Edexcel
Mathematics Awards

Building proficiency in mathematics

Number and Measure **Statistical Methods** **Algebra**

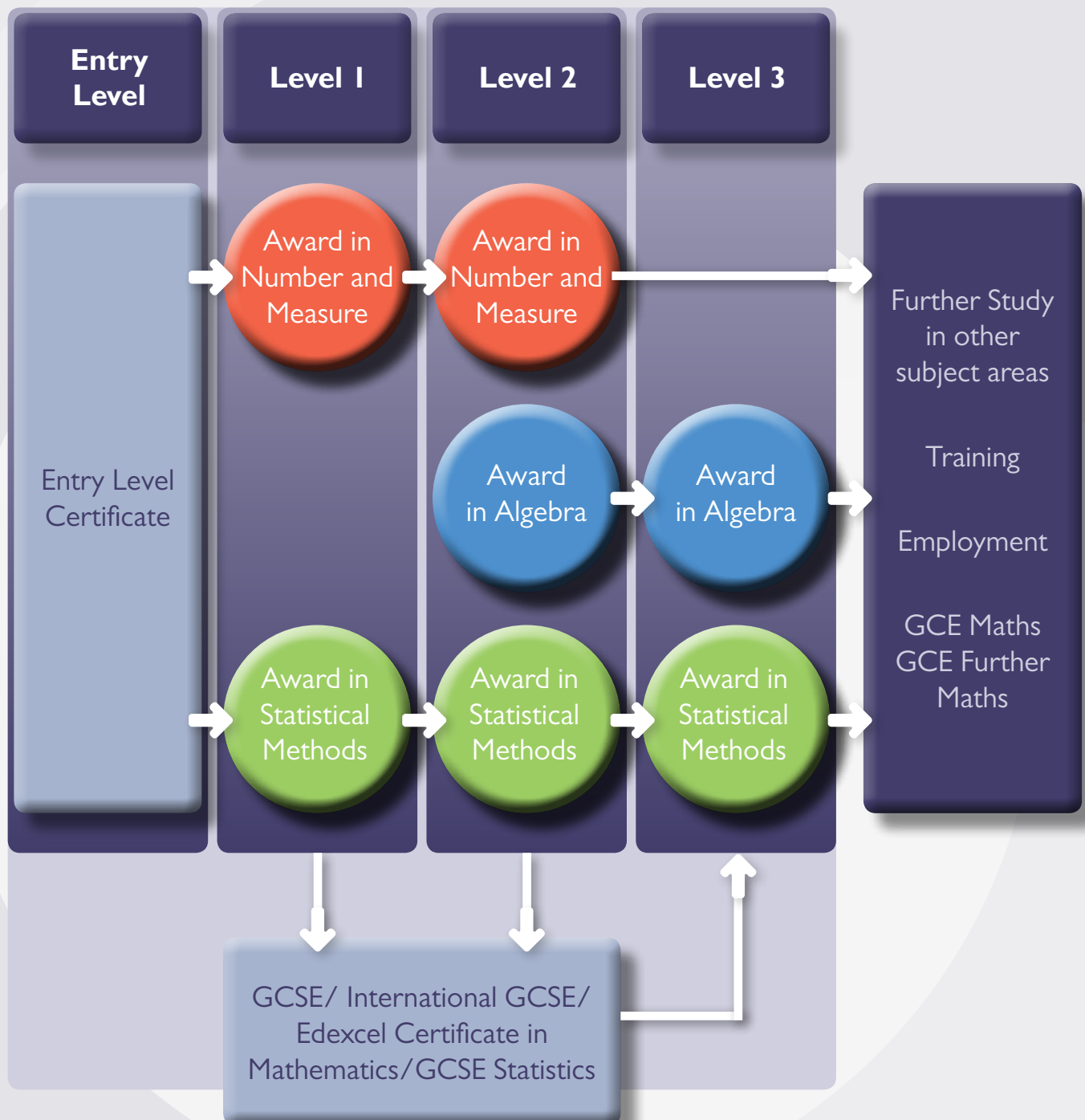Your guide to our new maths qualifications

PEARSON

A new way to help your students develop proficiency in mathematics

Edexcel Mathematics Awards are small, stand-alone qualifications designed to help students to develop and demonstrate proficiency in different areas of mathematics. By helping students focus on understanding key concepts and techniques, they can build their mathematical confidence and fluency.

At a glance

- The **Edexcel Mathematics Awards** focus on developing mathematical skills, targeting a subset of core concepts for **Number & Measure**, **Algebra** and **Statistical Methods**.

