

# Using materials and equipment

## Introduction to Module 4

Every area of work has its own language, tools and equipment, and there are often regional variations that complicate matters even more. Understanding and using the language of the workplace is an important aspect of learning for work. This module explores some aspects of reading specifications and drawings to identify methods, materials and equipment needed for a job. It also looks at a range of tools and equipment; their names and their uses.

In many work settings, learners will be using a range of products such as paint, preservatives and cement. Most product labels have a substantial amount of information that should be read and understood. Handling, moving and storing resources is a mandatory unit for many NVQs at Levels 1 and 2, and the module also develops skills that underpin these activities.

The module covers the following:

- the uses of a range of tools and equipment
- reading from job specifications and drawings
- handling and storing resources
- reading product labels.

The materials, tools and equipment used by learners will vary according to their work settings and chosen occupations. The materials may need to be adapted and customised using the Word version where relevant.

Skills for construction – Module 4: Using materials and equipment					
Theme	Page reference	NOS/NVQ	Literacy	Numeracy	Key Skills
Materials and tools	Co 4:1–4:2	MR04; CR02; MR80; MR138; MR270; MR377	Rw/E3.1; SLlr/E3.2; Rt/E3.9		
Reading from drawings and job specifications	Co 4:3–4:4	MR01 (05/00)	Rt/L1.5; Rw/E3.1		C1.2
Handling and storing materials	Co 4:5–4:6	PR15; FCA034	Rt/E3.3		
Reading product labels	Co 4:7–4:8		Rw/L1.1; <b>Rw/L1.3</b> ; Rw/E3.3; Rw/E3.5; Rt/E3.5; Rt/E3.6; Rt/E3.7; Rt/E3.8		C1.2

# Skills checklist

Every trade in construction uses different materials and different tools. Knowing the right tools for the job and choosing the correct materials is an important part of the work. Plans and specifications usually tell you exactly which materials to use and sometimes give the exact names of products.

If you work in a trade where commercial products such as paint and adhesives are used, you will need to read labels carefully to make sure the product is what you need and to find out how to use and store it.

You need the skills listed in the table below to find information about materials and equipment from specifications and labels. Tick the skills you feel confident about now. Complete the activities in this module to help you improve on the skills you have not ticked. Return to the list later to check any areas where you still need some practice.



Skills for using materials and equipment	Now	Later
Knowing about a range of tools and equipment		
Reading from plans and job specifications		
Handling and storing materials		
Reading product labels		

## PAGES 4:1–4:2

# Materials and tools

### Occupational setting

In the course of their work and also as part of an NVQ, learners are expected to recognise and select appropriate materials, components, tools and equipment required to undertake different tasks. It is essential that learners can recognise and name and know the uses of a whole variety of implements and supplies in common use. This theme gives strategies for finding out and remembering the names of the various items and for remembering what should be collected from the stores.

Most NVQ units will have some reference to selecting or using appropriate tools, materials and equipment for a task. A selection of these is shown, but there are many other situations where this skill is required.

### Materials

Audio equipment

Materials, components, tools and equipment needed to complete a job familiar to learners

### Learning outcomes

- 1 To recognise and understand relevant specialist key words (focus page, Task 1)
- 2 To listen for detail in instructions (focus page, Task 2)

### Suggested teaching activities

#### Introduction

- Describe a tool or material that learners are familiar with and ask them to guess what is being described and what it is used for. After a couple of examples, ask learners to take turns to describe/guess other implements and materials.
- Ask learners to identify all the things required to do a particular job that they are familiar with. List these on the board/flipchart.
- Question learners about how they acquired the knowledge of the materials, components, tools and equipment they have identified and ask

them to share their strategies for remembering the names of objects. (Sometimes they will recognise the tool for the job; sometimes know the name for it, and sometimes both.)

- How do learners remember a list of items (e.g. things that must be collected from the store)? Ask learners to share strategies. Introduce the idea of mentally going through the job and preparing a mental checklist, written list, sketches, etc.

#### Focus page 14

- Introduce the focus page and explain to learners that they are going to listen to a supervisor tiler telling a trainee about what is going to happen the following day and the tools and equipment that will be required. Play the audio clip through once for gist.
- Play the audio clip again and ask learners (as a group or in pairs) to tick off the pictures of the things they hear mentioned. Discuss findings. Play the audio clip again if necessary. Can learners name all the items in the pictures?
- Play the audio clip again and ask learners to tick off the items they hear, this time on the written list. Discuss results.
- Ask learners to write the names of the items the supervisor tells them they will need for the job under the correct picture of each item. Point out to learners that they will hear the names of items and have to match them up with their use and what they look like.
- Discuss strategies for finding out what things are called and their use. In pairs, practise asking a colleague for information.
- Organise a game of 'Kim's game' using the items necessary to complete a familiar job. Ask learners to study the items and then cover them while learners try to list what they saw. Acknowledge any strategies learners have for remembering lists of things. Include: going through a job in logical sequence and noting the items in the sequence they are used, making a written or mental checklist, drawing sketches, making spidergrams or mind maps, mnemonics.

- Ask learners to go through the job described in the audio (listen again if necessary) and, in a way that suits them, make a list of what is required to complete the job.
- Note: some tools and equipment will be known by words that are specific to a particular region or group of workers. This should be explored as appropriate to learners' experience.

Curric. refs	NOS/NVQ	Key Skills
Rw/E3.1	MR04	N/A
SLlr/E3.2	CR02	
Rt/E3.9	MR80	
	MR138	
	MR270	
	MR377	

### Task 1

Match names of tools with descriptions and pictures  
Rt/E3.9

- Remind learners of the need to use the correct tool for each job.
- Explain that the tools shown on this page are all related to brickwork. Explain the task.
- Point out to learners that they can sort these in any order and may find it easiest to work from the picture first. Remind them to use the clues in the description to match the tool to the job or to its written description.

