

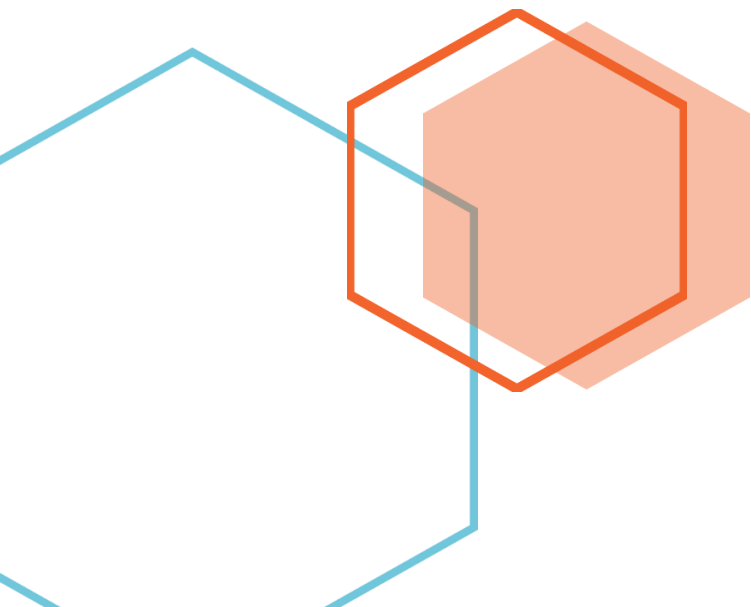


# Simplifying Embedded Literacy and Numeracy

For Tertiary Tutors

Practical ideas for teaching and learning

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## The Contributors

This resource was made possible by the many presenters who shared ideas, strategies and resources at the literacy and numeracy practice sharing forum held at WelTec at the end of 2017. Thanks to those who presented on the day and also to those who presented their ideas here in this booklet including:

Paul Dicken – Le Cordon Bleu

Melissa Nielson - Te Wānanga o Aotearoa

Tara Burghoff – Open Polytechnic of New Zealand

Stewart Doherty – Wellington Institute of Technology

Mike Styles and Marianne Farrell – Primary Industry Training Organisation

Helen Tolja – Service IQ

Richard Howard – Wellington Institute of Technology

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Grant Diesel Davies - Wellington Institute of Technology

Fiona Barr - Whitireia

## About this project

The *Simplifying Embedded Literacy and Numeracy* project is a culmination of a range of work we have carried out over the last few years, in the vocational sector, supporting tutors to embed Language, Literacy and Numeracy (LLN) into their teaching practice at a local polytechnic. This work has ranged from training tutors and supporting them to complete the New Zealand Certificate in Adult Literacy and Numeracy Education (NZCALNE ) through to writing and developing resources and helping tutors to build on their practice.

During discussions with tutors, many reported that they found the term 'embedding' difficult to understand, assuming it meant they had to add to already packed programmes and do extra activities with learners, over and above what they were already doing. As one tutor said,

"I've already got resources, assessments, workbooks...what more do you want me to do?"

Often this view resulted in tutors not realising what they were already doing in terms of 'embedding'. For many, it became quite a complex concept and seen as an 'add on'. However, we found that when we started talking about 'unpacking' the challenges, scaffolding the learning, and breaking down what learners needed to be able to do, tutors began to understand what embedding really meant. They began to identify what they were already doing to 'unpack' the literacy and numeracy challenges and support their learners to meet those challenges.

What we also observed was that when tutors completed the NCALNE qualification, this often resulted in a limited change in practice. Tutors appeared to have difficulty finding ideas that would work with their learners or that they could easily re-contextualise to their teaching situation. For tutors who were embedding successfully, there did not seem to be a forum for them to share their practice with other tutors. As we soon realized that tutors prefer to hear from and learn from other tutors, rather than external 'experts' we decided to gather together a range of ideas that we knew worked well for embedding in a range of contexts and ideas that tutors were already using successfully. We also decided to develop a simple way to share these and support embedding.

## What we discovered

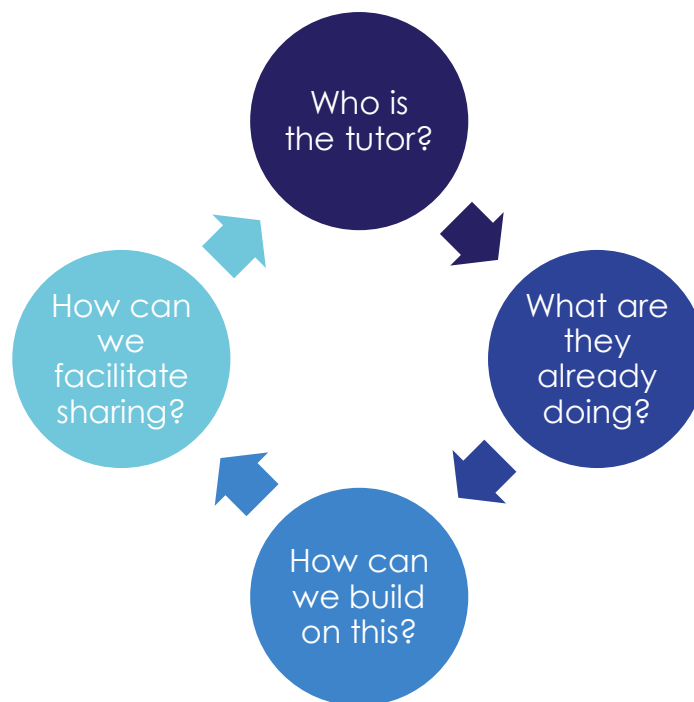
The work we carried out with tutors over several years to support their embedding capability resulted in these key discoveries:

- Confidence builds interest and engagement
- Tutors want to learn from each other
- Tutors need to see lots of different examples in many contexts
- There are constraints and we need to be realistic e.g. time and resourcing
- Tutors are put off by technical terms including the language of the Learning Progressions

## Our approach

By looking at areas where we had more success supporting tutors to 'embed', we discovered we had actually devised a system of professional development that was underpinned by a 'strengths based' approach, that is, building on what tutors were already doing. The fact that this approach seemed to have greater success aligns with research that suggests that individuals are more likely to learn effectively if they focus on building on strengths rather than remediating weaknesses (Lopez & Louis, 2009). The strengths focus began by supporting the tutor to identify what they were already doing well in their practice to support learners to understand the literacy and numeracy in their programmes and how they were scaffolding the learning, for example, working out how to use a tape measure, identifying key words in a written text, labeling equipment, breaking down writing into stages of a process etc.

The model for our approach looked like this:



We began by identifying who our tutor was and the context they were working in. We then helped them to identify what they were already doing well in terms of embedding. We then supported them to build on their practice and then tried to find opportunities for them to share that practice.

## The 'short guides'

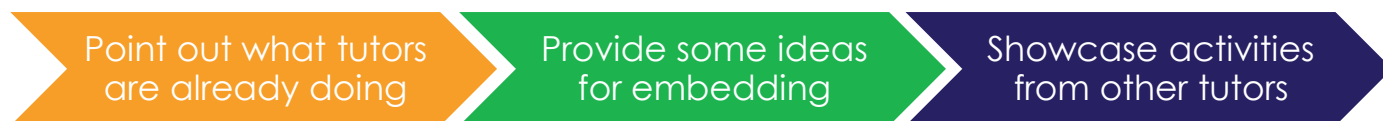
We soon realised that between us we had:

- developed a range of images and resources that helped to de-mystify the process of embedding for tutors
- re-written parts of the Learning Progressions in plain English
- developed checklists for tutors to refer to when thinking about the literacy and numeracy demands of their programmes

Most importantly tutors had told us these things were helpful.

As a result of feedback from tutors, we thought that putting these ideas together in short, easily accessible quick- reference sheets or guides could be useful. To align with our strengths- based approach we started each guide by asking – what are you doing already? We provided examples that we knew a lot of tutors were using in their everyday practice that many didn't think 'counted' as embedding. To strengthen this approach further we included some real, practical examples of how the suggestions looked in practice based on approaching the tutors to see what we could share of their practice. We have used many of these ideas in the short guides.

This was our approach for developing the short guides:



## A place to share

Once our 10 guides were complete and we had gathered feedback from tutors and made any suggested changes, we wanted to share these guides with others. We thought this could be an opportunity to create a community of practice and give others the opportunity to share their ideas. We decided to set up a 'practice sharing forum' and put a call out for 'one good idea' and asked people to either:

- Put together a short 10 minute presentation of their idea/ strategy/ resource or
- Bring along a resource for a 'showcase session' where people could wander around and gather ideas

This resulted in 14 presenters and a range of teaching and learning resources that were showcased. The forum also provided a way for those new to presenting to 'dip their toe in the water'. Because presenters only needed to present one idea for 10 minutes, many tutors new to the world of presenting felt that this was something they could do.

