

Creating Star Performers



InfraTrain
New Zealand

Embedding LN into training materials for trades training in the NZ context

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Overview

Part one: Background

Part two: InfraTrain NZ's embedded literacy and numeracy (LN) project

Part three: Resource development process

Part four: Challenges

Part one: Background on InfraTrain

- **InfraTrain New Zealand** is one of 39 Industry Training Organisations (ITOs) in New Zealand
- **InfraTrain New Zealand** is the industry training organisation for the infrastructure industry
- **InfraTrain New Zealand** develops, manages and promotes qualifications and training opportunities for people in the infrastructure industries in NZ

Part one: Background on LN

Workforce Drivers

- Results from International Adult Literacy Survey (IALS) 1996 and Adult Literacy and Life Skills (ALL) survey 2006
- NZ faces major skills and productivity challenges

Government's response:

1. Tertiary Education Strategy (TES) 2007 – 2012
2. NZ Skills Strategy Action Plan 2008
 - *The Literacy, Language and Numeracy Action Plan 2008-2012*

Part two: InfraTrain's NZ's embedded LN project

InfraTrain New Zealand's pilot project:

**Embed literacy and numeracy into the delivery of 5
core compulsory units within 2 National Certificates**

**Embedded literacy and numeracy in training
resources** is about using resources as a vehicle to
provide trainees with the instruction, information
and opportunities to develop the LN skills they need
for their qualification, job and training

Part three: Resource development process

- 1. Conduct initial research**
- 2. Develop LN learning outcomes**
- 3. Embed LN into the learning notes**
- 4. Evaluate the effectiveness of the embedded learning notes**

1. Conduct initial research

Know the
LN skills needed
to do the job

Know the LN
demands of the
training

Know the
LN level of the
trainees

Know the LN skills needed to do the job

- Develop a literacy and numeracy profile
- Collect authentic workplace documents
- Consult with technical/industry experts



Literacy and numeracy profile:

General Worker/Operator in the Infrastructure Industry

This literacy profile identifies the reading, writing, speaking, listening and numeracy used by General Workers/Operators in the Infrastructure Industry. General Workers may work in a range of industry sectors including Pavement and Surfacing; Civil Construction Works; Utilities; Roadmarking; and Rural Contracting.

Most of the tasks listed will involve the use of technical language and abbreviations relevant to the Infrastructure Industry.

Reading tasks

Read implies that a person reads and understands

Read signs and short texts

- Hazard signs and symbols
- Road signs
- Colour coding
 - Site and services markings
 - Oil types
- Product codes
- Product labels
- Oil and fuel types
- Text messages
- Machinery and vehicle gauges, dipsticks, names, ID numbers

Read forms

- Timesheets
- Leave forms
- Accident register
- Vehicle Check sheets

Read charts, tables and graphs

- List of Job names and numbers
- Dashboard (Timesheet/Time Off/ Damage/PPE offences)
- Equipment lists
- Start Up Procedures checklist

Read plans


- Street maps
- Construction plans
- Service plans
- Traffic Management Plans: to identify type and number of road signs required
- As-built plans

Continued →





Know the LN demands of the training

- Descriptor bank analysis of unit standards
 - Analysis of LN tasks in each learning note
 - Map the learning notes using The NZ Learning Progressions
- 

Descriptor analysis form

Descriptor analysis form	
Reading	
R1	Recognise and interpret pictures, symbols, abbreviations and codes
R2	Recognise relevant technical vocabulary
R3	Read and understand very short documents
R4	Read and understand short workplace documents
R5	Read and understand complex workplace documents
R6	Read and interpret information from a number of documents
Writing	
W1	Complete simple workplace documentation
W2	Write a brief factual statement
W3	Write a paragraph
W4	Write a longer piece of text
W5	Write a complete workplace document

