LEARNING & ASSESSMENT KIT SAMPLE

FSK20113 Certificate II in Skills for Work and Vocational Pathways

Includes:

- Learners Workbook
- Marking Guide with Mapping
- Assessment Record Tool

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LEARNER'S WORKBOOK

FSK20113

CERTIFICATE II IN SKILLS FOR WORK AND VOCATIONAL PATHWAYS

Cluster 5:

FSKNUM14 Calculate with whole numbers and familiar fractions, decimals and percentages for work

FSKNUM15 Estimate, measure and calculate with routine metric measurements for work

Student name: _____

Date submitted: _____

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Introduction

Welcome to the course for Certificate II in Skills for Work and Vocational Pathways! In this course you will complete the following units:

- BSBWHS201A Contribute to health and safety of self and others
- VU20007 Prepare for employment
- VU20008 Develop an action plan for career planning
- VU20009 Participate in job seeking activities
- FSKLRGG07 Use strategies to identify job opportunities
- FSKLRG11 Use routine strategies for work-related learning
- FSKOCM07 Interact effectively with others at work
- BSBCMM201A Communicate in the workplace
- FSKLRG09 Use strategies to respond to routine workplace problems
- FSKRDG10Read and respond to routine workplace information
- FSKWTG09 Write routine workplace texts
- FSKDIG03 Use digital technology for routine workplace tasks
- FSKNUM14 Calculate with whole numbers and familiar fractions, decimals and percentages for work
- FSKNUM15 Estimate, measure and calculate routine metric measurements for work.

The units have been placed into groups (called 'clusters') for training and assessment purposes. This cluster is called 'Working with numbers' and covers these units:

- FSKNUM14 Calculate with whole numbers and familiar fractions, decimals and percentages for work
- FSKNUM15 Estimate, measure and calculate routine metric measurements for work.

The Learner's Workbook

You will receive a Learner's Workbook for each cluster (this booklet). Your Learner's Workbook contains information about the topics covered in the course and a variety of different activities. The Learner's Workbook activities will form part of your assessment. You must make sure you complete all of the activities to the best of your ability. If you need help with any of the activities, make sure you talk to your trainer straight away!

The other assessments for this cluster can be found at the back of your Learner's Workbook. You must submit your Learner's Workbook in order to be assessed for Assessment Task 1.

Please make sure you complete your agreement to the assessment plan on page 5 of this Workbook page before submitting your assessments.

You will also need to complete an Assessment Task Cover Sheet for each assessment. Your trainer/assessor will give you these sheets before you start your assessments.

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Chapter 1 – Working with numbers

Why do we need to use mathematics and numbers?

Mathematics, or maths, is a major part of life. We use numbers many different times during our day-to-day activities, often without even realising it.

Science and technology is based around maths. Mathematic problems use a form of problem solving – sometime you need to complete small problems to get the final figure.

Think about your computer, your mobile phone and other devices you use. The programming behind these are based on work created by mathematicians. Numbers and maths are everywhere around you.

Activity 1

Write down five times that you would use maths and numbers in your day-to-day activities.

Activity 2

Your trainer/assessor will give you a document to read. Go through the document and circle all of the references to maths and using numbers.

Maths in the workplace

It is important to have maths skills at work – depending on the job you choose, maths may be a main part of the work you do. For example, people who work in the construction industry need to know maths so they can take measurements, add up how many supplies they will need to do a job, mix materials like concrete, mortar and so on. Other workplaces may need you to order items, give change to customers, work out budgets and so on.

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Activity 3

Think about how someone would use maths in their work activities. Write down three examples and the job the person would be doing.

Whole numbers

Whole numbers are simply 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 and so on. A number is not a whole number if it has a decimal point, for example 10.5 is not a whole number.

Integer

An integer is also a whole number, but it includes negative (or minus) numbers. For example, –1, –2, –3, –4, –5 and so on.

Zero

Zero is used as a 'placeholder' in the number system. Zero is referred to as an even number and is not negative or positive. Zero means nothing – a bag with 0 items in it means that it is empty.

Zero, when used in basic mathematical operations will generally not change the whole number used. For example:

30 + 0 = 30

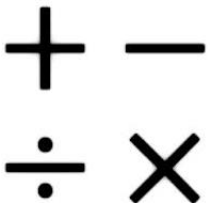
20 – 0 = 20

10 × 0 = 10

However, you cannot divide a whole number by 0. Try it with a calculator! You may get this symbol ∞ which means 'infinity'.

Zero's placeholder status will be made clearer when you look at the place value system, which will be discussed later.

