

Practice Aptitude

QUIZ

Mining & Quarrying

Part 1: About this Mining & Quarrying Resource

Guidance

The Practice Aptitude Quiz is intended to be a general illustration of some of the key learning standards required of people attempting an Australian Apprenticeships entry level qualification in the Mining and Quarrying Industries.

This Practice Aptitude Quiz is neither a formal tool nor a direct pre-requisite for any job application.

This quiz has been developed with the assistance of industry, TAFE and the secondary school sector as a careers resource.

The quiz focuses on literacy, numeracy, comprehension and problem solving questions contextualised to this specific industry.

The quiz can be utilised by numerous organisations and people such as careers practitioners working with young people, Group Training Organisations and Job Services Australia providers working with job seekers.

The Practice Aptitude Quiz can be:

- > Used by careers practitioners with individuals or in a class setting to provide general guidance on the level of study involved in undertaking an entry level qualification in this industry;
- > Provided to people to enable them to practice their skills before sitting an actual aptitude test;
- > Used by Mathematics teachers as a guide to industry maths requirements at the entry point of this particular Australian Apprenticeship;
- > Used by teachers as classroom based activities for students in Year 11 and 12 VET studies.

The level of reading, writing and mathematical skills assessed by this quiz is equivalent to that of a typical young person at Year 10 or 11 level.

Please note that rates quoted in this assessment for various items, including pay rates, are not meant to reflect today's values, but are used purely for mathematical purposes.

The quiz should be able to be completed in approximately 60 minutes.

Calculators may be used to complete this practice exercise.

Answers are located at the end of the quiz.

Occupational Information and Job Hunting Resources

Information and links on the Mining & Quarrying Industries, careers, job prospects as well as career websites and job hunting resources can be found at www.aapathways.com.au/Career-Resources.

After the Quiz

There are a range of support services available to help you find out about courses that may help you improve your literacy and numeracy skills and also your readiness for work.

If you are still at school you should discuss any concerns you may have with your career practitioner. Further information may also be provided by a Job Services Australia provider, an Australian Apprenticeships Centre, a Group Training Organisation or a training provider.

Useful Contacts

Here are some links to job seeker support services:

- > Search for your local Australian Apprenticeships Support Network (Apprenticeship Network) provider - www.aapathways.com.au/search_for_provider
- > Find a local Group Training Organisation - www.grouptraining.com.au/Find/find_gto.html
- > Employment Services providers work with eligible job seekers to develop an individually tailored Job Plan. The plan maps out the training, work experience and additional assistance needed to find job seekers sustainable employment - www.jobsearch.gov.au/provider/default.aspx

Part 2: The Quiz

Section 1 - Literacy, Reading and Comprehension

1. Rearrange the following words in alphabetical order:

- Open pit _____
- Explosives _____
- Mineral _____
- Safety _____
- Excavator _____
- Supervisor _____

2. The following are jobs you may find on a mine site. Match each job title to the appropriate job description below.

- i. Mine Manager
- ii. Shotfirer
- iii. Miner
- iv. Haul Truck Driver
- v. Human Resources Recruitment Officer

a. Interviews and recruits new staff to fill vacant positions in the mine.

b. Operates the truck which moves material from the pit to the crusher.

c. Charges up blast holes and fires the explosives which create loose material for the shovel operator to put into the haul trucks.

d. Mines out ore and waste rock from the ore body.

e. Manages the daily running of the mine and responsible for safe and efficient production of the mined material.

3. The following text has 11 spelling errors. List the mistakes below, as you find them.

Occupational Helth and Safely is an important part of your everyday working life. The use of personal protective equitment is madatory in the workplase. Equitment can include googles, stell capped boots, hard hats and heat and fire resitent gloves. You muk read safety signs and be careful with haevy lifting.

4. Read the following about ‘Duty of Care’ and answer the questions below.

Duty of Care

All workplaces must follow state and territory Health and Safety Acts. While these differ slightly between states, they are always about creating and maintaining a safe and healthy working environment.

Out of these Acts comes duty of care legislation, which has different requirements for employers and employees. Duty of care means that everything within reason must be done to protect the health and safety of people at the workplace. This duty is placed on:

- > employers
- > employees
- > any others who have an influence on hazards in a workplace.

The following table shows some of the major responsibilities under duty of care legislation for both employers and employees.

