Embedding fluency, problem-solving and assessment for GCSE maths

EDEXCEL GCSE MATHS

For the 2015 specification

Powered by MyMaths.co.uk
# A new course for the 2015 specification

GCSE maths has changed and there is now a greater focus on reasoning, problem-solving and fluency.

*Edexcel GCSE Maths* is a brand new course which has been specifically developed for the 2015 Edexcel GCSE Maths (9-1) specification, and has problem-solving and assessment at its core. Deliver the changes with the only Edexcel course with direct links to MyMaths.

- The only Edexcel course officially powered by *MyMaths* – teach the 2015 specification alongside resources you already know
- **Problem-solving and reasoning** embedded into every resource to help students get used to the new-style exams from the very beginning
- **A wealth of assessment** to make tracking students’ progress easy
- Packed full of practice to improve fluency
- Multiple levels of differentiation built into two Student Books – Foundation and Higher
- A spread-per-lesson approach helps to deliver the material in a simple and succinct way
- Separate sections for skills and applications so students become familiar with concepts before learning to apply them
- Built-in mathematical literacy helps students communicate and interpret with confidence
- Student Books for Higher and Foundation level have been **endorsed** for the 2015 *Edexcel GCSE Maths* (9-1) specification.

Turn over to see how *Edexcel GCSE Maths* supports you with the new curriculum...

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## Course Structure

<table>
<thead>
<tr>
<th></th>
<th>Foundation</th>
<th>Higher</th>
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<tbody>
<tr>
<td><strong>Student Books</strong></td>
<td>![Image] 978 019 835150 4</td>
<td>![Image] 978 019 835151 1</td>
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<tr>
<td><strong>Teacher Companions</strong></td>
<td>![Image] 978 019 835156 6</td>
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<tr>
<td><strong>Homework Books</strong></td>
<td>![Image] 978 019 835147 4 Pack of 15</td>
<td>![Image] 978 019 835149 8 Pack of 15</td>
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<tr>
<td><strong>Exam Practice Books</strong></td>
<td>![Image] 978 019 835400 1 Pack of 15</td>
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### Online Resources

- **Edexcel GCSE Maths** Evaluation Pack 978 019 834100 0
- **Online Resources** includes:
  - Digital Student Books (Foundation and Higher)
  - Links to MyMaths
  - 400 InvisiPen videos
  - Online auto-marked tests
  - 50 hours’ worth of printable assessment
  - Assessment Tracking sheet
  - Self-assessment checklists

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## The 2015 GCSE in a nutshell

In September 2015 (first exams in 2017), the following changes were made:

- The new GCSE is linear in assessment
- Greater breadth and depth of topics
- Increased focus on reasoning and problem-solving

Fill out the tear off strip at the back of this guide to order your Evaluation Pack.
Assessment

When Jasmine cycles to school, the wheels go round 850 times. How far does Jasmine travel?

Jasmine’s bike has wheels of circumference (i.e. perimeter) 2.5 m.

The distance travelled in one day due to the Earth’s rotation

As the Earth spins on its axis, everything on the surface of the Earth moves.

1. Carli has been given the following set of numbers: 0.3, 1, 0.3, 4, 2. The distance travelled in one day due to the Earth’s rotation

Carli tries to order each set of numbers from smallest to largest. One pair of numbers in each list was ordered incorrectly.

Explain where Carli has made a mistake and put each list of numbers in order, starting with the smallest.

b. The world’s tallest woman, Yao Defen, is 233.34 cm tall.

A challenger to the world’s tallest woman record measured her height as 233.341 cm.

Use your answers to part a to correct to one significant figure would affect the answer to part b.

How many fans, to the nearest 1000, is the stadium capable of holding?

b

Copy and complete the table. Give your answers to 1 decimal place.

First term

4

3

2

1

c

Clive’s garden is rectangular measuring 12.5 m by 9.2 m.

Amanda’s garden is rectangular measures 12.5 m by 9.2 m.

She gives the gardener £15 to buy the grass seeds.

Amanda disagrees with the gardener’s estimate.

The gardener says she will need £20 to buy the grass seed.

Find the reciprocal of a number.

The angle subtended by an arc at the centre of a circle is twice the angle at the circumference.

Always say which geometrical fact you are using.

Problem-solving

The ability to solve multi-step maths problems is a key part of the new GCSE specification. Edexcel GCSE Maths provides students with clear worked examples and step-by-step explanations to increase confidence and prepare students for their examinations. Each topic contains a dedicated double-page spread on Applications devoted to problem-solving section, and allowing students to feel confident in independently reaching solutions.

Furthermore, the unique InvisiPen videos give an effective insight into exemplar worked solutions for the new-style questions.

Reasoning

The new GCSE requires students to formulate logical arguments, and to clearly communicate their reasoning using correct language and notation. Edexcel GCSE Maths supports reasoning by providing clear worked examples, showing how to effectively lay out workings. In addition, the regular Applications sections have a focus on the new AO2 assessment objective, so students can be fully prepared. Finally, the language section at the end of each chapter ensures that students develop their mathematical literacy as they go along.

