

**ENTRY LEVEL CERTIFICATE**

in

**Mathematics for Life**

**S P E C I F I C A T I O N**

For teaching from **September 2006**

For examination in **Summer 2007**

or **Summer 2008**

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## **FOREWORD**

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This booklet contains CCEA's Entry Level specification for Mathematics for Life. The specification is for first teaching from September 2006 with certification available from Summer 2007.

The qualification has been accredited following consideration by the Northern Ireland Council for the Curriculum, Examinations and Assessment (CCEA) and its regulatory partners, the Qualifications and Curriculum Authority (QCA) and the Qualification Curriculum and Assessment Authority of Wales (ACCAC). The specification has been designed to meet the requirements of the following:

- Northern Ireland Programme of Study for Mathematics at Key Stage 4;
- Common criteria for the accreditation of external qualifications;
- Specific criteria for Entry level qualifications.

The award is broadly aligned to level 3 (or the equivalent) and below in the Northern Ireland Curriculum. It is designed to be appropriate to pupils below school leaving age. The award is intended to encourage progression to higher level qualifications such as GCSE, GNVQ Foundation and NVQ Level 1.

The specification is provided in English. CCEA may provide operational assessment in Irish on request from centres if prior approval has been given by the Department of Education.



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# 1 INTRODUCTION

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## 1.1 Rationale

The CCEA Entry level Certificate in Mathematics for Life is designed to allow accessibility to the Northern Ireland Key Stage 4 Programme of Study in Mathematics to enable pupils to gain a recognised qualification at Entry level.

The specification builds on the knowledge, understanding and skills developed within the Northern Ireland Programme of Study for Mathematics at Key Stage 3. It has been designed to meet the requirements of the Northern Ireland Programme of Study at Key Stage 4 which is specified within the Northern Ireland Curriculum: 1999 Subject Order for Mathematics at Key Stages 3 and 4. The specification also meets the regulatory authorities common criteria for the accreditation of external qualifications.

The target group for a course based on this specification is pupils, below school leaving age, for whom GCSE Mathematics is not appropriate but who are capable of demonstrating achievement at Entry 1, 2 and 3.

A course based on this specification will provide a basis for progression to relevant courses at higher level, for example GCSE mathematics, NVQ level 1 courses and other vocationally related courses.

The specification has been designed to be as free as possible from ethnic, gender, religious, political or other forms of bias. It can also contribute to an understanding of:

- spiritual, moral, social and cultural issues;
- ethical issues;
- environmental education;
- the European dimension; and
- health and safety considerations

by providing opportunities for pupils, in their study, particularly in that relating to the internal assessment components, to apply mathematical knowledge and understanding in everyday contexts and develop personal values and attitudes and interpersonal skills through co-operative work.

In studying a course based on this specification pupils should be encouraged to make appropriate use of Information and Communication Technology (ICT).

## 1.2 Aims

Pupils following a course based on this specification should begin to develop:

- a positive attitude to mathematics, including confidence, enjoyment and perseverance;
- an appreciation of the place of mathematics in society, including historical and cultural influences;
- an ability to think mathematically - precisely, logically and creatively;
- a willingness and ability to work both independently and co-operatively;
- an ability to understand basic mathematical ideas and to communicate them in a variety of simple modes;
- an appreciation of the inter-dependence of different branches of mathematics;
- an appreciation of the ways mathematics is used;
- the knowledge, skills and understanding needed to apply a range of mathematical concepts to situations which may arise in their own lives;
- their mathematics as a means of communication;
- an ability to use mathematics across the curriculum;
- an appreciation of how to use appropriate technology, such as computers and calculators, as a mathematical tool;
- their knowledge, skills and understanding of mathematics as a firm foundation for further study.

## 1.3 Assessment Objectives

The assessment objectives provide an indication of the skills and abilities which the assessment components are designed to assess, together with the knowledge and understanding specified in the subject content.

AO1	Using and Applying Mathematics
AO2	Number and Algebra
AO3	Shape, Space and Measures
AO4	Handling Data

Assessment objective AO1 will be assessed in contexts provided by the other assessment objectives.

