



GCSE Mathematics Exam Revision Resources

For 2021/22



OAK
NATIONAL
ACADEMY

INTRODUCTION

This revision resource is a collection of all of the KS4 Mathematics units available on Oak National Academy. Oak's structured lessons and teacher-led explanations make it perfect for revision for exams, mocks and assessments.

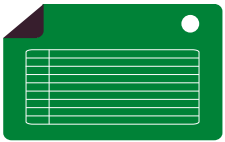
Each unit is made up of lessons which contain:



teacher-led videos



quizzes



worksheets



slides

There are two ways to access the lessons depending on how they are being used:

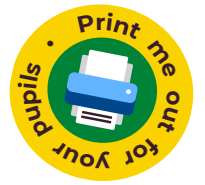
Teacher Hub

This is our dedicated area for teachers to adapt, edit and download and share resources. You can pick and choose different elements of lessons to use with pupils and review each lesson's content, objectives and activities to use as you wish.

Classroom

The Classroom is where pupils can view and complete lessons. Each lesson is self-contained and can be completed independently. In this guide we've provided a link to the first lesson in each unit - giving easy access to use the lessons for independent study. Alternatively, teachers can pinpoint and share links to specific lessons for pupils to revise.

TOP TIPS TO MAKE SURE YOU CAN PERFORM AT THE TOP OF YOUR GAME



There's no denying that revision can feel tiring and daunting, especially when it comes to revising for exams and assessments. Revision is a really important part of learning, and it's just as important and helpful to not only think about what you're studying, but how you're doing it. To help you get your focus sharp and your brain in gear, we've got some top tips to make sure you can perform at the top of your game.



Quiz yourself

Use practice questions or make flashcards. Practice testing has been shown to lead to greater knowledge retention over time.



Little and often

Spread out your learning by revising regularly but in small chunks. This will reduce overload and maximise memory.



Mix it up

Rather than learning about a topic in a block, alternate topics for study. This has been shown to be highly effective in boosting long term memory. It also matches the format of a test which flips from one topic to another.



Talk to yourself

Students who study without listening to music perform better in exams than those who listen to music. No need for complete silence though – reading aloud when studying has been shown to improve remembering.



Teach someone else

This helps you to stay focussed, structure your knowledge and identify essential information. It's fun too!



Look after yourself

Get some sleep, eat breakfast and go for walks. Students who do stay alert for longer and perform better on tests than those who don't. What an easy way to boost your performance!

MATHEMATICS KEY UNITS



We've selected a few key units we think are particularly useful for revision - these cover key topics which are likely to be included by all exam boards. These are a great place to start, but you can also use our unit level quizzes to establish where pupils need additional support.

Each unit of work features a unit quiz. These are designed to identify any areas your pupils may be finding more challenging within a topic.

Unit quizzes can help to give an overview of understanding and pinpoint individual revision needs. Pupils can use the results to self-direct to lessons or share their unit quiz results with you, offering a formative tool to support whole class planning or setting targeted revision plans and interventions.

FDP Equivalents

This unit covers content related to the conversion of fractions, decimals and percentages. The skill is instrumental in developing knowledge of proportionality and is a prerequisite for working with many proportion problems.

[Teacher Hub ▶](#)[Classroom lesson 1 ▶](#)[Unit quiz ▶](#)

Percentage increase and decrease

This unit covers a key component of proportional reasoning, and the underlying concept is applicable across many areas of the mathematics curriculum.

[Teacher Hub ▶](#)[Classroom lesson 1 ▶](#)[Unit quiz ▶](#)

Parallel Lines and Polygons 1

This unit covers some of the basics of angle properties in polygons and across parallel lines. The skills learnt in this unit are applicable to a number of units involving geometry.

[Teacher Hub ▶](#)[Classroom lesson 1 ▶](#)[Unit quiz ▶](#)

Ratio

This unit covers content that fits well with proportional reasoning, and is the building block towards more advanced topics such as similarity in shapes, trigonometric ratios, scale and 'best buy' problems.

[Teacher Hub ▶](#)[Classroom lesson 1 ▶](#)

Parts of Circles 2

This unit covers the building blocks for more advanced geometry problems involving area, surface area of cylinders and circle theorems.

[Teacher Hub ▶](#)[Classroom lesson 1 ▶](#)[Unit quiz ▶](#)

Linear Graphs

This unit covers some of the core concepts required to begin to understand the connections between the equation of a line and other areas of maths such as sequences and solving equations.