#### *If the learner has difficulty*

- Transfer the tools, descriptions and pictures onto cards or sticky notes for learners to sort physically.
- Break down the task by taking one tool at a time. Ask direct questions about its appearance and about the tasks that it might be used for.
- If possible, have examples of the tools for learners to handle and label.

#### *Extension*

Ask learners to construct their own quiz or card game about tools they are familiar with. For each tool, a description of its appearance and/or use must be given without naming the tool.

### Task 2 15

Listen to some instructions and make a list of what is needed to do a job

Rw/E3.1

SLlr/E3.2

- Prepare learners to listen by explaining the task. Read through the list on the page first to ensure that everyone can read the items.
- Play the audio clip several times so that learners can pick out specific items and tick them off on the list.

#### *If the learner has difficulty*

- Give learners a set of labelled pictures or actual tools to select as they listen to the audio clip.
- Listening to an extended audio clip such as this may be stressful for some learners. Chunk down the task by playing one section at a time and allowing learners thinking time. Emphasise that they can listen as often as they wish.

#### *Extension*

- Give learners another set of instructions verbally and ask them to make a list (in a manner that suits them) of what is required to do the job.
- Or, give them a task from their NVQ units and ask them to decide what they need and to list all the tools and equipment they will require.

## Theme assessment

In a real-life scenario if possible, ask learners to gather all the tools and equipment needed for a task, naming the materials required and explaining their techniques for remembering a number of items and finding out about items that are new to them.

# Materials and tools

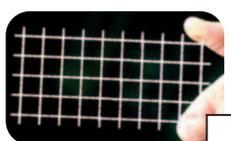
Focus

Before you start a job, you need to know what materials, components, tools and equipment to collect from the stores.



Listen to the supervisor. Tick off the items you hear mentioned.

14



Listen to the supervisor again. Tick the items on the list below as you hear them mentioned.

- battens
- bolster chisel
- latex gloves
- lump hammer
- matchsticks
- nails
- overalls
- plastic spacers
- safety footwear
- spirit level
- straight edge
- tile adhesive
- tile comb
- tile cutter
- tiles

While you listen to the supervisor again, think through the job. Write a checklist of anything else needed to complete the job.

Write the names of the items you need under the appropriate photographs above.

**Tip**

If you don't know what something is – ask!

# Materials and tools

## Task

### Task 1

Match the name of each tool below with its description and picture.

Pointing  
trowel

- 1 This is used for the rough cutting of bricks. The blade should be kept sharp. Goggles should be worn when using it.

a



Builders'  
square

- 2 This has an anvil end so that it can be used with a lump hammer to cut bricks and blocks. Goggles should be worn when using it.

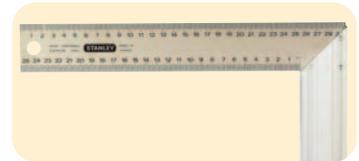
b



Bolster  
chisel

- 3 This is used with mortar to fill in and strike cross-joints on brickwork.

c



Brick  
hammer

- 4 This is used to construct right angles and to check that corners are square.

d

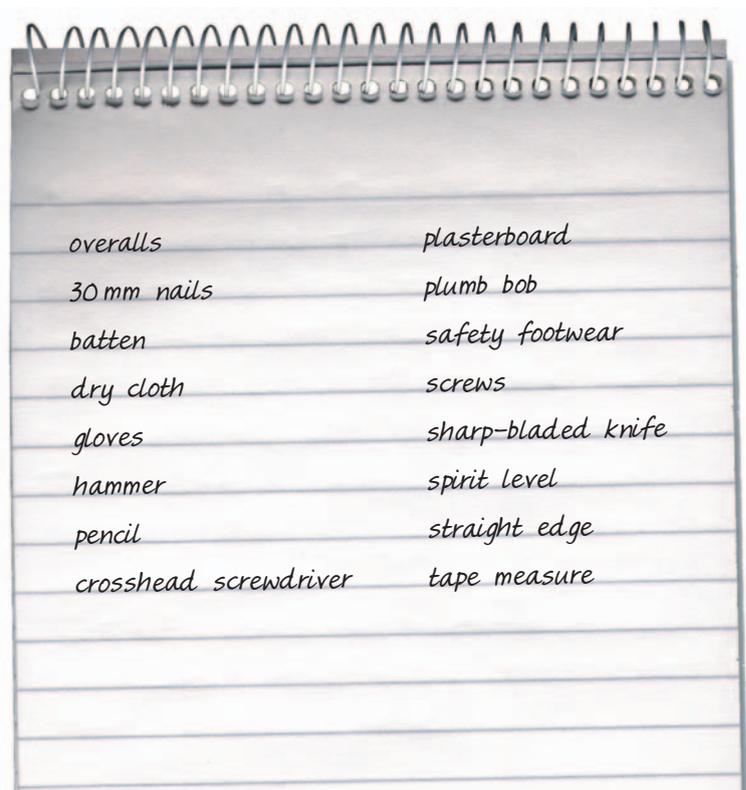


### Task 2



15

Listen to the supervisor. Tick the things on the list needed to complete the job.



## PAGES 4:3–4:4

# Reading from drawings and job specifications

## Occupational setting

The information given to builders about each job is complex. It may be on several documents and will probably include a drawing and set of specifications from the architect or quantity surveyor. Learners need to demonstrate their ability to select resources for their own occupation by referring to drawings, specifications, schedules and manufacturers' or suppliers' catalogues. This theme suggests ways to approach the difficult reading that this may involve.