Pictures from the practice sharing forum



## Feedback

Feedback on the short guides and practice sharing forum from tutors has been very positive. Although we note that even our attempts to simplify the language of the Learning Progressions are still viewed as challenging by some, perhaps a reflection of the complexity of the Progressions themselves, below is some specific feedback from tutors:

*"The information amongst all of the short guides, is of massive help for tutors of all experiences. This is because of the simplistic presentation of the guides, they contain many examples for tutors and lay out a pathway to follow, when organising teaching aides or a classroom plan."*

*"All guides are clear and generally easy to follow. However, the guide to progressions is very heavy with information and a lot to absorb."*

*"Many of the suggestions made within the guides, I am using or using very similar aides. If I was trying to fill my 'Tutor Tool Box', the examples and suggestions would be of enormous help. They offer the tutor differing methods to engage students and also expand their existing knowledge."*

## Next steps

In order to continue to build on this approach to embedding we would like to implement the following:

### **A strategic implementation of the use of the short guides at our respective organisations**

This will involve planned dissemination of the guides through small group practice sharing sessions and placement on staff intranet sites. As part of the process we will gather feedback and encourage participants to create their own short guides and share with others in the organisation.

### **The development of a community of practice that is facilitated to ensure it is supported and resourced**

The purpose of the COP would be a place to share practice and ideas, particularly examples of contextualised activities from a variety of courses and subject areas. By building up the pool of examples it is envisaged that the space will be one where everyone who dips in will be able to find something that they can adapt to their teaching context. A key principle of the COP will be that it will be a safe space to share. One feature of the practice sharing forum was that the risk of sharing an idea with others was removed by creating a supportive environment where everyone had the opportunity to give and receive feedback and ideas. Facilitation is essential to the success of a community of practice and we believe that in order for the momentum to continue there will be a need to have a funded allocation of hours for a facilitator to build and develop the COP.



## **The creation of an online space to share the short guides and facilitate the development of 'one good idea' practice sharing in a similar way to what the practice sharing forum offered**

This will be a natural follow-on from the development of a community of practice and a place to share ideas, ask questions and build practice as a group.

## **Recommendations**

### **Resources to support embedding – recommendations**

Our time spent with tutors and learners and the development of this project has provided some insight into what may work effectively in this space in the future:

- A strengths based approach that starts by helping tutors to identify what they are doing well is the best way to build a foundation on which new ideas can take shape.
- Tutors want to learn from each other and see what others in their contexts are doing.
- Tutors (even those who have completed qualifications and professional development activities) often don't fully understand what embedding actually is.
- The term embedding is problematic and needs to be replaced. The project team has found terms such as 'unpacking', 'breaking it down' are more easily understood by tutors. However, we do acknowledge that the prevalence of the term embedding and its use by many organisations makes changes terminology difficult. This is why we are still using the term in our short guides.
- Some existing resources such as the Learning Progressions are written in a way that can be a barrier for tutors – we need simple ways of identifying course demands that use the language of trades and vocational tutors. An example is included on the next page.

## Simplifying 'mapping the demands'

An example of a 'mapping task' to identify the literacy demands of printed resources used in a programme. This can be a simple alternative to the Learning Progressions to support tutors to see what the demands of their programme may be:

### Understanding printed resources

Look at the written resources you might be using. What skills do learners need to have to be able to understand the content of these resources? Tick any that are relevant and add as many more as you need.

- Make connections between what they read and what they know from other contexts such as the workshop, what you tell them, their prior knowledge
- Figure out what information is important in what they read
- Understand complex words that are not related to the content such as academic words and words of many syllables
- Summarise what they read for practical tasks or assessments
- Read about a process and break down the steps in that process
- Understand that some of the words in the programme have a different meaning outside of the programme e.g. teeth on a saw vs. teeth in a mouth
- Read between the lines to see if there are underlying meanings
- Know what to do when they don't understand the text
- Skim over a text to get the gist
- Understand what diagrams are representing
- Interpret and make meaning from charts and tables

Once tutors have identified what is relevant to their context they can begin to think about how they support learners to develop these skills. This is where the 'short guides' can come into the process. Breaking the embedding process down to this level of specificity by identifying the demands and then finding appropriate activities and strategies can be really useful for tutors. This has been used successfully with tutors who are new to embedding and is a great way for them to identify demands and then decide what to do to support learners to meet these.

## Sharing practice: Ideas from tutors

*The following section contains a selection of some of the ideas kindly shared by trades and vocational tutors and educators presented as part of the practice sharing forum*

## Creating a word bank – Delwyn Monk Wellington Institute of Technology

### **The need**

This course has a lot of technical vocabulary that learners have to understand. Also, learners who have literacy challenges can sometimes be reluctant to ask for help when they do not understand a word they come across.



### **The solution**

- When given a text or new study guide I also give out scrap paper.
- I give the students time to have a look through and ask them to identify any words they don't know the meaning of.
- The learners write the words on scrap paper and put them in a large dog bowl
- When all the words are in I pull them out one at a time and ask if anyone can tell me what the word means.
- If no-one can provide the correct answer I tell them what the word means and also write the word and its meaning on the board
- Give the learners time to add the words and descriptions to their glossary

*What works well here? The activity works because the words in the bowl are anonymous so no-one feels bad about not knowing the meaning, and usually more than one person will have put in the same word. We use a dog bowl because it is relevant for our course, but any kind of container could be used, .i.e. a mixing bowl for cookery, a tool box for automotive, a hard hat for construction.*

## Using quotes to develop literacy skills – Tara Burghoff

The Open Polytechnic of New Zealand

### The need

- Our paper-based foundation courses are delivered by distance with the majority of tutor support provided over the phone and by email. Therefore, the workbook resources need to 'teach' literacy skills in an engaging way with plenty of variety in how key learning points are communicated and practised.

### The solution

Using quotes helps meet this need, in particular they:

- Encourage and motivate learners e.g.

**'Whāia te iti kahurangi ki te tūohu koe me he maunga teitei'**

'Seek the treasure you value most dearly: if you bow your head let I be to a lofty mountain'

This was used and explained at the beginning of the course.

- Reinforce key learning points in a succinct way e.g.  
An activity to reinforce learning around time management used quotes as the basis of explaining the key messages of the learning so far.
- Help introduce a new topic or skill e.g.  
A pithy quote at the beginning of a new topic can sum up in a nutshell what needs to be said. This example was used:  
'The biggest communication problem is that we do not listen to understand – we listen to reply.'

### An example

**'Labourer required to help pour 800 cubic metres of concrete. Can be a smoker – but will not have time.'**

Questions to probe for meaning were provided:

- Why does the farmer say the person can be a smoker?
- What does the farmer say that will not have time for smoking?
- What message is the farmer trying to tell people reading the advertisement?
- *So what is the farmer actually saying?*

What works well here? Teaching implicit meaning can be challenging but it is an important skill for learners to develop. Using quotes took a short and simple approach to getting learners thinking about how some things people say have more than one meaning. Tara also threaded this approach through her resource, linking with relevant topics. This meant that learners got regular but brief experience working with implicit meaning in texts.

## Learning Industry Language – Stewart Doherty

Wellington Institute of Technology

### The need

- I noticed a strong need for a glossary of terminology
- NZQA unit standard 229 Describe function and location had incredibly specific word lists in its performance criteria notes.
- L2 students struggling to describe in a verbal and/or especially written format




### The solution

So I set out to cut out the terms from the unit standards knowing this would be solid way to enhance teaching through “constructive alignment”. Shortly later I had edited out a word list and began to write a definition for each, then BOOM it struck me. Let’s give the level 2 learner an illustration that describes the term. A frenzy of material development started during December in a quite office as most were on their leave as I realised a multi-level, multi-use engaging activity based resource.

Four cards for each word were created with the idea the students could match them up.

- One with the word/term
- One with a picture
- One with a description of its function
- One with a description of its location

### An example

Manual transmission		uses the intake and exhaust valves. Often it will house the camshaft(s).	Mounted to the top of the engine block.
Torque converter		en a term used in motorcycle engines. The rel houses a cylindrical bore for the piston.	Mounted above the crank cases.
			