[Teacher Hub ▶](#)[Classroom lesson 1 ▶](#)[Unit quiz ▶](#)

ALL MATHS UNITS



[Simplifying Surds](#)

[Teacher Hub ▶](#)

[Classroom lesson 1 ▶](#)

[Adding Surds](#)

[Teacher Hub ▶](#)

[Classroom lesson 1 ▶](#)

[Multiplying Surds](#)

[Teacher Hub ▶](#)

[Classroom lesson 1 ▶](#)

[Dividing and Rationalising Surds](#)

[Teacher Hub ▶](#)

[Classroom lesson 1 ▶](#)

[Solving Equations 2](#)

[Teacher Hub ▶](#)

[Classroom lesson 1 ▶](#)

[Algebraic Fractions](#)

[Teacher Hub ▶](#)

[Classroom lesson 1 ▶](#)

[Factorise and solve a quadratic \(\$a=1\$ \)](#)

[Teacher Hub ▶](#)

[Classroom lesson 1 ▶](#)

[Factorise and solve quadratics \(\$a>1\$ \)](#)

[Teacher Hub ▶](#)

[Classroom lesson 1 ▶](#)

[Substitution and Rearranging Formulae](#)

[Teacher Hub ▶](#)

[Classroom lesson 1 ▶](#)

[Further Algebra](#)

[Teacher Hub ▶](#)

[Classroom lesson 1 ▶](#)

[Similarity](#)

[Teacher Hub ▶](#)

[Classroom lesson 1 ▶](#)

[Trigonometry 1](#)

[Teacher Hub ▶](#)

[Classroom lesson 1 ▶](#)

[Trigonometry 2](#)

[Teacher Hub ▶](#)

[Classroom lesson 1 ▶](#)

[Trigonometry 3](#)

[Teacher Hub ▶](#)

[Classroom lesson 1 ▶](#)

[Types of Numbers & Rules of Indices](#)

[Teacher Hub ▶](#)

[Classroom lesson 1 ▶](#)

[Negative and Fractional Indices](#)

[Teacher Hub ▶](#)

[Classroom lesson 1 ▶](#)

[Recurring decimals](#)

[Teacher Hub ▶](#)

[Classroom lesson 1 ▶](#)

[Upper and Lower Bounds](#)

[Teacher Hub ▶](#)

[Classroom lesson 1 ▶](#)

[Straight Line Graphs \(\$y=mx+C\$ \)](#)

[Teacher Hub ▶](#)

[Classroom lesson 1 ▶](#)

[Straight Line Graphs 2 \(Parallel Lines\)](#)

[Teacher Hub ▶](#)

[Classroom lesson 1 ▶](#)

[Higher Straight lines \(Perpendicular Lines\)](#)

[Teacher Hub ▶](#)

[Classroom lesson 1 ▶](#)

[Simultaneous Equations \(Linear\)](#)

[Teacher Hub ▶](#)

[Classroom lesson 1 ▶](#)

[Scatter Diagrams & Frequency Trees](#)

[Teacher Hub ▶](#)

[Classroom lesson 1 ▶](#)

[Higher Data 1 \(CF and Box Plots\)](#)

[Teacher Hub ▶](#)

[Classroom lesson 1 ▶](#)

[Probability 2](#)

[Teacher Hub ▶](#)

[Classroom lesson 1 ▶](#)

[Higher Probability \(Conditional and Further Set Notation\)](#)

[Teacher Hub ▶](#)

[Classroom lesson 1 ▶](#)

[Further Quadratic equations](#)

[Teacher Hub ▶](#)

[Classroom lesson 1 ▶](#)

[Quadratic Graphs 1 \(\$a=1\$ \)](#)

[Teacher Hub ▶](#)

[Classroom lesson 1 ▶](#)

[Quadratic Graphs 2 \(\$a>1\$ \)](#)

[Teacher Hub ▶](#)

[Classroom lesson 1 ▶](#)

[Quadratic Sequences](#)

[Teacher Hub ▶](#)

[Classroom lesson 1 ▶](#)

[One linear and one quadratic simultaneous equations](#)

[Teacher Hub ▶](#)

[Classroom lesson 1 ▶](#)

[Parts of a Circle 1 & 2](#)

[Teacher Hub ▶](#)

[Classroom lesson 1 ▶](#)

[Volume and Surface Area 1 \(Prisms\)](#)

[Teacher Hub ▶](#)

[Classroom lesson 1 ▶](#)

[Volume 2](#)

