

Edexcel Entry Level

Specification and specimen assessment materials

**Edexcel Entry Level Certificate in
Mathematics (8922)**
First examination 2003
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Introduction

The Entry Level Certificate in Mathematics is based on the National Curriculum programmes of study leading to achievement at National Curriculum levels 1, 2 and 3.

It also provides opportunities for progression to the Edexcel GCSE Mathematics specifications 1387/8. Students may enter for both qualifications.

Key features

- recognises achievement at National Curriculum Levels 1,2 and 3
- is wholly assessed by teachers
- links with GCSE Mathematics
- provides opportunities for progression to GCSEs or GNVQs
- recognises small steps of achievement
- is based on practical tasks
- resources from Heinemann pupils text book and teacher's file
- test provided
- course work provided

National Qualifications Framework criteria

The specification is based on the common criteria and the Entry Level criteria, which are prescribed by the regulatory authorities including QCA and are mandatory for all awarding bodies.

Aims

The aims of this specification are consistent with the requirements of the National Curriculum Orders for Mathematics. The aims of this specification are:

Using and applying mathematics

- use and apply mathematics in practical tasks, in real-life problems and within mathematics itself

Number and algebra

- use a range of methods of computation and apply these to problems
- use calculators and computer software

Shape, space and measures

- explore shape and space through drawing and practical work using a range of materials
- use computers to transform graphic images and to solve problems

Handling data

- collect, record and represent data

Assessment

Objectives

Students are assessed on:

Using and applying mathematics and their ability to:

- make and monitor decisions to solve problems
- communicate mathematically
- develop skills of mathematical reasoning

Number and algebra and their ability to:

- understand and use numbers and the number system
- perform calculations
- solve numerical problems

Shape, space and measure and their ability to:

- understand and use properties of shape
- understand and use properties of position, movement and transformation
- understand and use measures

Handling data and their ability to:

- process, represent and interpret data

Outline

The certificate is awarded at three levels:

Entry 1

Entry 2

Entry 3

Assessment is based on two coursework components

classroom tests (called stage tests)

tasks

To achieve an award students must achieve competence in both of these.

For each award students must have demonstrated, through coursework, competence in both stage tests and tasks.

Overall, in order to achieve an award students need to fulfil the following requirements.

Award	Requirements: Stage tests	Using and applying mathematics tasks
Entry 1	≥ 80% on one Entry 1 stage test	<ul style="list-style-type: none">• Competence in all three skill areas at Entry 1 or above
Entry 2	≥ 80% on one Entry 2 stage test	<ul style="list-style-type: none">• Competence in all three skill areas at Entry 2 or above
Entry 3	≥ 80% on one Entry 3 stage test	<ul style="list-style-type: none">• Competence in all three skill areas at Entry 3, plus evidence of the use of a calculator

Tasks

To demonstrate competence in the tasks, evidence must be shown in each of the three skill areas, as given below. In addition, for the Entry 3 award students must show evidence of the use of a calculator.

Award	Skill area 1: making and monitoring decisions to solve problems	Skill area 2: communicating mathematically	Skill area 3: developing skills of mathematical reasoning
Entry 1	Students use mathematics as an integral part of classroom activities.	Students represent their work with objects or pictures and discuss it.	Students recognise and use a simple pattern, usually based on their experience.
Entry 2	Students select the mathematics for some classroom activities.	Students discuss their work using familiar mathematical language and are beginning to represent it using symbols and simple diagrams	Students can explain why an answer is correct.
Entry 3	Students try different approaches and find ways of overcoming difficulties that arise when they are solving problems. They are beginning to organise their work and check results	Students discuss their work and are beginning to explain their thinking. They use and interpret mathematical symbols and diagrams.	Students show that they understand a general statement by finding particular examples that match it.

Photocopiable tasks with task-specific assessment guidelines, called performance indicators, will be provided by Edexcel. Centres can select these and integrate them into their own schemes of work. Centres may also choose to use their own tasks.

Evidence of competence:

- may come from one or more task
- may be oral, practical or written, or any combination of these
- must be summarised by a teacher on a record form
- must be certified by a teacher as the student's own work
- should include evidence of using a calculator for Entry 3 award students.

To achieve an award, students must show competence in each of the three skill areas using and applying mathematics. The lowest level of achievement determines the final award.

For example:

Skill area 1	Skill area 2	Skill area 3
Entry 2	Entry 2	Entry 1

gives

Entry 1 award on task

Stage tests

Three tests will be provided at each of the three stages (i.e. Entry 1, Entry 2 and Entry 3), together with a teacher's mark scheme.

The stage tests:

- are photocopiable masters
- are confidential and must be kept secure along with the teacher's mark scheme
- do not allow the use of calculators
- should be given at an appropriate time for each student
- should be undertaken in normal classroom conditions and be the student's own work
- have no time limit
- may be read to the students by the teacher with the normal level of support given to students with special needs. This may include, for example, the use of practical equipment, such as Cuisenaire rods, Dienes apparatus and counters, which may make the tests more accessible. It is also possible for students with special needs to use IT support.
- must not be taken out of the teacher's direct supervision by a student at any time
- must be marked by the teacher according to the published mark scheme
- may not be repeated
- have three versions for each stage, for students who are unsuccessful on their first or second attempt
- must be kept secure when marked
- are moderated by Edexcel

Differentiation

Differentiation between students across the ability range will occur by means of task, process, outcome, response and level of award.

Internal moderation

Students' work must be standardised across the centre by internal moderation. Internal moderation must include:

- stage test procedures and marking
- checks that assessments on the tests match the supporting evidence for each skill area.

External moderation

The students' coursework – the stage test, tasks and a record form – will be required for external moderation. The coursework will be moderated by sampling sets of students' work; the sample may include work by all the students.

Forbidden combinations and links with other subjects

There are no forbidden combinations or overlaps with any other specification.