What works well here? Stewart gave learners the opportunity to understand the terms that they needed to use in the assessment they were going to sit. By matching a word with an image and having to identify its function and location learners developed a deep understanding of the word. The fact that the activity directly linked with what learners were doing in the workshop increased learner buy-in to the activity.

## Supporting Learners with Dyslexia – Mike Styles and Marianne Farrell

Primary Industry Training Organisation

### **The need**

A significant number of learners have dyslexia, dyspraxia (Developmental Delay) or Irlen's Syndrome. This can make it challenging to read text. Some simple modifications can make an enormous difference.

### **The solution**

Primary ITO developed guidelines on how to make resources more effective at meeting the needs of these learners. Recent research reveals that text features – like font, layout, and background colour can make a major difference for the 10% + of the population who have learning differences. Accommodations that assist learners with dyslexia **do not** disadvantage other learners. Almost all these changes are very inexpensive to implement.

### **The Guidelines**

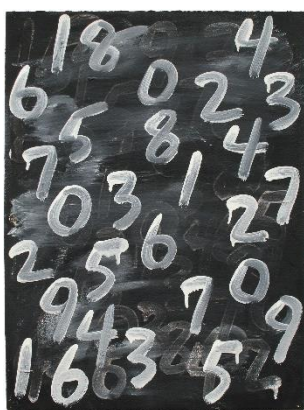
Fonts without 'fiddly bits'	upright fonts not italics	Minimise capitals and underlining	Use bold for emphasis
Font size should be at least 12 – 14 points.	Line spacing should be 1.5 if possible.	Favoured fonts are Comic Sans, Arial, Verdana. There is a special dyslexia font called "Dyslexie".	Matt paper not glossy, buff or pastel coloured not stark white
paper that is thick enough to avoid words on otherside showing through	Avoid blocks of text, use bullets or numbers	Use diagrams, mindmaps and illustrations. Use flow charts to show procedures	Avoid narrow columns, use left justified text
Avoid starting sentences at the end of a line	Use sub-headings and keep sentences short	Use the active voice, avoid double negatives	Chunk numbers: Eg. Use 123 456 789 – as opposed to 123456789

## Using words to make numeracy less scary – Fiona Barr

WelTec/ Whitireia

### The need

While learning MS Office the learners were enthusiastic to learn text-based or visual software such as Word, PowerPoint or Publisher. As soon as Excel was introduced there was an immediate response of "I hate maths", from the majority of the class. I needed to convince the learners that Excel is just software to speed up and ensure accuracy for calculations they can already perform in their head, on paper or on a calculator.



### The solution

We used everyday activities such as bus timetables and I asked standard questions like "what platform ...", "what time...", then "how do you know, where did you look". For logical functions like IF, the session took a similar format and the students created a quiz in Excel that would mark the answers using an IF function. The whole quiz used text instead of figures and after that was mastered we could move onto exercises using figures.

### An example

Introduce as a conversation, then dig deeper with questions and then start introducing numeracy terms.

*"How heavy are the bags of flour at the supermarket? If I was going to make some pastry with a whole bag how much butter would I need?"*

This starts the discussion that different pastries have different flour to fat ratios. Discuss other recipes that use ratios, introduce terms like proportions, volume, weight etc. Keep it based on language and a familiar topic like drink mixes until the students have a grasp of the concept, and then start exercises using figures.

Where possible it is also useful to employ measures they already know:

*"Build me a table about half your height"*

*"How long does it take to drive to Palmerston North? How far is it?"*

### See a sample activity from Fiona on the next page

What works well here? Fiona identified anxiety many of her learners had as soon as numbers were introduced. Fiona found that by relating the learning to something that learners knew well there was less fear and learners were able to understand the concepts. Fiona was then able to introduce numbers once this base knowledge was formed. Fiona worked to slowly take learners from the 'known' to the 'unknown'.



Activity	Resources
Your daughter's first 11 hockey team is coming home for dinner how many pizzas this size.	Pizza tray
People that can roll their tongue get a chocolate (IF)	chocolate
IF	
IF is a logical function in excel for making calculations with more than one possible outcome. A good example is tax thresholds:	<ul style="list-style-type: none"> <li>• Large example of an IF (ugly)</li> <li>• Teach terms</li> <li>• IF terms/grid</li> </ul>
Exercise	Fill grid from sentence, write a grid
Group: <ul style="list-style-type: none"> <li>• Example: About half your height (we know our height, can use this for proportions and estimations)</li> </ul>	As a group, you have 1 minute to think of an example where you could teach numeracy using only words to start with. Share with others.
Whiteboard	<ul style="list-style-type: none"> <li>• Write a term/example we could use in class to demonstrate prior knowledge of numeracy.</li> </ul>

## Interpreting standards for calculations – Ken Hodge

Wellington Institute of Technology

### The need

I noticed that some of my learners are challenged by finding information, interpreting information and applying it in the right way and in the right place. As plumbers they will need to be able to read codes and acts and find and interpret relevant information.

Pipe section	Loading units (See Table 3.2.1)	Probable simultaneous flow rate (PSFR) LITRES PER SECOND (See table 3.2.4)	Nominal pipe size mm (Nominal means inside diameter)
A-B	36	.52	25
B-W	23	.41	20
W-C	15	.33	20
C-E	9	.25	18
B-P	13	.30	20
P-Q	2	.12	15
P-R	11	.28	18
R-S	8	.24	18
R-T	3	.14	15
T-V	1	.09	15
T-U	2	.12	15
W-X	8	.24	18
C-M	6	.20	20
M-N	3	.14	15
M-O	3	.14	15
E-L	4	.16	18
E-F	5	.18	18
F-D	1	.09	15
F-G	4	.16	18
G-I	2	.12	15
G-K	2	.12	15

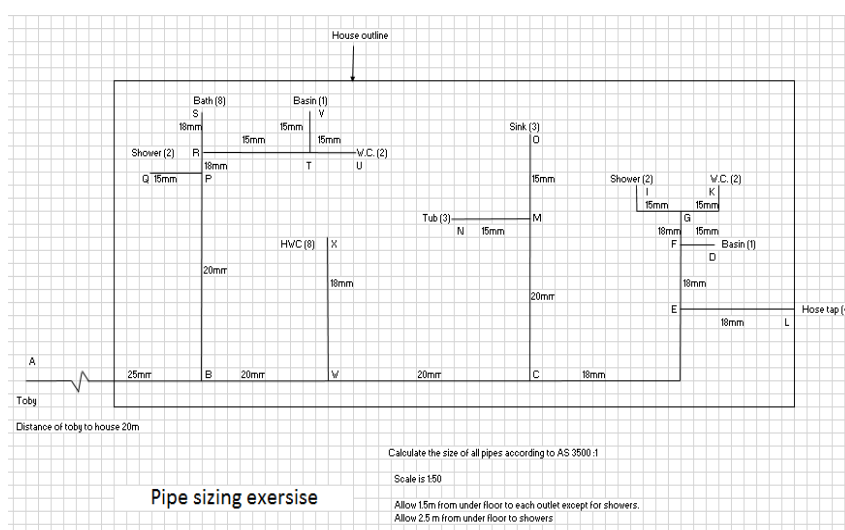
INDEX LENGTH = 16.7 (internal) + 20 (watermain) = 36.7m use 40m column

Pressure drop  $H_p = H_s - H_a - 30 - 2.5 - 5 = 22.5$  use 20m head table

$H_a$  is head available

$H_s$  is height of highest outlet above supply point

$H_p$  is minimum head required at any fixture outlet AS3500:1 3.3.2 requires a minimum of 5m but need to check all fixture valves/taps for this if sizing a job.



### The solution

To support learners to be able to do this I designed this activity where learners:

- measure and interpret plan measurements,
- locate information relevant to their measurements
- use that information to design their water supply system.

### Steps in the activity

This is how I ran this activity:

- Discuss sizing and the ideas behind piping.
- In groups give learners: plan / table / relevant areas from the standard / instructions
- Follow the instructions from the code
- Learners label, interpret and measure plans
- Find and locate relevant information
- Compile information into table to identify pipe sizes

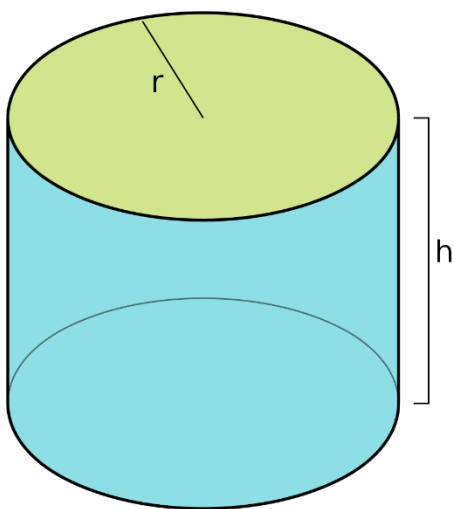
What works well here? Ken identified that the literacy skill of finding, interpreting and applying information was very relevant to plumbers on the job. He saw the need to build these skills into his programme delivery. By using real plans with a simple table of measurements he has kicked started the development of this skill so that learners can work towards the more complex tasks of locating relevant information in the codes when they are on the job.