## Materials

Building suppliers'/manufacturers' catalogues

Dictionary of construction terms

Glossary

Drawings for garage at 7 Oakwood Lane from the Source material (0:30)

## Learning outcome

To use a variety of reading techniques to analyse a difficult text (focus page, Tasks 1–3)

## Suggested teaching activities

### Introduction

- Show learners a range of information sources that they may encounter on site. Discuss the importance of reading job specifications and the information on drawings carefully. Share any examples where things have gone wrong because of not reading carefully.
- If learners are new to drawings showing specifications, spend some time exploring the features of this type of document and interpreting the information contained in it. Point out to learners the type of reading strategies that will help them with this task. Ask learners to share their own strategies.

### Focus page

- Make sure learners have a copy of the Drawings of the garage at 7 Oakwood Lane from the Source material. Introduce the page by getting learners to relate what is on the page to the drawing.
- Ask learners to look over the drawing to find all the parts that relate to the roof. This is the technique of *scanning*, used to find particular information without reading every word. The process involves selecting a key word (roof) and scanning the page to locate it and, if necessary, related words (e.g. tiles, rafters, ridge).
- When learners have found the parts they need (in this case, the roof), it is necessary to read in more detail. Strategies to do this might involve:
  - reading to get the gist (*skimming*)
  - reading more than once
  - creating a picture in your head or visualising from the text
  - finding out the meaning of unknown terms, words and abbreviations
  - breaking sentences into manageable chunks
  - rewording to check understanding
  - explaining to somebody else
  - highlighting or writing notes of key points.
- Support learners through these stages using the roof specifications on the page. Ask learners to highlight the key components needed for this roof (tiles, battens, felt, proprietary roof trusses, braces, straps and rafters).
- Look at the extract from the job specification at the bottom of the focus page that goes with the drawing. Using the techniques practised in the previous exercise, unravel the meaning of point 4. Relate it to the words highlighted in the previous exercise. Look up the costs of the items specified on the drawing.
- Repeat the exercise to find the parts relating to the walls and floor. In this way, learners will become familiar with the whole drawing.
- There is additional work on drawings in Module 3 Theme 8 (Interpreting plans and drawings).

Curric. refs	NOS/NVQ	Key Skills
Rt/L1.5 Rw/E3.1	MR01(05/00)	C1.2

### Task 1

Complete materials lists from specifications on a drawing

Rt/L1.5

- Make sure learners each have a copy of the Drawings of the garage at 7 Oakwood Lane from the Source material.
- Locate the information about the roofing materials with learners and explain that they need to complete the table using this information.
- Check that learners understand the headings and format of the table before they begin.

#### *If the learner has difficulty*

- Check that learners understand the format of the table, and the task.
- Refer back to some of the strategies practised in the focus page activities.
- Encourage learners to complete the parts that they can do most easily first and then return to any problem areas. By completing the majority of answers, learners may find they have limited the options for the answer that is giving them difficulty.
- Highlight key words, which will allow learners to scan for the correct piece of information. Ask questions that will allow the learner to complete the table. *Scan for the word 'treated'. Highlight it. What type of material does this refer to?*

#### **Extension**

Add a further column to the table and ask learners to find the items needed for the roof from a builders' catalogue, writing down the code in the additional column.

### Task 2

Read and interpret text, including technical details

Rt/L1.5

Rw/E3.1

- Introduce the task by explaining to learners that they need to read some information in detail in order to work out what has to be done and to list materials that will be needed.
- Ask learners to work in pairs so that they can discuss the text and work around the problems together.
- Ask learners to think about how they will interpret the meaning of unknown words. Check that they have a range of strategies and are aware of the glossary, Internet sites and reference books such as *An Illustrated Dictionary of Building* by Peter Brett.
- Point out to learners that the sketch required in question 2 does not need to be precise but should show the layers of material used for the floor.

#### *If the learner has difficulty*

- Read through the text with the learner and identify the general gist and setting. Learners who are not familiar with this aspect of construction may need more time to put this into context.
- Highlight any new technical language. Discuss learners' strategies for interpreting language and check that these are effective. Learners may use context to predict language but a more exact approach will be needed for some of the language here. Support learners to use reference sources. This may be particularly relevant for dyslexic learners.
- Encourage learners to establish a notebook of useful terms.
- Once learners have interpreted the text, tackle one question at a time.

#### **Extension**

Ask learners to describe a specific job that they know well to a partner or to write it down as a specification. Their partner has to identify the materials needed to complete the task.

