

CIVIL CONSTRUCTION

Learner Workbook

(Formative assessment)



TRAINER'S MARKING GUIDE



This resource was developed by:



Learner Name: _____

Student Number: _____ Date: ____/____/____

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SAMPLE PAGES

Knowledge Assessment



Question 1

What is the first thing that is done to build a new road?

Answer may include but is not limited to:

A surveyor will stake out the site according to the site plan. The stakes mark where the road will go and any drains or pits, which will help to drain water away from the road area.



Question 2

What is the last thing you do in constructing a road?

Answer may include but is not limited to:

Finish planting, check erosion control and make sure drainage work is complete.

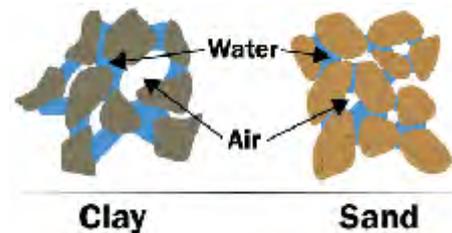


Question 3

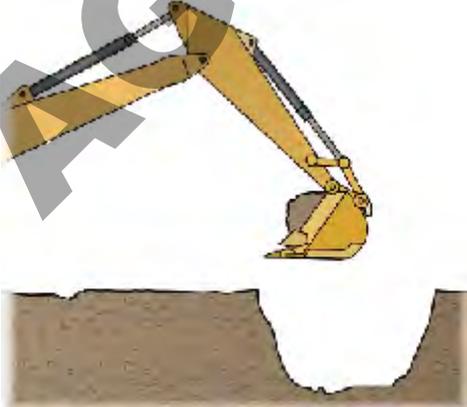
What is the difference in viscosity between dry loose soil and wet muddy soil?

Answer may include but is not limited to:

Dry loose soil has a low viscosity and is easy to work with. Wet muddy soil has a higher viscosity and can be more difficult to work with.



Question 17	
What does a traffic management plan (TMP) tell you?	
<p>Answer may include but is not limited to:</p> <p>It tells you how to control vehicles in and around the worksite. It helps keep the site safe for you and others.</p>	

Question 18	
What kinds of jobs do you use earthmoving equipment for?	
<p>Answer may include but is not limited to:</p> <ul style="list-style-type: none"> • Digging an excavation • Loading a truck • Lifting logs • Rock breaking • Lifting loads • Mixing soil • Cutting • Digging a trench • Stripping and spreading topsoil. 	

Question 19	
How might you check if the equipment is capable of doing the job?	
<p>Answer may include but is not limited to:</p> <p>Evaluate whether the equipment's power, capacity, and performance align with the demands of the tasks.</p> <p>Check factors such as lifting capacity, horsepower, speed, and manoeuvrability.</p>	

Question 23	
When do you test and inspect your earthmoving machinery?	
<p>Answer may include but is not limited to:</p> <p>Everyday test and inspect before you use the loader.</p>	

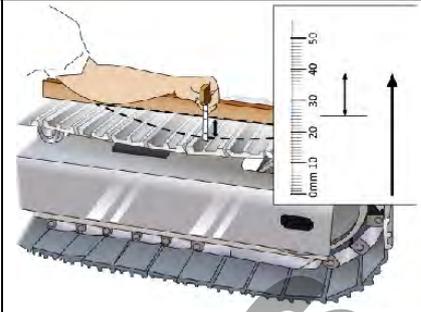
Question 24	
There are isolation requirements for earthmoving loaders. What is meant by isolation?	
<p>Answer may include but is not limited to:</p> <p>Isolation in the context of earthmoving loaders refers to safety practices aimed at preventing accidental equipment startup or movement during maintenance or repair work. It involves:</p> <p>Lockout/Tagout: Physically locking or tagging energy sources to prevent machine activation.</p> <p>De-energisation: Turning off the loader's power source and depressurizing hydraulic systems.</p> <p>Verification: Confirming the equipment is safely immobilized.</p> <p>Training: Ensuring workers are trained in isolation procedures to prevent accidents.</p>	

Question 25		
What pre-operational checks do you do before using earthmoving machinery?		
<p>Answer may include but is not limited to:</p> <ul style="list-style-type: none"> • Leaks • Tyre condition and pressure • Fuel level • Power steering fluid 	<ul style="list-style-type: none"> • Hydraulic fuel • Transmission oil • Engine oil • Battery level • Engine coolant • Air filter • Air tank (if fitted) 	

Question 26**How do you check the track tension of a tracked machine?**

Answer may include but is not limited to:

Put a straight edge on the track from the driver idler to the carrier roller. If there is too much sag, you need to adjust the tension.

