Our Lady of Fatima Special School

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Policy	Math/Numeracy Policy
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Approved by	
	Chairperson, Board of Management
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Our Lady of Fatima Special School

Math/Numeracy Policy

Introductory Statement: - All teachers were involved in the development of this plan as part of a whole school development plan, for Maths.

Rationale: - This plan is a record of whole school discussions in relation to the maths program, in line with the New Primary Maths Curriculum, the Junior Cycle math program and the LCA Mathematical Applications curriculum. Its purpose is to guide the teachers in adopting a consistent and coherent approach to the teaching and learning of the maths curriculum in our school. It is intended to guide teachers in their individual planning for numeracy to ensure appropriate teaching and learning of all aspects of the maths curriculum from Junior Primary to Post-Primary 6.

Vision: - Our school values the uniqueness of each individual within a caring school community. We would endeavour that all our students would learn to use the language for the purpose and benefit of everyday communications skills. We believe each student is special and hence we set out to provide an individual program so as to benefit his or her own individual needs.

Broad Aims: -

- The over-arching aim of the Mathematics Curriculum is the development of mathematical proficiency. Mathematical proficiency encompasses conceptual understanding, procedural fluency, adaptive reasoning, strategic competence, and productive disposition. Importantly, all five aspects are interwoven and interdependent
- Where possible, students are encouraged and prepared to sit the LCA Mathematical Applications exam.

1. New Primary Math Curriculum

Program Content: -

- Learning Outcomes are used to describe the expected mathematical learning and development for all learners at the end of a two-year stage, when due account is taken of individual abilities and varying circumstances.

- Learning Outcomes articulate big mathematical ideas across different stages, and encompass the knowledge, skills and dispositions that children develop with the Primary Mathematics Curriculum.

- Some strand units have Learning Outcomes across all stages, some do not. These Learning Outcomes reflect the mathematical learning that is most appropriate for each stage.

- Reflecting the principles and pedagogical approaches in the Primary Curriculum Framework, the 'stem' **'Through appropriately playful and engaging learning experiences'** is used to introduce Learning Outcomes across all stages.

- A playful and engaging approach to learning and teaching serves to present Mathematics as an open and accessible learning space, while also encouraging children to appreciate the beauty, challenge and power of Mathematics.

Each strand is developed into ELEMENTS.

Number

- Understand, develop and apply place value in the denary system (including decimals)
- Understand and use the properties of number.
- Understand the nature of the four operations and apply them appropriately.
- Approximate, estimate, calculate mentally and recall basic number facts.
- Understand the links between fractions, percentages and decimals and state equivalent forms.
- Use acquired concepts, skills and processes in problem-solving.

Algebra

- Explore, perceive, use and appreciate patterns and relationships in numbers.
- Identify positive and negative integers on the number line.
- Understand the concept of a variable, and substitute values for variables in simple formulae, expressions, and equations.
- Translate verbal problems into algebraic expressions.
- Acquire an understanding of properties and rules concerning algebraic expressions.
- Solve simple linear equations.
- Use acquired concepts, skills and processes in problem-solving.

Shape and Space

- Develop a sense of spatial awareness
- Investigate, recognize, classify and describe the properties of lines, angles, and two dimensional and three-dimensional shapes.
- Deduce informally relationships and rules about shape
- Combine, tessellate and partition two-dimensional and combine and partition three dimensional shapes.
- Draw, construct and manipulate two-dimensional and three-dimensional shapes.
- Identify symmetry in shapes and identify shape and symmetry in the environment.
- Describe direction and location using body-centered (left/right, forward/back) and simple coordinate geometry.
- Use acquired concepts, skills and processes in problem-solving.

Measures

- Know, select and use appropriate instruments of measurement.
- Estimate, measure and calculate length, area, weight, capacity and average speed using non-standard and appropriate metric units of measurement.
- Estimate, measure and calculate angles, time, money and scale using non-standard and appropriate units of measurement.
- Recognize and appreciate measures in everyday use.
- Use acquired concepts, skills and processes in problem-solving.

