



Government of **Western Australia**
School Curriculum and Standards Authority

SAMPLE ASSESSMENT TASKS

AUTOMOTIVE ENGINEERING AND TECHNOLOGY
GENERAL YEAR 11

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Sample assessment task

Automotive Engineering and Technology – General Year 11

Task 1 – Unit 1

Assessment type: Response

Rules and regulations – Safety in the workshop
Complete safety in the workshop activities.

(20 marks)

Conditions

Period allowed for completion of the task: two weeks

Task weighting

5% of the school mark for this pair of units

What you need to do

A journal of activities is to be completed during practical sessions.

Complete the following steps:

- watch safety video <http://smartmove.safetyline.wa.gov.au/>
- complete general and automotive modules for a Smartmove certificate
<http://smartmove.safetyline.wa.gov.au/course/view.php?id=2>
- after instruction, choose an automotive workshop machine, then describe and demonstrate the correct steps in operating the machine, explaining the Occupational Safety and Health (OSH) requirements
- practise general safety aspects of workshop practice

What needs to be submitted	Date due
<input type="checkbox"/> General and automotive modules for a Smartmove certificate	
<input type="checkbox"/> Workshop machine demonstration and explanation	
<input type="checkbox"/> Journal of activities	

Marking key for sample assessment task 1 – Unit 1

Task: Work Safe SmartMove certificates and appropriate behaviour	Maximum possible mark	Allocated mark
View video and complete general module <ul style="list-style-type: none"> • independently viewed the video, attempted and completed the quiz, receiving a certificate • attempted several times and completed the quiz, receiving a certificate • attempted several times, but did not receive a certificate 	4–5 2–3 0–1	/ 5
Completed automotive module and certificate <ul style="list-style-type: none"> • independently attempted and completed the quiz, receiving a certificate • with assistance, attempted several times and completed the quiz, receiving a certificate • attempted several times, but did not receive a certificate 	4–5 2–3 0–1	/ 5
Demonstration of selected workshop machine, description of operation and Occupational Safety and Health requirements <ul style="list-style-type: none"> • correct demonstration of operational steps, with clear explanation of process, and safety issues explained • operational steps demonstration, expressing during process OSH issues • little understanding of the operation of the machine, limited awareness of OSH issues and safety 	4–5 2–3 0–1	/ 5
Behaviour within the workshop and journal of activities <ul style="list-style-type: none"> • consistently safe behaviour within the workshop and collected safety notes with safety material • safe behaviour shown for the majority of the time and collected safety material • behaviour within the workshop required close supervision, few safety notes presented 	4–5 2–3 0–1	/ 5
Total		/ 20

Sample assessment task

Automotive Engineering and Technology – General Year 11

Task 2 – Unit 1

Assessment type: Investigation and diagnostics, Production and assembly, and Response

Maintenance and repair – motor vehicle safety inspection

(51 marks)

- apply testing techniques involved with daily/weekly checks and monitoring of the operation of single or multi-cylinder engines
- identify and use tools, equipment, parts and materials used in automotive industry
- identify the various systems that make up an automotive power plant or vehicle

Conditions

Period allowed for completion of the task: three weeks

Task weighting

Investigation and diagnostics – 5%

Production and assembly – 10%

Response – 2% of the school mark for this pair of units

What you need to do

Following instructions from your teacher, and with the use of a vehicle service manual, inspect the general operating condition of a vehicle.

Using the workshop cars and equipment, and in consultation with your teacher, complete a multiple-point safety vehicle inspection.

Tools and equipment

- service manual of vehicle
- battery
- torch or work light
- rags
- workshop tools
- trolley jack and axle stands
- hoist
- other tools may be required

This task will be done with the tools and equipment used in the automotive industry. The following is a list of skills you will need to learn and carry out in order to complete the task:

- raising car on hoist
- raising the car on axle stand
- fit battery properly
- removing wheels
- visual inspection of components
- evaluation comments
- evaluation report

Due to the nature of this practical assessment task, investigation, production and response is evaluated during the different stages of the task.