[Teacher Hub ▶](#)

[Classroom lesson 1 ▶](#)

[Surface Area 2](#)

[Teacher Hub ▶](#)

[Classroom lesson 1 ▶](#)

[Volume and Surface Area 2](#)

[Teacher Hub ▶](#)

[Classroom lesson 1 ▶](#)

[Advanced Trigonometry 1](#)

[Teacher Hub ▶](#)

[Classroom lesson 1 ▶](#)

[Advanced Trigonometry 2](#)

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[Advanced Trigonometry 3](#)

[Teacher Hub ▶](#)

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[Directed Numbers](#)

[Teacher Hub ▶](#)

[Classroom lesson 1 ▶](#)

[Rules of indices \(numbers\)](#)

[Teacher Hub ▶](#)

[Classroom lesson 1 ▶](#)

[Standard Form \(Writing and converting\)](#)

[Teacher Hub ▶](#)

[Classroom lesson 1 ▶](#)

[Standard Form 4 Operations](#)

[Teacher Hub ▶](#)

[Classroom lesson 1 ▶](#)

[Collecting, Indices, Expand and Simplify, Solving Equations 1](#)

[Teacher Hub ▶](#)

[Classroom lesson 1 ▶](#)

[Adding and Subtracting Fractions](#)

[Teacher Hub ▶](#)

[Classroom lesson 1 ▶](#)

[Rotation and Enlargement](#)

[Teacher Hub ▶](#)

[Classroom lesson 1 ▶](#)

[Pythagoras Theorem 1](#)

[Teacher Hub ▶](#)

[Classroom lesson 1 ▶](#)

[Pythagoras Theorem 2](#)

[Teacher Hub ▶](#)

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[Factors, Multiples, and Primes](#)

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[Venn Diagrams](#)

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[HCF and LCM](#)

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[Rounding and Estimating](#)

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[Simple Graphs](#)

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[Scatter diagrams and Frequency trees](#)

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[Averages \(From a list and tables...\)](#)

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[Ratio 1 & 2](#)

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[Percentage increase and decrease](#)

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[Repeated Percentage Change](#)

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[Fractions 1, 2, and Fractional Change](#)

[Teacher Hub ▶](#)

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[Parts of circles 1 \(Semi and quarter circles\)](#)

[Teacher Hub ▶](#)

[Classroom lesson 1 ▶](#)

[Parts of circles 2 \(Arcs and Sectors\)](#)

[Teacher Hub ▶](#)

[Classroom lesson 1 ▶](#)

[Cylinders](#)

[Teacher Hub ▶](#)

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[Area and Perimeter](#)

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[4 Rules of Number](#)

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[Types of Numbers](#)

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[Collecting like terms, simplifying](#)

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[Expand and simplify brackets](#)

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[Rules of Indices](#)

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[Solving equations 1 \(One step, Two Step and Brackets\)](#)

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[Reflection](#)

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[Factorising \(single bracket\)](#)

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[Solve Inequalities and Represent on Number Line](#)

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[Linear Sequences](#)

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[Fraction Equivalents](#)

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[Fractions 1 \(adding and subtracting\)](#)

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[Fractions 2 \(multiplying and dividing\)](#)

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[Revise - Angles, Polygons, Bearings](#)

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[Circle Theorems 1](#)

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[Revise - Simultaneous Equations](#)

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[Charts and tables \(Pie Chart and Two way\)](#)

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[Revise - Data \(Mean Table, CF Charts\)](#)

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[Probability 3 \(Tree diagrams\)](#)

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[Histograms](#)

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[Graphs of Inequalities](#)

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[Compound measures](#)

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[Volume and Surface Area 1 & 2](#)

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[Parallel Lines and Polygons 1](#)

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[Polygons 2 \(Interior and Exterior\)](#)

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[Ratio 2](#)

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[Revise - Solving Equations](#)

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[Solve equations numerically \(Iteration\)](#)

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[Direct and Inverse Proportion](#)

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[Further Algebraic Fractions](#)

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[Algebraic Proof](#)

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[Circle Graphs](#)

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[Data Collection Higher](#)

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[Revise - Linear and Quadratic Graphs](#)

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[Other Graphs \(Trig, Exponential and Transformations\)](#)

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[Further graphs \(Gradients/Area of curves\)](#)

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[Volume and Surface Area Higher 3](#)

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[Higher Vectors 1](#)

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[Higher Vectors 2 and Congruent Triangles](#)

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[Enlargement and Similarity](#)

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