KING EDWARD VI
HANDSWORTH GRAMMAR
SCHOOL FOR BOYS

KING EDWARD VI
ACADEMY TRUST
BIRMINGHAM

HGS MATHS

START OF YEAR INFORMATION
YEAR 10

www.hgsmaths.com

Introduction

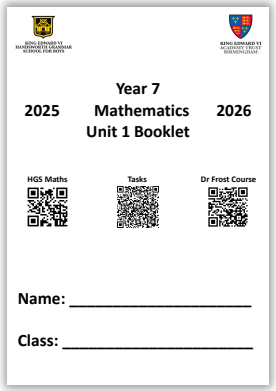
This short presentation will outline how we will work in mathematics.

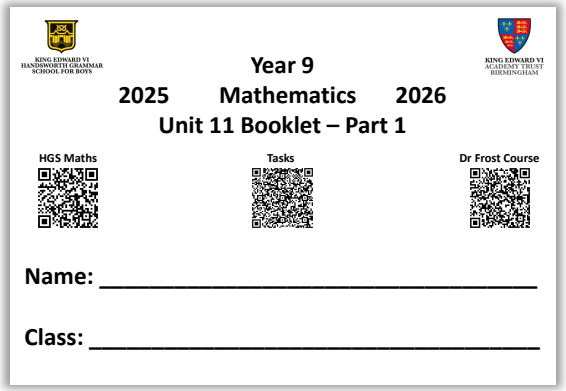
We will look at:

- **Booklets – Student and Task**
- **Exercise Book and Equipment**
- **Homework and Retrieval Practice**
- **Good Habits**
- **Assessments**
- **GCSE Mathematics and Level 2 Further Mathematics**
- **Online Platforms – HGS Maths and Dr Frost**
- **Revision**
- **Enrichment**
- **Support**
- **Motivation and Success**

Student Booklets

- All notes and examples will be completed in printed booklets.
- You must keep your booklets neat and up to date.
- **Booklets will be kept in school until fully completed**, after which you will be allowed to take them home.

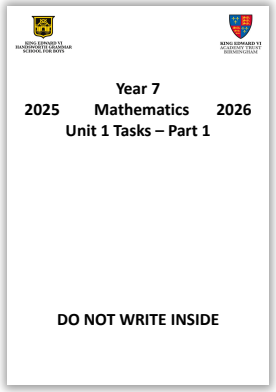


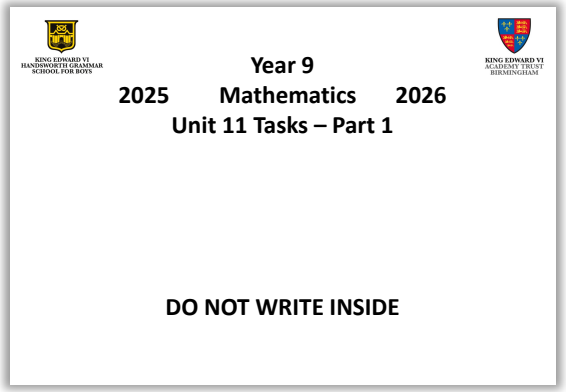


Note: Year 7 and 8 booklets are portrait, while Year 9, 10, and 11 booklets are landscape.

Task Booklets

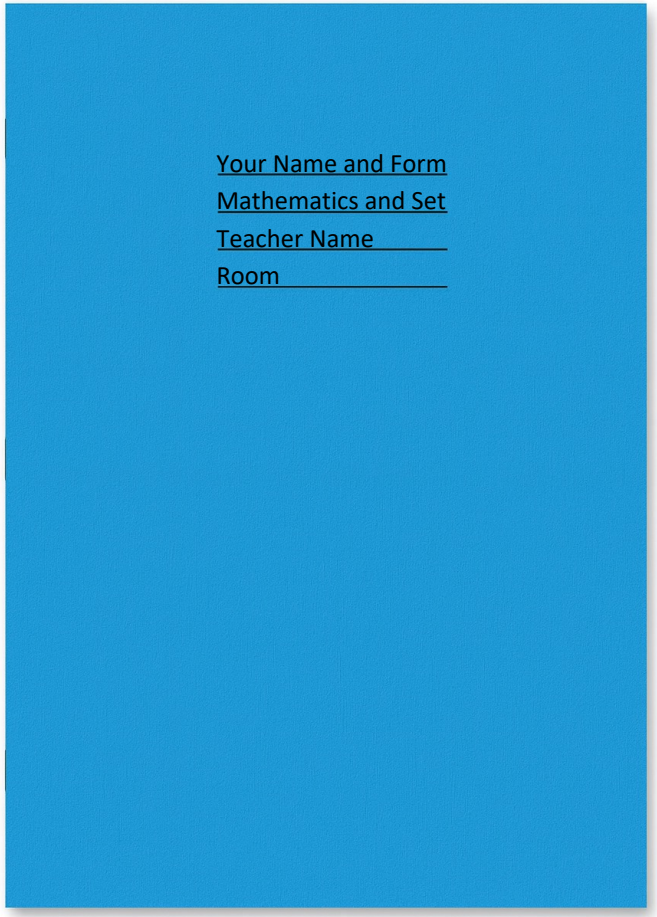
- Questions will be projected on the board or provided in a task booklet.
- **Do not write in the task booklets**, as they will be reused next year.