- They offer a **choice of levels to match your students' abilities, with clear progression** between the levels. These small, **60-70 guided learning hour qualifications** are **assessed through one written paper per level**.

- These Awards **help students to build confidence and motivation** in mathematics and are designed to:

    - **fit into the existing programme of delivery** for mathematics in schools and colleges

    - **prepare students for GCSE and/or GCE Mathematics**

    - **support further study** in other subjects, training or the workplace.

How Edexcel Awards can fit into your maths pathways

Entry Level	Level 1	Level 2	Level 3

Entry Level Certificate

Award in Number and Measure → Award in Number and Measure → Further Study in other subject areas

Award in Algebra → Award in Algebra →

Award in Statistical Methods → Award in Statistical Methods → Award in Statistical Methods →

Training

Employment

GCE Maths
GCE Further Maths

GCSE/ International GCSE/ Edexcel Certificate in Mathematics/GCSE Statistics

Number and Measure

Edexcel Level 1 and Level 2 Awards in Number and Measure help students to develop thorough **knowledge and understanding** of concepts in **number and measure** and a strong foundation of **mathematical techniques**.

They are designed to help students develop **proficiency** in number and measure to support progression in their studies, the workplace and training.

You can use our Number and Measure Awards to:

- build confidence and motivation in mathematics by building the basic mathematical skills

- give students the opportunity to demonstrate what they can do in mathematics and gain a numeracy qualification

Content Overview

These qualifications contain:

Level 1	
Integers	✓
Decimals	✓
Approximation	✓
Fractions	✓
Percentages	✓
Money	✓
Time	✓
Measures	✓
Area and Perimeter	✓
Volume	✓
Tables and Charts	✓

Level 2	
Integers	✓
Decimals	✓
Approximation	✓
Fractions	✓
Percentages	✓
Money	✓
Time	✓
Measures	✓
Area and Perimeter	✓
Volume	✓
Tables and Charts	✓
Ratio and Proportion	✓

11 A bill was £85 plus VAT at 20%

Complete the bill below.

Bill	
Cost of Work	£85.00
+ VAT at 20%	£ ....
Total	£ ....

(Total for Question 11 is 3 marks)

12
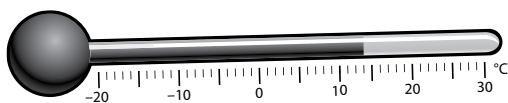
(a) Write down the reading on the thermometer.

.... °C
(1)
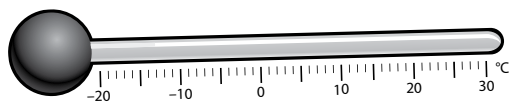
(b) On the thermometer show a reading of –6°C
(1)

(Total for Question 12 is 2 marks)

Level 1

Upon completing the course, students should be able to use multiples, factors, common factors and prime numbers. They can multiply and divide decimals with up to two decimal places, converting between fractions and decimals and percentages. They can work out simple fractions and percentages of quantities, sometimes in context. They can work through problems relating to time, and can use a variety of units of measure for carrying out measurement, and converting between units of measure. They can work out perimeters and area relating to the rectangle, and volumes of cuboids. They can read, write and use everyday tables and charts, and draw simple graphs.

Level 1 Sample Questions

10 Last week Ken worked for 40 hours at £6.80 per hour.
He also worked another 6 hours overtime.
Overtime is paid at 1.5 × his hourly rate.

He paid National Insurance of £12.50 and Income tax of £28.65

Work out the total of Ken's pay for this week.

£ ....
(Total for Question 10 is 4 marks)

11 Which is the larger fraction, $\frac{4}{5}$ or $\frac{3}{4}$?
Show working to explain your answer.

....
(Total for Question 11 is 2 marks)

Level 2

Upon completing the course, students should be able to find square, cubes and square roots, and can use common multiples and factors. They can multiply and divide decimals with up to two decimal places, converting between fractions and decimals and percentages. They can work out simple fractions and percentages of quantities, include increase and decrease by a fraction or percentage, sometimes in context. They can use ratio in solving problems, and can use a variety of units of measure for carrying out measurement, and converting between units of measure. They can work out perimeters and area relating to rectangles, triangles and circles, and volumes of cuboids, prisms and cylinders. They can read, write and use everyday tables and charts, including pie charts, and draw simple graphs.

Level 2 Sample Questions

www.edexcel.com/Number

Algebra

Edexcel Level 2 and Level 3 Awards in Algebra help students develop a thorough **knowledge and understanding** of concepts in **algebra**, and a strong foundation of **mathematical techniques**.

They are also designed to help students develop **proficiency** in algebra that supports progression to studying mathematics at GCSE and/or GCE, and also to further study in other subjects where algebra skills are needed.