Mathematical operations



You may have heard about mathematical operations before. Common mathematical operations are:

- \+ Plus/addition
- – Minus/subtraction
- ÷ Obelus/division
- × Times/multiplication

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Decimals to percentages			
.32		.086	

Decimals to fractions			
0.75		.25	

15. Round these numbers to two decimal places.

90.8643 _____ 335.419 _____

20.2525 _____ 100.0749873 _____

16. Round 45.597 to the nearest:

One hundred _____ Ten _____

One _____

17. Complete the following calculations with fractions. Simplify them where necessary.

$\frac{1}{3} + \frac{1}{3}$ _____

$\frac{5}{6} - \frac{2}{6}$ _____

$\frac{11}{12} - \frac{6}{12} - \frac{4}{12}$ _____

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Assessment Task 3 – Measurements

Resources required:

- Access to a computer
- The Internet
- Pen and paper.
- Classroom materials such as handouts, flash cards, etc

Student instructions:

In this task you will be given a variety of short activities to complete to demonstrate your understanding of what you have learned about measurements.

Task A: Measurements at work

Pick a job that you would like to do in the future. Write down what it is.

Write down the types of measurements you might come across or have to make as part of this job.

What types of measurement tasks might you have to complete as part of this task?

You will need to present your answers to these questions to your classmates in a short presentation (no more than 3 minutes).

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MARKING GUIDE

FSK20113

CERTIFICATE II IN SKILLS FOR WORK AND VOCATIONAL PATHWAYS

Cluster 5:

FSKNUM14 Calculate with whole numbers and familiar fractions, decimals and percentages for work

FSKNUM15 Estimate, measure and calculate with routine metric measurements for work

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Introduction

The following is to be used as a guide to marking the assessment tasks required for this cluster. Inside this document, the tasks as well as sample/benchmark answers are provided. This document also includes a guide to the assessment process. Trainers/assessors should also refer to the following documents:

- Mapping documentation for this unit
- Assessment Record Tool for this unit.

This cluster is assessed in the following ways:

- Answering all questions in the Learner's Workbook
- Completing a range of mathematical tasks
- Completing a range of measurement tasks
- Completing a two-part project.

Students must complete all assessment tasks satisfactorily in order to achieve competency in the units in this cluster.

Guide to assessment

Assessment Tools

We have developed a range of comprehensive assessment tools that assessors are required to use to guide their assessment decisions as well as document the decision process and outcomes. These tools include the following:

- Marking Guide – includes a guide to assessors about acceptable answers to the assessment tasks as well as a guide to assessors on the process of assessment.
- Mapping of assessment tasks to the unit requirements.
- Assessment Task booklet – a booklet for the student that contains their assessment tasks.
- Assessment Record Tool – used by the assessor to record the decision making process.

Training & Assessment Strategies

Each course has a training and assessment strategy which outlines the assessment tools that are to be used in the assessment of each course. All assessors are given a copy of the Training & Assessment Strategies related to the courses which they assess. Assessors must ensure they work within the parameters and guidelines of the Training & Assessment Strategy and identify any areas that may need improvement or updating as they become aware of them.

Assessment Process

Students must complete the tasks provided and submit each one on the due date prescribed by the assessor (if applicable).

The assessor should use the Assessment Record Tool to record the assessment decision for each task. The Record of Assessment Outcomes on the final page of the Assessment Record Tool should be completed by the assessor and then signed and dated by both the assessor and the student.

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Assessment Task 1: Workbook activities

Instructions to the trainer/assessor:

This task is to an open book assessment that is to be completed during class time. Students must submit this task (ie their workbook) prior to the final class.

Students are to complete all questions below and answer them correctly. If incorrect answers are provided, identify the gaps in their knowledge and understanding and work with them to make arrangements for reassessment.

Keep an eye on students as they complete the task and assist those who may be finding the questions difficult. Consideration of students' LLN needs should be given – adjustments may be required in some cases, such as allowing students to answer verbally and also reading the questions to students to ensure their understanding.

Make sure there are plenty of resources available for students to refer to while working.

Resources required:

Students will require access to the following resources in order to complete this assessment:

- Access to a computer
- Pen and paper
- Access to the Internet and other classroom materials (ie handouts, textbooks etc)
- Classroom materials such as handouts, flash cards, etc
- Equipment such as rulers (30cm and 1 metre), tape measures, trundle wheels, jugs, plastic containers, wringing scales, items for weighing and measuring, etc. Refer to each individual activity for further reference.

Activity 1

Write down five times that you would use maths and numbers in your day-to-day activities.

Student provides five responses, which may include five of those below or others as deemed suitable by the trainer/assessor:

- Counting money
- Calculating time
- Calculating distance
- How many items you need to do something
- Taking measurements
- Working out area, volume, perimeter
- Cooking food (ie following recipes)
- Paying bills
- Counting items
- Temperature
- Driving (speedometer, speed limits, purchasing petrol)
- Public transport timetables
- Using calendars.