Support for the 2015 GCSEs

Edexcel GCSE Maths has been specifically developed for the changes at GCSE. With the new specifications, assessment is more important than ever, and Edexcel GCSE Maths supports each assessment objective with resources which work together seamlessly. There’s also handy assess tests for easy tracking of every student’s progress.

MyMaths

Direct links to MyMaths provide online lessons and homework to support students further.

Teacher Companion

Questions at the end of each chapter help assess attainment against curriculum objectives.

InvisiPen Videos

Support AO2 and AO3 with InvisiPen videos, which show the step-by-step solving of complex problems.

Online Tests

Access a complete collection of auto-marked online tests and printout exam-style tests for essential practice.

Homework Book

Include regular homework for every topic and revision homework to test knowledge across all topics.

Exam Practice Book

An abundance of exam-style questions prepare students thoroughly for their exams. Students are also supported in forming logical arguments and showing their reasoning.

Fluency, problem-solving and reasoning are all fundamental parts of the new GCSE specification. Edexcel GCSE Maths has these areas embedded into every resource, from the Student Books to the Online Resources.

Fluency

Success in maths is based on students gradually improving their fluency with regular practice and consolidation. Edexcel GCSE Maths features a wealth of practice in the double-page Skills spreads to help improve fluency. In each lesson students can practice and become fluent in the skills they will need, before learning to apply the knowledge to problems in the Applications spreads.
Introduction
The longest river in the world lies flowing through the Amazon region of South America. It is known as the Amazon River.

What’s the point?
The Amazon River is the longest river in the world. It is a vital resource for the countries it flows through.

Chapter investigation
The length of the river is 6,480 km. Discuss with your class and your partner:

- How could the length be measured accurately?
- Would it be better to measure the length from the source to the mouth or vice versa?

You are going to find out how to calculate the hypotenuse in a right-angled triangle. This will be useful when comparing distances or calculating the length of a river.

Check in
1. Work out each of these:
   - 5 km + 10 km = __________
   - 10 km − 5 km = __________
   - 5 km × 10 km = __________
   - 5 km ÷ 10 km = __________

2. Exchange these experiences with a classmate.

Revision
1. Work out each of these:
   - 5 + 10 = __________
   - 10 − 5 = __________
   - 10 × 5 = __________
   - 10 ÷ 5 = __________

2. Exchange these experiences with a classmate.

Level of demand
colour-coded to address differentiation

Exercise 19.3S
1. Find the missing angles. Your answers are in the inverse degree.

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Exercise 19.3A
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Exercise 19.3B
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Each spread is focused on assessment objectives, with separate sections for skills and applications.

Examples show students how to form logical arguments and show reasoning.

Each topic has direct links to MyMaths activities.
Extend to harder examples of the type. Students will need to set up equations and find the angle. They should be encouraged to draw labelled diagrams to help them split the triangles into right-angled triangles, all involving either sine or cosine. Ensure they know how to…

Students could be given further problems that require them to decide whether to use sine or cosine, and why. They should be encouraged to draw labelled diagrams to help them split the triangles into right-angled triangles, all involving either sine or cosine.

Question 3. Find the missing sides in each of these right-angled triangles, giving your answers to 3 significant figures.

Question 4. Using trigonometry, work out:

a) sin 90°

b) cos 90°

c) tan 90°

Leave marks in your answers.

Question 6. Find the missing angles in each of these right-angled triangles, giving your answers to 3 significant figures.

a) angle ABC = 52° and BC = 12 mm.

b) angle ABC = 47° and AB = 8 cm.

c) angle ABC = 55° and AC = 10 cm.

Question 8. a) Find the angle between the straight line around 2095 (–110 M) and the vertical. b) Find the angle between the straight line around 1834 (110 M) and the vertical.
Edexcel GCSE Maths is supported by a wealth of online resources*. Present your lessons using the Digital Student Books, or show your students problem-solving examples with InvisiPen videos. On-screen tests which do the marking and feedback for you, along with direct links to MyMaths in every resource, will make delivering the new specification as simple as it can be.

**MyMaths** has been fully updated to support the new GCSE curriculum. Edexcel GCSE Maths links directly to the corresponding MyMaths Lessons and Online Homeworks. Four-digit codes at the bottom of each print book give a seamless link to MyMaths, and the Digital Student Books take you straight there at the click of a button. How does Edexcel GCSE Maths work with MyMaths?

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Embedding fluency, problem-solving and assessment for GCSE maths

*Edexcel GCSE Maths* has been developed to support you and your students with the new specification. With a focus on problem-solving, fluency and reasoning, *Edexcel GCSE Maths* is a brand new course designed to enable a deep understanding of maths.

From Student Books differentiated for all levels, to an abundance of assessment in the Exam Practice Books and Online Resources, *Edexcel GCSE Maths* provides learning which is tailored to each student, and supports them every step of the way.

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**Evaluate *Edexcel GCSE Maths* – free for 90 days!**

*Edexcel GCSE Maths* Evaluation Pack
978 019 834100 0
The *Edexcel GCSE Maths* Evaluation Pack contains:

- Foundation Student Book
- Higher Student Book
- Higher Homework Book
- Higher Exam Practice Book
- Teacher Companion Sample Pages
- Information on the online resources

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Sign up for your Evaluation Pack today.

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