The four assessment objectives describe the abilities that can be measured and recorded. Pupils will be assessed on their ability to:

- recall, apply and interpret mathematical knowledge in the context of everyday situations;
- carry out practical and investigative work;
- respond orally to questions about mathematics;
- follow instructions to complete a task;
- select the mathematics and/or materials to complete a task;
- perform simple mental calculations;
- carry out calculations accurately using pencil and paper;
- use an electronic calculator;
- estimate in a range of contexts;
- recognise and extend simple patterns in shape and number;
- recognise and describe simple shapes;
- give directions for movement;
- understand everyday systems of measurement and use associated measuring equipment;
- organise and present data in tabular and simple graphical/diagrammatical form;
- extract and use data from lists, tables, simple diagrams and graphs;

#### **1.4 Specification Structure**

The subject content is divided into four areas, corresponding to the four Assessment Objectives:

- Using and Applying Mathematics;
- Number and Algebra;
- Shape, Space and Measures;
- Handling Data.

The subject content is set out in detail in Section 4. The order in which it is presented is not intended to correspond to the order in which it is taught and learnt. Teachers should emphasise the interrelationship of the areas into which the subject content is divided. All of the content is mandatory.

### **1.5 Recommended Prior Knowledge**

No prior knowledge is required.

### **1.6 Awarding and Certification**

Entry Level Certificate awards will be conducted in accordance with the relevant Code of Practice developed by the regulatory authorities and agreed with the awarding bodies.

Differentiation between pupils in both the written and internal assessment components is by outcome.

The course in Mathematics for Life will be awarded at three sub-levels; Entry 1, Entry 2 and Entry 3, with Entry 3 being the highest.

If a pupil is unable to complete the full award, centres may award a certificate of achievement for the pupil's Portfolio of Work; these certificates may be obtained by contacting the Assessment Administration Team at CCEA.

### **1.7 Language of Specification**

The specification is provided in English. CCEA may provide operational assessment in Irish on request from centres if prior approval has been given by the Department of Education.

### **1.8 Special Arrangements**

The only special arrangements for examinations for which centres will be required to apply will be with respect to visually impaired pupils requiring enlarged papers, modifications, etc. Application forms for these arrangements may be obtained on request from the Assessment Administration Team at CCEA.

All other arrangements will be at the discretion of the Head of Centre. These arrangements will include:

- extra time (unlimited);
- use of reader/communicator;
- use of amanuensis/scribe;

- timed breaks;
- use of wordprocessors etc;
- use of practical assistants.

### **1.9 Overlap with other Qualifications**

There is substantial overlap of content between this specification and CCEA's qualification for adults: *Entry Level Certificate in Essential Skills: Adult Numeracy*.

### **1.10 Restrictions on Pupil Entry**

Pupils may not enter for an award on this specification simultaneously with either an equivalent award on a specification offered by another awarding body or an award on CCEA's specification: *Entry Level Certificate in Essential Skills: Adult Numeracy*.

### **1.11 Enquiries about Results and Appeals**

If a centre has a concern about a pupil's result the Head of centre should contact CCEA, stating the nature of the concern. All enquiries should be submitted to the Assessment Administration Team at CCEA within 14 days of the publication of results.

## **2 SUMMARY OF ASSESSMENT INFORMATION**

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All processes for the production, moderation and marking of assessment materials and for awarding will comply with the Code of Practice established by the Regulatory Authorities.

The Scheme of Assessment consists of the following components:

- an Investigative Task addressing Assessment Objective AO1 through either Assessment Objective AO2 or Assessment Objective AO3 or both;
- an Investigative Task addressing Assessment Objective AO4;
- an Internal Assessment consisting of exemplification of the highest level of achievement in each of the 14 topics into which the subject content of assessment objectives AO2, AO3 and AO4 is divided (the topic areas are listed at the end of Section 3);
- a Written Assessment, duration one hour, which will be set and marked by CCEA. This will normally be taken during class time, supervised by the pupils' teacher.

## 3 SCHEME OF ASSESSMENT

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### 3.1 Assessment Components

The Scheme of Assessment consists of four components; two externally set and moderated Investigative Tasks, each weighted at 9% of the overall award, an Internal Assessment Component weighted at 42% of the overall award and an Written Assessment weighted at 40% of the overall award.

#### 3.1.1 Investigative Tasks

- (i) An Investigative Task addressing assessment objective AO1 through contexts provided by either assessment objective AO2 or assessment objective AO3 or both;
- (ii) An Investigative Task addressing assessment objective AO4.

The Investigative Tasks are included in the *Mathematics for Life Course File*, a copy of which is provided to each centre submitting entries for this award.

Teachers may, if they wish, devise their own Investigative Tasks. If they choose to do this, they must submit them to CCEA for approval **before** using them with their pupils.