Awarding and reporting

The grading, awarding and certification of this specification will comply with the requirements of the Entry Level Code of Practice for courses starting in September 2001, which is published by QCA. Qualifications will be graded as pass or fail.

Awards of the Certificate will be made in line with the Winter and Summer GCSE entries. Certificates will be awarded at each of the levels Entry 1, Entry 2 and Entry 3.

Assessment language

Assessment of this specification will be available in English only. Assessment materials will be published in English only and all written and spoken work submitted for examination and moderation must be produced in English.

Students with particular requirements

The normal level of support should be given to students with special needs. This may include, for example, the use of practical equipment, such as Cuisenaire rods, Dienes apparatus and counters, which may make the tests more accessible. It is also possible for students with special needs to use IT support.

Regulations and guidance relating to students with special requirements are published annually by the Joint Council for General Qualifications and are circulated to examinations officers.

Further copies of guidance documentation may be obtained from the address above or by telephoning 0870 240 9800.

Specific enquiries should be addressed to:

Special Requirements
Edexcel Foundation
Stewart House
32 Russell Square
London WC1B 5DN

Enquiries about results and appeals

Edexcel has made arrangements for enquiries about results and appeals. Details are continued in the *Regulations and Syllabus Synopses* for the current year and in the booklet, *Information and Guidance for Centres*.

Spiritual, moral, ethical, social, cultural and environmental issues, health and safety considerations and the European dimension

This specification does not provide a course of study that is appropriate for the introduction of the above issues.

Support and training

Training

A programme of INSET courses covering various aspects of the specifications and assessment will be arranged by Edexcel each year on a regional basis. Full details may be obtained from:

INSET
Edexcel
Stewart House
32 Russell Square
London WC1B 5DN
Tel: 0870 240 9800
Fax: 020 7758 6960
E-mail: inset@edexcel.org.uk

Website

www.edexcel.org.uk

Please visit the Edexcel website, where further information about training and support for all qualifications, including this Entry qualification, can be found.

The website is regularly updated, and an increasing amount of support material and information will become available through it.

Edexcel publications

Support materials and further copies of this specification can be obtained from:

Edexcel Publications
Adamsway
Mansfield
Notts NG18 4LN
Tel: 01623 467467
Fax: 01623 450481
E-mail: publications@linneydirect.com

Specification content for stage tests

The specification content for the stage tests is presented for the three awards:

- Entry 1 award (Stage 1)
- Entry 2 award (Stage 2)
- Entry 3 award (Stage 3).

In each case, the content is divided into three columns:

- left-hand column = content
- middle column = guidance note
- right-hand column = guidance examples.

The notes and examples along with the specimen stage tasks, are intended as guidance for the interpretation of the content.

Note

Entry 1 award content is assumed at Entry 2 level and Entry 2 award content is assumed at Entry 3 level.

New material at Entry 2 level which is not included in the Entry 1 award is shown in bold.

Content added at Entry 3 level is highlighted in the same way.

Entry 1 Award

NUMBER AND ALGEBRA	NOTES	EXAMPLES
<ul style="list-style-type: none"> Count orally up to 10, knowing the number names. Count small sets of objects, checking the total. 	<ul style="list-style-type: none"> Sets of objects or pictures should include a variety of items. 	<ul style="list-style-type: none"> Recount a set of objects in a different order, using the correct sequence of number, names.
<ul style="list-style-type: none"> Read, write and order numbers to 10 		<ul style="list-style-type: none"> Find biggest, smallest. Put 724 in order. Write number '8' for 'eight' and vice versa.
<ul style="list-style-type: none"> Understand the operation of addition, subtraction as taking away and the relationship between them. Recognise situations to which they apply and use them to solve problems with whole numbers up to 10. 	<ul style="list-style-type: none"> Compare using terms such as more, fewer, the same etc. 	<ul style="list-style-type: none"> Jane has 6 books, Frieda has 8 books. Who has more books? How many more? If 3 pencils are taken from a box of 10 pencils then 7 are left. When the 3 pencils are put back in the box there are 10 pencils again.
<ul style="list-style-type: none"> Use apparatus to add and subtract numbers to 10 		<ul style="list-style-type: none"> Use cubes, rods, fingers etc

Entry 1 award – continued

SHAPE, SPACE AND MEASURES	NOTES	EXAMPLES
<ul style="list-style-type: none"> Describe and discuss shapes and patterns that can be seen or visualised. 	<ul style="list-style-type: none"> Use terms such as straight, curved, flat, round, pointed etc. 	<ul style="list-style-type: none"> Make a simple shape from cubes to form a picture. Find a solid that is pointed (e.g. a cone).
<ul style="list-style-type: none"> Recognise and use simple geometric features of shapes, sides/surfaces, rectangles, squares, circles, triangles and cubes. 	<ul style="list-style-type: none"> Distinguish between squares, triangles, circles (names not required). 	<ul style="list-style-type: none"> Count sides of a polygon. Count surfaces on a cube. Count the number of this shape □ amongst other shapes on a page.
<ul style="list-style-type: none"> Describe positions using common words. Copy, continue and make patterns. 	<ul style="list-style-type: none"> On, inside, above, under, behind, next to etc. Repeating patterns of simple shapes. Numbers or shapes 	<ul style="list-style-type: none"> Continue a pattern ◆ □◆□ String of beads □ ○□○ Copy a pattern of beads on a string. Given a pile of cards (with two different shapes) make a repeating pattern. 1,4 , 1 , 4 ,1
<ul style="list-style-type: none"> Compare objects and events using appropriate language for direct comparison. 	<ul style="list-style-type: none"> Use terms such as longer, shorter, taller, before after etc 	<ul style="list-style-type: none"> Draw a tree taller than this one. Colour the tallest tree. True or false 'the tree is taller than the house'.
HANDLING DATA	NOTES	EXAMPLES
<ul style="list-style-type: none"> Sort and classify a set of objects or pictures 	<ul style="list-style-type: none"> One criterion 	<ul style="list-style-type: none"> Sort logiblocs by one of: shape colour, thickness, size. Classify animals by numbers of legs. Find the bottles in a pile of items for recycling.