What needs to be submitted	Date due
<input type="checkbox"/> Motor vehicle inspection sheet	
<input type="checkbox"/> Vehicle condition evaluation worksheet	

Maintenance and repair - Motor vehicle safety and maintenance inspection

Name: _____ Class: _____

Eng/Car: _____ Date: _____

Item	Checked	Item	Checked
Electrical systems		Under body	
Headlight operation	Hi Lo	Engine mounts – front/rear	
Headlight aim	L R	Lubrication points	
Park lights	L R	Oil leaks – minor/major	
Turn signal/flasher rate	L R	Exhaust system	Engine flange gasket
Signal cancellation	L R		Front pipe
Hazard lights	L R		Muffler/resonators
Tail lights	L R		Tail pipe
Stop lights	L R		Supports/hangers
Licence plate light	L R	Rust – other defects	
Reversing lights	L R	Brake lines/fuel lines/leaks/attachments	
All lenses/condition	L R	Brake cables	
		Steering and suspension	
Interior checks		Steering wheel free play	
Instrument warning lights		Steering box/steering rack	
Instrument dash lights		Tie rod ends	
Interior lights/courtesy lights		Suspension bushes	
Horn operation		Ball joints	
Washer operation		Shock absorbers	Front L/R
Windscreen wiper blades			Rear L/R
Windscreen condition/visibility			
Mirrors: internal/external		Universal joints	
Seat belts – front – rear		Constant velocity joints	
Secure seating, adjustment		Rear spring bushes/shackles	
Doors – handles/ locks/hinges			
Window operation – front – rear		Wheel nuts and studs (check condition)	
Air conditioning control / operation (motor at idle)		Wheels and tyres Tyre pressure and tread depth	L/F
Heater operation/demist			L/R
Brake pedal travel			R/F
Hand brake			R/R
Clutch pedal			Spare
Pedal pads – condition			
		Brake system	
		(visual only)	Front
		Brake pads or drum linings (% worn)	Rear
Notes: (especially items requiring immediate attention)			

Item	Checked	Item	Checked
Under bonnet checks			
Engine oil		Cooling system	
Brake fluid		Radiator coolant (check condition)	
Clutch fluid		Radiator/coolant expansion caps	
Power steering fluid		Radiator/airconditioner fins	
Automatic transmission fluid level		Radiator hoses/heater hoses	
Windscreen washer fluid		Water pump	
Battery electrolyte level			
Battery clamp terminals/cables			
Air cleaner (check condition)		Shock absorber bounce test LR RF LR RR	
All drive belts – condition – tension		Bonnet latch operation	
Fuel lines			
Fuel filter (check condition)			
Plug leads			
Spark plugs			
Notes: (including items requiring immediate attention)			

Vehicle condition evaluation worksheet

Complete the worksheet by filling in the vehicle details and responding to the following questions:

Student: _____ Class: _____

Vehicle: _____ Registration: _____

Build (body type): _____ Model/Year: _____

Manufacture: _____ Chassis No: _____

Procedures

1. Run the engine to operating temperature, then record the following information.

- How many times did the engine turn until it started?

- How was the smoothness of the engine while running cold at idle?

- Was there any audible noise from the engine when cold?

- Was there any smoke when running cold?

- When warmed, how was the smoothness of operation?

- Were there any audible noises?

- Was there any smoke emitted?

2. Check the following electrical components. Comment on conditions, visual inspection and operation.

List all the external lights and check their operation: (note type and wattage)

Electrical components condition, either operational or requiring maintenance

Horn: _____ Wipers: _____ Washers: _____

Heater fan: _____ Other: _____

Starter motor: _____ Battery terminals: _____

Starter motor leads: _____ Battery carrier: _____

H.T. leads: _____ Distributor cap: _____

3. Check the condition and report on the following mechanical components located under the bonnet.
(Check for leaks, cracks, corrosion etc.)

Complete notes on the following:

Drive belts:

Water pump:

Cooling system hoses

Carburettor/injector system:

Fuel line hoses:

Fuel leaks:

4. Check the condition and report on the following mechanical components located under the vehicle. (Check for leaks, rust, worn rubbers and play.)