Data

- Collect, classify, organise and represent data using concrete materials and diagrammatic, graphical and pictorial representation.
- Read, interpret and analyse tables, diagrams, bar charts, pictograms, line graphs and pie charts.
- Appreciate, recognize and express the outcomes of simple random processes.
- Estimate and calculate using examples of chance.
- Use acquired concepts, skills and processes in problem-solving.

STRAND	**JUNIOR PRIMARY UNITS**	**MIDDLE PRIMARY UNITS**	**SENIOR PRIMARY UNITS**	**PREP - CLASS**
Algebra	Extend Patterns	Exploring & Using Patterns	Number Patterns & Sequences Number Sentences	Directed Numbers Rules & Properties
Data & Chance	Recognising & Interpreting Data	Representing & Interpreting Data	Representing & Interpreting Data Chance	Representing & Interpreting Data Chance
Measures	Length Weight Capacity Time Money	Length Area Weight Capacity Time Money	Length Area Weight Capacity Time Money	Length Area Weight Capacity Time Money
Number	Counting Comparing & Ordering Analysis of Number	Counting and Numeration Comparing & Ordering Place Value Operations	Place Value Operations *Addition* *Subtraction* *Multiplication #*	Place Value Operations *Addition* *Subtraction* *Multiplication* *Division*

		Addition Fractions Subtraction (Borrow & Payback method)	*#Differentiated to each child's needs* Fractions Decimals	Fractions Decimals Percentages Number Theory
Shape & Space	Spatial Awareness 2D shapes 3D shapes	Spatial Awareness 2D shapes 3D shapes Symmetry	2D Shapes 3D Shapes Symmetry Lines & Angles	2D Shapes 3D Shapes Symmetry Lines & Angles

Approaches and Methodologies

The approaches and methodologies that teachers will use in their delivery of the maths curriculum will include:

- The use of manipulatives – Where practical and possible, children should have access to and use a broad range of mathematical equipment during lessons.
- Talk and Discussion as an integral part of the learning process.
- Active Learning and guided discovery (encouraging playfulness with mathematics)
- Emphasising mathematical modelling.
- Collaborative/Cooperative Learning.
- Using the Environment.
- Problem Solving.
- Encouraging and promoting math talk.
- Using "Maths Eyes"
- Maths Stories
- Play Based Learning

Assessment

Assessment is an integral part of the teaching and learning process. It involves teachers and students working together to use information to inform and support learning and teaching. The strands of the maths programme will be assessed using a variety of assessment methods.

Intuitive Assessment

- Ongoing, unplanned, unrecorded.

Planned Interactions

- More visible, may be recorded and related to learner outcomes.

Assessment Events

- Distinct, visible recorded events.

Resources

https://www.curriculumonline.ie/getmedia/00c7dd32-e75b-43ff-810f-706a45633cd8/PMC_Toolkit_DirectoryENG.pdf

ICT

Useful websites

- PMC@Oide.net
- www.topmarks.com
- www.kidsnumbers.com
- www.mathsplayground.com
- www.coolmath4kids.com
- www.mathsisfun.com
- www.xls.com
- www.math-drills.com/

This list is not exhaustive and will vary and adapt as new websites come online

Homework

Home/School Link Book

Schemes:

Folens – Maths My Way

EDCO – Primary Maths – Maths & Me

Numeracy

Junior Cycle Level 2 & 3

Junior cycle education places students at the centre of educational experience, enabling them to actively participate in their communities and in society and to be resourceful and confident learners in all aspects and stages of their lives. The junior cycle is inclusive of all students and contributes to equality of opportunity, participation and outcome for all.

Rationale

This mathematics specification provides students with access to important mathematical ideas to develop the mathematical knowledge and skills that they will draw on in their personal and work lives. This specification also provides students, as lifelong learners, with the basis on which further study and research in mathematics and many other fields are built

Aim:

The aim of junior cycle mathematics is to provide relevant and challenging opportunities for all students to become mathematically proficient so that they can cope with the mathematical challenges of daily life and enable them to continue their study of mathematics in senior cycle and beyond. In this specification, mathematical proficiency is conceptualised not as a one-dimensional trait but as having five interconnected and interwoven components:

• conceptual understanding—comprehension of mathematical concepts, operations, and relations.

procedural fluency in carrying out procedures flexibly, accurately, efficiently, and appropriately.

