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Module Descriptor **Application of Number**

Award Type: Minor
Award Level: 3
Award Code: 3N0928
FÁS Assessment Code: 3N0928-001
Validation date 14th July 2011

Revision 2.0

Module Descriptor

Purpose: The purpose of this module is to equip the learner with the relevant knowledge, skill and competence to understand and apply to real-life situations, a limited range of basic mathematical functions relating to number, measurement and capacity.

Module Duration: The learning effort required from a typical learner to successfully achieve the stated learning outcomes for the module is **50 (fifty) hours**.

Learning Outcomes: By the end of this module, the learner will be able to:

1. Demonstrate an understanding of natural numbers, integers and real numbers in basic mathematical functions
2. Demonstrate an understanding of basic fractions, decimals and percentages and their equivalence
3. Demonstrate an understanding of basic mathematical symbols
4. Use a calculator to perform common mathematical functions
5. Estimate and round off answers to numerical problems to include natural numbers and decimal numbers to 2 (two) decimal places
6. Identify and describe a limited range of common geometric shapes using appropriate vocabulary
7. Calculate the area and volume of a limited range of common geometric shapes giving answers using correct units
8. Demonstrate an understanding of scales using maps and everyday objects
9. Use a range of mathematical instruments to make scale drawings of everyday objects
10. Measure length, distance, capacity and weight in a selection of everyday contexts using metric units of measurements
11. Apply correct mathematical technique to a selection of relevant, everyday situations to include budgets, costings, time

Key Learning Points

Learning Outcome 1: Demonstrate an understanding of natural numbers, integers and real numbers in basic mathematical functions

Key Learning Points

- Basic mathematical functions
- Natural numbers (N)
- Integers (Z)
- Real numbers (R)
- Explaining concepts
- Explaining concepts of natural numbers (N), integers (Z) and real numbers (R)
- Listing numbers 1-100, orally and in writing
- Listing numbers backwards
- Reading and writing numbers up to 1,000,000
- Sequencing in set increments
- Listing numbers in set increments : 2, 4, 6, 8; 3, 6, 9, 12, etc
- Adding and subtracting 1, 2 and 3-digit numbers without a calculator
- Multiplying and dividing
- Multiplying and dividing by single-digit numbers without a calculator

Learning Outcome 2: Demonstrate an understanding of basic fractions, decimals and percentages and their equivalence

Key Learning Points

- Basic fractions
- Decimals
- Percentages
- Solving numerical and verbal problems
- Solving numerical and verbal problems using basic fractions, decimals and percentages
- Converting simple fractions to ratios
- Recognising values of numbers up to 2 decimal places
- Calculating common percentages
- Calculating common percentages with and without a calculator
- Converting basic fractions to decimals and percentages and vice versa.

Learning Outcome 3: Demonstrate an understanding of basic mathematical symbols

Key Learning Points

- Basic mathematical symbols
- Identifying basic mathematical symbols
- Explaining basic numerical symbols
- Appropriate numerical symbols for a selection of mathematical problems
- Deciding which numerical symbol is appropriate in a selection of mathematical

problems

Learning Outcome 4: Use a calculator to perform common functions

Key Learning Points

- Using a calculator
- Function keys on a calculator
- Adding, subtracting, multiplying and dividing using a calculator
- Solving numerical problems using up to 4-digit numbers with a calculator
- Calculating percentages
- Adding to or subtracting from totals using a calculator
- Using Clear and Clear entry functions
- Using Memory + and Memory – functions

Learning Outcome 5: Estimate and round off answers to numerical problems to include natural numbers and decimal numbers to 2 (two) decimal places

Key Learning Points

- Estimating answers
- Rounding off answers
- Estimating answers to numerical problems using addition, subtraction, multiplication and division
- Estimating total of selection of items in context of shopping and eating out
- Rounding off answers to numerical problems to two significant figures, including decimal numbers
- Explaining, estimating and rounding off answers verbally and in writing

Learning Outcome 6: Identify and describe common geometric shapes using appropriate vocabulary