**Question 27****What should you do if you find a fault with your earthmoving machinery?**

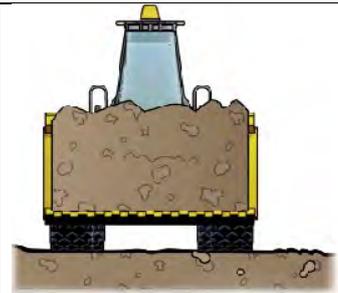
Answer may include but is not limited to:

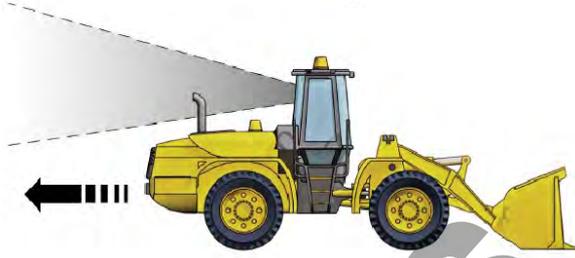
1. Tag out the equipment. DO NOT USE IT.
2. Remove the key.
3. Record the problem in a logbook or daily inspection checklist book.
4. Report the problem to the supervisor.

**Question 28****Why do the front tyres on a loader need to be equal pressure?**

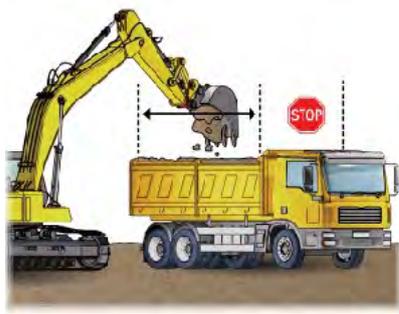
Answer may include but is not limited to:

If the front tyres are not equal pressure, the front end loader could tip over sideways and injure you or someone else.



Question 29	
What do you do before reversing earthmoving machine from a stationary position?	
<p>Answer may include but is not limited to:</p> <ol style="list-style-type: none"> 1. Sound the horn once. 2. Look behind. 	

Question 30	
Why is it dangerous to slew a load over the cabin of a truck?	
<p>Answer may include but is not limited to:</p> <p>The load might fall on top of the cabin and injure the truck driver and damage the truck.</p>	

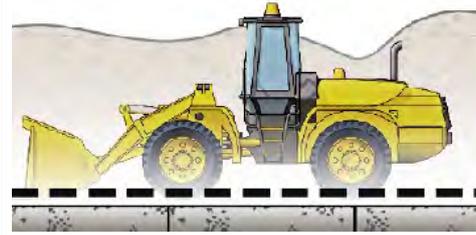
Question 31	
What safety precautions should the operator take when dumping a load into a truck?	
<p>Answer may include but is not limited to:</p> <ul style="list-style-type: none"> • The load must not pass over the truck’s cabin. Move load on flat ground if possible. • The load must not be heavier than the earthmoving machinery’s rated capacity. • The bucket must hold the load completely. • Put a layer of soil in the truck before dumping large rocks. • The operator must be in the cabin or outside the working radius in a safe area. 	

Question 32

When travelling with a load, what kind of ground is the safest to travel on?

Answer may include but is not limited to:

Firm, level ground because it gives the best stability.

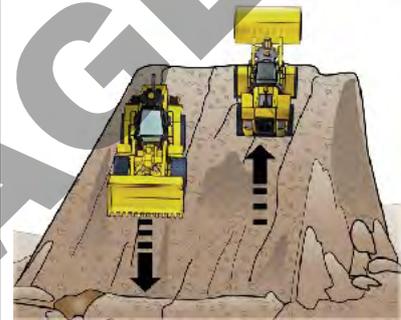


Question 33

Which way should you travel when driving on sloping ground?

Answer may include but is not limited to:

Go straight up or down the hill, not at an angle.



Question 34

When travelling down a steep slope, which gear do you use?

Answer may include but is not limited to:

Use the lowest gear you can. Change into low gear before you drive on the slope.



Question 43

Which is harder to excavate, top soil or clay?