Exhaust:

Steering system [*Hint – raise front and look for movement*]:

Wheel bearings [*Hint – raise front of car and check*]:

Shock absorbers [*Hint – bounce test*]:

Oils leaks:

5. Check the levels and report on the condition of all vehicle fluid levels.

	Checked	Condition (appearance)	Comments
Battery			
Engine oil			
Brake fluid			
Clutch fluid			
Coolant			
Power steering			

6. Check the operation and report on the condition of the following body and trim components.

Seat belts:

Door locks/key locks:

Window operation:

Seat adjustments:

Hand brake:

Heater:

Air conditioner:

Other:

Status of other trim items (list):

Inspect body for rust and dents, other damage:

Windscreen and windows:

Marking key for sample assessment task 2 – Unit 1

Motor vehicle safety inspection	Maximum possible mark	Mark allocation	Teacher feedback
Investigation			
Uses sound observation skills to inspect various mechanical components	1–3		
Seeks out information from specifications	1–3		
Works independently or with partner to make observations	1–3		
Seeks reasons for oil and water leaks	1–3		
Seeks out component wear through safe activation of component	1–3		
Total		/15	Weighted mark (5%)
Production			
Places axle stands at correct vehicle structural points	1–3		
Operates hoist to raise vehicle using correct lift points	1–3		
Handles batteries using appropriate safety procedures	1–3		
Safe and correct inspection of a running engine	1–3		
Safe and correct inspection and use of all fluids	1–3		
Uses air tools appropriately to remove wheels	1–3		
Uses simple measuring tools to size wear components	1–3		
Uses leverage to check joint and bearing play	1–3		
Total		/24	Weighted mark (10%)
Response			
Observations clearly and fully recorded	1–3		
Correct use of terminology to record evaluations	1–3		
Makes evaluations from several conclusions on vehicle	1–3		
Draws correct conclusions from investigations	1–3		
Total		/12	Weighted mark (2%)

Sample assessment task

Automotive Engineering and Technology – General Year 11

Task 6 – Unit 1

Assessment type: Production and assembly

Complete engine strip down and rebuild

(35 marks)

Complete an overhaul on an engine using workshop tools and equipment, following OSH workshop practices. Record the practical skills learnt in a journal.

Conditions

This task is to be completed over a five or six-week period.

Task weighting

15% of the school mark for this pair of units

What you need to do

A journal of activities is to be completed during practical sessions.

- select and use the correct engine manual
- follow recommended procedure in the manual
- follow correct OSH workshop practices
- use correct tools and equipment
- use correct quantities of oil, recommended by the manufacturer's specifications

Using a specific process according to the manufacturer's specifications, and a more detailed number of steps, complete the dismantling of the engine:

- disconnect and remove battery
- drain and store, or correctly dispose of all fluids

Label all components as you disassemble the engine

- remove outer components
- disassemble main components
- disassemble internal components
- clean, re-label if necessary
- inspect and measure components
- compare with manufacturer's specifications

A teacher checklist will be used to assess the dismantling of the engine.

Assemble the engine:

- replace worn, or order new parts
- assemble to manufacturer's specifications
- use correct fluids

Under teacher supervision, start and run the assembled engine to operating temperature.

What needs to be submitted	Date due
<input type="checkbox"/> Journal of activities	
<input type="checkbox"/> Test assembled engine	

Marking key for sample assessment task 6 – Unit 1

Complete engine dismantle and rebuild	Marks allocation
Observed skills	
• remove battery from engine, car or cradle	1
• remove all existing fluids from the engine	1
• strip outer engine components per manual instructions	1
• tag and clean all parts	1
• inspect, report wear or damage (include in journal)	1
• obtain or order new parts	1
• repair/replace items to manufacturer's specifications	1
• assemble engine to manufacturer's manual specifications	1
• reconnect battery to electrics and engine in car or engine cradle	1
Tools and equipment	
• tools used correctly	1
• equipment used correctly	1
• tools and equipment in combination used responsibly	1
Procedures/processes and techniques	
• layout of engine parts	1
• procedure for item repair	1
• preparation for assembly	1
• recommended procedure in the manual followed	1
• correct quantities of oil, recommended by the manufacturer's specifications	1
• use of a correct engine manual	1
OSH	
• correct OSH/workshop practices followed	1
• responsible behaviour in the workplace	1
• correct clothing, footwear, safety glasses worn	1
• correct manual handling	1
• preparation of worksite	1
• preparation of waste disposal	1
• journal of activities	1
Operation of running engine up to temperature	
• engine runs smoothly at temperature at idle and under power, clearly followed the recommended assembly of the engine	9–10
• engine correctly assembled, minor adjustment to fire engine, engine runs smoothly at temperature at idle and under power	7–8
• engine runs at temperature at idle and under power, minor assembly issues requiring adjustment	5–6
• engine runs, requires a number of adjustments	3–4
• engine doesn't run, requires several adjustments and/or parts not fitted correctly	1–2
Total	/35