You can use our Algebra Awards to:

• build confidence in algebra, a topic many students find challenging

• stretch and challenge more able students, giving them the opportunity to work at a faster pace and keeping them motivated

• motivate students to continue studying mathematics.

Algebra Specification Pack
The specification and sample assessment material pack for the Algebra Awards is now available to view and download from www.edexcel.com/MathsAwards. You can also request a free printed copy by visiting this site and completing our Intention to Offer form.

Content Overview

These qualifications contain:

Level 2	
Roles of symbols	✓
Algebraic manipulation	✓
Formulae	✓
Linear equations	✓
Systematic trial and improvement	✓
Linear inequalities	✓
Number sequences	✓
Gradients of straight line graphs	✓
Straight line graphs	✓
Graphs for real life situations	✓
Simple quadratic functions	✓
Distance-time and speed-time graphs	✓

Level 3	
Roles of symbols	✓
Algebraic manipulation	✓
Formulae	✓
Distance-time and speed-time graphs	✓
Simultaneous equations	✓
Quadratic equations	✓
Roots of a quadratic equation	✓
Inequalities	✓
Arithmetic series	✓
Coordinate geometry	✓
Graphs of functions	✓
Graphs of simple loci	✓
Graphs of simple loci	✓
Direct and inverse proportion	✓
Transformations of functions	✓
Area under a curve	✓
Surds	✓

3 The nth term of a sequence is given by the expression $6n - 5$

(a) Write down the first two terms of the sequence.

....

(2)

Here are the first five terms of another sequence

$$5 \quad 9 \quad 13 \quad 17 \quad 21$$

(b) Write down an expression, in terms of n, for the nth term of this sequence.

....

(2)

(Total for Question 3 is 4 marks)

4 Here is a formula $v = u + at$

(a) Find the value of v when $u = 0$, $a = 6$ and $t = 8$

....

(2)

(b) Find the value of v when $u = 10$, $a = -5$ and $t = 3$

....

(2)

(c) Find the value of t when $v = 20$, $u = 10$ and $a = 2$

....

(3)

(Total for Question 4 is 7 marks)

Level 2

Upon completing the course, students should be able to find and describe in symbols the next term or the nth term of a sequence, where the rule is linear.

They multiply two expressions of the form $(x + n)$; they simplify the corresponding quadratic expressions. They represent inequalities using a number line. They formulate and solve linear equations with whole number coefficients. They manipulate simple algebraic formulae, equations and expressions. They use trial and improvement to solve cubic equations. They factorise simple expressions. Students draw linear and quadratic graphs. They understand the role of m and c in $y = mx + c$. they interpret distance-time graphs from real-life situations.

Level 2 Sample Questions

Level 3

Upon completing the course, students should be able to understand and use direct and inverse proportion. They manipulate algebraic formulae, equations and expressions, finding common factors and multiplying two linear expressions. In simplifying algebraic expressions, they use rules of indices for negative and fractional values. In finding formulae that approximately connect data, students express general laws in symbolic form. Students solve quadratic equations and understand the role of $ax^2 + bx + c = 0$. They draw and sketch a range of functions and understand tangents and normals. They manipulate and use surds.
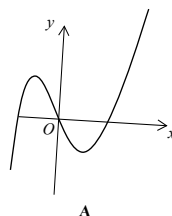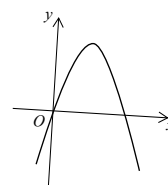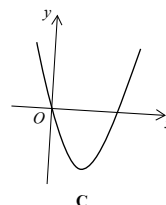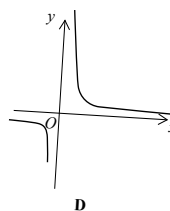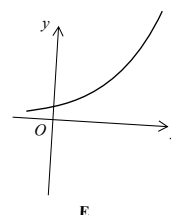
Level 3 Sample Question

12 Here are some sketch graphs.

A   B   C

D   E

The table shows the equations of some graphs.

Equation	Graph
$y = 4^x$	
$y = -x(x - 4)$	
$y = x^3 - x^2 - 2x$	
$xy = 8$	
$y = x^2 - 4x$	

Match the letter of the graph with its equation.

(Total for Question 12 is 3 marks)

Statistical Methods

Edexcel Level 1, Level 2 and Level 3 Awards in Statistical Methods help students develop a thorough **knowledge and understanding** of concepts in **statistics** and a strong foundation of **statistical techniques**.

They have also been designed to help students develop **proficiency** in statistics to support progression to further mathematical or statistical study, further study in other subjects needing statistical skills, training or the workplace.