## Theme assessment

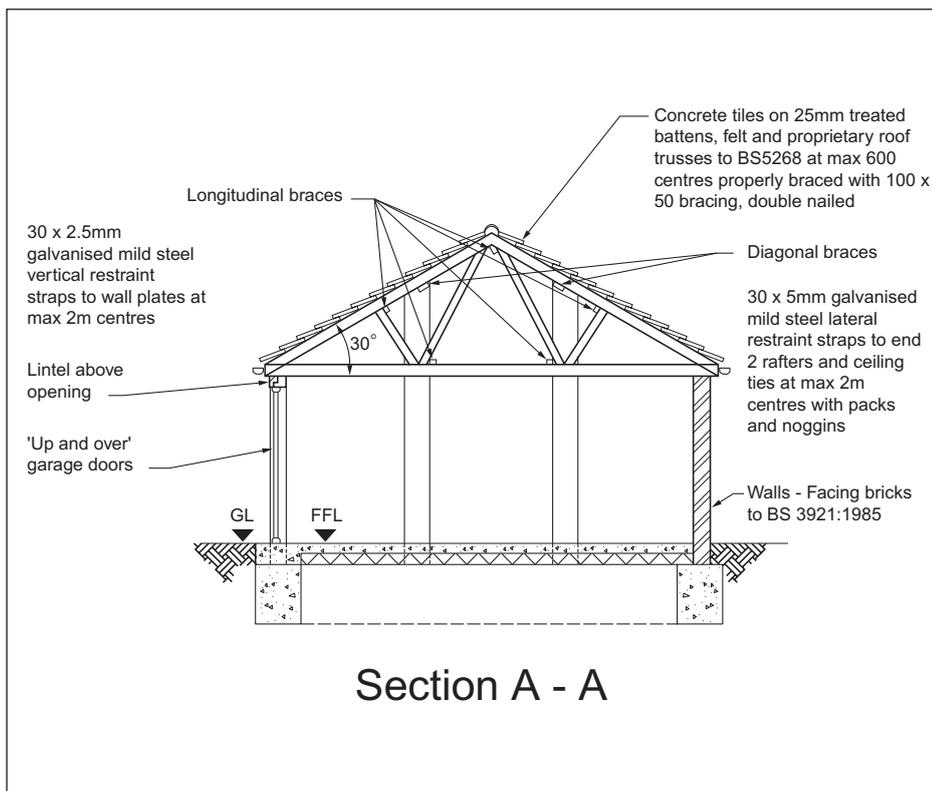
Use a range of job specifications for relevant workplace settings. Ask learners to list materials and to identify them in a catalogue.

# Reading from drawings and job specifications

## Focus

Drawings and specifications contain a lot of vital information about the job, including:

- the overall design and measurements
- detailed information about how the job should be done
- detailed information about materials and components.



### Tip

Try these strategies when you have to read complicated information.

- Read it quickly to get the gist.
- Break the sentences up into manageable chunks.
- Read it more than once.
- Think about it in your own words.
- Try to picture it in your head.
- Find out the meaning of unknown terms, words or abbreviations.
- Explain it to somebody else.
- Write notes of key points.

### Specifications for proposed garage at 7 Oakwood Lane

- 1 This specification relates to a contract between the clients, Mr and Mrs Green, and the builder, NTS Construction.
- 2 The builder will obtain an NHBC certificate.
- 3 Time will be of the essence of the contract and the builder will start work on 15/3/06.
- 4 The term prime cost will mean the list price of such goods published in the supplier's catalogue. Cost also includes supplier's charges for delivery.

# Reading from drawings and job specifications

## Task

### Task 1

You will need the drawing of the garage at 7 Oakwood Lane from the Source material.

- 1 Complete the following list of components needed for the roof.

Component	Description of material	Size
tiles	concrete interlocking	Not specified
battens	treated	
felt	n/a	Not specified
proprietary roof trusses		Not specified
	n/a	100 × 50
lateral restraint strap	galvanised mild steel	
vertical restraint strap	galvanised mild steel	

- 2 Make a list of the bricks needed for the walls.

Component	Description of material	Size
facing bricks		Not specified
	Class B	Not specified

### Task 2

Look at the section from a specification below. Discuss what it means with a partner, checking any words you are unsure of.

FLOOR. Screed or tiles on 100 mm concrete slab on 1200 gauge polythene on 35 mm EPS floor insulation on sand blinding and consolidated stone fill. Edge insulation at perimeters.

#### Tip

Look up any unfamiliar words in the glossary. Ask your teacher if you are still unsure.

- 1 Make a list of the materials you need
- 2 Draw a sketch showing the different layers in this floor.

## PAGES 4:5–4:6

## Handling and storing materials

## Occupational setting

Storing and stacking materials is a job often allocated to trainees on site; however, incorrect storage will damage some materials, costing time and money. Unit FCA034 of the Foundation Certificate in Building Craft Occupations (FCIBCO) stresses the need to store, stack and protect materials and components correctly. This theme uses this requirement to practise reading and understanding instructions. It identifies some of the features of written instructions so that learners can recognise and interpret them effectively. Additional materials about materials and equipment can be found in the CITB FCIBCO support materials.

## Materials

Relevant written instructions from the workplace  
Storage guidelines from the Source material (0:31)  
Highlighter pens

## Learning outcome

To recognise and understand the organisational features and typical language of instructional texts (focus page, Task 1)

## Suggested teaching activities

## Introduction

As a group or in pairs, look through some workplace instructions, including the Storage guidelines from the Source material. Try to pick out the features they have in common. How do learners recognise instructions when they are written down? List features on the board/flipchart (e.g. use of imperative; use of words such as 'do', 'do not'; use of second person; shortened sentences; use of illustrations; bullet points, numbering). Acknowledge prior knowledge.

## Focus page

- Ask learners to look at the text on the page in pairs (a full-sized version of which is in the

Source material) and to find all the instructions. Discuss as a whole group and ask learners to explain how they recognised the instructions they found.

- Use the 'footsteps' on the page to point out the different features of instructions one by one. For each footprint, find more examples on workplace documents.
  - **Imperatives:** ask learners to highlight all the words that tell them what to do ('store', 'use', 'handle', 'keep', 'cover'). Ask them to put the phrase 'You must' in front of each to check for sense. Look in more detail at positive and negative examples ('must'/'must not', 'do'/'do not', 'should'/'should not').
  - **Conditionals:** 'if', 'but', 'when'. Explain that these forms are often used when one action follows another or when certain conditions apply. Give examples of this from the workplace.
  - **Adverbs:** 'always', 'never', 'under no circumstances', 'at all times'.
  - **'And', 'or'** tell you that there are two or more instructions in a sentence.
- Use illustrations to clarify understanding. Use the photograph to refer back to the cement stack, which should also be 'dry bonded'.
- Discuss specialist vocabulary and abbreviations.
- Check the number of instructions again.