<http://www.workbase.org.nz/> *select* resources – online resources

Descriptor analysis of unit standards

Descriptor analysis form						
Reading		6469	6475	6476	6479	17327
R1	Recognise and interpret pictures, symbols, abbreviations and codes			✓	✓	✓
R2	Recognise relevant technical vocabulary	✓	✓	✓	✓	✓
R3	Read and understand very short documents	✓				
R4	Read and understand short workplace documents	✓	✓		✓	✓
R5	Read and understand complex workplace documents	✓	✓	✓	✓	✓
R6	Read and interpret information from a number of documents					
Writing						
W1	Complete simple workplace documentation	✓	✓			
W2	Write a brief factual statement		✓	✓		✓
W3	Write a paragraph		✓	✓		
W4	Write a longer piece of text					
W5	Write a complete workplace document					
Speaking and Listening						
SL1	Listen to procedures and instructions given orally and respond appropriately	✓	✓		✓	✓
SL2	Understand and use technical and industry terms	✓			✓	✓
SL3	Give factual information orally and check for understanding				✓	✓
SL4	Organise and sequence information and present it orally					
SL5	Participate in discussions with work team					
Numeracy						
N1	Recognise and understand alphanumeric codes			✓		
N2	Understand a range of numerical concepts as they apply to specific jobs					
N3	Record data from workplace observations or measurements				✓	
N4	Carry out simple calculations for specific work tasks					
N5	Carry out a range of measurements				✓	



Demand of Learning Notes



Demand of Assessment

Map the learning notes using The NZ Learning Progressions

The NZ Learning Progressions: Read with Understanding

Page 6: Introduction to “Maintain small plant and equipment on civil construction works”

Steps	Decoding	Vocabulary	Language and Text Features	Comprehension	Reading Critically
1					
2					
3					
4					
5					
6					



Know the
LN level of the
trainees



Excerpt from InfraTrain New Zealand's literacy and numeracy pre-assessment

Main idea B

“Dave found it very difficult to communicate with George.”

Find one (1) more sentence from the story that gives more information about this.



Know
what to do

2. Develop LN learning outcomes

Use information from:

- Descriptor bank analysis of unit standards
- Literacy and numeracy profile
- Analysis of LN tasks and skills in learning notes
- The NZ Learning Progressions
- Trainee profile

6469: Maintain small plant and equipment
Reading
Recognise features of a range of texts: check lists (Start Up Procedures checklist), tables (Maintenance Schedule)
Understand written and numerical information from graphic material: tables
Follow written instructions
Understand technical vocabulary
Identify the main points from a page of text
Scan a text, table to find a specific piece of information

Develop a curriculum coverage grid

Map the literacy and numeracy outcomes for the whole set of learning notes for reading, writing, listening, speaking and numeracy

17327: Communicate on civil construction sites	6475: Maintain records for civil construction works	6469: Maintain small plant and equipment
Reading		
Recognise features of a range of texts: signs, symbols	Recognise features of a range of texts: forms : (Timesheets, Daily Job Sheets, OFI forms, Accident Reporting Form, Plant Running Sheets) procedures	Recognise features of a range of texts: check lists (Start Up Procedures checklist), forms (Maintenance Schedule)
Understand written information from graphic material: tables, drawings	Understand written information from graphic material: tables, drawings	Understand written and numerical information from graphic material: tables
Follow written instructions	Follow written instructions and procedures	Follow written instructions
Understand technical vocabulary	Understand technical vocabulary	Understand technical vocabulary
Identify the main points from a page of text	Identify the main points from a page of text	Identify the main points from a page of text
	Scan text to find a specific piece of information	Scan a text, table to find a specific piece of information
	Understand common technical and workplace abbreviations and acronyms	
	Reading Strategy – model good reader strategies using think alouds	

6475: Maintain records for civil construction works	6476: Read and interpret civil construction plans	6479: Locate and identify services
Reading		
Recognise features of a range of texts: forms: (Timesheets, Daily Job Sheets, OFI forms Accident Reporting Form, Plant Running Sheets) procedures	Recognise features of a range of texts: maps and plans, procedures	Recognise features of a range of texts: maps and plans, procedures