#### 3.1.2 Internal Assessment Component

Worksheets drawn from the *Mathematics for Life Course File* that exemplify the highest level of achievement (E3, E2 or E1) in each of the 14 topics into which the subject content of assessment objectives AO2, AO3 and AO4 is divided.

Teachers may, if they wish, devise their own work sheets rather than using those provided. If they chose to do this, they must ensure that they are of equivalent standard and enclose copies of them with the moderation sample.

The Investigative Tasks and the Internal Assessment Component together form the pupil's Portfolio of Work.

#### 3.1.3 Written Assessment

There will be a Written Assessment, lasting one hour, which will be set and marked by CCEA. This will normally be taken during class time, supervised by the pupils' own teacher. The questions in this assessment will allow pupils to demonstrate their understanding of the subject content of the specification.

### 3.2 Relationship Between Assessment Objectives and Assessment Components

The final weightings for Assessment Objectives AO1, AO2, AO3 and AO4 in the overall assessment will be in the ratio 1:2:1:1. By completing the Portfolio of Work and taking the Written Assessment pupils will automatically fulfill the correct weightings.

### 3.3 Investigative Tasks

- 3.3.1 The Investigative Task for assessment objective AO1 will be marked out of a maximum of 9. A **Cover Sheet** (see Appendix 2) should be completed for each pupil and included in the Portfolio of Work.

The table below, which should be read in conjunction with the Level Descriptions in Section 5, indicates the mark to be awarded for each level of work in each of the three assessment criteria. When awarding a mark, teachers must decide which of the descriptors in the criteria **best fits** the pupil’s performance. The statements within a description should **not** be taken as discrete hurdles, all of which must be achieved for the mark to be awarded.

A pupil whose work is judged to fall short of the minimum standard for the award of 1 mark in any of the criteria will be awarded a mark of 0.

	Criterion			Mark
	Making and Monitoring Decisions	Communicating Mathematically	Developing Skills of Mathematical Reasoning	
<b>Description:</b> <b>The pupil can</b>	copy a simple routine without supervision; use given mathematics in classroom activities.	answer closed questions about their work, using some mathematical language; represent their work with objects and/or pictures;	recognise and extend simple patterns; use identified materials and mathematical techniques.	1
	follow a given routine without supervision; use mathematics without guidance in some classroom activities.	answer open questions about their work; illustrate their work using lists, given tables and simple diagrams.	respond appropriately to questions beginning “What if . . .”; select, with some guidance, materials and mathematical techniques.	2
	carry out a structured task independently; use mathematics without guidance in classroom activities; organise their work and check results.	illustrate their work using lists, tables and simple diagrams; make a few short written comments about their work.	show they understand a general statement by finding a particular example that matches it; independently select appropriate materials and mathematical techniques.	3

The completed Investigative Task addressing assessment objective AO1 will be included in the pupil’s Portfolio of work.

3.3.2 The Investigative Task for assessment objective AO4 will be marked out of a maximum of 9. The marks awarded for this Task should be included in the **Cover Sheet** (Appendix 2).

The table below, which should be read in conjunction with the Level Descriptions in Section 5, indicates the mark to be awarded for each level of work in each of the three assessment criteria. When awarding a mark, teachers must decide which of the descriptors in the criteria **best fits** the pupil's performance. The statements within a description should **not** be taken as discrete hurdles, all of which must be achieved for the mark to be awarded.

A pupil whose work is judged to fall short of the minimum standard for the award of 1 mark in any of the criteria will be awarded a mark of 0.

	Criterion			Mark
	Specify the problem and plan	Collect, process and present data	Interpret and discuss results	
<b>Description:</b> <b>The pupil can</b>	copy a given Handling Data process appropriate to the stated purpose.	extract data from a simple list with some relevance to their aims; sort items using one criterion; present data using real objects or drawings.	answer closed questions based on the extraction of information from simple lists of data.	1
	follow a given Handling Data process appropriate to the stated purpose.	collect data relevant to their aims; sort data using one criterion; present data using eg lists or diagrams; sort items using selected criteria.	answer open questions based on the collection and presentation of their data.	2
	design and use an appropriate Handling Data process to achieve the stated purpose.	collect an appropriate sample of relevant data; sort data using selected criteria; present data using appropriate statistical diagrams.	discuss their results using appropriate mathematical language.	3

Examples of the Handling Data process are: the use of ICT to record and/or represent data; the use of a Data Capture Form.

The completed Investigative Task addressing assessment objective AO4 will be included in the pupil's Portfolio of work.