## Supporting learners to understand the volume of cylinders – Grant ‘Diesel’ Davies

Wellington Institute of Technology

### The need

*I noticed that some of my learners are challenged by understanding volume of cylinders.*



### The solution

*To support learners to be able to do this I designed an activity where learners use pipes and rulers to learn how to measure volume.*

### Steps in the activity

*This activity involved the following:*

- *Present the idea of a square and how to work out the area.*
- *Present the idea of pi*
- *Learners then measure the circumference of a pipe with a ruler*
- *Confirm that the diameter x pi = circumference, so the ratio of the diameter to the circumference is 3.17:1*
- *Learners calculate the area of their pipe*
- *Show learners how to calculate volume*
- *Learners have a go and then compare answers*

What works well here? Grant identified an area of his course where the numeracy learners were required to complete was particularly challenging and that learners did not often have the prior knowledge required to understand the concept. Grant created additional scaffolding around this activity which used an effective model; explain and demonstrate, give learners a practical application, peer check. This is a simple model that works in a lot of numeracy contexts.

## Learning the language of construction trades– Richard Howard Wellington Institute of Technology

### **The need**

*Within any form of employment there is the use of specific vocabulary. This is especially the case in the world of the Construction Trades. Therefore, strategies are needed to assist the learner to grasp and understand this language.*

### **The solution**

*To support learners on their individual learning pathway using a range of strategies to meet the needs of a range of learners.*

Word	Trade Meaning	My Description	Use in a Sentence

### **Approaches used**

Three approaches were used across the course to provide multiple opportunities for learners to learn and apply the course related language:

#### Build your own dictionary

- Learners created their own dictionary of trade terms
- Dictionary enabled learners to make sense of terms in their own words or with a picture

#### Word games and activities

- Word searches and crosswords used
- Word identification and spelling help to reinforce learning

#### Portfolios and diary writing

- Learners wrote a diary/ portfolio of the processes and activities they undertook
- Diary gave learners a chance to use the new terms they were learning in context

What works well here? Ritchie identified the fact that there was a lot of new and challenging terminology that learners encountered in his course. By identifying what that language was and then building specific and intentional learning activities across his course he has supported his learners to learn, understand and use the language of his trade.

## Short guides to embedding

*The series of 'short guides to embedding' offer practical tips and ideas to get started embedding literacy and numeracy into teaching and learning*

How to use these guides:

Using these guides to refer to when lesson planning is a good idea for individual tutors who are trying to get to grips with the practical implementation of embedding literacy and numeracy. These guides could also be used effectively for teams to come together and begin to share practice. Here are some ideas:

- Mail out a PDF of an individual guide weekly or fortnightly
- Ask tutors to try one idea and think of another example they would include in that guide
- Allocate some time at team meetings to talk about what worked, what would be done differently, what other ideas they would use
- Encourage tutors to develop their own short guides and share
- Once a semester host an internal practice sharing session where tutors bring along a resource they have developed or a strategy that has worked well for them – use the 'share one good idea' approach

## Short guide 1: Where do I start?

### Getting started embedding literacy

Embedding literacy is about figuring out what reading, writing, listening and speaking learners need to do in your learning session and then breaking it down into manageable chunks. Below are a range of things that you could consider when planning your embedded lessons.



## Planning your lesson

### Language

What words do my learners know?  
What words do they need to know?

- Make the important words visible.
- Refer to these words throughout the session.
- Write them on the board.
- Label drawings or pieces of equipment.
- Have learners highlight the words as they come across them.
- Create glossaries with plain English definitions for each topic and hand them out.
- Give learners post it notes to create their own word banks.
- Show learners how to find the meanings of words they do not understand, e.g., Google, asking someone else.

### Reading

What reading skills do my learners have?  
What reading skills do they need in this session?

- Incorporate strategies before, during and after the learner has read the text to ensure they understand what they are reading.
- Tell your learners why they are reading and direct them to key features in the text such as images, headings and sub headings.
- Give learners a purpose, get them to find something, answer a question and engage in some way with what they are reading.
- Ask questions after learners have read to check understanding.
- Use think-pair-share and get learners talking about what they read.

### Writing

What writing skills do my learners have?  
What writing do they need to do in this session?

- Make the task clear, tell them why they are writing and who they are writing for. Give models so learners know what is expected.
- Brainstorm ideas and the keywords that will be likely to be included. Give learner key language to use in their writing.
- Give a 'frame' or template that learners can fill in when they are beginning. Give sentence starters. Give checklists so that key ideas are included. Give tools to find correct spelling.
- Create peer marking and self assessment checklists.
- Give feedback! Give opportunities to edit, make it OK to make mistakes.

### Assessment

What assessment strategies do my learners have?  
What kind of questions and answers do they need to complete in this session?

- Make sure the language in the assessment is able to be understood, explain terms and replace with plain English where possible.
- Show learners examples of the type of answer they are expected to produce.
- Do practice answers in class as assessment preparation and get groups to work on them together.
- Brainstorm ideas and words that learners may need to use.
- Where learners have to recall a process or procedure support them by getting them sequencing and breaking things down into steps using photos of the process or peer discussion to help.

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## Short guide 2: Setting up

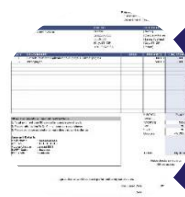
### An environment that supports learners

#### What are you doing already?

Every time that you label a piece of machinery, print out an important equation or formula and stick it on the wall or display important terms and technical names in the workshop, you are creating an environment that supports embedding. You may find some other ideas in this short guide!

#### Relevance

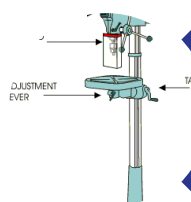
Consider how you show that literacy and numeracy is relevant to your programme and the workplace.



Show that literacy and numeracy is important by showing ways that they are used in the workplace.

#### Visibility

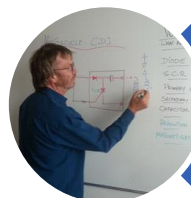
Think about the language that is important to your programme and make it visible.



Display technical terminology visually in the workshop through labels and diagrams.

#### Support

Try to include support in the learning environment to help when understanding breaks down.



Set up literacy and numeracy learning 'tools' in the workshop or classroom such as glossaries, wordlists and important formulas.

#### Show how

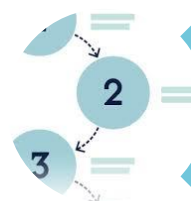
Use the learning space to show learners how through models and examples.



Showcase examples of student work that demonstrate the types of literacy and numeracy that learners need to produce.

#### Break it down

Make your life easier! Break down important processes and activities and make them visible.



Break down processes that learners need to complete and highlight the important language in those processes.



## Short guide 3: Supporting your learners to understand key words

### What are you doing already?

Every time you explain the meaning of a word, draw a diagram with labels or replace a word with a simpler word, you are helping your learners to understand the words of your trade. Below are some ideas that can help you support your learners:

### What does your learner need to know?

Do your learners need to:

**Understand** the word (reading and listening):

*Meaning of words in different situations and/or*

... **Use** the word (writing and speaking):

*Spelling, place in a sentence, how to say it clearly, using it in the right situations, using it with the right word.*

### How useful are glossaries?

Glossaries are really useful if they are set up properly. Some things to think about:

- Pick words that occur many times.
- Keep your definitions short.
- Check the words in the definition are easy to understand.
- Divide glossaries into topics.
- Use them in a written text, e.g., in the margins.
- For online texts, use links that connect directly to information about the word.
- Learners can write their own glossaries.

### Questions to ask yourself:

- Is this an important word for my learners?
- How frequently does this word occur?
- What do your learners need to know about the word?
- What can I do to help them?
- How can learners guess the word?
- How can word parts help my learners?
- What words usually go together?
- How do I know learners understand the word?

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Below are some ideas you can use:

- Before your learners come across new words,
- While they are studying and meeting new words *and*
- After they have been working with the words in class:

#### Before:

What do learners already know?