Entry 2 award

NUMBER AND ALGEBRA	NOTES	EXAMPLES
<ul style="list-style-type: none"> Count orally up to 100 and beyond, knowing the number names. Count collections of objects, checking the total. Count in steps of different sizes. 	<ul style="list-style-type: none"> Distinguish between odd and even numbers. 	<ul style="list-style-type: none"> Find the next number 10, 13, 16... Select the odd numbers in a small list. Shade even numbers in a 100 square. Count on from 7 in steps of 2 or 3.
<ul style="list-style-type: none"> Read, write and order numbers to 100, developing an understanding that the position of a digit signifies its value. 	<ul style="list-style-type: none"> Know 'tens' and 'units'. 	<ul style="list-style-type: none"> Give the value of the 4 in 46 or 64. 40 is bigger than 4. Select even house numbers from a pile of letters and put in order for postman.
<ul style="list-style-type: none"> Use repeating patterns to develop ideas of regularity and sequencing. 		<ul style="list-style-type: none"> 1,2,2,3,1,2,2,3, 1...
<ul style="list-style-type: none"> Explore and record patterns in addition and subtraction, explaining the patterns and using them to make predictions. 	<ul style="list-style-type: none"> Know notation +, – Addition/subtraction 'tables', e.g. 0 + 1=1 10 – 1=9 1 + 1=2 9 – 1=8 2 + 1=3 8 – 1=7 Addition/subtraction Squares 'Adding on' patterns on 100 square. 	
<ul style="list-style-type: none"> Know addition facts to 10. 		
<ul style="list-style-type: none"> Develop a variety of methods for adding and subtracting, including using the fact that subtraction is the inverse of addition. 		<ul style="list-style-type: none"> 10 + 14 = 24 so 24 – 14 = 10 and 24 – 10 = 14 □ – 6 = 14

Entry 2 award – continued

NUMBER AND ALGEBRA	NOTES	EXAMPLES
<ul style="list-style-type: none"> Understanding the operation of addition, subtraction as taking away and the relationship between them. Recognise situations to which they apply and use them to solve problems with whole numbers up to 100. 		<ul style="list-style-type: none"> Jon gets £9 a week pocket money. Clare earns £25 on a paper round. Who gets more? How much? I bought 3 items costing 29p, 56p and 12p. Find the total.
<ul style="list-style-type: none"> <i>Understand the operation of multiplication and division as sharing and repeated subtraction, and use them to solve problems with whole numbers, money or measures.</i> 	<ul style="list-style-type: none"> Whole numbers and money up to 100. 	<ul style="list-style-type: none"> How much will 3 lollipops at 5p each cost? Work out how many 5p lollipops can be bought with 15p. 24 pupils have to be put into 4 teams all the same size. How many in each?
<ul style="list-style-type: none"> Choose a suitable method of computation, using apparatus where appropriate. 	<ul style="list-style-type: none"> Without a calculator; addition and subtraction of tens and units. 	

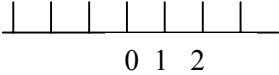
Entry 2 award – continued

SHAPES, SPACE AND MEASURES	NOTES	EXAMPLES
<ul style="list-style-type: none"> Describe and discuss shapes and patterns that can be seen or visualised. 		<ul style="list-style-type: none"> Find the pattern $\Delta \square \square \circ$ on a grid of symbols. Create pictures and patterns using 2D shapes. Count how many triangles there are in a pattern. Create a 'face' using 2 circles, 1 triangle and 1 rectangle.
<ul style="list-style-type: none"> Recognise and use the geometric features of shapes, including vertices, sides, edges, and faces; rectangles, square, circles, triangles, and cubes. 	<ul style="list-style-type: none"> Use the terms vertex, face, edge (of solid) and side (in 2D). Use the names rectangle, square, circle, triangle, cube. 	<ul style="list-style-type: none"> Count the number of faces vertices and edges on a solid. Select triangles from a set of pictures.
<ul style="list-style-type: none"> Describe positions using common words. Recognise movements in a straight line and rotations. Copy, continue and make patterns. 	<ul style="list-style-type: none"> Forwards backward, turning right and left. 	<ul style="list-style-type: none"> Recognise the same shape in different positions and orientations.
<ul style="list-style-type: none"> Understand angle as a measure of turn and recognise quarter-turns, half-turns and right angles. 	<ul style="list-style-type: none"> Know left and right turns. Know that \sphericalangle represents a bigger turn than \sphericalangle (degrees not required). 	<ul style="list-style-type: none"> Turn an object through 1,2 or 3 right angles. To the right or left. Give instructions for moving a programmable toy (forwards, backwards, turns right and left).
<ul style="list-style-type: none"> Compare objects and events using appropriate language for direct comparison and then using common non standard and standard units of length. 	<ul style="list-style-type: none"> Centimetres, metres. 	
<ul style="list-style-type: none"> Choose and use simple measuring instruments. 	<ul style="list-style-type: none"> Use a ruler marked in centimetres. Use a metric stick or trundle wheel 	<ul style="list-style-type: none"> Steve measures two sides of the rectangular football pitch. The short side is __m. The long side is __m. How far is it all around the pitch? Measure a line in cm.

Entry 2 award – continued

HANDLING DATA	NOTES	EXAMPLES
<ul style="list-style-type: none"> Sort and classify a set of objects <i>using criteria related to their properties.</i> 	<ul style="list-style-type: none"> Two or three criteria. 	<ul style="list-style-type: none"> Find a shape that is round and flat etc. Find the blue triangles in a pile of logiblocs. Find the big blue triangles in a set of logiblocs.
<ul style="list-style-type: none"> <i>Collect and record data arising from an area of interest, using an increasing range of charts, diagrams, tables and graphs.</i> 	<ul style="list-style-type: none"> Use a tally. Use data collection sheet to record data from simple surveys and experiments. Block graphs, pictograms (where scale or symbol represents one unit), simple tables with 2 columns, matching diagrams. 	<ul style="list-style-type: none"> Record results of throwing a coin. Draw a block graph to show colours of cars in a car park.