Introduce

Develop

Practice

3. Embed LN into the learning notes

Embedded activities for U.S. 6469:

- Recognise the features of a range of texts: tables (maintenance schedules)
- Understand written and numerical information from graphic material: tables (maintenance schedules)
- Scan a text, table to find a specific piece of information (Before work and after work inspection checks)

Embed LN into the learning notes – an example



Features of a maintenance schedule

Maintenance schedules have some common features that can help you understand them. These include:

- a table with columns and rows
- headings
- a list of items to check
- dots or other symbols to show when maintenance is needed
- a list of times when checks are needed.

Here are these features on the chainsaw maintenance schedule.

A table with columns and rows

headings

a list of times when checks are needed

Maintenance schedule - chainsaw

Parts	What to do	Before using	After each tank fill	After work
Complete machine	Visual inspection	•		
	Clean			•
Throttle trigger Control grip Safety throttle lock Stop switch Chain brake	Check operation	•		
Cutting chain	Sharpen if necessary	•	•	
Guide bar	Inspect wear and damage			•
	Clean and turn over			
	Deburr and dress			
Chain lubrication	Check	•	•	•

a list of items to check

dots or other symbols to show when maintenance is needed

How do I read a maintenance schedule?

A maintenance schedule is a type of table. Reading a table is like reading a list.

The heading in the top left corner, "Parts", starts lists in two directions. Read down the page from "Parts" to find the list of chainsaw parts that need to be checked.

Maintenance schedule chainsaw

Parts	What to do	Before using	After each tank fill	After work
Complete machine	Visual inspection	•		
	Clean			•
Throttle trigger Control grip	Check operation	•		
Safety throttle lock				
Stop switch				
Chain brake				
Cutting chain	Sharpen if necessary	•	•	
Guide bar	Inspect wear and damage			•
	Clean and turn over			
	Deburr and dress			
Chain lubrication	Check	•	•	•

The heading above the table "Maintenance schedule – chainsaw" tells what the whole table is about.

Along the top row of the maintenance schedule are more headings.

Read across the page starting at "Parts" to find out what to do and when to do checks.

Maintenance schedule – chainsaw

To find out what to do before using the chainsaw, read along the top row until you get to the heading “Before using”.

Look down the column and find the dots. A dot shows something needs to be done.

Parts	What to do	Before using	After each tank fill	After work
Complete machine	Visual inspection	•		
	Clean			•
Throttle trigger Control grip	Check operation			
Safety throttle lock		•		
Stop switch				
Chain brake				
Cutting chain	Sharpen if necessary	•	•	
Guide bar	Inspect wear and damage			
	Clean and turn over			•
	Deburr and dress			
Chain lubrication	Check	•	•	•

Maintenance schedule chainsaw

Keep one finger on the first dot, and read across the row to the left side of the page.

The first thing to do is a visual inspection of the complete machine. This just means that you make sure it looks all right.

Parts	What to do	Before using	After each tank fill	After work
Complete machine	Visual inspection	•		
	Clean			•
Throttle trigger Control grip	Check operation	•		
Safety throttle lock				
Stop switch				
Chain brake				
Cutting chain	Sharpen if necessary	•	•	
Guide bar	Inspect wear and damage			•
	Clean and turn over			
	Deburr and dress			
Chain lubrication	Check	•	•	•

What needs to be done after using the chainsaw?

- Read across the top row to find 'After work'.
- Look down the column for dots.
- Read back to the left to find out what to do for each part.
- Three parts need to be checked after work. What are they?

1.

2.

3.

You can check your answers at the end of these Learning Notes.