• strategic competence—ability to formulate, represent, and solve mathematical problems in both familiar and unfamiliar contexts.

• adaptive reasoning—capacity for logical thought, reflection, explanation, justification and communication.

• productive disposition—habitual inclination to see mathematics as sensible, useful, and worthwhile, coupled with a belief in diligence, perseverance and one's own efficacy.

Yearly Plan Overview for Level 2

Numeracy (N)

Term 1	Term 2	Term 3
PP1 **Managing Money** 2.1 Recognise frequently used Euro notes and coins 2.2 Pay for an item correctly and count the change **Developing an awareness of number** 2.8 Recognise numbers up to 100 in N 2.9 Recognise place value in relation to units, tens and hundreds **Developing an awareness of Temperature** 2.13 Use appropriate words to describe temperature 2.14 Identify instruments used for indicating and adjusting temperatures	***PP1*** **Using data for a range of different purposes** 2.38 identify uses of data in everyday life 2.39 identify basic approaches to data collection 2.40 collect a range of data using one of the following – survey, record sheet, tally system or audio-visual records 2.41 interpret basic data of two criteria 2.42 construct basic representations to communicate data with two criteria 2.43 – Discuss information from basic data	***PP1*** **Developing an awareness of weight and capacity** 2.18 use appropriate vocabulary to describe the units of weight and capacity 2.19 identify the marks for the units of weight and capacity – using a measuring jug and weighing scale **Developing an awareness of length and distance** 2.23 use appropriate vocabulary to describe the units of length and distance **Using Shapes** 2.44 name common 2D and 3D shapes in everyday life **Developing an awareness of time** 2.49 tell the time from an analogue clock for the hour, half hour and quarter hour 2.50 tell the time from a digital clock
PP2 **Element -Developing an awareness of number** 2.10 Add two-digit whole numbers that total less than 100 in the context of an everyday situation 2.11 subtract two-digit whole numbers in the context of an everyday situation **Developing an awareness of temperature** 2.15 relate temperatures to everyday situations 2.16 locate appropriate temperatures on a cooker dial	***PP2*** **Developing spatial awareness** 2.32 use appropriate vocabulary to describe direction 2.33 use a simple map to find a given location 2.34 Draw a simple map to give directions 2.35 calculate the distance between two places on a map 2.36 use the body or body parts to move in a given direction 2.37 move a range of objects in given directions **Recall/Refreshing**	***PP2*** **Using shapes** 2.45 divide a line into equal segments without measuring Find axes of symmetry of familiar 2D shapes and figures by folding and marking them **Developing an awareness of time** 2.51 Identify key times during the day 2.52 solve problems to work out the passage of time **Developing an awareness of weight and capacity**