Entry 3 award

NUMBER AND ALGEBRA	NOTES	EXAMPLES
<ul style="list-style-type: none"> Count orally up to 1000 knowing the number names. Count collections of objects, checking the total. Count in steps of different sizes. 	<ul style="list-style-type: none"> Simple sequences based on addition or subtraction. 	<ul style="list-style-type: none"> Continue the sequence 2, 5, 8, 11, ... 100, 95, 90, 85, 80, ...
<ul style="list-style-type: none"> Read write and order numbers up to 1000 developing an understanding that the position of a digit signifies its value. 	<ul style="list-style-type: none"> Know hundreds, tens, and units. 	<ul style="list-style-type: none"> Give the value of the 4 in 462, 642, 264. Write the number 869 in H, T, U, columns.
<ul style="list-style-type: none"> Recognise and use in context simple fractions, including halves and quarters, decimal notation in recording money and negative numbers. 	<ul style="list-style-type: none"> Fractions to include 1/2s, 1/4s, 1/5s, 1/10s and notation. Money in pounds and pence. 	<ul style="list-style-type: none"> Shade 7/10 of a rectangle. Record 103p in £. Read or draw on a thermometer a temperature of -4° C. Complete this number line 
<ul style="list-style-type: none"> Use repeating patterns to develop ideas of regularity and sequencing. 		
<ul style="list-style-type: none"> Explore and record patterns in addition and subtraction and the pattern of multiples, e.g. 3, 6, 9, 12, explaining the patterns and using them to make predictions. Progress to exploring patterns involving multiplication and division, including those within a hundred-square of multiplication facts. 	<ul style="list-style-type: none"> Understand and use the term 'multiple'. Find patterns of multiples on 10 × 10 squares; complete multiplication squares. Multiplication tables. Symmetry of 10 × 10 multiplication squares. 	<ul style="list-style-type: none"> Use 10 × 10 multiplication square to find 56 ÷ 7.

Entry 3 award – continued

NUMBER AND ALGEBRA	NOTES	EXAMPLES
<ul style="list-style-type: none"> Know addition facts to 20. Learn multiplication and division facts relating to the 2s, 3s, 4s, 5s, and 10s and use these to learn other facts, (e.g. double multiples of 2 to produce multiples of 4) and to develop mental methods for finding new results. 	<ul style="list-style-type: none"> Multiplication up to 5×5 and all those in the 2,3,4,5 and 10 times table. 	
<ul style="list-style-type: none"> Develop a variety of methods for adding and subtracting, including using the fact that subtraction is the inverse of addition. 	<ul style="list-style-type: none"> Use mental strategies for adding and subtracting numbers up to 2 digits. Use written methods for adding and subtracting numbers up to 3 digits. 	<ul style="list-style-type: none"> 27 + 42 can be considered as 27 + 3 then 30 + 39 63 – 27 can be considered as 63 – 20 – 3 – 4
<ul style="list-style-type: none"> Use a basic calculator reading the display. 	<ul style="list-style-type: none"> Use a calculator to add lists of whole numbers. Recognise that non-integer answers to divisions indicate there is a remainder, and find it. 	<ul style="list-style-type: none"> 18 ÷ 5 = 3.6 means 3 lots of 5 and some left over. 3 lots of 5 are 15, so 3 are left over.
<ul style="list-style-type: none"> Understand the operation of multiplication and division as sharing and repeated subtraction and use them to solve problems with whole numbers or money, Understanding and dealing appropriately with remainders. 	<ul style="list-style-type: none"> Division of whole numbers <100 by single digit numbers only. 	<ul style="list-style-type: none"> Work out how many 5p lollipops can be bought with 18p and how much is left over. Realise that 3.6 lollipops is not a sensible answer.

Entry 3 award – continued

SHAPES, SPACE AND MEASURES	NOTES	EXAMPLES
<ul style="list-style-type: none"> Describe and discuss shapes and patterns that can be seen or visualised. 		
<ul style="list-style-type: none"> Classify shapes according to mathematical criteria. 	<ul style="list-style-type: none"> To include faces vertices, edges, sides; by shape (e.g. hexagon); lines of symmetry; right angles. 	
<ul style="list-style-type: none"> Recognise and use the geometric features of shapes, including vertices, sides/edges and surfaces; rectangles (including squares), circles, triangles, cubes, cuboids, hexagons, pentagons, cylinders and spheres. Recognise reflective symmetry in simple cases. 	<ul style="list-style-type: none"> Identify simple '3D' shapes from pictures. 	
<ul style="list-style-type: none"> Describe positions using common words. Recognise movements in a straight line and rotations, and combine them in simple ways. Copy, continue and make patterns. 	<ul style="list-style-type: none"> Describe a simple journey on a grid. 	<ul style="list-style-type: none"> Give instructions for moving a programmable toy.
<ul style="list-style-type: none"> Understand angle as a measure of turn and recognise quarter-turns and half turns and right angles. 		

Entry 3 award – continued

SHAPES, SPACE AND MEASURES	NOTES	EXAMPLES
<ul style="list-style-type: none"> Compare objects and events using appropriate language for direct comparison and then using common non-standard and standard units of length. Use a wider range of standard units, including standard units of time, choosing units appropriate to a situation. Estimate with these units. 	<ul style="list-style-type: none"> To include gram, kilogram, litre, hours, minutes, seconds. Not including time intervals in mixed units. Make sensible estimates of length and time. 	
<ul style="list-style-type: none"> Choose and use simple measuring instruments, reading and interpreting number and scales with some accuracy. 	<ul style="list-style-type: none"> To include clocks, thermometers, kitchen scales, speedometers etc. (graduated in units only). 	
HANDLING DATA	NOTES	
<ul style="list-style-type: none"> Sort and classify a set of objects using criteria related to their properties. 		
<ul style="list-style-type: none"> Collect, record and interpret data arising from an area of interest, using an increasing range of charts, diagrams, tables and graphs. 	<ul style="list-style-type: none"> Extract specific information from lists and tables. Draw and interpret bar charts and pictograms where the symbol represents a group of units. (Axes will be drawn and labelled). 	