### 3.4 Internal Assessment Component

3.4.1 For each of the topics into which the subject content is divided, work sheets are provided in the *Mathematics for Life Course File*. Work Sheets to exemplify the highest level of achievement (E3, E2 or E1) across the content of each of these topics will be included in the pupil's Portfolio of Work.

A copy of the *Mathematics for Life Course File* is provided to each centre submitting entries for this award. If it is inappropriate for pupils to submit written evidence, a **Witness Statement** (see Appendix 3) should be submitted.

3.4.2 The exemplification of the highest level of achievement in each of the 14 topics will be awarded a mark ranging from 0 to 3. The mark awarded will correspond to the level the work is judged to exemplify, ie:

- a mark of 3 for work at Entry 3;
- a mark of 2 for work at Entry 2;
- a mark of 1 for work at Entry 1.

If the work is judged to fall short of the minimum required for Entry 1, or if no work is submitted, then a mark of 0 will be awarded.

When deciding on the mark to be awarded, teachers should refer to the Level Descriptions in Section 5 of this specification. They may also find it helpful to refer to the marking criteria grids in Sections 3.3.1 and 3.3.2, above.

### 3.5 The Pupil's Portfolio of Work

3.5.1 The marks allocated for each piece of work in the pupil's portfolio must be entered in the appropriate place in the **Pupil's Record Sheet**, an example of which is attached as Appendix 1. The teacher must note on each piece of work any help given to the pupil and the resulting change (if any) to the mark allocated.

3.5.2 The **Pupil Cover Sheet** showing the marks awarded for each of the Investigative Tasks and any **Witness Statements** must be included in the Portfolio of Work.

3.5.3 The total marks available for the Pupil's Portfolio of Work are 60, made up of 9 marks for each of the two Investigative Tasks and 42 marks for the Internal Assessment Component.

### 3.6 Written Assessment

There will be a Written Assessment of duration one hour.

The Written Assessment must take place on the date specified by CCEA; this will normally be in March of the second year of study. Centres may vary the starting time by up to 30 minutes.

The Written Assessment will normally be taken in class time, supervised by the pupils' own teacher.

Each pupil will be provided with a question and answer booklet.

Pupils will be expected to answer all the questions.

Questions will sample topics throughout the subject content.

Questions will be of varying length.

The mark allocated to each question will be printed in the booklet.

### 3.7 Combining Assessment Component Marks

The mark obtained in the Written Assessment will be scaled to a mark out of 40 before being combined with the total mark obtained for the pupil's Portfolio of Work to give the overall mark out of 100 for the course.

## 4 SUBJECT CONTENT

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The subject content set out below is mandatory. The Written Assessment and the Internal Assessment Component will expect knowledge of all of the content and may test pupils' knowledge of any part of it.

The subject content ensures that a course based on this specification will be consistent with the requirements of the Northern Ireland Programme of Study for Mathematics at Key Stage 4.

Teachers should take every opportunity to integrate the Northern Ireland Numeracy Strategy into their teaching of the subject content.

### AO1 Using and Applying Mathematics

Pupils should have opportunities, appropriate to those below school leaving age, to:

- Explore the materials and mathematical techniques that may be appropriate to accomplish different tasks;
- Discuss their work and respond to closed and then open-ended questions using appropriate mathematical language;
- Carry out structured tasks, initially under direction, then independently;
- Present their work using sketches/drawings, lists, given tables and statistical diagrams;
- Check their answers and their method of working;
- Compare and discuss methods of presentation of work;
- Recognise and continue simple patterns.

### AO2 Number and Algebra

#### Entry 1

<b>Topic</b>	<b>Comment</b>
Use language associated with number. Count numbers initially within 10, progressing to numbers within 20. Count reliably up to 10 items. Recognise zero as the empty set. Read and write numbers up to 10, including 0. Order and compare numbers up to 10, including 0.	More, fewer, the same, difference, sum. Count forwards and backwards from a given number. Touch counting.

<b>Topic</b>	<b>Comment</b>
Add single-digit numbers with totals to 10. Subtract single-digit numbers. Interpret +, – and = in practical situations for solving problems. Use a calculator to check results.	Using real objects. Using real objects and by comparison. Questions will involve one operation only.
Copy, and continue, simple repeating patterns.	Using real objects or pictures.
Devise, and talk about, simple repeating patterns.	Using real objects or pictures.