Managing Money 2.3Explain a shopping receipt, in relation to what was bought, money tendered and correct change given 2.4 Understand a common household bill in relation to the service provided, how much being charged and how it can be paid for 2.5 recognise the difference between using money to buy essential and luxury items ***PP3*** **Developing an awareness of temperature** 2.17Compare temperatures for the different times of the year, e.g. hot in summer and cold in winter, keep a simple weather log. – record temperature for Autumn - September **Developing an awareness of time** 2.53 Find a specified day or date on a calendar or timetable, e.g. my birthday. 2.54 Match months or activities with their seasons, e.g. matching pictures of the seasons to the relevant months **Using a calculator** 2.28Find digits 0-9 and the decimal point and necessary operations buttons (+, -, ÷, =) on a calculator 2.29 Use a calculator to solve simple problems, e.g. add two items. 2.30Use a calculator to correct work which has been completed without the use of a calculator	Weekly / Daily Mathletics Time tables Clocks **Operations** *Addition* *Subtraction* *Regrouping* Money – Receipts Budgeting Using Calculator Test on Fridays Six Bricks *Busy Work* Recall Using Busy at Maths Book ***PP3*** **Developing an awareness of temperature** 2.17Compare temperatures for the different times of the year, e.g. hot in summer and cold in winter, keep a simple weather log. Record daily temperatures. **Developing and awareness of weight and capacity** 2.21Use a graduated vessel to work out the capacity of liquids, e.g. using a jug to measure litre of milk 2.22Use weighing scales to work out the weight of powders and solids, e.g. weighing the ingredients for a cake. **Developing an awareness of length** 2.26Estimate the length of common objects, e.g. the length of a book 2.27 Measure the length of common places, e.g. bedroom, kitchen, and classroom using a measuring tape.	2.20 List some examples of weight and capacity in daily life **Developing an awareness of length and distance** 2.24 Identify the units of length and distance on a ruler, metre stick and measuring tape 2.25 use a ruler to draw and measure different lengths of lines ***PP3*** ***Using shapes*** 2.47List the properties of common 2D shapes and 3D forms, e.g. number of faces, edges 2.48Sort 2D and 3D shapes and forms in relation to size ***Developing an awareness of temperature*** 2.17 Compare temperatures for the different times of the year, e.g. hot in summer and cold in winter, keep a simple weather log. Record temperature for Spring and Summer. ***Managing money*** 2.6Plan a personal budget for a week 2.7Save a small amount of money each week to buy an item

2.31Find and use a calculator on a mobile phone to work out how much several items will cost in a shopping trip **Developing an awareness of number** 2.12 Estimate quantities to the nearest value in broad terms, e.g. to the nearest quantity in 10s or 100s as appropriate.		Tables Revision Addition Subtraction Multiplication Division Six Bricks Mathletics App Bank of Ireland Money Smarts Programme Budgeting, Saving Scheme & Shopping Tasks. Calculator Tangrams & Construction Time - Revised weekly Primary Math Books for daily revision. ***Assessment re policy in Term 3.***

Assessment

It takes different forms and can be used in a variety of ways. All assessments in junior cycle, formative or summative, moment-in-time or ongoing, SEC, NCCA or teacher-designed, should have as its primary purpose, the support of student learning.

Junior Cycle Level 3: PP4 - MATHS – Active Maths 1 – Junior certificate Ordinary level.

Chapter	Topic	Pages
2	Natural numbers	16, 17, 18(q5)
	2.2 factors and multiples	20 – indices / powers.
	2.3 multiplication and division	Do not use book. Use simple examples.
	2.5 order of operations – BIDMAS	31 – Exercise 2.5 page 35.
3	Principle of counting	36,37,38. Page 44 use some examples to explain.
4	4.1 integers	50, 51, 53
	4.3 multiplication and division of integers	
5	Rational number(fractions)	65,66, 67, 68
6	Decimals and percentages	82,
	6.3 rounding	86, 87
	6.4 percentages	90, 91, 94, 95
7	Probability	99,100, 101, 109, 110,111
Lifeskills	Budgeting: Calculating change	
Time	Telling time, problems	
Data	Intro to graph formation & interpretation Collecting data	

Senior Cycle:

Senior Cycle Level 2

Aim

The Senior Cycle Level 2 Learning Programme (SCL2LP) consists of a range of curriculum areas; each designed on a modular basis. There are four curriculum areas at the heart of the SCL2LP: Numeracy; Communication and Literacy; Personal Care; and Electives.

Rationale

Numeracy is the ability to use mathematical understanding, applications and skills to solve problems and meet the demands of day-to-day life. Numeracy surrounds us in our daily lives and is fundamental to daily living. Everyday life provides meaningful ways to explore, engage with and understand numeracy, while everyday interactions enable the application of numerical problem-solving skills.

