe working practices such as:

- Wearing appropriate PPE.
- Handling cutting tools safely.
- Using tools correctly.
- Working under teacher supervision where necessary.
- Keeping the working area clean.
- Properly disposing of waste materials.
- Avoiding unnecessary wastage of materials.

Marking

Requirement	Marks
Demonstrates safe use and handling of tools/materials	1
Proper waste management and environmental responsibility	1
Total	2

7. PRESENTATION AND LEARNER REFLECTION — 1 MARK

Expected response

The learner should briefly explain:

- What was learnt.
- A challenge encountered.
- How the challenge was solved.

Example

“I learnt how the chassis supports the major parts of a vehicle. One challenge was keeping the wheels aligned. I solved this by measuring the wheel positions carefully before fixing them.”

Award 1 mark for a clear and meaningful reflection.

COMPLETE 20-MARK SCHEME

No.	Assessment Area	Marks
1	Project planning and technical sketch	3

2	Chassis construction	4
3	Road wheels and vehicle body	4
4	Joining processes and workmanship	3
5	Application of Power Mechanics knowledge	3
6	Workshop safety and environmental responsibility	2
7	Presentation and learner reflection	1
TOTAL		20

PERFORMANCE LEVELS

Score	Performance Level	Description
17–20	Excellent	Highly accurate, functional, neat and demonstrates strong understanding of Power Mechanics
13–16	Very Good	Good construction and understanding with only minor weaknesses
9–12	Satisfactory	Meets most requirements but has noticeable weaknesses
5–8	Developing	Partially meets requirements and requires considerable improvement
0–4	Beginning	Incomplete project and limited evidence of the required competencies

TEACHER'S OBSERVATION SHEET

Learner/Group: _____

Grade: 10

Project: Vehicle Chassis Model

Criterion	Maximum	Score
Planning and technical sketch	3	_____
Chassis construction	4	_____
Road wheels and vehicle body	4	_____
Joining and workmanship	3	_____

Application of Power Mechanics knowledge	3	_____
Safety and environmental responsibility	2	_____
Presentation and reflection	1	_____
TOTAL	20	_____ / 20

Teacher's Comment:

Teacher's Name: _____

Signature: _____

Date: _____