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Assessment Task 2: Mathematics

Instructions to the trainer/assessor:

This task is to an open book assessment that is to be completed during class time. Students must submit this task prior to the final class.

Students are to complete all questions below and answer them correctly. If incorrect answers are provided, identify the gaps in their knowledge and understanding and work with them to make arrangements for reassessment.

Keep an eye on students as they complete the task and assist those who may be finding the questions difficult. Consideration of students' LLN needs should be given – adjustments may be required in some cases, such as allowing students to answer verbally and also reading the questions to students to ensure their understanding.

Resources required:

Students will require access to the following resources in order to complete this assessment:

- Access to a computer
- Pen and paper
- Access to the Internet and other classroom materials (ie handouts, textbooks etc)
- Classroom materials such as handouts, flash cards, etc.

Resources required:

- Training Manual
- Access to a computer
- The Internet
- Pen and paper.

Student instructions:

In this task you will be given a variety of short activities to complete to demonstrate your understanding of what you have learned about mathematics so far.

Task A: Mathematics at work

Pick a job that you would like to do in the future. Write down what it is.

Write down the types of mathematical information you would come across in this job.

What types of mathematical tasks might you have to complete as part of this task?

You will need to present your answers to these questions to your classmates in a short presentation (no more than 3 minutes).

Students are to present their short speech to the class. Response will vary between students depending on their preferred career. They must be able to identify how they would use mathematics in their preferred career, and the type of mathematical data/information they need to work with. For example, a builder would use mathematics to measure, calculate quantities, read plans and specifications, order supplies, etc. Documents would include order forms for products and materials, invoices, taxation documents, plans and specifications, preparation instructions for materials (ie how to mix materials – ratios of water/materials).

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Assessment Task 3 – Measurements

Resources required:

- Training Manual
- Access to a computer
- The Internet
- Pen and paper.
- Classroom materials such as handouts, flash cards, etc

Student instructions:

In this task you will be given a variety of short activities to complete to demonstrate your understanding of what you have learned about measurements.

Task A: Measurements at work

Pick a job that you would like to do in the future. Write down what it is.

Write down the types of measurements you might come across or have to make as part of this job.

What types of measurement tasks might you have to complete as part of this task?

You will need to present your answers to these questions to your classmates in a short presentation (no more than 3 minutes).

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ASSESSMENT RECORD TOOL

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CERTIFICATE II IN SKILLS FOR WORK AND VOCATIONAL PATHWAYS

Cluster 5:

FSKNUM14 Calculate with whole numbers and familiar fractions, decimals and percentages for work

FSKNUM15 Estimate, measure and calculate with routine metric measurements for work

Student name: _____

Date assessed: _____

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Introduction

Assessment requirements

This tool is for assessment of

- FSKNUM14 Calculate with whole numbers and familiar fractions, decimals and percentages for work
- FSKNUM15 Estimate, measure and calculate with routine metric measurements for work

Assessment is based on a number of forms of evidence, as follows:

- Completing activities in the Learner's Workbook
- Completing a range of mathematical tasks
- Completing a range of measurement tasks
- Completing a two-part project.

This assessment is targeted to a learner who is studying the Certificate II in Skills for Work and Vocational Pathways.

Recording assessment outcomes

Use this Assessment Record Tool to record the outcomes of each assessment task related to this unit.

Marking Guide

Refer to the Marking Guide for further instructions and details about each assessment.

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Assessment Task 2: Mathematical tasks

Use this checklist to record the outcomes of each task. Record the outcome on the Record of Assessment Outcomes at the end of this document.

Date:

In this task, did the student:	Completed successfully		Comments
	Yes	No	
Task A: Mathematics at work			
Present a 3-minute (maximum) discussion to the class that includes the following:			
☐ Identification of a job they would like to have in the future?			
☐ Identification of mathematical data they would encounter in this job?			
☐ Identification of mathematical tasks they would need to do in this job?			
Task B: Working with numbers			
Complete all mathematical tasks, demonstrating knowledge of the following areas: ☐ Whole numbers ☐ Fractions ☐ Decimals ☐ Percentages ☐ Mathematical operators ☐ Basic mathematical problems (addition, subtraction, multiplication, division) ☐ Use of brackets/order of operations ☐ Place value ☐ Use of zero ☐ Conversion of percentages to decimals ☐ Conversion of percentages to fractions ☐ Conversion of fractions to decimals			

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Record of Assessment Outcomes

This section records the outcome of each task or assessment requirement used to form the final assessment decision.

This is for assessment of:

- FSKNUM14 Calculate with whole numbers and familiar fractions, decimals and percentages for work
- FSKNUM15 Estimate, measure and calculate with routine metric measurements for work.