Curric. refs	NOS/NVQ	Key Skills
Rt/E3.3	PR15 FCA034	N/A

## Task 1

Complete a comprehension based on Source material

Rt/E3.3

- Ensure learners each have a copy of the Storage guidelines from the Source material. Remind learners to use the techniques discussed on the focus page to interpret the instructions.
- Go through the first question to ensure learners understand the method of recording their answers.

***If the learner has difficulty***

- Read through the items in the Source material and ask learners to visualise the materials and their storage conditions.
- Support learners by giving them key words to scan for when locating answers.
- Some learners may find it easier to record the answers in a table with the components and materials listed vertically and the storage conditions horizontally. Learners can tick each item in the instructions.
- Some learners will understand the terms vertical and horizontal but will get the labels confused. A technique for unscrambling this may be needed – perhaps linking with ‘down’ and ‘across’ or ‘up and down’ and ‘back and forth’.

***Extension***

Ask learners to find out how sand and aggregates should be stored and to report back to the rest of the group. Ask them to use instruction formats with ‘Dos and Don’ts’ and numbered or bullet-pointed items, etc.

**Theme assessment**

In the workplace, ask learners to follow the written instructions to stack:

- cement
- bricks
- pipes
- timber.

# Handling and storing materials

Focus

Instructions on handling and storing materials may be written down in company guidelines or method statements. How many instructions are there in these company guidelines about storing cement and bricks?

Look out for and follow up these clues.

# BBC

## The Bright Building Company

### STORAGE GUIDELINES

#### Storage of materials

**Store** all materials and components on flat surfaces.

#### Cement

- **Use** in strict rotation. Remember: 'first in, first out'.
- **Handle** bags with care to avoid splitting the paper.
- During storage, cement **must** be kept dry. Do not allow it to become damp as it will set.
- **If** possible, store in a well-ventilated room.
- **When** stored outdoors, cover with a plastic sheet.
- **Always** store off the ground on a pallet.
- To make them easy to reach and prevent compacting, bags should **never** be stacked more than 10 bags high **and** the stack should be bonded to prevent it from falling over.

#### Bricks

Loose bricks should be stacked, dry bonded, to avoid the stack collapsing.



#### Sheet materials

(e.g. plasterboard, plywood)

- Store in warm, dry place.
- Stack flat on timber cross bearers.
- If stored on edge, use vertical racks.
- Never lean against a wall.

#### Lengths of timber

- Store horizontally, off ground.
- Use cross bearers to allow air to circulate.
- Protect timber against the weather. Use covered racks or cover with waterproof sheeting.

#### Materials stored in containers

(e.g. paint, glue)

- Store in dry conditions on shelves.
- Maintain an even temperature of 15°C.
- Always make sure lids are fastened securely.
- Check 'use by' dates regularly.

#### Boxed or packet items

(e.g. screws, nails)

- Store in dry conditions on shelves or racks.
- Keep dry.

#### Pipes

- Stack flat.
- Ensure bottom row is on cross bearers.
- Always place wedges or chocks against the bottom row.

#### Command

**words** tell you that you are reading instructions.

Words like **must** and **must not**, **do** and **do not** make it clear what should and should not be done.

Words like **always** and **never** warn you about what should and should not be done.

Words like **if** and **when** tell you what to do in certain circumstances.

The words **and** and **or** tell you that there may be more than one instruction in the sentence.

Pictures and diagrams help make the instructions clear.

What does 'dry bonded' mean? Draw a sketch.

#### Tip

If something still puzzles you:

- ask a colleague
- look it up in a dictionary or glossary.

# Handling and storing materials

**Task****Task 1**

Use the Storage guidelines from the Source material to answer the following questions.

1 Name three types of building material that should be stored on cross bearers.

---

---

---

2 Name two types of building material that should be stored on shelves.

---

---

3 Name three types of building material that should be stored in dry conditions.

---

---

---

4 Describe two ways in which timber can be protected against the weather.

---

---

5 Name two things that can be used to stop pipes from rolling.

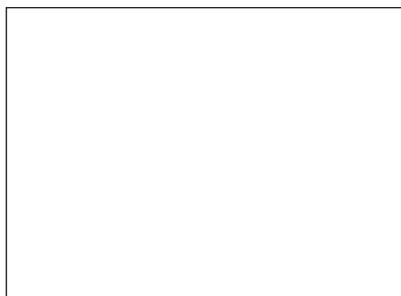
---

---

6 Draw a vertical line below.



7 Draw a horizontal line below.



8 Draw a wedge below.



## PAGES 4:7–4:8

# Reading product labels

Many people are unaware of the hazards and risks associated with using everyday products such as cement. Everyone involved in using materials must read and understand product labels – for their own safety and the safety of others. The term ‘label’ includes any leaflets or advisory information associated with the product. This theme looks at the use of format in reading labels and a range of strategies for confirming the meanings of words and abbreviations found on labels.

### Materials

Cement label from the Source material (0:32)

Quicksett label from the Source material (0:33)

Product labels familiar to learners

Dictionaries

Glossary

On-line resources

### Learning outcomes

- 1 To practise finding the meaning of words by analogy (focus page, Task 1)
- 2 To check for meaning using reference sources (focus page, Task 1)
- 3 To navigate a label using format (focus page, Task 2)
- 4 To practise finding information (focus page, Task 3)

### Suggested teaching activities

#### Introduction

- Ask learners how the way a label is set out can help to navigate it. Write on the board/flipchart ways in which accessing information can be made easier (capital letters, bullet points, different colours, different style or size of print, use of bold/italic/underlining, space between different areas of the label).
- Ask learners about their existing strategies for working out the meaning of unknown words, especially technical vocabulary. Expect: dictionary, glossary, asking someone, working it out (or guessing).
- Acknowledge that there are many valid strategies for understanding words and therefore the information on the label. Point out the possible dangers of ignoring unfamiliar words/phrases.
- Look at some examples of product labels. Confirm that the vocabulary is complex and contains many technical words. No one is expected to know all these words, but it is important to work out what they mean.

