

LITERACY PROFILE:

Plumber, Gasfitter or Drainlayer

- **Reading**
- **Writing**
- **Speaking and listening**
- **Numeracy**
- **Critical thinking**
- **Technology**

Reading tasks

"Read" implies that the person reads and understands.

Read signs and short texts

(some may be read from computer screen)

- Workshop signs
- Serial numbers, part numbers for appliances and fittings
- Job abbreviations
- Dates and other codes
- Colour codes
- Van WOF, registration, mileage
- Text messages

Read charts, tables and graphs

- Lists of parts
- Specifications
- Road maps
- Graphs in technical information texts

Read forms on job

- Job card or job sheet
- Whiteboard in workshop / on site
- Site safe plan
- Site or workshop hazard log information

Read instructions and more detailed job information

- Job quote
- Specifications
- Special requests
- Council consents
- Manufacturers' manuals / information e.g. Rinnai gas heaters, Caroma fittings book
- Health and safety manual

Read memos and notices

- New product handouts / information
- Safety instructions for tools, appliances

Read plans

- Site plan
- Water / waste / gas services
- Floor plan
- Schematic plan
- Architectural plan

Read excerpts from legislation, regulations or industry standards

- BRANZ plumbing and drainage guide
- AS/NZS standards
- G Code standards

- Other standards as relevant to job

Read trade journals

Read training material

Company arranged training

- Supplier training handouts / information
- First Aid/Health & Safety
- Master plumbers courses

Apprenticeship training material

- Distance education material – course workbooks, text books
- Block course training material
- Quarterly training plans (MA only)
- NZQA Record of Learning
- Group training scheme progress reports

Read employment documents

- Leave forms
- Job descriptions employment contracts
- Company rules
- Code of conduct
- Performance reviews
- Training agreements

Reading skills

Match numbers or identifiers across different texts.

Recognise the features of a range of texts e.g. job sheets, manufacturers' instruction manuals, A/NZS standards.

Interpret information from graphical material e.g. tables, price lists, parts lists, maps.

Follow written instructions (may include diagrams).

Use common and industry abbreviations.

Use common and industry vocabulary.

Find out the meaning of unfamiliar words or phrases.

Use a key to find graphic material e.g. on maps, plans.

Interpret information from graphical material e.g. tables, maps, plans.

Use a reference source e.g. index, manual.

Predict what will be contained in a text.

Skim a text for "gist".

Scan texts to find specific piece of information.

Read texts thoroughly.

Take notes from material read.

Summarise material read in own words.

Underpinning knowledge / understanding

Strategies for finding out the meanings of unfamiliar words include: looking at glossaries, asking an experienced colleague, looking up the dictionary.