Student name:			
Assessment Requirements	Task Outcome		
	Satisfactory (S) Not satisfactory (NS)	Date	Initials
1. Workbook activities			
2. Mathematical tasks			
3. Measurement tasks			
4. Project			
Overall Assessment Outcome (C = Competent, NYC = Not Yet Competent)			
Assessor Name:			
Signature:		Date: / /	

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Unit Mapping

FSKNUM14 Calculate with whole numbers and familiar fractions, decimals and percentages for work

Application	This unit describes the skills and knowledge to interpret and calculate whole numbers, routine fractions, decimals and percentages. This unit applies to individuals who need numeracy skills at Australian Core Skills Framework (ACSF) level 3 to undertake a vocational training pathway or workplace tasks. This unit is designed for integration and contextualisation with vocational units to support achievement of vocational competency. No licensing, legislative or certification requirements apply to this unit at the time of publication.
Licensing requirements	Not Applicable

Elements	Performance Criteria	Assessment Tasks & Assessment Method			
		AT1	AT2	AT3	AT4
		Workbook activities	Mathematics	Measurement	Project
1. Identify and interpret routine mathematical information	1.1 Select and interpret mathematical information that may be partly embedded in routine workplace tasks and texts	1, 2, 3	Task A		Task A
	1.2 Interpret and comprehend whole numbers and routine or familiar fractions, decimals and percentages including familiar rates	4	Task B: 1, 2, 3, 4		Task B
2. Undertake routine mathematical processes	2.1 Perform calculations which may involve a number of steps	5	Task B: 6, 9		Task B
	2.2 Calculate with whole numbers and routine or familiar fractions, decimals and percentages	4, 5	Task B: 6, 9, 14, 17		Task B
	2.3 Convert between equivalent forms of fractions, decimals and percentages		Task B: 14		Task B
	2.4 Apply order of operations to solve multi-step calculations	5	Task B: 9		
	2.5 Apply problem solving strategies	4, 5,	Task B: 6, 9, 20		Task B
3. Check and communicate results	3.1 Make estimations to check reasonableness of problem solving process, outcome and its appropriateness to the context and task	10	Task B: 15, 16		

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Unit Mapping

FSKNUM14 Calculate with whole numbers and familiar fractions, decimals and percentages for work

Elements	Performance Criteria	Assessment Tasks & Assessment Method			
		AT1	AT2	AT3	AT4
		Workbook activities	Mathematics	Measurement	Project
	3.2 Use formal and informal mathematical language and symbolism to communicate the result of the task	4, 5, 7, 8, 10	3, 4, 5, 6, 9, 14, 17, 18, 19, 20, 21		Task B

Foundation skills		Assessment Tasks & Method			
		AT1	AT2	AT3	AT4
		Workbook activities	Mathematics	Measurement	Project
Learning	Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.				

Performance evidence	Assessment Tasks & Method			
	AT1	AT2	AT3	AT4
	Workbook activities	Mathematics	Measurement	Project
Evidence of the ability to:				
▪ interpret and use common fractions, decimals and percentages in real situations	4, 5, 7, 10			Task B
▪ choose the appropriate operations to solve real life mathematical problems	4	Task B: 6, 9		
▪ perform calculations involving fractions, decimals and percentages.	7	Task B: 14, 17, 18, 19		Task B
Note: Where a specific volume and/or frequency is not specified, evidence must be provided at least once.				

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Unit Mapping

FSKNUM14 Calculate with whole numbers and familiar fractions, decimals and percentages for work

Knowledge evidence	Assessment Tasks & Method			
	AT1	AT2	AT3	AT4
	Workbook activities	Mathematics	Measurement	Project
Evidence of the following knowledge must be demonstrated:				
▪ place value and use of zero	6	Task B: 10, 11, 12, 13		
▪ relationship between operations	4, 5	Task B: 5, 7		
▪ order of operations	5	Task B: 7, 8		
▪ relationship between fractions, decimals and percentages.	7	Task B: 14		

Assessment conditions	Assessment Tasks & Method			
	AT1	AT2	AT3	AT4
	Workbook activities	Mathematics	Measurement	Project
Assessment texts and tasks reflect those typically found in the workplace.	Yes			
Individuals can access own familiar support resources.	Yes			
Culturally appropriate processes and techniques suited to the language, literacy and numeracy capacity of individuals and the work being performed must be used.	Yes			
Reasonable adjustments can be made to ensure equity in assessment for people with disabilities.	Yes			
Assessors must satisfy NVR/AQTF assessor requirements, have a sound knowledge of the ACSF and have demonstrable expertise in the vocational contextualisation and assessment of the core skill - numeracy.	Yes			

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