## Entry 2

<b>Topic</b>	<b>Comment</b>
Investigate, and make sets of, numbers up to 20. Count numbers within 50–100	In fives and tens, forwards and backwards from a given number.
Read, write, order and compare numbers up to 100. Add and subtract numbers within 20.	Using a variety of materials, including the number line.
Recall addition and subtraction facts to 20. Approximate by rounding to the nearest 10.	Mental addition and subtraction.
Solve problems involving money. Use a calculator to check results of whole number calculations.	Within £1.
Read, write and compare halves and quarters of quantities. Find halves and quarters of items or shapes.	eg shade one half of a given rectangle.
Recognise and continue a simple repeating pattern.	Either spatial or number patterns; eg odd and even numbers.
Explore and use addition and subtraction patterns up to 10. Use a symbol to represent an unknown number.	Understand the relationship between addition and subtraction. The unknown will appear only once eg $5 + ? = 9$ .
Inputs to and outputs from a simple function machine.	eg Number in $\rightarrow$ $\boxed{+3}$ $\rightarrow$ Number out

### Entry 3

#### Topic

#### Comment

Count, read, write, order and compare numbers up to 1000.

Add and subtract with three-digit numbers.

Recall addition and subtraction facts to 20.

Multiply single-digit numbers.

Multiply two-digit numbers by single-digit numbers.

Recall multiplication facts (eg multiples of 2, 3, 4, 5 and 10).

Divide a two- or a three-digit number by a single-digit number.

Understand and use the fact that addition and subtraction are inverse operations.

Use and interpret  $+$ ,  $-$ ,  $\times$ ,  $\div$  and  $=$  in practical situations for solving problems.

Approximate by rounding numbers less than 1000 to the nearest 10 or 100.

Estimate answers to addition and subtraction calculations.

Read, write and understand common fractions (eg  $\frac{3}{4}$ ,  $\frac{2}{3}$ ,  $\frac{1}{10}$ ).

Find halves and quarters of small numbers.

Read, write and understand decimals up to two decimal places in the context of money.

Use a calculator to solve problems involving whole numbers and decimals in context, and to check results of calculations.

Inputs to and outputs from a simple function machine.

Use a symbol to represent an unknown number.

Find the next term of a simple number pattern.

Mental addition and subtraction.

Times, by, product.

Leading to  $0 \times 0$  up to  $10 \times 10$ .

Interpret the remainder.

If  $127 + 584 = 711$  then  $711 - 584 = 127$

Questions may involve combinations of these operations.

Circle  $\frac{3}{8}$  of a given set of shapes; calculate  $\frac{2}{5}$  of £35.

Money in decimal notation (eg £1.39).

eg

Number in  $\rightarrow$   $\boxed{\times 3}$   $\rightarrow$   $\boxed{+43}$   $\rightarrow$  Number out

Number in = 26, find Number out.

Number out = 179, find Number in.

The unknown may appear twice eg  $\Delta \times \Delta = 25$ .

Describe how the number was found.

### Entry 3

Topic	Comment
Use a formula given in words.	eg Add 51 to number thought of; divide answer by 6.
Explain and predict number patterns within 100.	

### AO3 Shape, Space and Measures

#### Entry 1

Topic	Comment
Recognise and select coins.	1p, 2p, 5p, 10p, 20p, 50p, £1, £2.
Relate familiar events to: time of day; day of week; season of year.	
Recognise special times on the clock face.	Lunch time, home time.
Describe size and use direct comparison for the sizes of items.	Using words such as <i>bigger, smaller, biggest, smallest.</i>
Describe length, width and height and use direct comparison for the dimensions of items.	Using words such as <i>long, short, wide, narrow, high, low; broader, tallest.</i>
Describe weight and use direct comparison for the weights of items.	Using words such as <i>heavy, lightest.</i>
Describe capacity and use direct comparison for the capacities of items.	Using words such as <i>holds more than, emptier, fullest.</i>
Use everyday language to describe the features of familiar 2-D and 3-D shapes.	eg triangle, rectangle, square, circle, cube, cuboid, sphere, cylinder, cone.
Sort familiar 2-D and 3-D shapes using one criterion.	Identify the criterion used.
Understand everyday positional language.	Using words such as <i>beside, in front of, close to, between.</i>

#### Entry 2

Topic	Comment
Make amounts of money up to £1 in different ways using 1p, 2p, 5p, 10p, 20p and 50p coins.	
Calculate the cost of more than one item and the change due.	Costs will be in pence or in whole pounds. eg cost of two stamps at 27p each; change from £1.