Employer’s obligations	Employees obligations
Provide and maintain a safe workplace	Find out what you need to know to act safely
Provide training, information and supervision to all employees to ensure their health and safety	Follow instructions, safety rules and procedures relating to safety. For example report to the person in immediate authority when leaving work at the end of the shift
Provide adequate working conditions and facilities (light, air, space, protective equipment, sanitary facilities and meal areas)	Operational staff must use or wear the equipment provided (hard hat, gloves, ear and eye protection etc.)
Provide adequate information/signage/warning on potential hazards	Follow information, warning, safety and danger signs
Consult and co-operate with safety and health representatives	Co-operate with safety and health representatives
Keep record of injuries	Report hazards and injuries following site procedures
Monitor and review workplace conditions	Report potential hazards and unsafe conditions

a. Who must follow state and territory Health and Safety Acts?

b. What does 'Duty of Care' mean?

c. Who has the obligation to provide a safe workplace?

d. Who has the obligation to use or wear the equipment provided (hard hat, gloves, ear and eye protection etc.?)

5. The six words below are misspelt. Correctly spell each one in the space provided.

Superviser	
Produkshon	
Aliminium	
Excarvater	
Safty	
Exploshive	

6. Read the following job descriptors and answer the questions that follow.

Mobile Plant Operators drive backhoes, bulldozers, excavators, front-end loaders, graders, scrapers, skid steer loaders, rollers and forklift trucks. The machines level, excavate, move and load earth, rock and other material. The job title may also be known as Bulldozer Operator, Earthmover, Grader Operator, Plant Operator, Quarry Face Loader, or Scraper Operator.

Mobile Plant Operators may perform the following tasks:

- > Prepare machines for operation;
- > Load and unload equipment from low loaders and move it around work sites;
- > Select, change and operate special attachments such as winches, scrub clearers, rippers, pile drivers and rock-breaking hammers;
- > Work from drawings and markers under the direction of supervisors and engineers;
- > Back-fill trenches;
- > Break up paving, rock and similar material by operating hydraulic or pneumatic breakers;
- > Excavate or scrape earth, rock or rubble to the correct level and alignment;
- > Load trucks with excavated fill;
- > Drive machines to and from work sites;
- > Service equipment by cleaning, lubricating and re-fuelling it and make minor adjustments and repairs when necessary;
- > Maintain duty of care for other users and work to Occupational Health and Safety requirements.

Haul Truck Drivers drive haul trucks (also known as dump trucks) which are off-highway, two-axle, rigid trucks specifically engineered for use in high production mining and heavy-duty construction environments.

In the mining and surface extraction industry drivers may perform the following tasks:

- > Check brakes, oil, tyres, electrical systems, water, hydraulic and air;
- > Load (or supervise loading) material onto the truck;
- > Transport material to destination;
- > Maintain log books;
- > Service equipment by cleaning, lubricating and re-fuelling it and make minor adjustments and repairs when necessary;
- > Maintain duty of care for other users and work to Occupational Health and Safety requirements.

The work conditions for Mobile Plant Operators and Haul Truck Drivers can be hot, muddy, dusty and noisy, but most earthmoving machines and trucks have soundproofed and air-conditioned cabs for the operator/driver.

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Questions

- a. Name three types of machines that a Mobile Plant Operator may drive.

- b. Name two of the special attachments mobile plant vehicles may use.

- c. Can a haul truck be used to excavate earth and back-fill trenches? Circle the correct response.

YES

or

NO

- d. Is a Haul Truck Driver usually responsible for the everyday vehicle maintenance such as checking the brakes, oil and tyres? Circle the correct response.

YES

or

NO

Section 2 - Mathematical Questions

A calculator may be used

1. Which unit from the table below would you use to measure the following?

kg	ml	km/hr	m ²
\$	m	min	°C

- a. Length _____
- b. Time _____
- c. Temperature _____
- d. Weight _____
- e. Area _____
- f. Speed _____
- g. Volume _____
- h. Cost _____

2. A Caterpillar 793 Haul truck has a fuel tank capacity of 4,354L. If diesel costs the mine \$1.50 per Litre, how much does it cost the mine to fill the truck?

3. Express the following as decimals.

- a. $\frac{1}{4}$ _____
- b. $26.25 + 54.5 - 30.3$ _____
- c. $7 \times 2 \div 5$ _____
- d. $10 \div 4 + 3 \div 2 + 5 \div 4$ _____

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4. Solve the following:

a. $4,562 - 1,287$ _____

b. $86 + 22 - 16$ _____

c. $-25 + 82 + 5$ _____

5. Multiply the following:

a. 53.86 by 10 _____

b. 25.4 by 3 _____

c. 128.5 by 10 _____

6. Divide the following:

a. 2.56 by 10 _____

b. 1,024 by 8 _____

c. 256 by 4 _____

7. The Caterpillar 793 haul truck has a Gross Vehicle Mass (GVM) of 383 tonnes and it has a nominal payload of 218 tonnes. What percentage of the truck's GVM is the load it can carry? (Calculate to one decimal point.)