You can use our Statistical Methods Awards to:

• give students the chance to study more statistics at Key Stages 3, 4 and 5

• build confidence and motivation in mathematics

• give students the opportunity to demonstrate what they can do in statistics and gain a qualification in this area

• stretch and challenge more able students giving them the opportunity to work at a faster pace, keeping them motivated

• encourage students to continue studying mathematics and/or statistics, or other subjects where an understanding of statistics is important e.g. geography, biology and psychology.

Content Overview

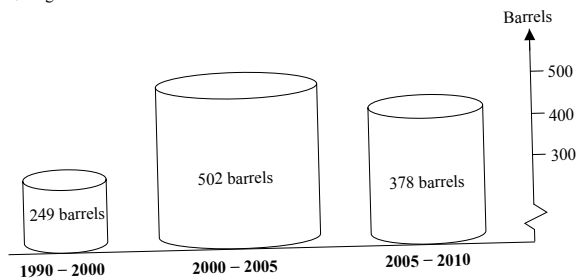| All levels of this qualification contain:	
Data	✓
Representing data	✓
Measures	✓
Interpreting data	✓
Probability	✓

Statistical Methods Specification Pack

The specification and sample assessment material pack for the Statistical Methods Awards is now available to view and download from www.edexcel.com/MathsAwards. You can also request a free printed copy by visiting this site and completing our Intention to Offer form.

Level 1

Upon completing the course, students should be able to understand and use the mean of discrete data. They choose suitable methods to represent data. They compare two simple distributions using the range and one of the mode, median or mean. They interpret graphs and diagrams, including pie charts, and draw conclusions. They understand and use the probability scale from 0 to 1. Students make and justify estimates of probability by selecting and using a method based on equally likely outcomes or on experimental evidence as appropriate. They understand that different outcomes may result from repeating an experiment.

7. The diagram shows information about the amount of oil used by a factory.

Barrels

- 249 barrels — 1990 − 2000
- 502 barrels — 2000 − 2005
- 378 barrels — 2005 − 2010

— 500
— 400
— 300

Write down **three** things that could be misleading in the diagram.

1. ....

2. ....

3. ....

(Total for question 7 is 3 marks)

Level 2

Upon completing the course, students should be able to understand sampling and design questions for questionnaires. They construct and interpret frequency diagrams. They determine the modal class and estimate the mean, median of a set of grouped data, selecting the statistic most appropriate to a line of enquiry. They use measures of average and range with associated frequency polygons, as appropriate, to compare distributions and make inferences. They use and understand moving averages, cumulative frequency, stem and leaf diagrams, index numbers, probability tree diagrams and sample space diagrams. Students understand relative frequency as an estimate of probability and use this to compare outcomes of experiments.

Level 2 Sample Questions

Level 3

Students use stratified sampling, histograms with unequal class intervals, back-to-back stem and leaf diagrams, outliers, seasonal variation and chain base index numbers. They calculate standard deviation, geometric means, Spearman's coefficient of rank correlation and product moment correlation coefficient. They use Venn Diagrams and the Normal distribution.

Students interpret and construct histograms. They recognise when and how to work with probabilities associated with independent and mutually exclusive events and they find conditional probabilities.

Level 3 Sample Questions

14. The table gives information about the number of TVs sold by a shop in each quarter from 2010 to 2011

Year	2010				2011			
Quarter	1	2	3	4	1	2	3	4
Number of TVs	220	290	270	228	288	314	286	268

(a)   Plot the 4-point moving averages for this information on the time series graph.
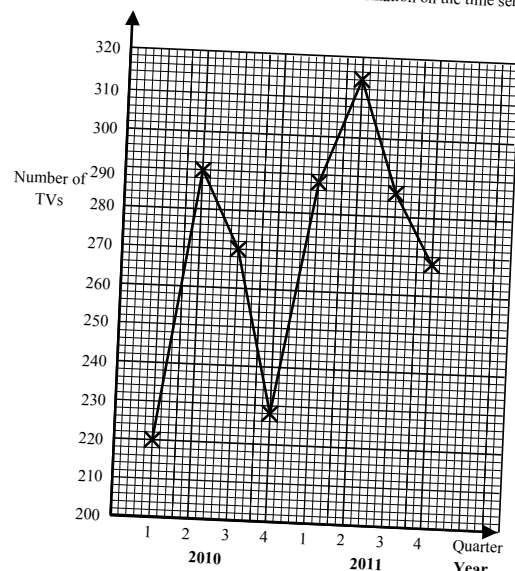
How can the Awards help your students?