Content

Year 1 VT Senior Cycle Level 2
Numeracy

YR 1	Teacher	Module	Aim	Objective	Cross curricular
September /October	Eileen	Understanding number and money Number	Students learn to count, read, express numbers and engage in the many ways number can be used.	e. Identify, recognise and use symbols for addition and subtraction f. Identify natural numbers from 0 to 1000 g. Identify situations where one would multiply or divide and engage in the multiplication or division operation in real world contexts h. Construct any sentence	

				using + - ÷ = x or words	
September /October	Gayle	Understanding number and money Number	Students learn to recognise money, appreciate that money has value and conduct transactions. The necessity of examining bills and receipts is explored here with different costs associated with items of different value.	a. Identify how many zeros for tens, hundreds thousands and millions b. Estimate quantities to the nearest value in real world contexts in 10s, 100s or 1000s c. Use numbers to designate an amount or quantity d. Identify situations where it is appropriate to add or subtract numbers and complete the operation	
October/November	Eileen	Understanding number and money Number	Students learn to recognise money, appreciate that money has value and conduct transactions. The necessity of examining bills and receipts is explored here with different costs associated with items of different value.	m. Engage with a fraction chart and identify equal fractions n. Demonstrate the rules of equal sharing in real world scenarios o. Use ratio to describe the relationship between two quantities.	
October/November	Gayle	Understanding number and money Money	Students learn to recognise money, appreciate	p. Sort coins and paper notes into groups to	

			that money has value and conduct transactions. The necessity of examining bills and receipts is explored here with different costs associated with items of different value	create a total amount q. Recognise that different coins and paper notes have different values in a shopping experience r. Undertake transactions using money s. Calculate the total cost of a list of items t. Round off prices to nearest one, ten, fifty, hundred euro	
October/November	Eileen	Understanding and managing time Reading and measuring time	Students show awareness of daily patterns while applying basic knowledge of time to everyday activities and events.	g. Recognise key times of the day on a clock h. Recognise how many seconds in a minute, minutes in an hour, hours in a day, days in a week, weeks in a month, months in a year i. Interpret and use a timeline j. Interpret and use a timetable k. Demonstrate the ability to calculate and interpret the passage of time l. Relate a difference in time to different places/regions.	

December/January	Gayle	Understanding and managing time Time Management	Students develop strategies to plan and manage time as part of their daily routines. They learn to recognise dates presented in different formats using aids to support planning and time management.	s. Use a calendar or timetable, in any format, for forward planning t. Use a transport timetable to calculate how long a journey will take u. Plan an entire day's activity using time, including journey times v. Recognise dates in a variety of formats	
December/January	Gayle	Understanding Measurement, location and position Measurement	Students identify and use terms, language and symbols of measurement for length, distance, capacity and weight as well as calculating and describing findings with appropriate language.	a. Handle and evaluate everyday objects for physical differences b. Read, understand and use terms, language and symbols to describe units of length, distance, capacity, temperature and weight c. Interpret metric units of measurement for length, distance, capacity, temperature and weight d. Measure and record the length of an object and the distance	

				between two objects with appropriate support e. Compare and contrast the length, height, distance, capacity and weight of objects and record results appropriately	
December/ January	Eileen	Position & Location Understanding Measurement, location and position	Students use spatial awareness for the purpose of orientation and navigation in school and local community. Students also explore the movements of different parts of the body and ways in which the body can move.	n. Draw and use a simple map o. Locate key locations of one's community while using a map and describe and show the location p. Calculate and record the distance between two places on a map q. Show the location of an object on a simple grid system r. Recognise one's location in the community and use simple maps and routes to track and experience movement s. Plan, describe and prepare a journey for a day trip or event.	

Year 2 VT Senior Cycle Level 2
Numeracy

YR 2	Teacher	Module	Aim	Objective	Cross curricular
September /October	Eileen	Understanding number and money Number	Students learn to count, read, express numbers and engage with the many ways number can be used.	i. Recognise and name equal parts of a whole such as halves, quarters, thirds j. Connect halves and quarters to equal sharing and to groups k. Identify, name and express fractions of a quantity such as length, weight and capacity l. Identify, name and express fractions of a quantity such as time, an amount or a shape	
September /October	Gayle	Understanding Number and money Money	Students learn to recognise money, appreciate that money has value and conduct transactions. The necessity of examining bills and receipts is explored here with different costs associated	u. Estimate a bill or a receipt and estimate change due v. Interpret a bill or a receipt w. Recognise that money is received and spent in different ways x. Plan and estimate the cost and savings	