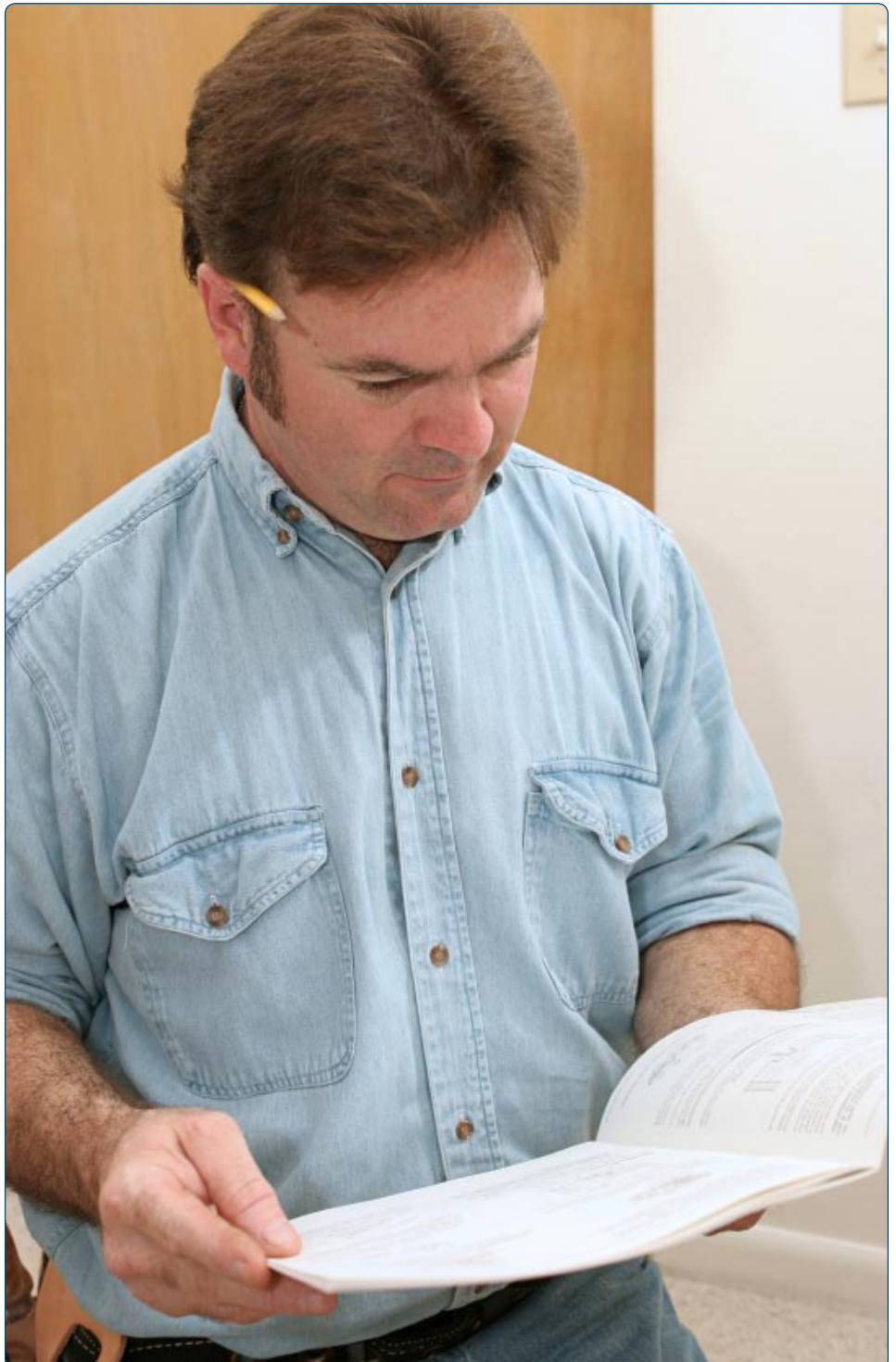
Colour coding systems or stickers are used in many buildings to identify gas services.

Plans are a graphical representation with details to show how a job should be completed.

Skimming / scanning / reading for detail are essential skills and required for different purposes.

How data is presented in tables and graphs.

Common symbols and abbreviations.



Writing tasks

Sign off documents to confirm read and understood

- Induction documents
- Permits

Write short notes

- Text messages to confirm job instructions received, report on progress to office
- Short informative notes to colleagues (may be on whiteboard or paper)
- Leave notes for customer

Write detailed lists

- Make a list of all equipment and tools needed for the job
- Provide list of materials and time required for a job so another person can put together a written quote
- Complete inventory / materials used list
- Record work completed in own diary

Complete forms independently

On job

- Complete job sheet, job records
- Parts request
 - May be written on white board, paper based form, order book or computer
- Write out receipt for customers (infrequent)
- Complete gas certification form and draw plan or diagram to show what work has been done

Employment related

- Time sheets
- Leave forms

Create drawings or sketches

- Sketch own plans of work to remind self / inform others
- Sketch schematic pipe work drawings including drawing symbols for valves and other equipment

Complete more complex forms with the assistance of others

- Hazard record
- Incident report
- Performance appraisal

Write for training / learning purposes

For on job training

- Complete work diary for learning / experience records
 - including description of work done, parts used, diagnosis

For off job training:

- Write answers to assessment questions (short answers)
- Write assignments, including text and diagrams

Writing skills

Sign name on forms to indicate understanding (form of binding agreement).

Write simple correct text in appropriate places and in appropriate formats on job sheets and forms e.g.

- stay on the line
- use recognisable spelling and abbreviations
- use legible lettering.

Complete forms using numbers, single words, short sentences

- handwriting must be legible
- abbreviations can be used
- spelling must be understandable, but correct spelling is not important
- grammar and punctuation must be used.

Write notes and short sentences

- use recognisable spelling
- use diagrams and sketches to clarify points
- write points in a logical order
- use punctuation
- attempt to use correct tenses and verb / subject.

Make sketches that clearly represent job requirements

- longer and shorter parts represented correctly
- geometric shapes represented clearly
- correct abbreviations used
- exact or accurate figures included.

Take notes from material read (training).

Write short answers to assessment questions

- handwriting must be legible

- abbreviations can be used
- spelling must be correct
- grammar and punctuation must be understandable but do not need to be 100% correct.

Underpinning knowledge / understanding

When the customer will see the form or note, handwriting and spelling must be very clear and legible.