8. As a plant operator Rebecca earns \$1,500 per week and is awarded a pay rise of 2%. What is her new weekly wage?

Section 3 - General Knowledge and Problem Solving

1. Personal Protective Equipment (PPE) includes clothing, equipment and substances designed to be worn by a person to protect them from risks of injury or disease.

Which of the following is not an item of Personal Protective Equipment? Circle the correct response.

Hard Hat

Safety Glasses

Steel Capped Boots

Hammer

2. Which of the following is not a mined raw material? Circle the correct response.

Silver

Wood

Sand

Gold

3. Which of the following is not a commonly used mine site communication method. Circle the correct response.

Mobile Phone

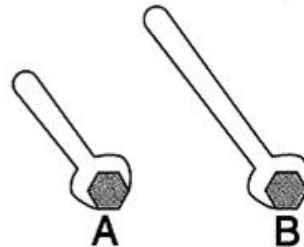
UHF Radio

Telegram

Warning Signs

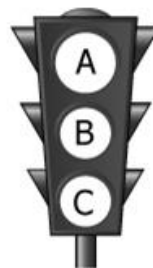
4. Which of the below wrenches will make it easier to tighten a bolt? Circle the correct response.

- a. A
- b. B
- c. There is no difference

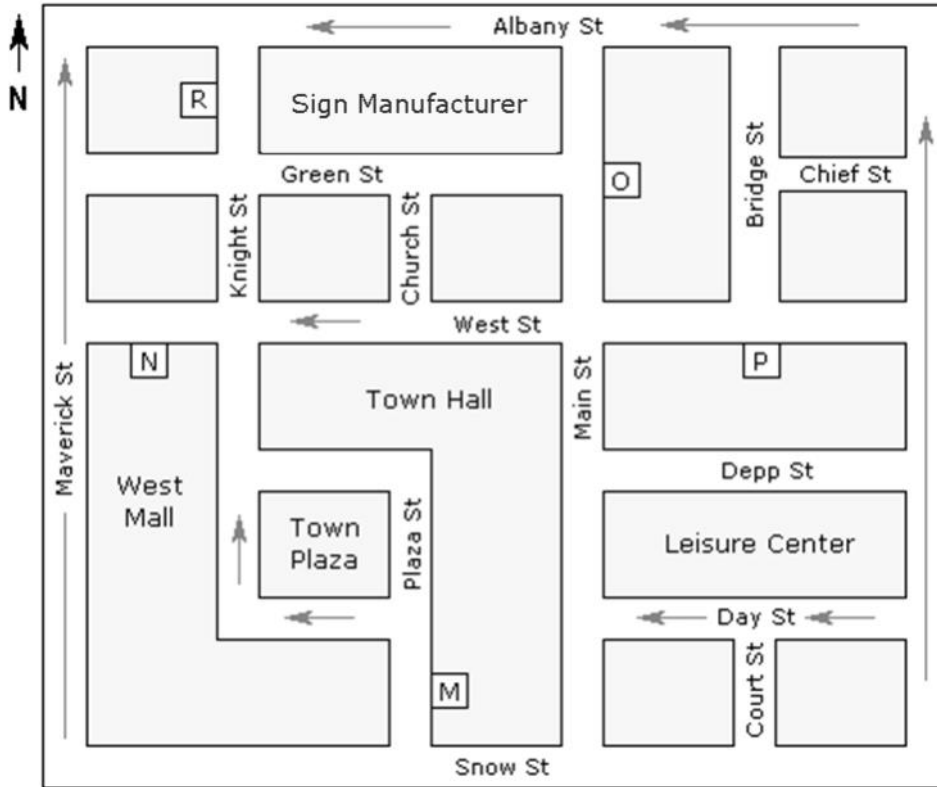


5. In this typical traffic signal, which light is the red one? Circle the correct response.

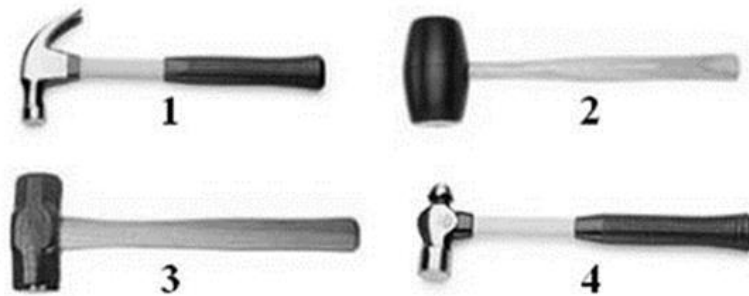
- a. A
- b. B
- c. C



6. You are required to drive to the town nearest the mine to pick up some safety signage from the manufacturer. Look at the map below. You are in Depp St and can see the Town Hall to your right. What direction are you facing? Circle the correct response.