			with items of different value.	required to attend an event or purchase an item y. Make a payment or transfer money online/using a device.	
October/November	Eileen	Understanding and managing Time Reading and measuring time	Students show awareness of daily patterns while applying basic knowledge of time to everyday activities and events.	a. Recognise different instruments for telling the time b. Identify times on an analogue clock c. Read the time from a digital clock d. Examine time in 12 hour and 24-hour formats e. Recognise or identify the difference between a.m. and p.m. f. Use language related to time in different settings	
October/November	Gayle	Time Management	Students develop strategies to plan and manage time as part of their daily routines. They learn to recognise dates presented in different	o. Identify and use time management skills such as: adapt to be ready on time, prepare before a given time, allow time to clear up p. Identify and sequence	

			formats using aids to support planning and time management.	events in their daily routine using associated language and aid q. Estimate and predict the time needed to undertake an activity or task r. Undertake an activity within a prescribed time and predict when a given amount of time has passed	
December/January	Gayle	Understanding Measurement, location and position Measurement	Students identify and use terms, language and symbols of measurement for length, distance, capacity and weight as well as calculating and describing findings with appropriate language.	f. Identify relationships between the length, height, distance, capacity and weight of two items g. Compare, contrast and order objects according to length, height and weight h. simple tables, bar charts, pie charts or patterns i. Select and use appropriate measuring tools to record and present length, distance,	

				capacity and weight j. Understand the importance of accuracy in measurement of length, height, distance capacity, temperature and weight in real world scenarios.	
December/ January	Eileen	Position & Location	Students use spatial awareness for the purpose of orientation and navigation in school and local community. Students also explore the movements of different parts of the body and ways in which the body can move.	k. Demonstrate an awareness of the position of their body in space l. Demonstrate direction and movement while using one's body m. Use appropriate vocabulary and gestures to describe positions such as on top of, at the bottom, inside, underneath, to the right of, to the left of	

Senior Cycle: LCA

Leaving Certificate Applied Mathematical Applications builds on the knowledge, attitudes and a broad range of transferable skills that stem from a learner's early childhood education, through primary school and the junior cycle curriculum.

Senior cycle LCA Mathematical Applications is inherently a transdisciplinary subject, authentic and relevant to the real world. Transdisciplinary learning is not confined by traditional subjects

but is supported and enriched by them. The knowledge and understanding gained in LCA Mathematical Applications can be enhanced and utilised across the LCA framework by enriching the tasks, learning and key assignments in other areas. In this way, students will appreciate the power of mathematics to represent and shed light on complex problems in many discipline areas as well as in more complex real-life situations they encounter in their lives.

Rationale

Mathematical Applications for the Leaving Certificate Applied is intended to prepare students for life, work, further education and a world where skills and knowledge require constant updating. The course seeks to consolidate and improve students' mathematical knowledge, skills and concepts through practical, analytical, problem-solving applications and through integration with other modules. The modules reflect the applied nature of the Leaving Certificate Applied programme. They start with the students' experiences and seek to raise their enthusiasm for mathematics through the achievements and the skills they develop in dealing with mathematics in everyday life, work and leisure. Students are encouraged to develop a work ethic where quality, accuracy and dependability are important.

Aims:

The aim of this course is to develop the students' ability to solve quantitative problems that they encounter in the world around them so that they can:

- represent authentic situations using mathematics.
- analyse their mathematical representation of authentic situations.
- interpret and communicate the results of their analysis.

Number and sequence of modules:

Modules are designed to be taken sequentially and student progression through the modules should enable the development of skills and understanding through encountering similar concepts in different contexts. However, when planning the sequence of modules other elements of the Leaving Certificate Applied framework, such as the selection and timing of vocational education tasks, should be taken into account to ensure that the students are equipped to utilise the necessary skills in the fulfilment of the task requirements.

Module 1: Mathematics and Planning

Module 2: Mathematics and the World around me

Module 3: Mathematics and Life skills

Module 4: Mathematics and Work

Recommendations:

Within each module, the order of units is discretionary to facilitate integration with other courses, tasks and current events.

In the case of the Vocational Education Tasks, Mathematical Applications is a specific requirement.