Exercise Book

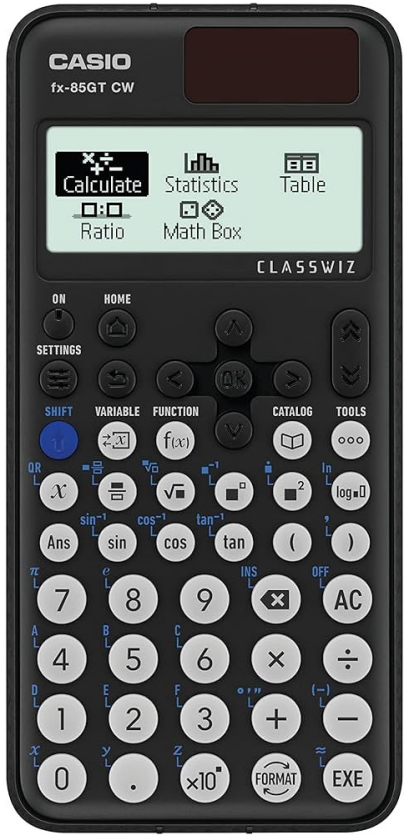
- This is your book for all classwork and homework exercises. You should keep it neat.
- All **classwork** is done at the **front** of the book.
- All **homework** is done at the **back** of the book.
- All marking will be done through self-assessment or peer assessment.
- You should always include:
  - **Dates**
  - **Headings**
  - **Margins**
- **You must take this book home and bring it to every lesson.**



Equipment

- You must bring the following equipment to every lesson, along with your exercise book:
  - **2 pens (ideally black)**
  - **1 red or green pen**
  - **Pencil**
  - **Ruler**
  - **Sharpener**
  - **Eraser**
  - **Protractor**
  - **Compass**
  - **Calculator (Casio fx-85GT CW or fx-991CW)**

- A full equipment pack can be purchased from the school – details will be posted on Microsoft Teams.



Note: It is recommended that you purchase the Casio fx-991CW if you are considering studying Mathematics at A level.