- Brainstorms
- Labelling diagrams
- Matching words and pictures
- Pre-teach meanings
- Matching words and meanings

#### During:

What are you doing during the session to build words skills?

- Elicit information about a word: *What do you call this? What does this mean?*
- Learners guess in context
- In text glossaries
- Learners develop glossaries
- Word lists on the board

#### After:

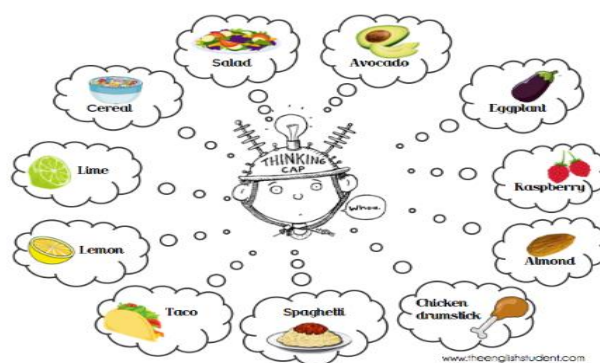
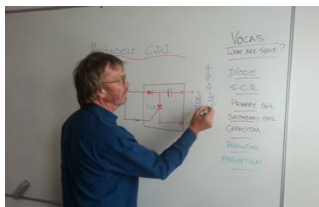
What are you doing at the end of the class?

- Recall brainstorm
- Use the words in reading or writing
- Explain the words to each other
- Self-directed tasks
- Online programmes e.g. *quizlet*

## Activities – learning key words

### Vocabulary list on board

As new words come up, write them on one side of the board - learners can see them and spell them; add what words they normally go with:



### Vocabulary Brainstorm

Brainstorm a topic and write as many of the trade words learners need to know and use for that topic:



### Traffic light

Give your learners 10 new words. Ask them to colour the words...

... they know in green

... they are not sure about, orange

... they don't in red

Learners find a learner who has their red word coloured in green and asks them to explain it. For the orange words, they can all get together and share what they know. (You can use ✓ ? or x)

### Matching Activities

Learners match words that go together (on cards or online programmes like *quizlet*)

- adjustable spanner
- buff chisel
- coping saw

- plumb bob
- claw hammer
- torque wrench

### Labels in the workshop

Number the equipment and learners write down the names of each one and what it is used for or ask learners to label equipment:



### Guessing meaning in context

Help your learners guess the meanings of words in context and save time for them looking up words:

1. Does the word look like one they know?
2. What words are next to it?
3. Where is it in the sentence?
4. What is the topic of the sentence?
5. What is the topic of that section?
6. What is the topic of the text overall?
7. Replace this word with one they already know to see if their guess is correct.

### Word parts

These can be helpful as when they are added to a word, they change its meaning:

- Un / mis (not)
- Re (again)
- Pre (before)
- Inter (between)

If your learners already know words, like stress and mix, learning **pre** helps them understand and use **pre**stressed and **pre**mixed. They can break words down to understand them. Google *most commonly used prefixes* to help you find useful ones.

## Short guide 4: Building writing skills

### What are you doing already?

Every time you give your learners feedback about their writing, get them to write something down or take notes, you are helping your learners to write. In your programme writing might include:

- Answering questions.
- Writing instructions or descriptions.
- Writing essays.
- Writing letters and emails.

Below are some useful questions when you're thinking about writing.

**Why:** Learners need to know why they are writing. They can:

- Analyse the questions or instructions.
- Underline or highlight key words
- Break down questions/instructions into shorter ones.

**Who:** Learners need to think about who the writing is for. This will help them decide how to write and what to include. For example, with builder's diaries, they can be used for a future employer so they need to have all the details on how to build a house and look good; Learners' notes need all the details, but presentation isn't so important.

**What:** When learners know why they are writing and who they are writing for, they need to think about 'what':

- Brainstorm
- Organise ideas into groups
- Look at good examples for: ideas, key words etc

**How:** Once learners have their ideas they need to think about how they will organize it:

- Do they need heading, paragraphs or bullet points?
- Templates, diagrams, frameworks and questions can help learners organize their writing.

Below are some ideas you can use:

- Before your learners start writing
- While they are writing what they need to
- After they have finished the piece of writing

### Before:

What are you doing before learners write?

- Brainstorm
- Pair discussion
- Questions
- Topic pictures

### During:

What are you doing to develop writing?

- Ordering text
- Analysing examples
- Organising ideas
- Pair writing
- Group writing

### After:

What are you doing after writing practice?

- Editing errors
- Individual writing
- Checking for content
- Peer review
- Re-drafting
- Extend their writing

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## Some examples:

**Key Ideas:** Learners need to be able to write so people can understand what they have written. Below are some ideas you could use to further support your learners. Remember, a good piece of writing can take lots of editing and re-writing and writing is a process that can involve lots of steps.

### 5 minute writing

Ask your learners to think about something they know.

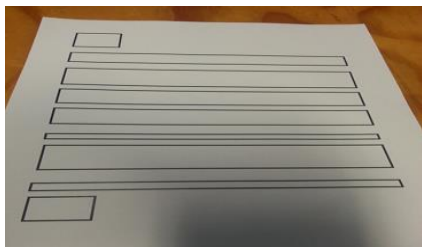
Say to them:

1. Write for 5 minutes.
2. Don't stop writing in that time.
3. Don't check for any errors or fix them.
4. Don't show your writing to anyone.
5. At the end, count up how many words you wrote and tell me.

Then, time your learners so they write for 5 minutes and ask how many words they wrote; this gets them writing, without worrying if what they are writing is right or wrong. You can do this regularly as it only takes 5 minutes.

### Using templates

Give the learners a template – this could be the first sentence of each section, a diagram or a question that they need to answer to complete each section. These shapes show what the writing should look like:



Use sentence starters to show learners what they need to write:

- After wetting the client's hair, you need to... (learner adds writing here)
- When you set up the dumpy, remember to... (learner adds writing here)



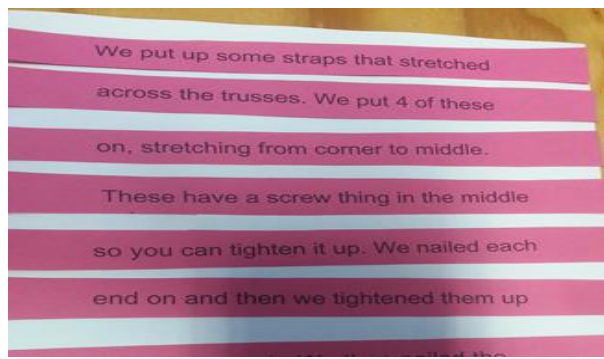
### Ordering text

Cut up a text, paragraph or sentence and get learners to put it in the right order.

Example 1: words – this helps learners to understand the order of words in a sentence:



Example 2: **sentences** – this helps learners to understand how to organize sentences into sections like paragraphs:



### Error correction

You can do this in 3 stages:

1. Tell learners how many errors they have in each section and they find and correct them.
2. Underline the errors and they correct them.
3. Underline and use symbols to show them what to fix.

(sp for spelling, p for punctuation, ^ for missing word):

- Wear a mask wen installing Pink Batts. **sp**
- cut the Batts before you install it. **p**
- Check your measurements **^** you cut.

Give the learners the symbols and their meanings in a sort of correction code for them to use.

## Short guide 5: Reading and understanding course texts

### What are you doing already?

Every time you direct a learner to where they can find information in a workbook and make sure your workbook has a contents page or glossary you are helping your learners to read and understand the texts in the course. In this short guide you will find activities that you could use to further support your learners.

Learners need to understand how to find their way around course texts and they need to understand/ comprehend what the texts say.



Taking some time to point out the key features of the texts in your course to learners will help them feel more confident and therefore more likely to engage with what they are reading.



Repeating this when you give learners something they haven't seen before such as an instruction manual will also be helpful.



Learners need to be given something to DO when they read, this will help them to engage with the material.