Key Learning Points

- Common geometric shapes
- Understanding common terms used in geometry to include angles, bisect, radius, parallel, perpendicular
- Appropriate language
- Identifying common two and three dimensional shapes to include triangle, square, circle, cylinder, cube and cone
- Describing common two and three dimensional shapes to include triangle, square, circle, cylinder, cube and cone
- Sketching common two and three dimensional shapes to include triangle, square, circle, cylinder, cube and cone
- Giving examples of shapes as they occur in everyday objects

Learning Outcome 7: Calculate the area and volume of a limited range of common geometric shapes giving answers using correct units

Key Learning Points

- Common shapes
- Using formulae
- Calculating areas
- Calculating area of circle, square, rectangle and triangle
- Calculating volume to include cylinders
- Giving answers in correct form

Learning Outcome 8: Demonstrate an understanding of scales using maps and everyday objects

Key Learning Points

- Scales
- Scales on maps
- Explaining scales verbally and in writing
- Using everyday objects when judging distance
- Calculating real distance
- Calculating real distance on simple scaled maps
- Calculating location and direction
- Calculating location and direction on simple scaled maps
- Drawing everyday objects to scale
- Drawing everyday objects to scale using selection of mathematical instruments

Learning Outcome 9: Use a range of mathematical instruments to make scale drawings of everyday objects

Key Learning Points

- Mathematical instruments
- Scale drawings
- Using mathematical instruments
- Hazards using mathematical instruments
- Listing the hazards of using mathematical instruments
- Making scale drawings
- Making scale drawings using mathematical instruments

Learning Outcome 10: Measure length, distance, capacity and weight in a selection of everyday contexts

Key Learning Points

- Length, distance, capacity and weight
- Metric units and their abbreviations
- Writing metric units and their abbreviations

- Measuring the length and breadth of objects
- Calculating distance to next/nearest city, town and airport.
- Measuring various amounts of liquid up to 1litre
- Weighing everyday items up to 1kg in weight.
- Using the unit of measurement appropriate to different situations.

Learning Outcome 11: Apply correct mathematical technique to a selection of relevant, everyday situations to include budgets, costings, time.

Key Learning Points

- Drawing up a weekly budget
- Costing a variety of activities
- Calculating cooking times to include roasting and baking
- Reading time on analogue and digital clock
- Reading the 12-hour and 24-hour clock
- Compiling 10-item shopping list with prices.
- Interpreting household bills to include utility bills
- Calculating a bill, given the number of units used

Assessment Specification

Award Title	Application of Number
Award Type	Minor
FÁS Assessment Code	3N0928-001
Credit Value :	5
Award Code:	3N0928

Module Learning Outcome*	Performance Criteria (Knowledge, Skill & Competence)	Assessment Techniques	Weighting	Assessment Instrument	Assessment Evidence
L01	Knowledge	Portfolio	5%	Exercise E1	Exercise Sheet
L02	Knowledge	Portfolio	5%	Exercise E2	Exercise Sheet
L03	Knowledge, Skill	Portfolio	5%	Exercise E3	Exercise Sheet
L04	Knowledge, Skill	Portfolio	5%	Exercise E3	Exercise Sheet
L05	Knowledge, competence	Portfolio	10%, 10%	Exercise E4, Exercise E5	Exercise Sheets
L06	Knowledge	Portfolio	10%	Exercise E6	Exercise Sheet
L07	Knowledge, Skill	Portfolio	5%, 5%	Exercise E7, Exercise E9	Exercise Sheets
L08	Knowledge	Portfolio	10%	Exercise E8	Exercise Sheet
L09	Knowledge, Skill	Portfolio	5%	Exercise E7	Exercise Sheet
L10	Knowledge	Portfolio	10%	Exercise E10	Exercise Sheet
L11	Competence	Portfolio	5%, 5%,5%	Exercise E2, Exercise E3, Exercise E7	Exercise Sheets

Note: Learners in achieving the assessment requirements for Application of Number will, by default, have fulfilled some of the assessment requirements for Mathematics (3N0929) as this Assessment Instrument Specification (AIS) is part of a combination of AIS's used to assess Mathematics (3N0929).