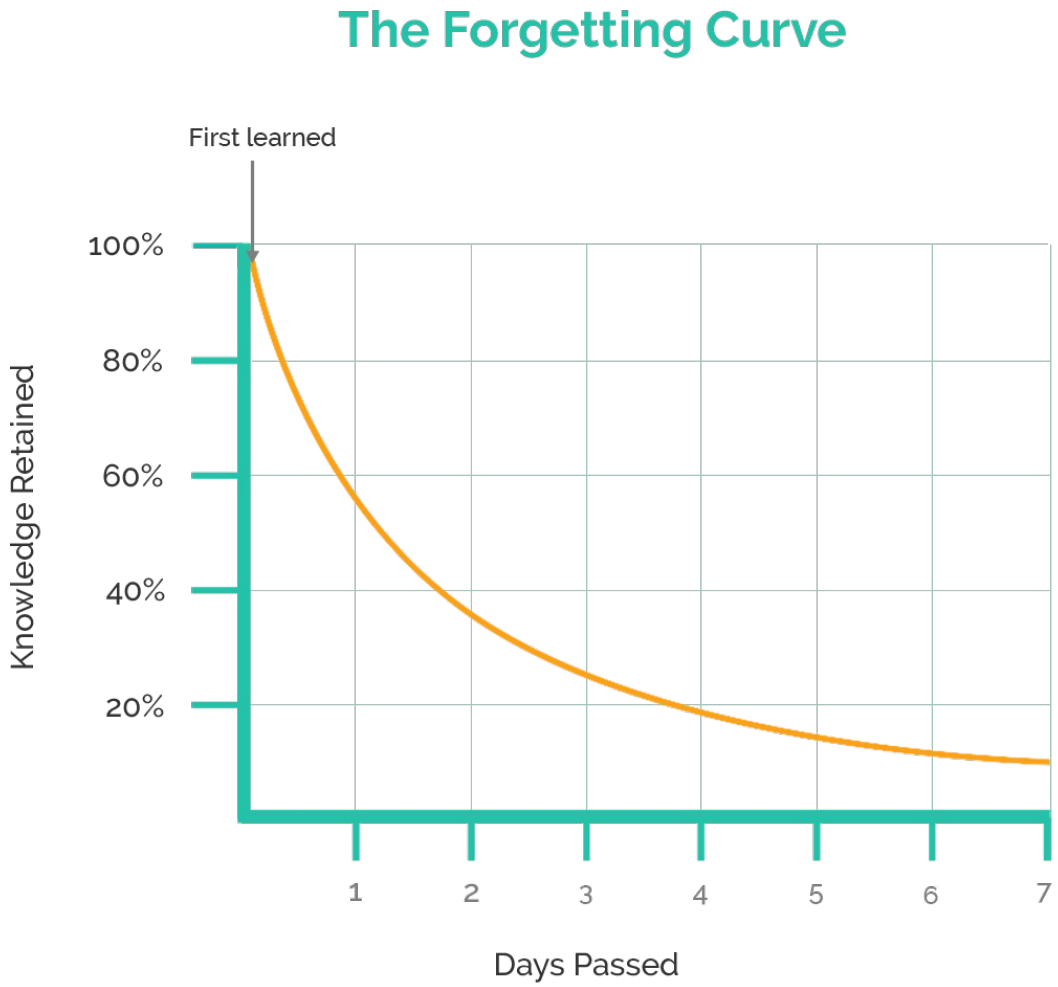
Homework

- You will receive **two homework tasks per week**. They will be **recorded on Satchel One**.
- One homework will be a retrieval task set online using Dr Frost, completed by the entire year group. This begins after half term for Year 7.
- The second homework will be set by your classroom teacher(s). This could be another Dr Frost task or an exercise from the task booklet.
- **Always show your working at the back of your blue exercise book for any Dr Frost homework.**
- **If you score 100% on a Dr Frost homework, you will be awarded a house point.**
- **If you fail to complete your homework, you will be sanctioned (see the policy below).**

Stage	Sanction	Contact
1	Verbal warning/reprimand	Email FT/Parent
2	Short teacher detention (5 minutes)	Email FT/Parent
3	Longer teacher detention (break or 15 minutes after school)	Email FT/Parent
4	Department detention (30 minutes)	Email FT/Parent and HoY
5	Department detention (45 minutes)	Call home + Email FT/HoY
6	Department detention (60 minutes)	Call home + Email FT/HoY
7	Whole school – parents called in	HoD/HoY meeting

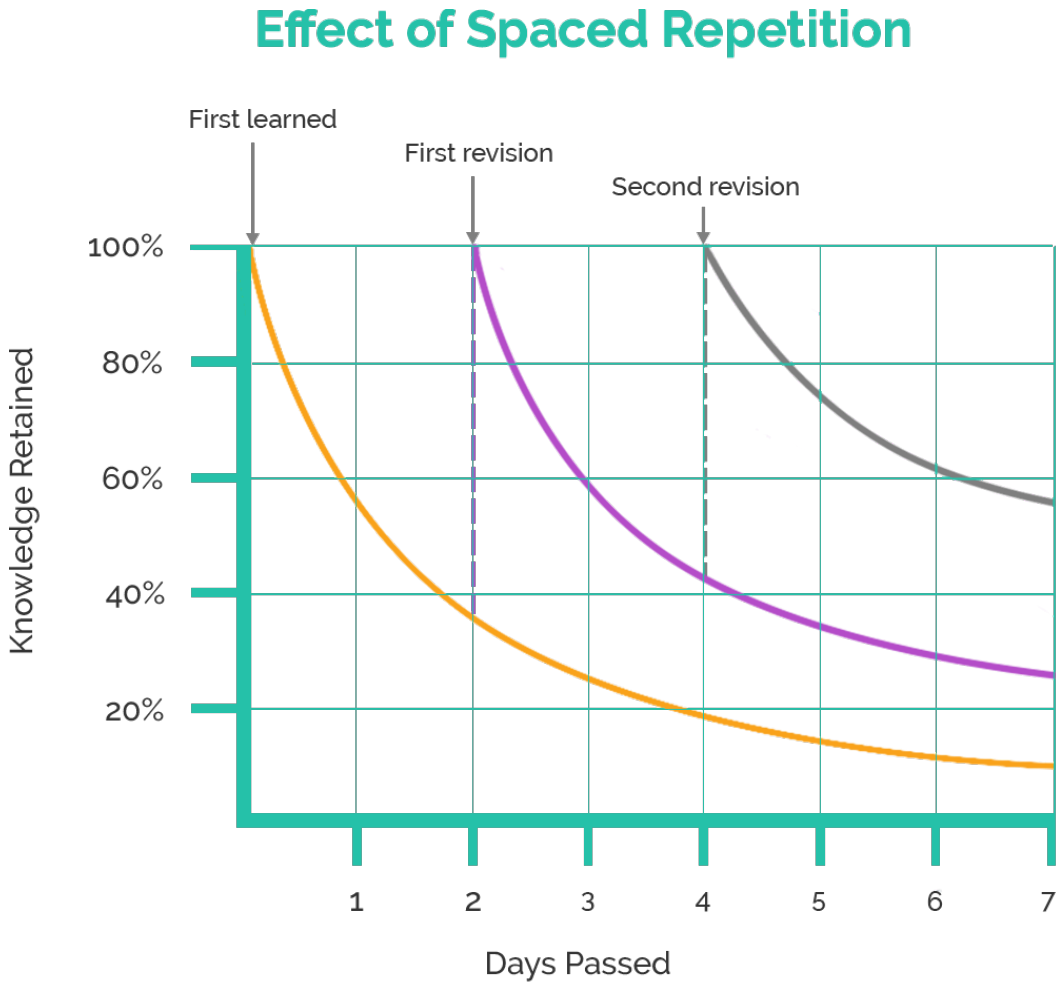
Retrieval Practice – What Is The Point?