#### Focus page

- Look at the Cement label from the Source material, also shown on the focus page. Discuss these main points in the context of this and other product labels if available.
  - **Using format:** to demonstrate how differences in print style and the like can draw attention to different parts of the label, challenge learners to find particular pieces of information as quickly as possible (e.g. *What is the fifth piece of safety advice? What is the standard mix for mortar?*)
  - **Looking up words:** discuss where the meanings of words might be found – dictionary, glossary, website, specialist books. What is the most appropriate place to find a specialist word used in the right context? A glossary will direct you to a word in your given area whereas a dictionary will include all uses and meanings of a word, some of which will not be relevant to a particular vocational area. Discuss the fact that some words take on a different meaning in different contexts (e.g. rendering).
  - **Predicting the meaning of words:** this is a way of working out meaning by using the context of the text (i.e. ‘crater’ is likely to have a different meaning depending on whether you are talking about volcanoes or mixing concrete), finding similar patterns in words (e.g. sensitive, sensitisation) and using prefixes and suffixes in combination with root words. Demonstrate replacing a difficult word with a more easily understood word: *Does ‘begin’ fit in instead of ‘commence’? Will the word ‘more’ replace the word ‘additional’?*

- **Abbreviations and acronyms:** use initial letters as clues, looking up meanings in specialist books, websites, etc. Use a card-matching game to practise matching abbreviations to their meaning.
- Acknowledge that not all words need be memorised, although some will be vital to the vocational area. Encourage learners to develop a personal glossary in an alphabetically indexed note book to record important words and their meanings.
- Stress that knowing where and how to access information is an important skill.
- Demonstrate dividing words into parts in order to pronounce them, for example con/sis/ten/cy, ad/he/sion.
- As a group, get learners to highlight areas of difficulty in one section of the label and then support them to apply the techniques above to improve overall understanding.
- As a group, investigate the properties of the chemicals on the label, using as many sources as possible. In pairs learners could access the Internet, dictionary, glossary, etc. and report back their results to the rest of the group.
- Make some cards with parts of common chemical names for learners to match to form genuine names.

Curric. refs	NOS/NVQ	Key Skills
Rw/L1.1	N/A	C1.2
<b>Rw/L1.3</b>		
Rw/E3.3		
Rw/E3.5		
Rt/E3.5		
Rt/E3.6		
Rt/E3.7		
Rt/E3.8		

### Task 1

Use a range of strategies to interpret technical language

Rw/E3.3

Rw/E3.5

- Make sure learners each have a copy of the Quicksett label from the Source material.
- Begin by asking learners what they think the product is for.
- Remind learners of techniques for working out the meanings of words, as discussed on the focus page.

### *If the learner has difficulty*

- Ask learners how they cope with unknown language. Utilise any effective strategies they have already. Try to replace strategies that they have learned incorrectly or that are ineffective. Work from learners' strengths by listening and observation.
- Read the words with the learner separately and also in context. Ask learners to use their knowledge of the product and the context to try to predict the meaning of the words. Use other examples if they support this strategy (e.g. This car accelerates well, it really shifts.)
- Some learners may have difficulty using dictionaries or glossaries. Use this opportunity to support them with this skill. Encourage them to keep a notebook with useful words and their own definitions. (A page at the back of their NVQ folder could also be used.)

### *Extension*

Using a product data sheet (obtainable on-line), ask learners to highlight information that is difficult to access or technical language that is unknown and use strategies to interpret these. Ask learners to reflect on the processes they use.

### Task 2

Locate information using headings and read for comprehension

Rt/E3.5

Rt/E3.6

Rt/E3.7

Rt/E3.8

- Remind learners of the discussion on the focus page about format and point out that headings can be used to locate information quickly.
- Remind learners that headings can be in bold or capital letters.

### *If the learner has difficulty*

- Check learners understand the style and purpose of headings. Encourage them to practise scanning for headings and titles, using other materials if necessary.
- Discuss the information that they would expect to find under the headings.
- Take one question at a time. Chunk it down by asking the learner to find the heading first. When the correct location has been found, tackle the question. Try to ascertain whether it is the scanning or the detailed reading which is

creating most problems. Additional support may be needed for learners who have weaker reading skills.

- In order to answer question 2, learners will probably have to enter the abbreviation into an Internet search engine such as Google.

#### **Extension**

Using a product data sheet (obtainable online), ask learners to locate specific information using headings.

### **Task 3**

Investigate a chemical found in a concrete accelerator

Rw/L1.1

- Ask learners to find 'calcium chloride' on the label.
- Ask them to use reference sources or the Internet to find out more about this chemical under the following headings:
  - What is calcium chloride?
  - What is it used for in construction products?
  - How can it be harmful?
  - How can you prevent it harming you?

#### **If the learner has difficulty**

- Learners may be daunted by the chemical name. Familiarise them with this by frequent use in your questioning.
- Learners who had difficulty with Tasks 1 and 2 will need additional help with this task. Restrict them to using the information on the Quicksett label in the Source material. Ask one question at a time and support learners to scan for the correct location and to read carefully.
- You may need to provide support in interpreting technical language.

#### **Extension**

- Ask learners to present their findings on a poster or to give a short talk, explaining what should be done if this substance is swallowed or gets in a person's eyes.
- Use this as a focus for teaching some basic first aid relating to the topic.