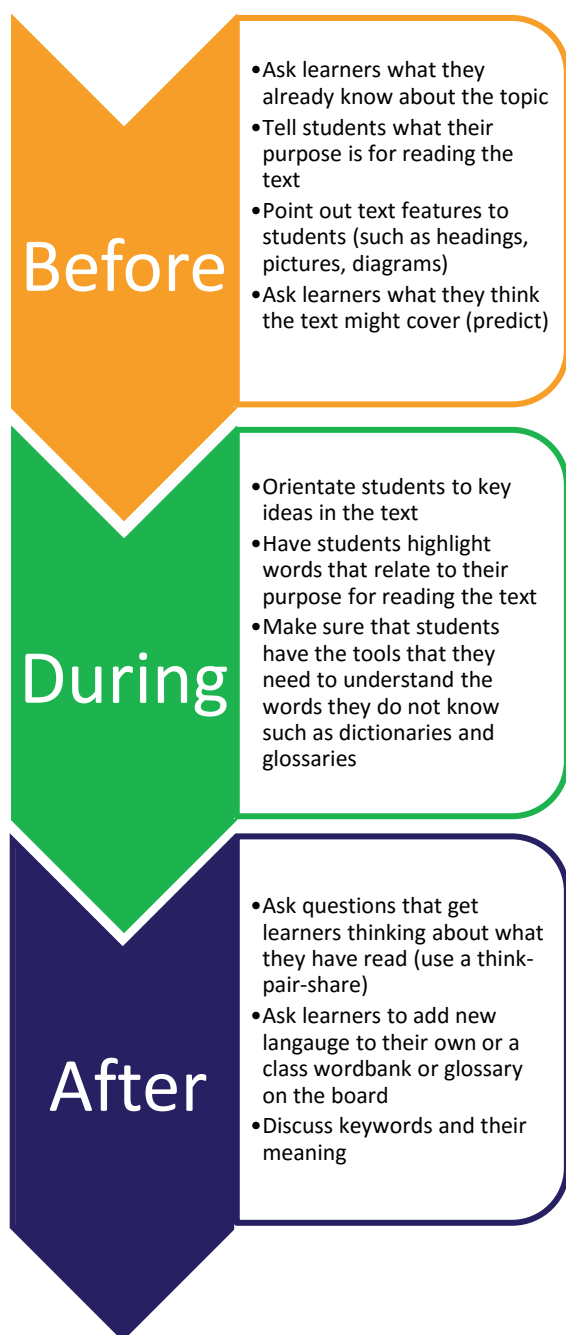
Develop your own routine that you can use every time you give learners something to read, this will get you into the habit.

### What skills do your learners need?

Identifying what skills your learners need means that you can intentionally work to build these skills as you teach, tick the ones that are relevant:

Using a contents page or index to find their way around the text.	
Using headings and sub headings to find their way around the text.	
Locating information in tables, charts and graphs.	
Locating information in large paragraphs of writing.	
Relating diagrams to written explanations.	
Scanning a document to find a key word or phrase.	
Understand that bold, underlined or italicised text is used for emphasis.	
Use markers such as bullet points and numbering to work out order.	
Make connections between what they read and what they know from other contexts such as the workshop, what you tell them, their prior knowledge.	
Figure out what information is important in what they read.	
Understand complex words that are not relevant to the content such as academic words and words of many syllables.	
Summarise what they read for practical tasks or assessments.	
Read about a process and break down the steps in that process.	
Understand that some of the words in the programme have more than one meaning e.g. teeth on a saw vs. teeth in a mouth.	
Read between the lines to see if there are underlying meanings.	
Know what to do when they don't understand the text.	
Skim over a text to get the gist.	
Understand what diagrams are representing.	
Interpret and make meaning from charts and tables.	

## Some examples



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Asking questions about what learners have read is a great way to build understanding and comprehension skills. Here are some examples of questions you could ask:

Ask a question that checks understanding of a key idea in the text

*e.g. What does it mean to prep a wall?*

Ask a question that encourages learners to use the text features to assist their understanding

*e.g. What does figure 1 show you about sanding a wall?*

Choose a word that you think learners may have difficulty with. Ask them to read around it and share what they think it means in that piece of writing

*e.g. In paragraph 2 what do they mean by the term 'access'?*

Ask a question that encourages learners to evaluate the text

*e.g. Are those instructions for prepping a wall accurate?*

Encourage learners to apply what they have read to a real scenario

*e.g. How would the wall prep process change if the wall had signs of water damage?*

Try to encourage learners to understand implied meanings

*e.g. What do they mean when they say season to taste?*

Also think about how you support learners when understanding breaks down:

- Give glossaries, dictionaries, online dictionaries.
- Give low risk ways to say 'I don't understand' such as writing it down and putting it on a post-it on the edge of their desk for you to collect and discuss.
- Use plain English, talk about the meaning of the text as you go, translate for them.
- Ask the more confident learners to explain things in their own words – they may put it in a way their peers will understand!
- Model the fact it is ok when you don't understand what you read; if you come across a word or phrase that is new to you, tell your learners and find the meaning together.

## Short guide 6: Creating resources your learners will understand

### Key Ideas:

- ✓ Make a choice about which words need to be kept and which words can be simplified.
- ✓ Substitute the words you can get rid of and scaffold the important ones that are related to your trade.
- ✓ Keep the resources looking accessible, think about white space, images, bullet points and headings.
- ✓ Include opportunities for learners to engage with what they are reading.

### Know your learner

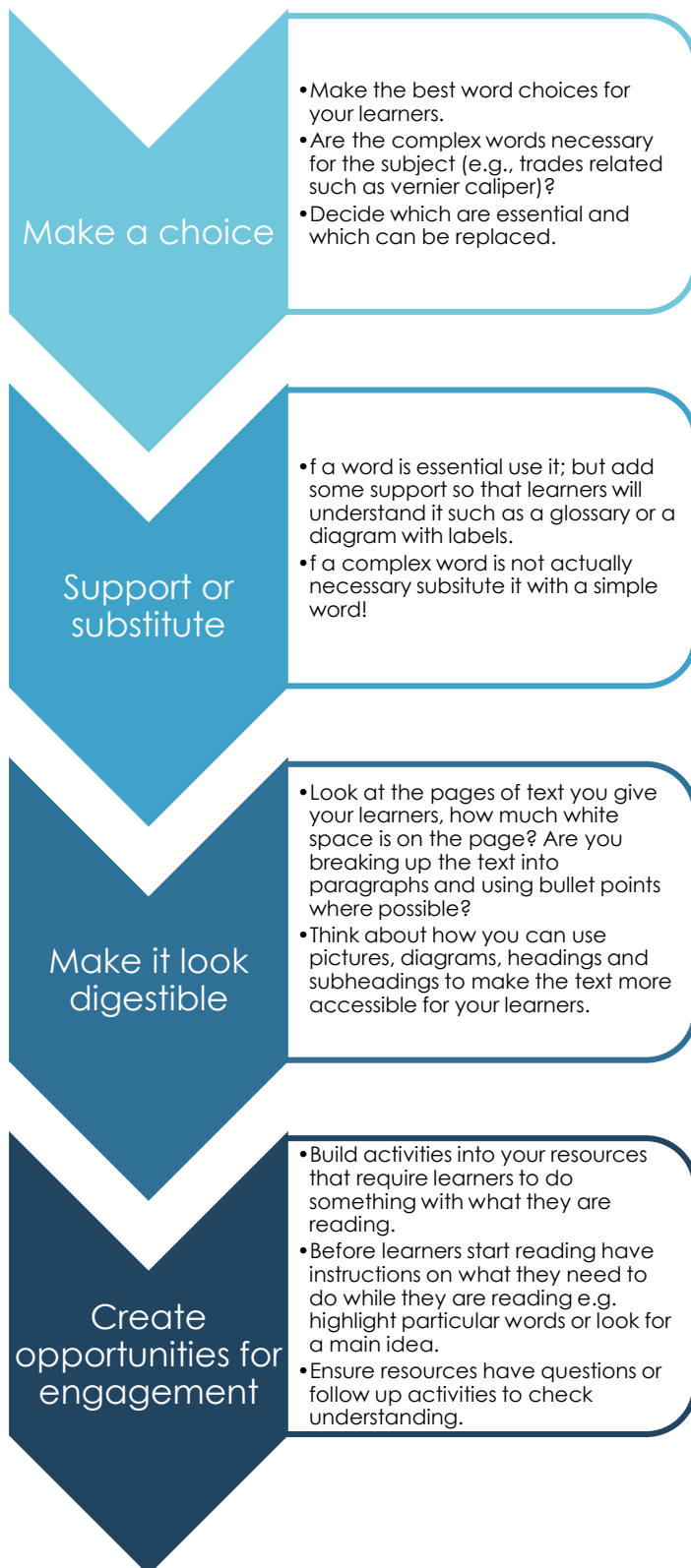
Creating written resources that are suitable for your learners starts with knowing your learner. Think about the language that your learners use themselves as this will be a good indicator of what type of language they are most likely to be able to comprehend in your written resources.