Answer may include but is not limited to:

Clay as it is denser and does not break up as easily as top soil.

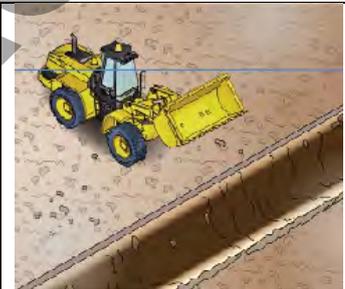


Question 44

You are filling a trench with a front end loader. In which direction should you move towards the trench?

Answer may include but is not limited to:

Move towards the trench at a 90 degree angle (straight).

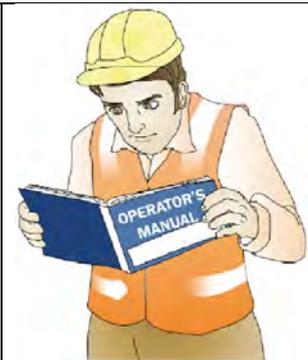


Question 45

What do you do before fitting any attachments to earthmoving machinery?

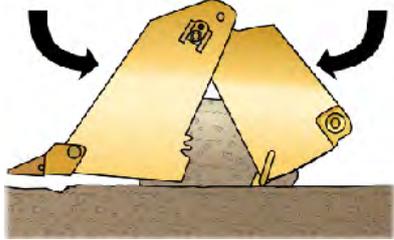
Answer may include but is not limited to:

Read the operator's manual to make sure the machine can use these attachments.



Question 46	
What are some attachments you might use on an integrated tool carrier?	
Answer may include but is not limited to: <ul style="list-style-type: none"> • Pallet forks • Hydraulic post hole digger (auger) • Round bale fork • Jib attachment. 	

Question 47	
What kinds of buckets can you use on a front end loader / backhoe?	
Answer may include but is not limited to: <ul style="list-style-type: none"> • Rock bucket • Multi-purpose bucket (4-in-1) • Excavating bucket • Trench bucket. 	

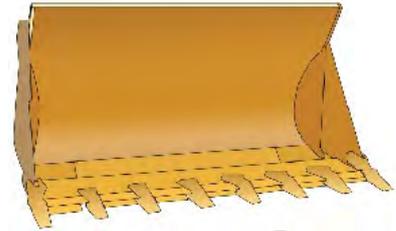
Question 48	
What can you use a clam type 4-in-1 bucket for?	
Answer may include but is not limited to: <ul style="list-style-type: none"> • Carrying loads • Scraping • Picking things up • Dozing • Scooping • Levelling. 	

Question 53

What are some examples of safety limits to remember when using an attachment?

Answer may include but is not limited to:

- Purpose of the attachment. The attachment should only be used to do the job it is designed for.
- Safe working load (SWL)
- Maximum hydraulic pressure the attachment can take
- Capacity (how much the attachment can hold or lift).



Question 54

What is the chain of responsibility for loading and unloading of machinery onto a transport vehicle?

Answer may include but is not limited to:

The Chain of Responsibility (CoR) law ensures everyone who works with heavy vehicles – from the business that employs a driver to the place where goods are delivered – is accountable for safety.



Question 55

How do you prepare a machine for travel on a public road?

Answer may include but is not limited to:

- Park the machine in a suitable cleaning area.
- Clean the machine of mud, soil, and stones. Remove any vegetation.



Question 56**Before you drive on a public road, what checks do you make on the machine?**

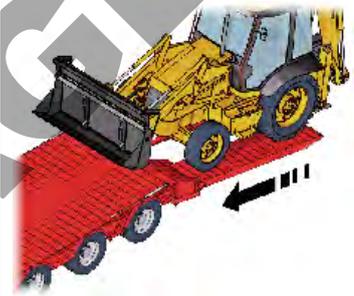
Answer may include but is not limited to:

Make sure the machine is roadworthy, and it is registered for road use.

**Question 57****A loader is to be transported. How is the preparation done by the person responsible?**

Answer may include but is not limited to:

- Make sure the transport vehicle is wide enough and long enough to fit the loader
- Make sure the transport vehicle is clean
- Make sure the park brake is on in the transport vehicle
- Use traffic control measures
- Keep people clear
- Set up the transport vehicle on firm, level ground
- The transport vehicle has enough capacity to carry the loader.