### **Theme assessment**

- Ask learners to find out about a product on their own work site.
- Play a '20 questions' quiz, in which learners have to identify a product by asking questions that you can only answer with 'yes' or 'no'.

# Reading product labels

Focus

For your own safety and the safety of others, you should *read* and *understand* the whole label before using any product.

Remember!  
A leaflet can be  
part of a label.



**CEMENT**  
THE PROFESSIONALS' CHOICE

A superior quality product that ensures performance every time

---

**USAGE INSTRUCTIONS**

- For mixing concrete or mortar you will need a clean flat surface, a shovel and a water supply – you may also require a wheelbarrow. For large projects a cement mixer is recommended.
- An approximate mixing guide for making concrete or mortar with sand, gravels or ballast in proportion to the cement is given below.
- For concrete:** Mix thoroughly the sharp sand and gravel (or just ballast) together with the right proportion to the cement on the board, then make a crater in the dry pile.  
**For mortar:** Mix thoroughly the building sand together with the right proportion of cement on the board, then make a crater in the dry pile.

- Add water to the crater and mix thoroughly and evenly until the required consistency is reached.
- Concrete hardens because cement and water react together chemically. Freshly placed concrete should be protected against strong sun, wind and rain by covering. Do not commence laying concrete in frosty conditions.
- If you are laying bricks, blocks or rendering, dampen the surface to which the mortar is being applied. This will improve adhesion.
- After completing the work, wash all tools with clean water.

---

**MIXING GUIDE**

The amount of water required will vary for each type of job and material used, an approximate guide for 25 kg of Cement is 12½ – 15 Litres (suggested starting rate 10 Litres). Additional water may be added to obtain the correct consistency and workability for your job.

**TOO MUCH WATER WILL WEAKEN THE MIX.**

GENERAL PURPOSE CONCRETE 1 part cement:2 parts sharp sand:3 parts gravel  
OR 1 part cement:4 parts ballast

CONCRETE PAVING/DRIVEWAYS 1 part cement:1½ parts sharp sand:2½ parts gravel  
OR 1 part cement:3½ parts ballast

MORTAR (standard mix) 1 part cement:5–6 parts building sand  
OR (strong mix) 1 part cement:3–4 parts building sand

A (MORTAR PLASTICISER) IS REQUIRED OR AN ALTERNATIVE 1 PART (HYDRATED LIME)

CEMENT BS EN197-1-CEM1 42,5N

---

	<p><b>HEALTH AND SAFETY ADVICE</b></p> <ul style="list-style-type: none"> <li>May cause sensitisation by skin contact.</li> <li>Risk of serious damage to eyes.</li> <li>May cause irritation, dermatitis or burns.</li> <li>Avoid eye and skin contact by wearing PPE.</li> <li>Avoid breathing dust.</li> <li>On contact with eyes and skin, rinse immediately with plenty of cold water.</li> <li>Seek medical advice after eye contact.</li> <li>Keep out of the reach of children.</li> </ul>	<p><b>PRODUCT HELPLINE</b> 0800 1234567 MON-FRI 9AM-5PM</p> <div style="text-align: center;">  <p><b>IRRITANT</b></p> </div>
---	--	---

Find your way around the label using the:

- CAPITAL LETTERS
- bullet points
- different colours
- different styles of printing
- different sizes of printing.

You can use the other words in the sentence to help you work out the meaning of a word, e.g. when you read **Add water to the crater** you can guess that a crater is the hollow you make in the middle of the pile that you add the water to.

You can work out the meaning of words from your knowledge of other, similar, words. **Adhesion** is similar to 'adhesive'. Adhesive is something that sticks things together, so adhesion might have something to do with stickiness. You can check this by putting 'stickiness' in place of 'adhesion' to see if it makes sense.

Use a dictionary to check the meaning of a word.

Look up **technical words**, such as the names of chemicals, in a specialist glossary or on a specialist website.

You may be able to work out abbreviations. You can also check them in a specialist glossary or specialist dictionary.

**PPE** = **P**ersonal **P**rotective **E**quipment

# Reading product labels

## Task

You will need the Quicksett label from the Source material for these tasks.

### Task 1

- Find these words on the label and write your own meaning in the table.
- Check your meanings by looking up the words. Add the dictionary or glossary definitions to the table.

#### Tip

Choose:

- a dictionary for an everyday word
- a glossary or specialist dictionary for a technical or specialist word.

If you don't know the meaning for sure, then ASK.

Words	Meaning	Dictionary/glossary definition
accelerates		
gauging water		
impervious		
data		
aggregate		

### Task 2

Find the headings below on the Quicksett label and answer the question.

- HEALTH AND SAFETY INSTRUCTIONS:** If you splash the product in your eyes, for how long should you wash your eyes with clean water? \_\_\_\_\_
- SPECIFICATION TYPE:** What does ASTM stand for? \_\_\_\_\_
- WATCHPOINTS:** How many things must you *not* use Quicksett with? \_\_\_\_\_
- STORAGE:** What is the storage life of Quicksett? \_\_\_\_\_
- DOSAGE:** What is the highest amount you should use in 100 kg of cement? \_\_\_\_\_

### Task 3

Find out about calcium chloride.

#### Tip

Use a specialist dictionary, search the Internet or ask a colleague.

# Check it

Please note that copies of the following pages of Source material are needed: 0:30, 0:31, 0:32

1 What tool is being described here?

- A a wheelbarrow
- B a brick hammer
- C a bolster
- D a hawk

This tool is used for carrying mortar when you are pointing.

Rt/E3.9

2 Look at this photo of a tool. What is it used for?

- A checking the distance between two places
- B constructing right angles and checking that corners are square
- C checking the height of brickwork
- D removing nails from wood



Rt/E3.9

Use the drawing for the Garage at 7 Oakwood Lane from the Source material (page 0:30) to answer questions 3 and 4.