Specification content for tasks

Tasks set for students should provide access to the three skill areas of Using and applying mathematics across stage 1, 2 and 3.

The subject content is not split into Entry 1, Entry 2 and Entry 3 in the following list. Some notes and examples are given but teachers should check the skill areas and the stage test content for the requirements for the Entry 1 Entry 2 and Entry 3 awards.

SKILL AREA 1	NOTES	EXAMPLES
<ul style="list-style-type: none">Look for ways of overcoming difficulties.		<ul style="list-style-type: none">Get some cubes to help with addition
<ul style="list-style-type: none">Select an approach	<ul style="list-style-type: none">Show an understanding of the task. Find a reasonable approach whether or not 'best'.	
<ul style="list-style-type: none">Select and use appropriate mathematics and resources.	<ul style="list-style-type: none">Mathematics within the content lists for stage tests.	<ul style="list-style-type: none">Decide to use a ruler for measuring the thickness of a book; a trundle wheel for measuring the school field Recognise totals are found by adding.

SKILL AREA 2	NOTES	EXAMPLES
<ul style="list-style-type: none"> Understand and use mathematical language and notation. 	<ul style="list-style-type: none"> Mathematical language and notation within the content lists for stage tests. 	<ul style="list-style-type: none"> Use terms such as 'behind', 'next to' at Entry 1. Use symbols +, -, ×, ÷ at Entry 2. Use terms such as 'triangle', 'face', at Entry 2; 'symmetry' at Entry 3.
<ul style="list-style-type: none"> Use and interpret mathematical forms of communication. 	<ul style="list-style-type: none"> Use objects, diagrams, graphs and symbols as in the stage test lists. 	
<ul style="list-style-type: none"> Present work clearly 	<ul style="list-style-type: none"> Use objects, diagrams, graphs and symbols as in the stage test lists. Explain work orally. 	
<ul style="list-style-type: none"> Check solutions 	<ul style="list-style-type: none"> Simple checks 	<ul style="list-style-type: none"> May be by repetition; finding another method; looking for more 'ways' to do something or for checking; repeats in a list.

SKILL AREA 3	NOTES	EXAMPLES
<ul style="list-style-type: none"> Explain how they arrived at a conclusion or solution to a problem. 	<ul style="list-style-type: none"> Simple problems. 	<ul style="list-style-type: none"> Explain patterns and relationships (see content for stage tests).
<ul style="list-style-type: none"> Understand general statements and recognise particular examples. 		<ul style="list-style-type: none"> Even numbers end in 0, 2, 4, 6, 8, (Entry 2). Odd + odd = even, e.g. $3 + 5 = 8$

Specimen materials

Stage tests

The specimen questions and mark schemes exemplify the standards required for each award.

For the stage tests, students are expected to be in their normal classroom environment and to have the support they normally receive.

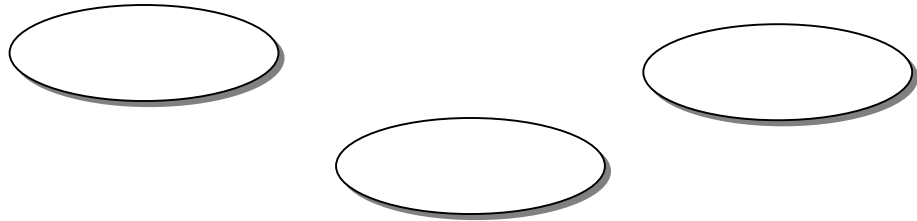
Tests may involve simple apparatus, such as cubes, and teachers should check this before administering a test. Where students would normally collect such items for themselves this allowed, providing that the teacher is still able to certify that the work on the test is the student's own.

Task

A specimen for the assessment of using and applying mathematics is also provided together, with the associated teacher's notes and assessment guidelines.

Specimen questions for Entry 1 award

1. How many counters?



.....(1)

2. Write these numbers in order

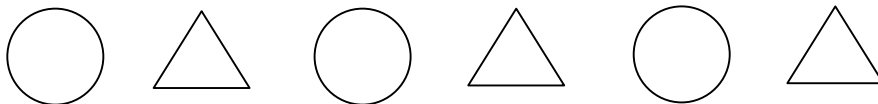
Start with the smallest.

9 5 2 7

.....(1)

3. What comes next?

Draw it.



.....(1)

4. What comes next?

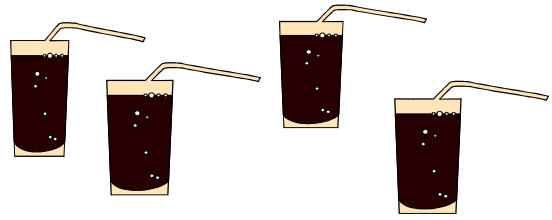
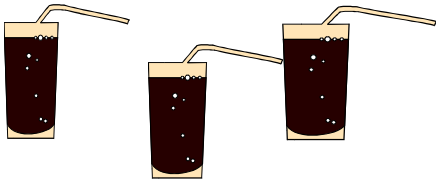
Write it down.

1 2 3 4 5 6 ?

.....(1)

Specimen questions for Entry 1 award – continued

5. How many drinks?



And

makes(1)

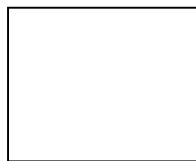
6. You have 9 sweets.
You eat three.
How many are left?