Topic	Comment
Read and record dates in common formats.	4 July 2005; 4/7/05; 04:07:05.
Read, record and understand time displayed on analogue and 12-hour digital clocks.	Read time in hours, half hours and quarter hours eg 1115, half past ten.
Read, estimate, measure and compare lengths using common standard and non-standard units.	Handspans, paces, centimetres, metres. Rulers, metre sticks, tape measures.
Read, estimate, measure and compare weights using common standard units.	Gram, kilogram. Scales.
Read, estimate, measure and compare capacities using common standard and non-standard units.	Litres, cups. Measuring jugs.
Read and compare positive temperatures in everyday situations.	eg weather charts. Thermometers.
Appreciate the need for standard units and recognise what they are used for.	eg kilogram and gram, metre and centimetre, litre and millilitre.
Read simple scales to the nearest labelled division.	
Recognise and name common 2–D and 3–D shapes.	Square, circle, rectangle, triangle, hexagon, cube, cuboid, pyramid, cylinder, sphere, cone.
Describe the properties of common 2–D and 3–D shapes.	Number of: sides; corners; edges; faces. Shape(s) of faces.
Draw and/or construct 2–D and 3–D shapes.	Using pinboards, straws, card or commercial materials.
Use positional vocabulary.	Using words such as <i>behind, inside, left, right, above</i> .
Understand and use compass bearings.	Use the eight points of the compass to describe and give directions.
Recognise and use right and left turns.	Using words such as <i>forward, backward, right, left</i> .
Follow and give directions for movement between two locations.	
Understand and use LOGO.	

### Entry 3

Topic	Comment
Add and subtract sums of money given in pounds and pence.	eg check a till receipt.
Interpret a calculator display in the context of money.	eg 3.5 as £3.50
Perform approximate calculations using money.	Round amounts to nearest £1 or 10p.
Read, measure and record time.	eg set cooking time on an oven.
Interpret simple timetables.	Railway/bus timetables; TV guides.

<b>Topic</b>	<b>Comment</b>
Read and interpret distance in everyday situations.	eg distance on a road sign.
Read, estimate, measure and compare lengths using non-standard and standard units.	eg measure a room for fitted carpet.
Read, estimate, measure and compare weights using non-standard and standard units.	eg weigh out ingredients for a recipe.
Read, estimate, measure and compare capacities using non-standard and standard units.	eg measure milk or water for a recipe.
Read, measure and compare temperatures using common units and instruments.	eg set cooking temperature on an oven.
Choose and use appropriate units and measuring equipment.	Read scales to the nearest non-labelled division.
Sort 2–D and 3–D shapes to solve practical problems using properties of the shapes.	Angles; length(s) of side(s); lines of symmetry.
Understand angle as a measurement of turn; recognise right-angles.	Clockwise, anticlockwise, right-angle.
Plot points in the first quadrant.	

#### **AO4 Handling Data**

##### **Entry 1**

<b>Topic</b>	<b>Comment</b>
Sort and classify objects using a single criterion.	Identify the criterion used. Record results using drawings.
Represent data using objects, pictures or simple databases.	
Use mapping diagrams to show the relationship between the members of two sets.	

##### **Entry 2**

<b>Topic</b>	<b>Comment</b>
Extract information from simple lists.	Identify the criteria used. Make use of a Carroll diagram.
Sort and classify objects using selected criteria.	
Sort and classify a set of data using one criterion.	Identify the criterion used.
Collect simple numerical information.	Record information in a given table or Data Capture Form.

**Topic**

**Comment**

Represent information, using ICT where appropriate.  
Make numerical comparisons from block graphs.

Simple lists, tables, diagrams. Simple block graphs.

**Entry 3**

**Topic**

**Comment**

Extract information from catalogues and brochures.

Extract numerical information from lists, tables, diagrams and simple charts.

Make numerical comparisons from bar charts and pictograms.

Make observations and record numerical information using a tally.

Sort and classify a set of data using selected criteria.

Organise and represent information in different ways, selecting an appropriate format to represent the information.

Describe simple pie charts (with not more than four sectors).

Carry out a simple survey, eg what is the most popular flavour of crisps?

Identify the criteria used.

Lists, tables, diagrams, bar charts, pictograms. Use simple ICT graphing packages.

Visual discrimination; simple fractions, eg half, quarter.