### Why use complex words?

Some complex and technical words are essential for learners to understand. They cannot be successful on the job if they do not understand the words they need to use in the workplace. Words that are related to your trade should not be simplified. However, using outdated or large words that are not related to the trade instead of everyday language is just going to be a barrier. Make a call – do they need to know it on the job? If they do keep it, if they don't simplify it!

### Keep it simple or scaffold it

Complicated and technical words that need to be kept in your resources should have some scaffolding to help learners understand them. As you create your resource try and identify what words learners will find challenging and make sure you define them in the resource.



## Examples

What are you doing already?

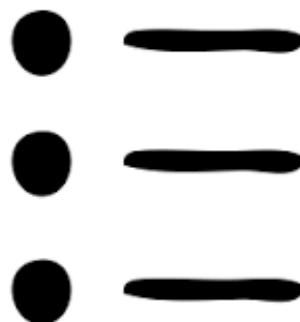
Every time you rethink a word choice in a resource, use headings and diagrams to help illustrate a point or rewrite a paragraph into simple bullet points you are creating resources with the learner in mind. These are strategies that ensure that your course content is actually understood by learners; below are some ideas



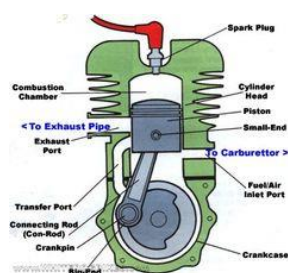
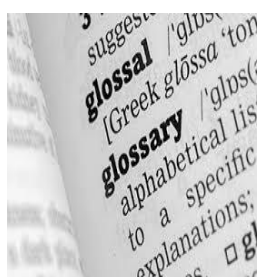
Think about your language

Affix	or	Stick on
Apparent	or	clear
Ascertain	or	Find out
Circumvent	or	Get around
Sufficient	or	Enough

Chunky paragraph or bullet points?



Make word meanings accessible



Glossaries are great but having word definitions on the page where the technical language appears is more effective. Diagrams with labels are effective too.

Make reading active

- ✓ Give learners space in your resources for them to brainstorm what they already know about the topic before they start reading.
- ✓ In your resources give learners instructions about what to do when they read e.g. **highlight key words** or underline unknown words
- ✓ Use arrows, diagrams and colours to draw their attention to key ideas
- ✓ Include questions and activities to make learners think about what they have read

*Learners understand more about what they read when they need to do something with it. Make sure you build opportunities for active engagement in your written resources*

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## Short guide 7: Developing glossaries

### Making glossaries work

#### What are you doing already?

Every time you or your learners write down words and their meanings, you are building glossaries. Glossaries are a place we can go to check the meaning of a word. However, there is a range of ways to develop them and different information you can include, depending on your learners and what they need to do with the word.

#### Why are they important?

Do your learners need to:

**understand** the word (reading and listening)?  
AND / OR

**use** the word (writing and speaking)?

*If they need to understand or use certain words, especially if they are used a lot in your area, a good starting point is to develop glossaries.*

#### What do you need to think about?

*Glossaries are really useful if they are set up well:*

- Pick words that occur many times
- Think about which words learners find challenging
- Keep your lists short
- Keep the definitions simple
- Ask your learners what they need to know

## What do your learners need to know?

#### Meaning

Whether your learners have to use a word or just understand it when they see it or hear it, they will need to know the meaning:

building envelope - outside walls of a building

#### Using it in a sentence

Your learners may need to know where it goes in a sentence, what goes before it, what goes after it  
'engage a clutch'

**engage** is what you do

**clutch** is the thing

#### How to spell it

Glossaries can be useful for learners to use to check the spelling. They will need to know this if they want to use it in their writing or recognise it when they see it written down.

#### Words it usually goes with

It can really help learners to use words if they know what words usually go together:

cross section / spark plug / down pipe

#### Other words with a similar meaning

Knowing other words that have similar meanings can help learners understand and use a greater range of words:

cut / chop / slice

#### Other family words

Once learners know one word, it is helpful if they also can understand and use related words:

stress / prestressed / stressful

What could you put in your glossary? Have a look at some examples below for what you could include:

Word	Meaning	Sentence	Words it goes with	Synonyms	Family words
adjust	Change something	We need to adjust the wheels.	<u>adjust</u> a clutch <u>adjust</u> settings	alter change	adjustment readjust
coolant	Something that makes things colder - reduces heat	Lower the temperature with coolant.	engine coolant use coolant check coolant level of coolant	-	cool cooling

## How you can use and develop glossaries with your learners:

### Learners can build their own glossaries

Some tutors help their learners to build their own glossaries. Give them templates such as blank tables or partly filled out glossaries to complete.

**Benefits:** Cuts down on prep time.

### Build a central online dictionary

In plumbing, one of the tutors has developed an online dictionary. This is a 'go to' for any plumbing words that focuses on the meanings.

**Benefits:** learners only have one place to go.

### Organise words into topics

One of the automotive tutors has made topic based lists. He gives these to the learners each week and they add sentences, pictures or meanings.

**Benefits:** breaks the words down into useable topics.

### Use pictures

Sometimes, the easiest way to explain something is with pictures. Glossaries can include pictures or if it is an electronic glossary, a link to a range of pictures or diagrams.

**Benefits:** a quick way to understanding.

### Put words next to the text they are reading

Using glossaries in the text the learners are actually reading can be really helpful. You can put meanings at the bottom of a page or in the margin by the line where the word appears.

**Benefits:** learners have the meaning as they read.

### On the board as you teach

A really good habit to get into is to develop glossaries as you teach. Writing a list down the side of the board of words that come up in a lesson, along with the meanings can help your learners.

**Benefits:** supports learners understanding as you teach and cuts down on prep time.

### Bite size chunks

Some tutors give their learners 5 new words for that topic for that week. Learners then research that word and each week share different information with their class: meaning, picture, sentence etc

**Benefits:** builds learners knowledge in manageable chunks and no prep.

### Links to words in texts

Some tutors add links to any texts learners are reading on line. The links take the learners to an online glossary where they can find information about the word as they meet it in the text.

**Benefits:** learners have the meanings as they meet the words.

## Short guide 8: Making sense of the Learning Progressions

What do you already know? In New Zealand the national benchmark for literacy is Step 4 of the Learning Progressions and for numeracy, it is at Step 5. The sections below and on the next page summarise some of the key things you can look for to see if your learners are reaching these benchmarks.

### Literacy at Step 4:

If your learners can do the things below, they are probably at Step 4. If they can't, they may be at Step 3 or below.



**Write to Communicate** - Can your learners:

*Write for different audiences?*

*Use and spell longer and more specialised words accurately, e.g., specifications, leakage?*

*Know how to use " " and write longer sentences, using commas and full-stops accurately?*

*Plan what they write?*

*Organise sentences and paragraphs?*

*Check and correct errors in their writing?*



**Read with Understanding** - Can your learners:

*Understand more specialised words, e.g., julienne, gauge, mitre, dwang?*

*Identify writer's purpose, e.g., inform, persuade, describe?*

*Evaluate and compare information within and across texts?*

*Understand a range of different text types, e.g., news articles, poems, instructions?*

*Understand longer and more complicated sentences and paragraphs?*

*Use a range of reading strategies?*

*Find, organise and summarise important information?*



**Listen and Speak to Communicate** - Can your learners:

*Understand and use more complex words? (cantilever, potable, insulation)*

*Understand and use ways to make their meaning clear in longer interactions? (repetition, asking for clarification, checking for meaning etc)*

*Understand and communicate on a range of topics?*

*Use a range of strategies and know what to do when understanding breaks down*

*Evaluate the truth, relevance and value of what the speaker is saying?*

*Respond to and use appropriate skills and language to manage interactions?*

## Numeracy at Step 5:

If your learners can do the things below, they are probably at Step 4. If they can't, they may be at Step 3 or below.