.....(1)

7. Which is tallest?



A



B

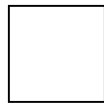


C

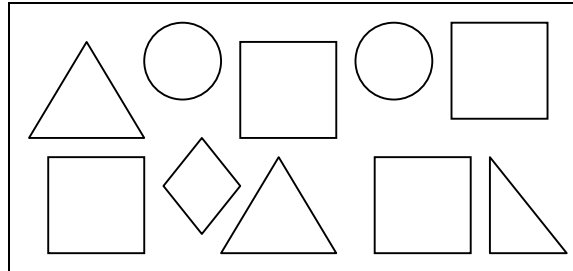
.....(1)

Specimen questions for Entry 1 award – continued

8. How many of this shape



in the box?

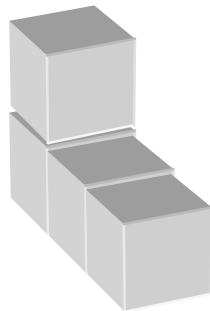


.....(1)

9. Use cubes.

Make this shape.

Show your teacher your shape.



(2)

10. Take the shape apart.

Tell your teacher how many cubes you used.

(1)

Specimen questions for Entry 1 award – mark scheme

No	Answer	Mark	Notes
1	3	1	
2	2 5 7 9	3	1 mark for 2 first 1 mark for order correct
3	draws circle	1	should be at right end of line
4	7	1	
5	7	1	
6	6	1	
7	C	1	
8	4	1	
9	check shape	2	1 mark for using 4 cubes 1 mark for correct shape
10	says 'four'	1	

Specimen questions for Entry 2 award

1. Which of these are odd numbers?

6 9 13 12 27

.....(1)

2. Count on from 10 in steps of 3.

10

(1)

3. Write these numbers in order, smallest first.

61 21 15 63

.....(1)

4. (a) Which is the largest number?

47 74 18 81

.....

(b) Write the largest number in words.

..... (2)

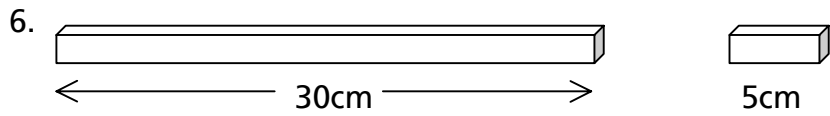
5. What comes next?

Write it down.

2 5 5 3 2 5 5 3 2

..... (1)

Specimen questions for Entry 2 award – continued



How many 5cm blocks can be cut from a 30cm piece of wood?

.....(1)

7. What is the total cost?



23p



19p



4p

.....(1)

8. Work out:

$$\begin{array}{r} 49 \\ -26 \\ \hline \hline \end{array}$$

(1)

9. How many cookies can you buy for 20p?



4p

.....(1)

Specimen questions for Entry 2 award - continued

10. Find the missing numbers.

a) + 14 = 25

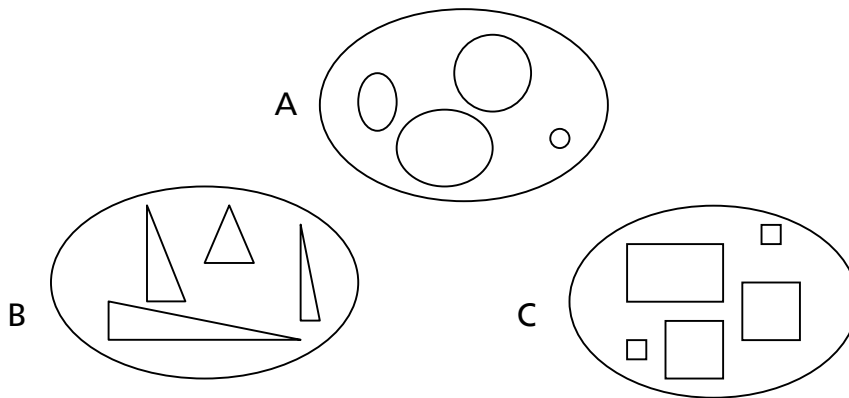
b) - 6 = 14

(2)

11. How long is this line?

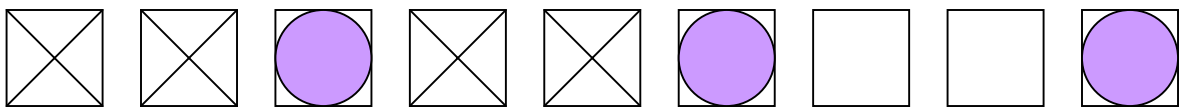
..... (1)

12. Does  go in A, B or C?



..... (1)

13. Complete this pattern.



(1)

Specimen questions for Entry 2 award – continued

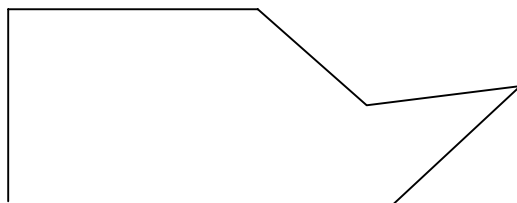
14. Write down the number of tally marks.



.....(1)

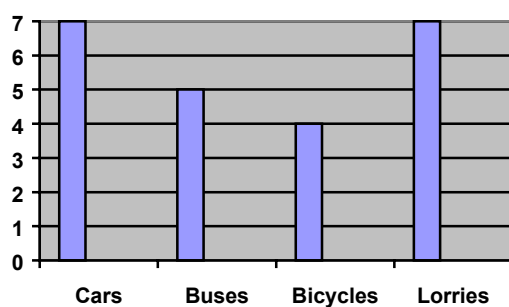
15. Here is a shape.

Mark in all the right angles.



(1)

16. This bar graph shows the results of a traffic survey.



a) How many cars?

b) How many bicycles?