3 What thickness does the concrete floor need to be?

- A 1200 gauge
- B 600 mm
- C 150 mm
- D 300 mm

Rt/L1.5

4 How far above the ground does the damp course need to be?

- A 10 mm
- B 150 mm
- C 25 mm
- D 750 mm

Rt/L1.5

Use the Cement label from the Source material (page 0:32) to answer questions 5-7.

5 Why should you dampen the surface of bricks and blocks?

- A to cool down the bricks and blocks
- B to clean the bricks and blocks
- C to stop the mortar sticking
- D to improve adhesion

Rt/E3.8

6 Why does concrete harden?

- A because cement and water react together chemically
- B because the sun dries it out
- C because sand and water react together chemically
- D because the wind dries it out.

Rt/E3.8

- 7 How many parts of building sand should you mix with one part of cement to make a standard mortar mix?
- A 3-4
  - B 5-6
  - C 4
  - D 7

Rt/E3.8

Use the Storage guidelines from the Source material (page 0:31) to answer questions 8-10.

- 8 Which materials should never be stored by leaning them against the wall?
- A pipes
  - B bricks
  - C sheet materials
  - D boxed or packed items

Rt/E3.3

- 9 Which materials should be stored at an even temperature?
- A pipes
  - B boxed or packed items
  - C materials stored in containers
  - D lengths of materials

Rt/E3.3

- 10 What is the maximum number of bags high that bags of cement can be stacked?
- A 10
  - B 11
  - C 12
  - D 13

Rt/E3.3

# Audio

## PAGE 4:1

### Materials and tools

#### 14

Right, that's all the preparation done. So tomorrow we'll be bedding the tiles and you'll need to make sure we've got everything we need. We'll have to fix battens as a guide so we'll need nails to fix them and a spirit level to check the levels. I'll show you how to spread the adhesive with a tile comb. We'll use plastic spacers between the tiles. We'll need a damp cloth to wipe off any adhesive that gets onto the tiles, to keep it tidy. I'll see you in the morning. Some of this adhesive can be terrible stuff you know, so you'll need protection for your hands.

## PAGE 4:2

### Task 2 15

You need to make sure you've got all the tools and equipment you need to fix plasterboard to a wooden frame plus all the usual PPE: overalls, safety footwear and gloves. Number one – don't forget the plasterboard! Think about how you are going to measure it – you'll need a tape measure – and how you are going to mark it off – you'll need a straight edge. Then you'll need something to score the paper with – a sharp-bladed knife – and a batten to put under the score mark so you can snap the board neatly. To fix the plasterboard to the frame you'll need enough 30 millimetre nails to space them about 300 millimetres apart and at the corners. Don't forget your hammer!

When you've done that we'll do the next room – we've got to fix it to a metal frame in there.

# Answers

## PAGES 4:1–4:4

### Materials and tools

#### Focus page



Other items needed:  
tile cutter, cloths

#### Task 1

	Description	Photo
Pointing trowel	3	d
Builders' square	4	c
Bolster chisel	2	a
Brick hammer	1	b

#### Task 2

*overalls* ✓  
*30 mm nails* ✓  
*batten* ✓  
*dry cloth*  
*gloves* ✓  
*hammer* ✓  
*pencil*  
*crosshead screwdriver*

*plasterboard* ✓  
*plumb bob*  
*safety footwear* ✓  
*screws*  
*sharp-bladed knife* ✓  
*spirit level*  
*straight edge* ✓  
*tape measure* ✓

## PAGES 4:3–4:4

### Reading from drawings and job specifications

#### Task 1

1

Component	Description of material	Size
tiles	concrete interlocking	Not specified
battens	treated	25 mm
felt	n/a	Not specified
proprietary roof trusses	BS 5268	Not specified
bracing	n/a	100 x 50
lateral restraint strap	galvanised mild steel	30 x 5 mm
vertical restraint strap	galvanised mild steel	30 x 2.5 mm

2

Component	Description of material	Size
facing bricks	BS 3921:1985	Not specified
engineering bricks	Class B	Not specified

#### Task 2

1

##### Materials needed

Tiles (or materials for screed – unspecified quantity)  
 100 mm concrete slab  
 1200 gauge polythene  
 35 mm EPS floor insulation  
 Edge insulation

In addition you may list materials needed for filling, such as stone, sand etc.

2 Show your sketch to your teacher

## PAGES 4:5–4:6

### Handle and store materials

#### Task 1

1 plasterboard, plywood, lengths of timber, pipes  
 2 paint, glue, packets of screws, packets of nails  
 3 cement, paint, glue, timber, screws, nails, plasterboard, plywood

4 Use covered racks or cover with waterproof sheeting.

5 wedges or chocks

6 |

7 —

8 

PAGES 4:7–4:8

## Reading product labels

### Task 1

**accelerates** – makes faster

**gauging water** – the amount of water in a mix

**impervious** – waterproof

**data** – information

**aggregate** – a filler material used in mortar and concrete mixes

### Task 2

1 10–15 minutes

2 American Society for Testing Materials

3 2

4 minimum of one year (if stored at normal temperatures)

5 10 litres

### Task 3

You may have found out some of these things about calcium chloride:

- Used to melt snow and ice and to keep it from refreezing
- colour: white
- appearance: crystalline solid
- melting point: 782°C
- boiling point: >1600°C
- density: 2150 kg m<sup>-3</sup>
- May be harmful if swallowed.
- Harmful to the eyes – goggles should be worn when using it.

### Check it

1 D

2 B

3 C

4 B

5 D

6 A

7 B

8 C

9 C

10 A