**Topics**

The subject content of assessment objectives AO2, AO3 and AO4 is subdivided into the following topics:

**AO2 Number and Algebra**

1 number operations;

2 number systems;

3 number patterns;

4 algorithms;

5 decimals and money;

6 fractions;

### **AO3 Shape, Space and Measures**

- 7 plotting points;
- 8 2-dimensional shapes;
- 9 3-dimensional shapes;
- 10 measurements and measuring equipment;
- 11 time;

### **AO4 Handling Data**

- 12 gather and record information;
- 13 extract and interpret information;
- 14 sort and classify objects and data.

Work sheets for these topics can be found in the *Mathematics for Life Course File*, a copy of which is provided to each centre submitting entries for the award.

## **5 LEVEL DESCRIPTIONS**

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Teachers should use these Level Descriptions when assessing the work contained in their pupils' Portfolios of Work. It might also be helpful to look at the marking criteria set out in the tables in Sections 3.3.1 and 3.3.2 when deciding on the mark to be allocated.

### **Entry 1**

Pupils use mathematics as an integral part of classroom activities. They use materials provided under direction. They discuss their work using simple mathematical language in response to closed questions. They can copy and continue simple repeating patterns using objects or pictures.

Pupils count sets of objects reliably, and add and subtract numbers accurately, to at least ten. They read and write the numbers involved. They can order sets of whole numbers to at least ten.

Pupils name common 2– and 3–dimensional shapes and objects. They use provided materials to model the shapes and objects and describe their properties using everyday language. They measure and order shapes and objects by direct comparison. They recognise and select coins and notes.

Pupils sort and classify objects and state the criterion used. They extract data from simple lists. They gather small sets of data and record them using real objects or drawings.

### **Entry 2**

Pupils select, with help, the materials and mathematical techniques required for some classroom activities. They discuss their work using appropriate mathematical language. They are beginning to explain their thinking and respond to open questions. They use and interpret mathematical symbols and diagrams.

Pupils use place value to order sets of whole numbers to at least 100. They round numbers to the nearest 10. They use mental recall of addition and subtraction facts up to at least 20 in solving problems. They show an understanding of decimal notation and can solve addition and subtraction problems involving money. They use a symbol to represent an unknown number. They understand and use single-function machines.

Pupils recognise and name common 2– and 3–dimensional shapes and objects and describe their properties. They understand right and left turns and use them to give directions. They understand angle as a measurement of turn. They understand and use standard units of time and can sequence events. They use non-standard as well as standard units for measuring length and mass and use measuring equipment.

Pupils sort and classify objects in various ways, stating the criteria used. They extract data from catalogues and brochures. They represent their data using simple lists, tables or diagrams

### **Entry 3**

Pupils select and use appropriate materials and mathematical techniques independently. They carry out tasks without supervision. They begin to develop their own strategies for solving problems and overcoming difficulties. They begin to organise their work and check results. They discuss their work and can explain their thinking.

Pupils use mental recall of number facts up to at least 20 and multiplication facts up to  $10 \times 10$ . They use the four arithmetic operations accurately when solving problems. They use a calculator when appropriate. They recognise, calculate and use simple fractions. They understand and use coordinates in the first quadrant. They begin to explore and describe simple number patterns.

Pupils understand the concept of negative numbers, eg in the context of temperature scales. They understand the 12– and 24–hour clocks and convert times between them. They extract information from timetables. They sort and classify 2– and 3–dimensional shapes and objects in various ways and state the criteria used.

Pupils sort and classify data in various ways, stating the criteria used. They interpret and use simple statistical diagrams such as bar charts and pictograms.

## **6 PORTFOLIO OF WORK**

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A *Pupil Record Sheet* (see copy attached as Appendix 1) must be completed for each pupil and included at the beginning of the pupil's Portfolio of Work.

The portfolio must contain work in three sections:

- (i) an Investigative Task addressing assessment objective AO1 through contexts provided by assessment objective AO2 or assessment objective AO3 or both;
- (ii) an investigative task addressing assessment objective AO4;
- (iii) exemplification of work at the highest level of achievement (E3, E2 or E1) in each of the topic areas into which the subject content is divided. This exemplification should also cover the breadth of the content of the topic area.

The marks for (i) and (ii), the total mark for (iii) and the overall total (out of 60) should be entered in the appropriate boxes on the *Pupil Record Sheet*.

## **7 WRITTEN ASSESSMENT ARRANGEMENTS**

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### **7.1 Timing of Written Assessment**

The Written Assessment must take place on the date specified by CCEA: this will normally be in March in the second year of the course.

Centres may vary the specified start time by up to 30 minutes.