Specimen questions for Entry 2 award – mark scheme

No	Answer	Mark	Notes
1	9, 13 and 27	1	All correct
2	13, 16, 19	1	All numbers correct
3	15, 21, 61, 63	1	Correct order only
4	a) 81 b) eighty one	1 1	
5	5	1	
6	6	1	
7	46p	1	
8	23	1	Both number required
9	5	1	
10	a) 11 b) 20	1 1	
11	6cm	1	
12	B	1	
13	Pattern correctly finished	1	
14	23	1	
15	2 right angles correctly marked	1	
16	a) 7 cars b) 4 bicycles	1 1	

Specimen questions for Entry 3 award

1. a) What is the largest number you can make with the cards?

2

8

4

(1)

b) What is the smallest number you can make with the cards?

.....(1)

2. Clue: One more than half of fifty

What is the number?

.....(1)

3. Write a clue for the number 37.

.....
.....(1)

4. Work out

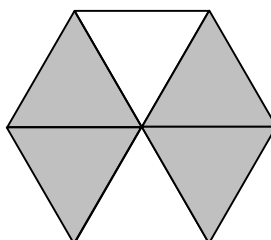
$$3 \times 5 = \dots\dots \quad (1)$$

5. Work out

$$28 \div 4 = \dots\dots \quad (1)$$

Specimen questions for Entry 3 award – continued

6. What fraction of this shape is shaded?



.....(1)

7. Work out

$$\begin{array}{r} 412 \\ -127 \\ \hline \end{array}$$

.....(1)

8. Which of these numbers are multiples of ten ?

30 380 308 385 (1)

9. Write 'seven hundred and forty nine' in figures.

.....(1)

10. Here is a number pattern.

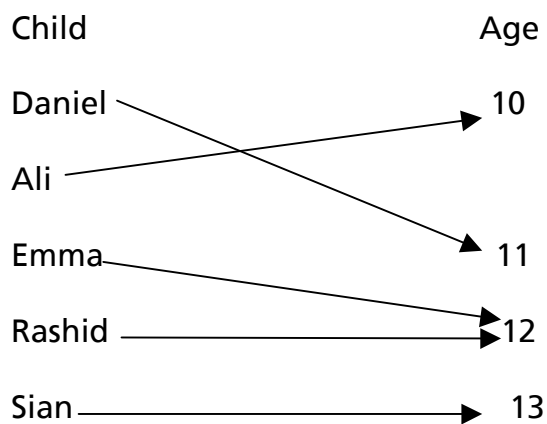
Two of the number are missing.

6 12 18 36

Write in the missing numbers. (1)

Specimen questions for Entry 3 award – continued

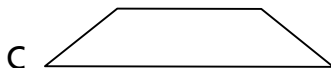
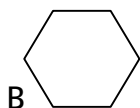
11. This diagram shows how old some children are.



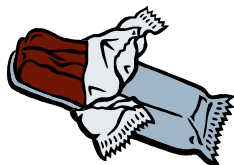
a) How old is Ali?(1)

b) How many children are 12 years old?(1)

12. Draw a circle around the hexagon.



13 a) How many Chocolate bars can be bought for 90p?

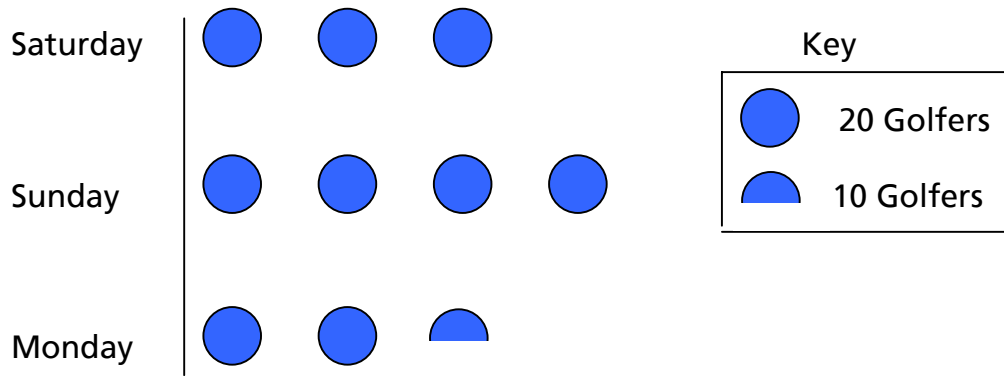


23p(1)

How much change?(1)

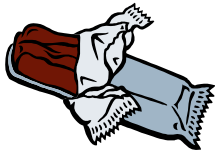
Specimen questions for Entry 3 award – continued

14. The pictogram shows the number of golfers that played golf at the local golf club during one week.



- a) How many golfers played on Sunday?(1)
- b) How many golfers played on Monday?(1)

15. a) How much would these three sweets cost?



23p



19p



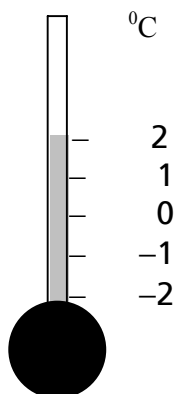
4p

-(1)
- b) How much change from 50p?(1)

Specimen questions for Entry 3 award - continued

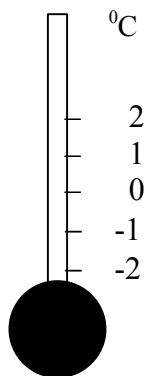
16. This thermometer shows the temperature.

a) Write down the temperature shown by the thermometer.



.....(1)

b) Mark -1°C on this thermometer.