Supporting progression in Mathematics

These qualifications can be offered to help students master mathematical concepts, helping them progress to GCSE and GCE Mathematics. They can either be offered before students start GCSE and GCE to help students prepare, or offered alongside them to support students needing help to master the techniques.

Supporting progression in other subjects that require mathematical skills

The awards can be used to help students learn key mathematical concepts that are needed in studying other subjects. Many subjects require a degree of mathematical knowledge to fully succeed, and these awards can help students gain the skills they need.

Supporting progression to further study, training or employment

For students who haven't achieved GCSE or GCE Mathematics, these qualifications can be used to demonstrate their level of mathematical ability and competence for further study or employment.

In focus – piloting Edexcel Mathematics Awards at St Joseph Chamberlain Sixth Form College

In 2011 Joseph Chamberlain Sixth Form College introduced both levels of the Edexcel Award in Number and Measure to a pilot group of 20 students.

Chris Huffer (Head of Faculty, Science, Maths and IT) described the experience:

"It was a useful step between level 1 and level 2 qualifications, filling a gap. The language was accessible with short, sharp questions. The students enjoyed the maths and had a positive experience in the exam."

"I was impressed with the qualification as soon as I was made aware of it. The Award gives students a chance to succeed in Maths, students who have often felt they had failed at GCSE Maths at school. It gives them the opportunity to build skills and confidence to move forward in their understanding of maths."

Maggie Sheargold, Course Leader, Mathematics (Joseph Chamberlain 6th Form College)

The college will be offering the award to 4 groups of 15-20 students in 2012/13 and may run the course parallel to GCSE Mathematics for some students.

How we can support you

● Our Edexcel Mathematics Awards website

Your first port of call for support is our website, so make sure you bookmark
www.edexcel.com/MathsAwards. In addition to downloading the **specifications** and **Sample Assessment Materials**, you'll find **practice papers**, **schemes of work**, **frequently asked questions**, any updates, and links to our other support.

● Workbooks

We are also publishing workbooks to support each level of the Edexcel Awards. These write-on workbooks give your students level-appropriate practice and are suited to both the classroom and independent study. Endorsed resources from other publishers may also be available, details can be found at **www.edexcel.com/resources**. These resources offer support and practice; they are not a pre-requisite for teaching these qualifications.

● Mathematics Emporium

Teachers continually tell us that our Mathematics Emporium is their favourite support tool, and that often it's the reason they have chosen to work with us. It's made up of two services:

- **Document Library:** all the documents (from the specification to mock and sample papers) for all of our maths qualifications, all in one place and free to download. All you need to do is register for an account (so that students don't get access to materials you may want for mocks). **www.edexcelmaths.com**
- **Email Service:** run by our in-house mathematics expert Graham Cumming, our email service tells you what you need to know, when you need to know it, about all of our mathematics qualifications, including the Edexcel Mathematics Awards. All you need to do to subscribe is complete the online form at **www.edexcel.com/mathsemails**.

● ResultsPlus

ResultsPlus is our free online service that gives you instant and detailed analysis of your students' performance in exams and mocks.

You can use the mock analysis as a diagnostic tool at the start of the course to target where students need to focus, and can continue using the service throughout teaching when desired. You can also use ResultsPlus to analyse students' final results for the Awards and use the data to help prepare for GCSE assessment.

Get more information and sign up for your free account today at **www.edexcel.com/resultsplus**.

● examWizard

examWizard is a free exam preparation tool containing a bank of past Edexcel exam questions, mark schemes and examiners' reports for a range of maths qualifications. Visit **www.edexcel.com/examwizard** for details.

● Training

Our training is designed to support your needs, with an option of face-to-face, online or customised training so you can choose where, when and how you want to be trained.

To see our current range of training events visit **www.edexcel.com/training**

See the back cover for details on how to request your free Specification Pack!

Want to find out more?

Make sure you benefit from the planning and delivery support we can provide by letting us know if you're intending to offer any of these Edexcel Mathematics Awards. Completing our Intention to Offer form (you can find it on **www.edexcel.com/MathsAwardsITO**) will tell us what you're planning to do so that we can tailor our support for you.

Request your free specification packs

A full specification pack for each of the Edexcel Mathematics Awards, including specifications and sample assessment materials, is now available to view and download from **www.edexcel.com/MathsAwards**. To receive your free printed copies, simply complete our online form at **www.edexcel.com/MathsAwardsITO**

Getting in touch

By phone
Call our dedicated Maths Teacher support line on **0844 463 2931**

By email
Send us your questions at **TeachingMaths@pearson.com**

Got a question about entries?
Call our Exams Officer line on **0844 463 2535**