Suggested Learning Methodologies

Activities and exercises
Note taking
Discussion groups
Project work
Text-book study
Consulting Internet web-sites i.e. www.bbc.co.uk/skillswise

Specific Module Requirements

Drawing equipment
Measurement instruments
Calculators

Suggested Learning Resources

All of the highlighted curriculum resources mentioned below are available on the Moodle Community Services Curriculum and Assessment page. You can access the CSCA Moodle web page from this link:

<http://www.ecollege.ie/site/home.html> ..

Internet websites: Information can be accessed on the following suggested websites as of 15th May 2010:

www.mabs.ie

www.moneymatterstome.co.uk

<http://www.understandingmoney.gov.au/content/consumer/tools/planner/>

www.bbc.co.uk/skillswise

www.literacytools.ie

A range of textbooks including:

Step into Tables by Elizabeth Gudden and Jennifer Johnson, ISBN 1 86311 2189 published by Prim-Ed

How to use a Calculator ISBN 1 86311 1557 published by Prim-Ed

Sum Life Measurement (CDVEC Curriculum Development Unit)

Figure it out 5 by Tom Roche, CJ Fallon ISBN 0-7144-1392-5

Figure it out 6 by Tom Roche, CJ Fallon ISBN 0-7144-1393-3

Junior Cert Foundation Level Mathematics Workbook by Mary Daly and Patrick Daly ISBN 1-84131-918-X published by Folens

Work Out Numeracy by Ted Penketh ISBN 0-333-66270-9 published by Macmillan

Software/CD ROM:

Measuring Up by Protea Textware Pty Ltd

Out and About 2 by Granada Learning

Learner pack and Tutor pack

The learning resources include a pack for learners which consists of resource activities and a pack for tutors which consists of practice sheets and other resources.

Other suggested learning resources are highlighted in bold below.

Generic Skills: Literacy and Numeracy

The learners will keep and maintain a **Learning Diary** throughout the course in order to record and file any useful and relevant information on any aspect of maths and the application of numbers.

At the end of every week the learners will complete a short **Weekly Reflective Sheet** in order to reflect on their learning and progress during that week.

This Weekly Reflective Sheet will assist the learners to develop their generic skills of literacy, numeracy, communications and quality awareness and will give learners an opportunity to develop their writing skills.

The learners will create a **Personal Dictionary** of new words, key words and terms relating to maths and the application of numbers. This Dictionary will be updated each week and kept in the Learning Diary.

The learners, as a group, will add words and terms to a **Key Word and Terminology Bank** in the classroom, relating to maths and the application of numbers. The learners will find words listed in text books, class notes, DVDs and internet websites etc.

The learners will complete a number of **Word Searches**. These are **Word Search 1, Word Search 2, Word Search 3 and Word Search 4**. When the learners have gained sufficient practice and experience at these word searches, each learner will make up 1 (one) Word Search/Quiz which will be completed by the group.

When the learners have completed certain activities/exercises, they will complete a **True or False Quiz** for that particular activity/exercise. These are: **Quiz No1 for LO1, LO2 and L03; Quiz No2 for LO4, LO5, LO6 and L07; Quiz No3 for LO9, LO10 and LO11**. There should be at least two (2) days between the completion of the activity/exercise and the completing of the quiz.

Generic Skill: Numeracy; Digital

Learners will practise **using a calculator**, identifying and locating all keys needed to carry out basic calculations.

The learners will practise solving various problems, involving litres, metres etc, set by the instructor, **using the mathematical glossary**.

Generic Skill: Teamwork and Communications

Learners will discuss the importance of teamwork with the instructor using the **Teamwork Guide**.

Learners will take part in a **Teamwork exercise** by designing, planning and carrying out a project on budgeting which will incorporate group discussions.

The learners will complete the Team Review Sheet after completing the Teamwork exercise.

Recommended by: _____
Manager Training Policy Development and Support

Approved by: _____
Director Training Policy Development and Support