.....(1)

Specimen questions for Entry 3 award – mark scheme

No.	Answer	Mark	Notes
1 a) b)	842 248	1 1	Number cards may be used
2	26	1	
3	any acceptable statement in words or numbers	1	
4	15	1	
5	7	1	
6	4/6 or 2/3	1	
7	285	1	
8	30 and 380	1	both numbers required
9	749	1	
10	24 and 30	1	both numbers correct
11 a) b)	10 2	1 1	
12	B	1	
13 a) b)	3 21p	1 1	
14 a) b)	80 50	1 1	
15 a) b)	46p 4p	1 1	
16 a) b)	2°C –1°C marked correctly on the thermometer	1 1	

Rod trains: Teachers' notes

Apparatus

For this task the students will require some Cuisenaire Rods or one of the alternatives suggested below.

The rods are of the following colours and lengths:

Colour	Length
White	1
Red	2
Green	3
Pink	4
Yellow	5

It is unlikely that the students will require rods beyond yellow. If they do, the colours and lengths are:

Colour	Length
Dark Green	6
Black	7
Brown	8
Blue	9
Orange	10

Alternatives

You may be in a school, which does not have a supply of Cuisenaire Rods, or they may be too small for your students to handle easily. There are alternatives.

You may:

- Be able to borrow some from a nearby (perhaps primary) school
- Make equivalents by linking cubes
- Make equivalents from cardboard strips
- Make equivalents from squared paper.

Presenting the task to students

We suggest that you engage the students in discussions about the number of **rod trains** they can make, which are equal to yellow, perhaps by showing them one and asking them to show you some others.

By the end of the discussion it is important that they have been shown certain ideas and had the word **different**, in the context of rod trains, explained to them.

- Show the students how to make a rod train equal in length to yellow.

Y

G	R
---	---

- Then show at least five rod trains equal to yellow. We suggest:

Y

G		R		
R	G			
W	G		W	
W	W	W	W	W
Y				

- Explain that Yellow is a rod train equal to Yellow and that five white rods in a row is also a rod train equal to yellow.
- Explain that:

G	R
---	---

R	G
---	---

are different because they are in a different order.

- Tell them that:

W	G		W
G		W	W

are different.

Students working on the task

Once you have set the task up in this way, ask the students to make as many different rod trains as they can which are equal to various single rods.

The students' task sheets provide written questions – the task. You may read these instructions to the students or explain the task in any way, which you feel, is appropriate to their individual or collective needs.

It is important that you tell them to have a go at the problem, show what they are doing (or record their results), and talk or write about it. The deciding and doing, showing and explaining will give you an opportunity to assess their performance in each of the skill areas for *Using and applying mathematics*.

Results

Colour	No. of rod trains
White	1
Red	2
Green	4
Pink	8
Yellow	16

As the length of the rod increases by 1, then the number of rod trains doubles. (The general result is that for a rod of length n , the number of rod trains is 2^n , a result well beyond the scope of this specification.)

Entry 1 award

Skill area 1

Students use mathematics as an integral part of classroom activities. They can use rods to create all 4 rod trains equal to green.

Skill area 2

They represent their work with objects or pictures and discuss it. They can draw a diagram of all 4 rods trains equal to green, on squared paper if necessary. They can talk about the words equal and different in relation to rod trains.

Skill area 3

They recognise a simple pattern or relationship, usually based on their experience. They can count and state, or write down that the number of rod trains equal to green is 4.

Entry 2 award

Skill area 1

Students select the mathematics for some classroom activities.

They can do all that is required for the Entry 1 award in strand 1 and use the rods to create all 8 rod trains equal to pink using an approach or strategy of their own.

Skill area 2

They discuss their work using familiar mathematical language and are beginning to represent it using symbols and simple diagrams.

They can respond to questions such as, 'In what way are they equal?' by referring to 'length', show an awareness of different and same, and can record the 8 rod trains equal to pink using diagrams or symbols such as R, R, and R, W, W.

Skill area 3

They show an awareness that there will be more rod trains for pink than for green when asked a question such as, 'What happens if we try the problem for pink, will we get more or less rod trains than for green?'

They can count and record the correct number of rod trains equal to green and explain why the answer is correct.

Entry 3 award

Skill area 1

Students try different approaches and find ways of overcoming difficulties that arise when they are solving problems. They are beginning to organise their work and check results.

Having established the correct results for green and pink, the students organise their approach to the task for the yellow rod in any way which indicates their awareness of simple strategy, such as starting with pink, while then recognising that this leads to white, pink. They realise that there will be more rod trains for yellow than for pink, and can obtain at least 12 of the rod trains for yellow. They eliminate any duplicates.

Skill area 2

They discuss their mathematical work and are beginning to explain their thinking. They can offer some brief explanation about their strategy and can say why they have eliminated any duplicates by reasoning such as, 'This is the same as this'. They can record at least 12 rod trains using diagrams, and start to develop a table or list of results.

Skill area 3

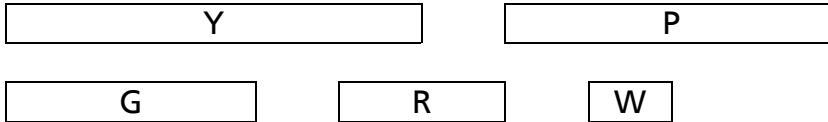
They show that they understand a general statement by finding particular examples that match it.

They should be able to make a statement equivalent to, 'As the length of the rod increases, then the number of rod trains increases', and recognise that for all rods, two trains will be the rod itself and all the whites.

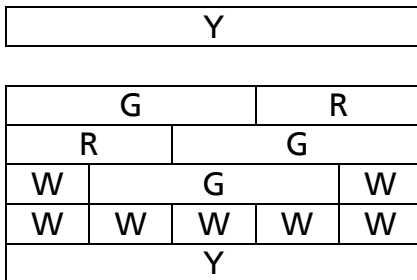
Students' task sheet

Rod trains

Here are the first five rods:



Here are 4 different rod trains equal to yellow:



- 1 How many different rod trains can you make equal green?
- 2 How many different rod trains can you make equal to pink?
- 3 How many different rod trains can you make equal to yellow ?
- 4 Tell your teacher, or write down, as much as you can about what you have done and what you have found out.

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