Teachers should recognise the importance of contexts as a distinguishing feature of numeracy and incorporate numeracy rich contexts into their lessons and take advantage of unplanned numeracy opportunities as they arise. Students should work with real documents whenever possible (bills, pay slips, invoices, credit notes, lodgment forms, brochures, catalogues, timetables etc.). The Mathematical Applications course has many areas which can be effectively delivered through I.C.T. The Mathematical Applications and I.C.T. teachers should liaise to maximise this potential.

Students should become familiar with and utilise the appropriate digital technology, including calculators, to facilitate their learning in each module. Students will keep a portfolio of learning throughout the modules. This portfolio may be digital or hard copy but should incorporate the elements of learning experienced and investigated by the student as part of the engagement with the modules and will form the basis for the key assignment for each module.

The Key Assignment for each module is a case study that may be a stand-alone piece of work or incorporated into the teaching and learning of the module as part of the learning experienced by the student.

Learner Outcomes

The following learning outcomes underpin the contextual learning outlined in the modules and form the basis for all planning for teaching and learning in the LCA mathematical applications classroom.

Underpinning Learning Outcomes

Students should be able to:

- **MCS.1. reason mathematically about problems so that they can**

a. make sense of a given problem and represent it using mathematics

b. apply their knowledge and skills to solve a problem, including decomposing it into manageable parts and/or simplifying it using appropriate assumptions

c. interpret and justify their solution in terms of the original problem and communicate

their findings mathematically.

• MCS.2. reason mathematically about problems so that they can:

a. perform calculations on positive and negative numbers involving addition, subtraction, multiplication, division, square roots (positive numbers only), and positive whole number

b. use the order of arithmetic operations, including the use of brackets

c. present answers to the degree of accuracy required, for example to the nearest whole number, to the nearest thousand, to two decimal places

d. use appropriate units and convert between them, including, but not exclusively, mm, cm, m, km, seconds, minutes, hours, days, €k (i.e. thousands), €million, degrees, etc.

e. flexibly convert between fractions, decimals, and percentages

f. use and understand ratio and proportion.

• MCS.3. investigate 2D and 3D shapes so that they can:

a. draw and interpret scaled diagrams, using appropriate geometric tools (ruler, straight edge, set square, protractor, compass)

b. draw and interpret nets, including those of rectangular solids and cylinders

c. find the perimeter and area of 2D shapes made from combinations of discs, triangles, and rectangles

d. find the volume and surface area of 3D shapes, including those made from combinations of rectangular solids and cylinders e. recognise and use the important facts regarding angles at a point, on a straight line, and in squares, rectangles, parallelograms, and triangles

f. apply the theorem of Pythagoras to solve simple problems

• MCS.4. explore certain types of relationships and expressions so that they can:

a. evaluate expressions given the value of variables

b. represent linear relationships in tables, graphs, and generalised expressions (expressed in words)

c. select and use suitable strategies (including graphic, numeric, trial and improvement, and working backwards) for finding solutions to problems involving linear relationships.

• MCS.5. carry out a statistical investigation so that they can:

a. generate a statistical question

b. plan and implement a method to generate and/or source unbiased, representative data

c. select, draw, and interpret appropriate graphical displays of data, including bar charts, pie charts, trend graphs, and histograms (equal intervals)
d. select, calculate, and interpret appropriate summary statistics to describe aspects of univariate data, including measures of central tendency (mean, median, and mode) and of spread (range)
e. evaluate the effectiveness of different graphical displays in representing data
f. discuss misconceptions and misuses of statistics.

Curriculum Content

Module 1 - Mathematics and Planning

This module aims to provide students opportunity to: • represent real life situations with mathematics • make and justify decisions with mathematics • consolidate and reinforce students' mathematical knowledge and skills • see the relevance of mathematics in students' everyday lives.

Unit 1: Research and planning Unit 2: Budgeting

UNIT 1: RESEARCHING AND PLANNING Learning outcomes The student will be able to: 1. Conduct market research to gather, source and interpret data. 2. Interpret relevant information communicated in tables/charts or graphs. 3. Present findings and draw conclusions.