**Question 58****You've finished using earthmoving machinery. What post-operational checks do you do?**

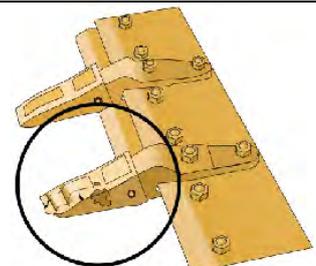
Answer may include but is not limited to:

- Correct fluid levels (once the integrated tool carrier has cooled down)
- Any structural damage
- Any fluid leaks

**Question 59****What are some common parts that wear or get damaged on earthmoving machinery?**

Answer may include but is not limited to:

- Teeth on the bucket or attachment
- Attachment hooks or blades
- Engine might use too much oil or coolant
- Check battery condition and fluid level
- Radiator hoses.



Question 60	
Why should you remove the keys from earthmoving machinery when leaving it parked?	
<p>Answer may include but is not limited to:</p> <p>To stop unauthorised people using the machine.</p>	

Question 61	
What do you have to clean when you have finished using earthmoving machinery?	
<p>Answer may include but is not limited to:</p> <ul style="list-style-type: none"> • Clean the windows and cabin • Clean the mirrors • Clean tools and equipment, and put them back in their place. 	

Question 62	
What are some items on earthmoving machinery that can be recycled?	
<p>Answer may include but is not limited to:</p> <ul style="list-style-type: none"> • Batteries • Oil • Gas cylinders 	

Practical tasks



The skills and knowledge required to operate earthmoving machinery to load, distribute and place materials, work must be performed **on at least two occasions**. The two occasions could include the following:

Occasion 1 – Workbook (formative assessment)

Occasion 2 – Summative assessment instrument

Attachments:

Two different attachments must be used.

Practical Assessment 1 – Pre-Start



Observation performed when performing Practical Task 1 from work order provided (Job 1, Job 2)	Yes	No	N/A	Job 1	Job 2
Candidate:					
Located and apply relevant documentation, policies and procedures.					
<input type="checkbox"/> Locates operator's manual for earthmoving machinery and finds requirements for pre-start and start-up checks.				<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Locates site policies and procedures for personal protective equipment requirements when operating earthmoving machinery.				<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Candidate displays preparedness for emergency situations by outlining the steps to be taken in the case of a fire or accident.				<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Interrupt work order or requirements before performing work task.				<input type="checkbox"/>	<input type="checkbox"/>
Selected and wear personal protective equipment.					
<input type="checkbox"/> PPE selected must be as per site policies and relevant to the task. As a minimum MUST include appropriate footwear, Hi-visibility workwear and hard hat.				<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> PPE must be checked for serviceability and correctly fitted.				<input type="checkbox"/>	<input type="checkbox"/>
Conducted pre-start inspection of earthmoving machinery.					
<input type="checkbox"/> Pre-start check is carried out as per operators manual and workplace policies and procedures. Where possible a completed pre-start checklist should be provided as supporting evidence.				<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> During inspection the candidate must identify and/or verbalise any common faults they are looking for.				<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Faults and/or damage found during inspection must be managed as per workplace policies and procedures. This should include, tagging out faulty equipment, isolating faulty equipment, reporting to the appropriate person and recording in a logbook. If no faults or damage are found the candidate must verbalise the procedure for the worksite to the assessor.				<input type="checkbox"/>	<input type="checkbox"/>

Carried out vehicle refuelling requirements and procedures where applicable.					
<input type="checkbox"/> Candidate must refuel the earthmoving machinery when necessary. The candidate must refer to workplace policies and procedures for refuelling.				<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> The correct PPE for refuelling must be selected and worn during the refuelling process.				<input type="checkbox"/>	<input type="checkbox"/>

The applicants' performance in Practical Assessment 1 – Pre-Start activity was deemed to be:

<input type="checkbox"/> Satisfactory	<input type="checkbox"/> Not yet satisfactory
Applicant signature:	Date:
Trainer/assessor signature:	Date:

SAMPLE PAGES



Practical Assessment 2 – Drive and operate earthmoving machinery

Observation performed when performing Practical Task 2 from work order provided (Job 1, Job 2)	Yes	No	N/A	Job 1	Job 2
Candidate:					
Identifying and reporting all potential hazards, risks and environmental issues					
<input type="checkbox"/> The applicant must inspect the work area and identify any potential hazards and risks that exist including environmental hazards and risks. Where possible a completed site inspection checklist should be provided as supporting evidence.				<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Hazard control methods consistent with the Hierarchy of hazard control and any existing environmental management plan must be used to manage the hazards. Site policies and procedures must also be followed.				<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> The applicant must inspect the work area and identify any potential hazards and risks that exist including environmental hazards and risks. Where possible a completed site inspection checklist should be provided as supporting evidence.				<input type="checkbox"/>	<input type="checkbox"/>
Starting the earthmoving machinery					
<input type="checkbox"/> Candidate must ensure any footsteps and handgrips are clear of mud, debris and slippery substances. The candidate must face the earthmoving machinery when mounting and dismounting and maintain three (3) points of contact at all times. Must not jump.				<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Earthmoving machinery is started as per manufacturer's instructions and workplace policies and procedures. Post-start checks and tests must be carried out and any abnormalities rectified (where possible), reported and recorded.				<input type="checkbox"/>	<input type="checkbox"/>
Driving and operating the equipment					
<input type="checkbox"/> Candidate applies safe work practices when driving and operating the earthmoving machinery, including but not limited to using all warning devices and motion alarms, always checking travel direction is clear, continually monitoring ground and site conditions, monitoring the movement of the boom and bucket and travelling at a safe speed.				<input type="checkbox"/>	<input type="checkbox"/>
Monitored and managed equipment performance using indicators and alarms					
<input type="checkbox"/> Candidate identifies and monitors all indicators and alarms relevant to managing the performance of the earthmoving machinery.				<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> The candidate must react appropriately to any indicators or alarms and apply problem solving and troubleshooting techniques to rectify any problems when operating the earthmoving machinery.				<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> The candidate adjusts operating techniques to suit site conditions and/or as a direct response to any indicators or alarms.				<input type="checkbox"/>	<input type="checkbox"/>
Parked and secured earthmoving machinery					
<input type="checkbox"/> Candidate parks earthmoving machinery in an appropriate and safe location.				<input type="checkbox"/>	<input type="checkbox"/>

<input type="checkbox"/> Earthmoving machinery is shutdown as per operators manual and workplace policies and procedures. Key must be removed.				<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Post-operational inspection of earthmoving machinery is performed and any damage or defects are managed as per policies and procedures (ie: isolate, tag and report).				<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Earthmoving machinery is locked and secured as per workplace policies and procedures.				<input type="checkbox"/>	<input type="checkbox"/>

The applicants' performance in Practical Assessment 2 – Drive and operate earthmoving machinery activity was deemed to be:

<input type="checkbox"/> Satisfactory <input type="checkbox"/> Not yet satisfactory
Applicant signature: Date:
Trainer/assessor signature: Date:

SAMPLE PAGES

Practical Assessment Summary – Competency Sign Off

Files to be submitted.

Written Assessment

- 1 x Knowledge assessment

Practical Work

- 2 x activity’s performed in work place or simulated environment

Documents that need to be submitted.

- 2 x Copy’s of work order
- 1 x Trainer’s Assessment Work book filled in of candidate’s assessment.

Written / Practical Assessment Summary		Satisfactory	Not Satisfactory
0. Knowledge assessment		<input type="checkbox"/>	<input type="checkbox"/>
1. Pre-Start		<input type="checkbox"/>	<input type="checkbox"/>
2. Drive and operate earthmoving machinery		<input type="checkbox"/>	<input type="checkbox"/>
3. Complete operations to specification		<input type="checkbox"/>	<input type="checkbox"/>
4. Attachments		<input type="checkbox"/>	<input type="checkbox"/>
5. Load, unload and relocate earthmoving machinery		<input type="checkbox"/>	<input type="checkbox"/>
6. Housekeeping		<input type="checkbox"/>	<input type="checkbox"/>
Competency:	Not Yet Competent <input type="checkbox"/> Date _____	Competent <input type="checkbox"/> Date _____	
Feedback to be given to candidate or to workplace trainer.			
Trainer / Assessor signature: Date:	The learner has been assessed as <input type="checkbox"/> Not Yet competent / <input type="checkbox"/> competent in the elements and performance criteria, critical aspects for assessment, required skills and knowledge for this unit and the evidence presented is: <input type="checkbox"/> Authentic <input type="checkbox"/> Valid <input type="checkbox"/> Reliable <input type="checkbox"/> Current <input type="checkbox"/> Sufficient		