### **7.2 Conduct of Test**

The Written Assessment will normally be taken during class time. It must be supervised by a responsible adult considered suitable by the head of centre; normally, this person will be the pupils' teacher.

## 8 MODERATION PROCEDURES

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Pupils' Portfolios of Work will be moderated by inspection. Centres will be required to submit a sample of these portfolios, selected by CCEA, together with the completed *Pupil Record Sheet* by **early May** at the end of the course (normally year 12) in accordance with the instructions contained in the booklet *Postal Submission of Coursework: Instructions to Teachers*. This booklet, along with the necessary stationery, is issued to centres by CCEA in February each year.

Centres are required to:

- standardise assessments as necessary across different teachers and teaching groups to produce an order of merit of pupils from the centre as a whole;
- certify that the work included in each pupil's portfolio is that of the pupil concerned;
- keep all pupils' portfolios under secure conditions until required for moderation by CCEA.

The following are the criteria used by CCEA when requesting coursework samples from centres.

The sample must represent:

- each teaching group (if there is more than one in the centre);
- the full range of ability, including the top and the bottom in the centre's rank order;
- the work of both boys and girls, where available.

The number of portfolios to be included in the sample is given in the following table:

Number of Pupils entered	Number of Portfolios for Moderation
Up to 5	All pupils
6–15	6 pupils
16–30	8 pupils
over 30	10 pupils

Where the moderation process reveals serious problems in a centre with regard to the interpretation and/or implementation of the assessment criteria, CCEA will request further work or take other appropriate action to safeguard pupils' interests.

## APPENDIX 1 – PUPIL RECORD SHEET

CCEA Entry Level Certificate in Mathematics for Life

Summary of Internal Assessments

**Pupil Record Sheet for** \_\_\_\_\_ **Centre Number:** \_\_\_\_\_

**Pupil Number:** \_\_\_\_\_

Investigative Tasks		Mark (out of 9)
(i)	Using and Applying Mathematics	
(ii)	Handling Data	
(iii)	<b>Internal Assessment Component</b>	<b>Mark (out of 3)</b>
1	Number Operations	
2	Number Systems	
3	Number Patterns	
4	Algorithms	
5	Decimals and Money	
6	Fractions	
7	Plotting Points	
8	2-Dimensional Shapes	
9	3-Dimensional Shapes	
10	Measurements and Measuring Equipment	
11	Time	
12	Gather and Record	
13	Extract and Interpret	
14	Sort and Classify	
<b>Total</b> (out of 42)		
<b>Overall Total</b> (out of 60)		

### Pupil Declaration

I certify that I have produced the work contained in this portfolio without help apart from that indicated by my teacher.

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

### Teacher Declaration

I certify that I have supervised the work contained in this portfolio and can verify that it is the pupil's own.

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

## APPENDIX 2 – PUPIL COVER SHEET

### CCEA Entry Level Certificate in Mathematics for Life

#### Cover Sheet for Investigative Tasks

Centre Name \_\_\_\_\_ Centre Number \_\_\_\_\_

Pupil Name \_\_\_\_\_ Pupil Number \_\_\_\_\_

Using and Applying Mathematics		Marks Awarded			Total Mark
Name of Task	Level	Making and Monitoring Decisions	Communicating Mathematically	Developing skills of Mathematical Reasoning	

Handling Data		Marks Awarded			Total Mark
Name of Task	Level	Specify the Problem and Plan	Collect, Process and Present Data	Interpret and Discuss Results	

I certify that I have supervised the work presented by this pupil and can verify that it is the pupil's own.

Teacher Name \_\_\_\_\_ Signature \_\_\_\_\_

Date \_\_\_\_\_

When completed, this document should be included with the Pupil Record Sheet at the front of the Pupil Portfolio.

## APPENDIX 3 – WITNESS STATEMENT

### CCEA Entry Level Certificate in Mathematics for Life

#### Observation of Competence: Witness Statement

Centre Name \_\_\_\_\_ Centre Number \_\_\_\_\_

Pupil Name \_\_\_\_\_ Pupil Number \_\_\_\_\_

Topic Area	Competence Observed	Date	Witness Commentary	Level Achieved

I certify that I observed the competence(s) listed above on the date(s) indicated and that the pupil satisfied the assessment criteria for the level(s) awarded.

Teacher Name \_\_\_\_\_ Signature \_\_\_\_\_

Date \_\_\_\_\_

Where there is no written evidence, a copy of this witness statement should be completed for each competence observed. These should be collated and included with the Pupil Record Sheet at the front of the Portfolio of Work.