Purpose of forms to be completed.

Purpose of other sorts of writing.

Planning, drafting and editing assist writing.

Presentation styles for assignments, short answer questions.

Speaking and listening tasks

- Communicate with office staff and supervisor (work co-ordination)
 - tasks for day
 - progress on jobs
 - parts ordered
 - find out cost of parts
 - ask office to contact or communicate with customers
 - checking job or customer details
- Discuss work with work colleagues
 - work in progress
 - offer assistance on other jobs
- Listen to and comprehend job instructions from supervisor (work instruction)
- Listen to and comprehend verbal explanations and training instructions from supervisor / trainer and off job training provider
- Attend informal and formal meetings to discuss
 - staff announcements
 - work ethics or issues
 - team building
- Communicate with supplier or retailer e.g. arranging to pick up parts and materials, ordering parts and materials
- Communicate with other subcontractors on site
- Communicate with site project manager
 - discuss specifications, job timings, order of activities
 - respond to requests for information and extra work
- Communicate with customer on site (especially important for those who work with domestic customers)
 - contact customer to check access to premises
 - ask questions to identify the problem
 - explain problem to customer using non technical jargon
 - explain actions needed for the repair e.g. workshop, time, parts, return visit
 - give verbal price estimates or quotes
 - gain agreement to proceed
 - train customer to use appliance correctly
 - request and receive payments
 - recommend sales if appliance is not worth repairing
 - communicate in a way that encourages repeat business
- Communicate with customers on the phone:
 - contact customers when job completed,
 - greet
 - explain what has been done
 - give cost information if required
 - arrange pick up or delivery
 - communicate in a way that encourages repeat business
- Supplier and special topic training
 - attend workshops, listen to and observe presentations
 - participate in discussions
 - ask questions to clarify understanding
- New recruit screening
 - answer interview questions, including aptitude questions
- Communicate with training co-ordinators, assessors, modern apprenticeship co-ordinators (listen to instructions, ask questions about training progress)
- Provide verbal answers to assessment questions
- Communicate with tutors on block courses

Speaking and listening skills

Speak clearly.

Ask for help if necessary.

Give information in a sensible order.

Use suitable body language.

Use questioning techniques including using open / closed questions to gain information, check understanding and encourage further discussion.

Use active listening skills e.g.

- repeat message back to sender
- summarise instructions in own words
- following techniques e.g. saying "aha" or "okay" as you follow what someone is saying.

Use language appropriate to situation and person.

Discuss topics which are appropriate in work context.

Use negotiation skills e.g.

- identify issue
- suggest possible solutions
- agree on best outcome.

Plan and deliver oral instructions in a logical order, and to suit the audience.

Summarise to check or clarify details.

Check that the other person has understood what you said.

Underpinning knowledge / understanding

Communication is a two way process.

There is a range of spoken language styles which change with purpose, topic and audience.

There are ways of making positive and negative statements.

There are ways of initiating and concluding conversations.

Summarising can be used for checking and clarification.

Pronunciation and tone can affect the communication process.

Messages are conveyed by body language and facial expressions.

There are barriers to communication, especially cross cultural communication.



Numeracy tasks

- Read odometer
- Use serial numbers and codes of appliances and parts
- Estimate time it will take to do a job
- Record time spent on job
- Work with quantities set out in job specifications
 - count actual parts used against schedules for parts reconciliation
- Measure and calculate lengths of pipe needed
- Calculate quantities of other supplies needed for job e.g. fastenings, junctions, fittings, ties
- Measure and calculate space needed for fittings and appliances
- Make angled bends in pipe work
- Calculate fall required on waste pipes
- Check temperatures e.g. of hot water at different points, of gas heater output
- Take readings and measurements
 - pressure
 - volume
 - pressure drop
- Interpret 2D and 3D representations on drawings (spatial awareness)
- Convert scale measurements on plans to full size measurements
- Convert between different measurement systems e.g. Fahrenheit and Celsius, calories and joules, PSI and KPA, US gallons and litres
- Work with pipes of different sizes, shapes, volumes and dimensions
- Calculate how big a pipe is required for a particular purpose e.g. gas appliance start requirements
- Identify if the size and output of a gas heater is appropriate for the room it will be placed in.

Money maths (Less common)

- Estimate cost for customer (domestic jobs)
May include time units, parts and supplies costs, mileage rates, overheads, minimum call out cost, GST, cell phone charges, testing fees
- Receive payments from customer by cheque or cash

Numeracy skills

Add, subtract, multiply and divide whole numbers and decimal numbers.