- a. North b. South c. East d. West
7. Which is the most suitable tool for breaking up concrete? Circle the correct response.



- a. 1 b. 2 c. 3 d. 4 e. None

8. You are working on a mine site and see this sign on a track you want to use as a cut through to get to your worksite.



It looks like there is no-one in the area and you can't hear any noise of an explosion. Which is the best course of action? Circle the correct response.

- a. Use the track to get to your worksite as it is the most direct route.
 - b. Avoid the track completely as directed by the warning sign.
 - c. Run along the track quickly so that you are in the area for a minimal time, limiting any danger.
9. You are working on a mine site and find yourself in an area of the site that you have not been to before. You see the sign below which you are also not familiar with.



What is your best course of action? Circle the correct response.

- a. Avoid the area now, and ask for clarification of the meaning of the sign.
- b. Ignore the sign. As you are unfamiliar with the meaning of 'STOPE' it must not be important.
- c. Ignore the sign now and ask someone what 'STOPE' means later.

Section 1 - Literacy, Reading and Comprehension

1. Excavator
Explosives
Mineral
Open pit
Safety
Supervisor
2.
 - a. v. Human Resources Recruitment Officer
 - b. iv. Haul Truck Driver
 - c. ii. Shotfirer
 - d. iii. Miner
 - e. i. Mine Manager
3. Health, Safety, equipment, mandatory, workplace, Equipment, goggles, steel, resistant, must, heavy.
4.
 - a. All workplaces.
 - b. Duty of care means that everything within reason must be done to protect the health and safety of people at the workplace.
 - c. The employer, employees and others in the workplace.
 - d. All operational staff.
5.

Supervisor
Production
Aluminium
Excavator
Safety
Explosive
6.
 - a. Any three of: backhoes; bulldozers; excavators; front end loaders; graders; scrapers; skid steer loaders; rollers; and forklift trucks.
 - b. Any two of: winches; scrub clearers; rippers; pile drivers; and rock-breaking hammers.
 - c. No
 - d. Yes

Section 2 - Mathematics

1.
 - a. m
 - b. min
 - c. °C
 - d. kg
 - e. m²
 - f. km/hr
 - g. ml
 - h. \$
2. \$6,531.00
3.
 - a. 0.25
 - b. 50.45
 - c. 2.8
 - d. 5.25

4.
 - a. 3,275
 - b. 92
 - c. 62
5.
 - a. 538.6
 - b. 76.2
 - c. 1,285
6.
 - a. 0.256
 - b. 128
 - c. 64
7. 56.9%
8. \$1,530

Section 3 - General Knowledge and Problem Solving

1. Hammer
2. Wood
3. Telegram
4.
 - b. Wrench B is longer and provides more leverage.
5.
 - a. A
6.
 - b. South
7.
 - c. 3
8.
 - b. Avoid the track completely as directed by the warning sign.
9.
 - a. Avoid the area now, and ask for clarification of the meaning of the sign.

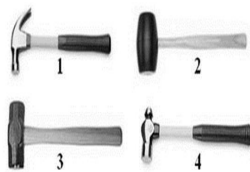
Contributions

This Practice Aptitude Quiz was developed by:



Australian Apprenticeships Pathways Website - www.aapathways.com.au

This website provides sample Australian Apprenticeships job descriptions and links to more Australian Apprenticeships information and resources. The site is funded by the Department of Industry.



TAFE NSW Western Institute - www.wit.tafensw.edu.au

TAFE NSW Western Institute is a Registered Training Organisation (RTO) which manages 24 colleges and more than 34,000 student enrolments each year. More than 500 courses are offered and a flexible approach to delivery incorporates recognition for prior learning, online and distance learning, workplace delivery and assessment.



The Career Education Association of Victoria - www.ceav.vic.edu.au

The CEAV is the Victorian peak body for secondary school career practitioners, work experience coordinators, VET coordinators and MIPS coordinators. The CEAV provides professional development opportunities for members and also works with business, industry, and the education and training sector.



Industry Training Australia P/L - www.itaust.com.au

Industry Training Australia (ITA) delivers consultancy services to government and non-government organisations in the education and training sector. ITA develops and delivers information and communication services, including the Australian Apprenticeships Pathways website, for service provider networks and the general public.

For enquiries about this Practice Aptitude Quiz contact the Australian Apprenticeships and Traineeships Information Service on 1800 338 022.