UNIT 2: BUDGETING Learning outcomes

The student will be able to: 1. Investigate and cost a leisure/home or work space for a particular purpose. 2. Prepare a project budget. 3. Research, compare and contrast data about costings. 4. Make value for money judgements and justify judgements with mathematics

Module 2 -Mathematics and the World Around Me

This module aims to provide students opportunity to: • see the relevance of mathematics to issues encountered by them in their everyday lives • consolidate and reinforce students' mathematical knowledge and skills • make and justify decisions with mathematics • develop confidence in using mathematics to solve problems.

Unit 1: Current Affairs Unit 2: Travel and Recreation

UNIT 1: CURRENT AFFAIRS

Learning outcomes The learning in this unit is underpinned by the mathematics specified in MCS1-5 The student will be able to: 1. Create and interpret opinion polls or surveys. 2. Analyse and interpret relevant information including voting data communicated in words/tables/ charts or graphs. 3. Investigate an issue and use mathematics to communicate findings**.**

UNIT 2: TRAVEL AND RECREATION

Learning outcomes The learning in this unit is underpinned by the mathematics specified in MCS1-5. The student will be able to: 1. Research and plan an event to suit a particular budget. 2. Interpret relevant information communicated in words/tables/charts and graphs. 3. Prepare a written itinerary including costs and timings. 4. Communicate mathematics in words/equations/calculations /graphs or charts

Module 3 Mathematics and Life skills

This module aims to provide students opportunity to: • see the relevance of mathematics to issues relating to a healthy lifestyle • consolidate and reinforce students' mathematical knowledge and skills • make and justify decisions with mathematics • develop confidence in using mathematics to solve problem

Unit 1: Personal finance Unit 2: Healthy life choices

UNIT 1: PERSONAL FINANCE

Learning outcomes The learning in this unit is underpinned by the mathematics specified in MCS1-5 The student will be able to: 1. Prepare a personal budget. 2. Investigate the financial impact of a large financial commitment. 3. Analyse and interpret data which impacts on personal finance presented in a variety of ways. 4. Communicate findings in words/tables/charts or graphs.

UNIT 2: HEALTHY LIFE CHOICES

Learning outcomes The learning in this unit is underpinned by the mathematics specified in MCS1-5 The student will be able to: 1. Research and plan a healthy lifestyle choice. 2. Interpret relevant information communicated in tables/charts or graphs. 3. Compare and contrast

different options and justify decisions made with mathematics. 4. Use simple formula related to health and fitness. 5. Communicate mathematics in words/calculations /graphs or charts.

Module 4 - Mathematics and Work

This module aims to provide students opportunity to: • see the relevance of mathematics to issues encountered by people in employment • consolidate and reinforce their mathematical knowledge and skills • make and justify decisions with mathematics • develop confidence in using mathematics to solve problems.

UNIT 1 Students should engage in the learning outcomes outlined in MCS 1-5 through the contextual experiences offered by Mathematics and Work (p. 20-21).

Learning outcomes The learning in this unit is underpinned by the mathematics specified in MCS1-5. The student will be able to: 1. Analyse and interpret information about income and expenditure represented in words/ equations/tables /graphs or charts. 2. Create an estimate for a job, including costings such as materials, labour, taxes and profit margin. 3. Analyse, interpret and communicate relevant information in relation to wages, time worked and holidays communicated in words/tables/charts/ payslips or graphs. 4. Compare and contrast different job contracts and justify decisions made with mathematics.

Assessment

Assessment for Mathematical Applications is based on the aims and learning outcomes in this module descriptor.

There are two assessment components:

1. Credits achieved due to attendance and completion of the key assignments for each module. (4 credits)

2. Written examination. (10 credits) The learning outcomes are assessed through the key assignments, the cross curricular links in tasks and the written examination, therefore not all learning outcomes will be assessed in the final written examination. The written examination will be two hours long. The number of questions on the examination paper may vary from year to year. Students will be assessed by means of problems set in meaningful contexts. In any year, the learning outcomes to be assessed in the written examination will be a sample of the learning outcomes in this module descriptor.