Use 12 and 24 hr clock to measure and record time.

Use Celsius temperature scale (includes negative scale).

Recognise and use 2D and 3D representations.

Estimate and measure accurately using metric measurement systems

- length
- height
- width
- depth
- area
- volume
- weight
- pressure
- energy.

Use formula to calculate

- pressure drop
- flow
- volume
- temperature
- conversion from one measurement system to another.

Perform formulae-based calculations using a calculator.

Identify and extract numerical information from graphs and tables.

Multiply and divide by scale factor.

Use proportions and ratios.

Calculate fractions.

Measure angles accurately.

Estimate approximate amounts of money.

Calculate money accurately.

Underpinning knowledge / understanding

Numeracy skills are dependent on people understanding the concepts and principles that underpin an action.

Examples of underpinning knowledge / skills might include:

- understand decimal numbers and decimal places
- understand what numerical concepts mean and what they are used for
- recognise a range of formats for presenting data e.g. pie graph, pictogram, bar chart
- round numbers up and down
- count on and count back to reach required number.

Critical thinking tasks

- Determine best route to job
- Identify suitable place to park on site (not in the way of other vehicles, not blocking access ways)
- Plan and decide how to complete the job (equipment and supplies needed, order to do things in, reinforcing needed, pipe routes if not specified etc)
- Co-ordinate / negotiate with other subcontractors to ensure job is completed in an efficient order e.g. builder, electrician, tiler
- Diagnose plumbing faults e.g. determine where leak is coming from
- Diagnose gas faults
- Judge if you can do the job (skills, knowledge and experience) and ask for assistance if necessary
- Deal with contingencies
 - gas leak
 - incorrect part or part not available
 - injuries
 - OSH hazard identified
 - request for additional work
 - lack of co-ordination with other subcontractors
- Negotiate with client e.g. payment immediately following repair
- Negotiate with other tradespeople competing for same space on site
- Anticipate potential issue with client, project manager or job and decide what to do.
 - special requests
 - variation to contracted work
- Use knowledge of
 - company service model e.g. how long to spend on a job, whether appliance should go back to the workshop, the scope of work
 - warranty conditions e.g. remember that warranty jobs are fixed rate, and may need to be done in short time frames
 - customer payment history e.g. to make decision about whether to proceed with service/get payment

Critical thinking skills

Identify if you have enough knowledge and skill to take action on own.

Identify when you need assistance from others.

Apply fault finding methodologies.

Recall and follow specified procedures to deal with contingencies.

Use problem solving methodology e.g.

- identify issue
- identify possible solutions
- determine best outcome
- decide on plan of action
- carry out plan.

Apply knowledge of professional trade practice to work carried out.

Apply knowledge of safety requirements / principles to work practice.



Technology related tasks

- Use computer to look up reference sources (internet use)
 - energy safety services website
 - supplier information
 - road maps
 - job information
- Use measuring devices e.g.
 - Manometers
 - combustion analysers
 - gas detectors
 - CO detectors

- Take digital photos to capture and record details of situations, or parts of appliances

Emerging information and communication technology

- Hand held personal digital assistants are beginning to be used to track jobs, enter job records

- GPS tracking technology is being used in some companies to record van movements and mileage
- Navman navigation is available in some vans

Technology skills

Operate a computer

- start the computer
- log in if needed
- start appropriate application
- exit appropriate application
- turn off computer.

Identify elements of computer applications and the function of the element e.g. menus and menu options, command buttons, icons, toolbars.

Identify appropriate computer application for task e.g. spreadsheet, word processor, e-mail, web browser, drawing, company systems.

Operate a computer application.

Enter or update data using a computer (using keyboard, mouse or other input devices).

Manage computer files

- copy a file to new location
- back-up files using appropriate software
- copy to different media (from hard disk to pen drive, from hard disk to CD-ROM)
- delete a file.

Underpinning knowledge

Understand links between computer displays and job tracking systems.

Apply knowledge of organisation policies about computer use when using the computer system

Understand different types of computer file and their purpose – document, application, system.



Notes:

This profile relates to Plumbers, Gasfitters or Drainlayers and is based on roles from a number of companies.

The profile represents a combined skill set. Individuals will have strengths and weaknesses across the areas of workplace literacy described in the profile. Plumbers, Gasfitters or Drainlayers will also use different combinations of the skills identified depending on where they are at in their training.

Different companies may require staff to use slightly different subsets of skills from the profile. In some instances companies may have additional tasks and skills required of their staff. The differences will depend on the company systems and management structure.

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