4. Evaluate the effectiveness of the embedded learning notes

- Analyse pre and post assessment data
- Focus groups/interviews with trainees

Part four: Challenges

1. Catering to different LN levels in the embedded learning notes

- Instructional level



Embedded activities

Challenges

1. Catering to different LN levels in the embedded learning notes

- **Independent level**

Skip through facility

Language and numbers help

The task in each yellow box will make it easy for you to decide if you need help with language and numbers. If you can do the task already, the box will say where to go next.

How much petrol and oil will you need for a 65 litre container using the 25:1 petrol to oil ratio?

If you know how to calculate this, check your answer on page 57 and go on to the next section on page 34.

If you are not sure how to calculate the mixture, read on.

Challenges

2. Reducing the demand of the learning notes

- **Instructional level**

Plain English

Vocabulary boxes

Procedures

Food for thought

Hints

Challenges

2. Reducing the demand of the learning notes

- **Instructional level**

Plain English

Challenges

2. Reducing the demand of the learning notes

- **Instructional level**

Vocabulary boxes

Word	Meaning	Example
identify	to name something or someone, to say which one it is	You can sometimes identify a service by the colour of the duct or pipe.

The first time you see the word in the Learning Notes, it will be in **bold**. For example:

Never assume you can **identify** the services without checking the services legend.

Challenges

2. Reducing the demand of the learning notes

- **Instructional level**

Procedures

Procedures

You will learn about **procedures**. A procedure is a way of doing something. To follow the procedure, you do all of the steps in the correct order. Steps of procedures are shown in green boxes.

Here is a procedure to **orient** a plan to north. A procedure is a way of doing something. This procedure has three steps. To follow the procedure, you do all the steps in the correct order.

Orient the plan to north before you use the plan to find features on the site.

Procedure to orient your plan to north

Step 1. Prepare to orient your plan to north

- a. Get the site plan
- b. Go out to the site

Step 2. Orient your plan to north

- a. Find north in real life
- b. Find north on your plan
- c. Move the plan so that the **north arrow** symbol points to north

Step 3. Check your position

- a. Match features on the plan to features on site

Challenges

2. Reducing the demand of the learning notes

- **Instructional level**

Think-Alouds (Food for thought)

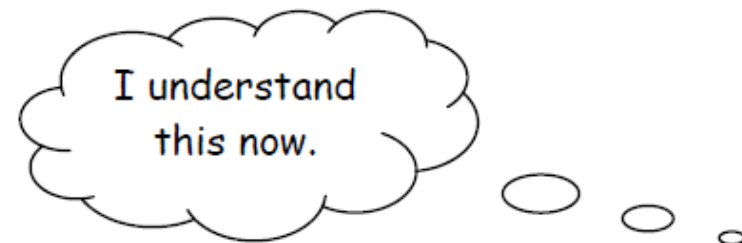
Think-Alouds (Food for thought)

Used to model the behaviour of a good reader

- Draw on background knowledge as they read
- Recognise a text's structure/organisation
- Recognise confusion

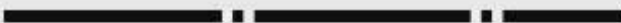
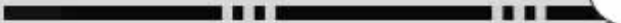


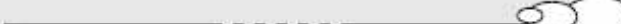
Food for thought

These thoughts give you some extra help in understanding the writer's ideas.



Now we will see what information is on the services legend.

Services legend

sewer	
water	
stormwater	
gas	
tele-communications	

All the symbols are underground services, but which is which?

I see - the number of dots between the long lines is different.

Sewer has only one dot, but telecommunications has five.

You have to look really closely to see the differences.

Look at the services legend.

What is the symbol for the water line? Draw it here.

Challenges

2. Reducing the demand of the learning notes

- **Instructional level**

Hints

Hint: Helpful hints are in gold boxes.

Hint: You say 25:1 as "twenty-five to one".

Challenges

3. Putting “Language” back into LLN

- **Controlled vocabulary**

Compleat Lexical Tutor: <http://www.lextutor.ca/>

select Vocabprofile then Classic VP English v. 3

- **Controlled grammar**

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Questions?