### Use number to solve problems - Can your learners:

- Add and subtract using whole numbers and decimals?*
- Use partitioning strategies to make calculations easier? ( $7 + 6 = 7 + 3 + 3$  &  $10 + 3$ )*
- Multiply and divide using multi-digit numbers, fractions?*
- Do simple conversions between fractions, decimals and percentages?*
- Sequence numbers back and forth?*
- Describe how many tenths, hundredths and thousandths are in any given number?*
- Describe common factors up to 100?*



### Measure and interpret shape and space - Can your learners:

- Describe the features of 2D and 3D shapes?*
- Work out surface area and volume?*
- Describe the size, position and orientation of shapes?*
- Describe and understand location, direction and distance?*
- Measure the side, perimeters and areas of triangles, circles and rectangles?*
- Convert within measurement systems? ( $200\text{mm} = 20\text{cm}$ )?*



### Reason statistically - Can your learners:

- Sort, organise and describe data?*
- Use tables and graphs?*
- Draw conclusions and make predictions based on data?*
- Describe trends and important features?*
- Compare 2 or more pieces of data?*

Link to the learning progressions: <https://www.literacyandnumeracyforadults.com/resources/354426>

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## Short guide 9: Building numeracy skills for the course and the workplace

### What are you doing already?

Every time you teach learners how to use formulas or give them resources to supplement their coursework, you are helping your learners to build numeracy skills for the course, workplace and life. In this short guide you will find activities that you could use to further support your learners.



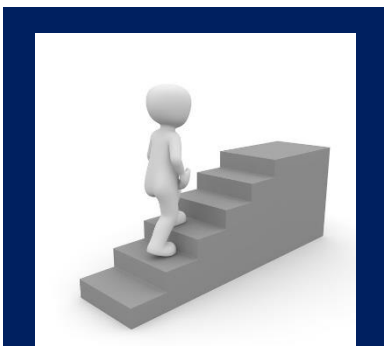
Activate prior knowledge and skills



Take it Slow! Do not overload your learners early on in the lesson



Teach and support learners on how to use tools to support their learning



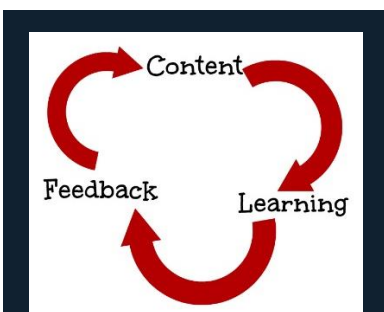
Start from the basics and foundation of a concepts and then build on this.



Use Visual Aids like graphs, charts, posters, videos, images and illustrations



Give learners opportunity to practice



Give positive and constructive feedback



Use mistakes as learning opportunities and identify skill and knowledge gaps



Acknowledge and celebrate learning progress and achievements

## Some Examples



Relate learning and concepts to course, work and life



Promote & support Tuakana-teina/Peer Learning and group work



Use worksheets to support learning and to practice concepts



Include Pathways Awarua into your class activities and self-directed learning



Use learning hooks to introduce a topic to engaging interest and assess prior knowledge



Share your experiences/struggles with your learners

## Useful Websites to Support Teaching & Learning

Resource	About the Website	Website
<b>Pathways Awarua</b>	Pathways Awarua is a free and fun way of learning online that gets you up to speed with all those essential skills.	<a href="https://www.pathwaysawarua.com/">https://www.pathwaysawarua.com/</a>
<b>Skillswise English &amp; maths for adults</b>	BBC Skillswise is a free-to-access website for adult numeracy and literacy tutors and students, with printable worksheets and fact-sheets and online games, videos and quizzes that can be used in class or by students at home. (Source: BBC Skillswise, 2017).	<a href="http://www.bbc.co.uk/skillswise/maths">http://www.bbc.co.uk/skillswise/maths</a>
<b>Math is Fun</b>	Math explained in easy language, plus puzzles, games, quizzes, worksheets and a	<a href="http://www.mathsisfun.com/index.htm">http://www.mathsisfun.com/index.htm</a>
<b>Skills Workshop</b>	Bank of free adult literacy and numeracy resources.	<a href="https://www.skillsworkshop.org/">https://www.skillsworkshop.org/</a>
<b>Math Goodies</b>	Math Goodies is a math help website featuring free interactive lessons, worksheets, games and puzzles.	<a href="http://www.mathgoodies.com/">http://www.mathgoodies.com/</a>
<b>Worksheet Works</b>	Variety of numeracy and math worksheets.	<a href="https://www.worksheetworks.com/">https://www.worksheetworks.com/</a>

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## Short guide 10: Simple strategies to embed numeracy

### What are you doing already?

Every time you teach learners how to use formulas, give learners resources to supplement their coursework you are helping your learners to build numeracy skills for the course, workplace and life. In this short guide you will find activities that you could use to further support your learners.

#### Pre-teaching & learning

- Use pre-teaching strategies like assessing prior knowledge and learning hooks to engage learners and grab interest and attention. *Examples:* brainstorming, asking Learners what they know about topic, games.
- Relate the topic to the trade/course/workplace, why is it used and some real examples, experiences or stories.

#### Introductions

- Introduce topic and concept.
- Use Visual Aids (diagrams, charts or illustrations).
- Continue to emphasise how the topic relates to the trade/course/workplace: For area, why do we need to calculate area in painting? To be able to determine how much paint we need.

#### Start from the Basics

- Define and explain the meaning of all new or technical words used.
- Breakdown the meaning of the formulae and each component means.
- Show contextualised worked examples, have discussions and ask questions.

#### Build on the Basics

- Increase the difficulty of examples and show learners how to solve these.
- Introduce/use word problems and support learners in understanding and solving word problems.
- Use course/workplace related problem solving *Example:* For Area: how many floorboards would be needed to cover the floor in a room.
- Give learners time to try and practice.

#### Post-teaching and learning

- Use Extension Activities.
- Assess learning with assessments and practical projects.
- Relate topic/concept to other areas of the course.

**Monitor learning and support learners that may be finding it difficult.  
Ask questions and encourage learners to ask questions.**

# An example – A teaching plan for area

<p style="text-align: center;"><b>Pre-teaching &amp; learning</b></p>	<p><b>Tell learners and write down learning outcomes</b></p> <p>Calculate the area of rectangular surface (e.g. wall, floor, door)</p> <p>Calculate area of wall to determine how much paint or wall paper needed.</p>	<p style="text-align: center;"><b>Brainstorm</b></p>	<p style="text-align: center;"><b>Relate to the trade</b></p>
<p style="text-align: center;"><b>Introduction</b></p>	<p style="text-align: center;"><b>Introduce and define area</b></p> <p>What is Area? Area is the:</p> <ul style="list-style-type: none"> <li>&gt; is the size of a surface</li> <li>&gt; measure of a flat (two-dimensional) surface or a space covered by an object, such as walls, floorboards or plasterboard</li> </ul>	<p style="text-align: center;"><b>Show learners area in examples around them (door, wall, table)</b></p>	
<p style="text-align: center;"><b>Start from the Basics</b></p>	<p style="text-align: center;"><b>Understanding area using square units</b></p> <p>Square units</p> <ul style="list-style-type: none"> <li>&gt; Area is measured in square units.</li> <li>&gt; For example, we can use mm<sup>2</sup>, cm<sup>2</sup>, m<sup>2</sup></li> </ul> <p>Activity</p> <ul style="list-style-type: none"> <li>• Give each learner a paper with rectangle. The rectangle is 400mm x 300 mm</li> <li>• The learners will also receive square units of 100mm x 100mm</li> </ul> <ul style="list-style-type: none"> <li>• Ask the Learners to find out how many squares cover each of the shapes.</li> <li>• Record their answers</li> </ul>	<p style="text-align: center;"><b>Calculating area of rectangles and squares</b></p> <p>We can find the area of a rectangle by multiplying the length and the width of the rectangle together.</p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> <p style="text-align: center;"><b>Area of a rectangle</b></p> <p style="text-align: center;">= length × width</p> <p style="text-align: center;">= <math>lw</math></p> </div>	<p style="text-align: center;"><b>Show contextualised worked examples</b></p> <p>Find area of a wall Dimensions: Length 7.5m Width 3m</p> <p>Area = Length × Width Area of Wall = 7.5m × 3m Area = 22.5m<sup>2</sup></p> <p>Remind students</p> <ul style="list-style-type: none"> <li>&gt; of the unit of measure</li> <li>&gt; the square units symbol</li> </ul>



Build on the Basics

### Use worksheets



### More area calculations



Area of Wall with Windows to be Painted  
Wall Dimensions: Length 7.5m Width 3m  
Window Dimensions: Length 2m Width 1m

How is this calculated?

Discuss

Practice

### Play a game relating to topic



AREA

THE AMAZING PAGE

### Extension activities (How much paint do we need?)

Post-teaching and

Wall Area =  $44m^2$

How much Paint Do We Need?



Determine how much paint we need

- > Allow one litre of paint per coat for each 16 square metres to be painted
- > x2 coats
- > 20% extra for rough or porous surface.



Discuss

Show How It's Done

Practice

### Use calculations in the practical work