- **Bad news:** We forget new information quickly after learning it.
- **Steep forgetting curve:** Memory fades rapidly unless reinforced.
- **Normal brain function:** The brain filters what's worth remembering based on repetition and importance.
- **One-time exposure isn't enough:** If you only think about something once, the brain likely won't retain it.



Retrieval Practice – What Is The Point?

- **Good news:** Actively trying to recall information slows forgetting.
- **Retrieval signals importance:** Each effort to recall tells your brain the memory matters.
- **Repeated retrieval strengthens memory:** The more you retrieve it, the more deeply it's embedded.
- **Practical tip:** Try to recall material during repeated tasks (like RP homework, Do Now, Entrance Tickets, or quizzes).
- **Why it matters:** Using your memory this way helps you retain knowledge long-term.



Good Habits At Home

To succeed in maths, you need good habits at home:

- **Get enough sleep**
  Aim for 8-10 hours – your brain needs rest to focus and learn.

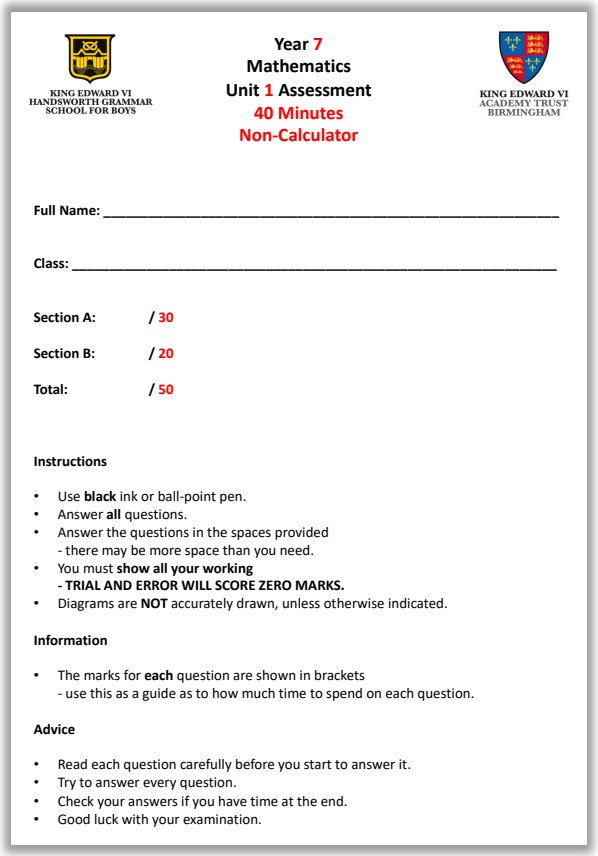
- **Avoid distractions**
  Do homework somewhere quiet, without phones or games.

- **Use technology wisely**
  Tools like ChatGPT can explain topics clearly, but it is important that you try the work yourself.

- **Build a routine**
  Set a regular study time each day. A little every day is better than cramming.

Assessments

- You will complete **entrance and exit tickets in class** to check your understanding of current or previous work.
- You will also have **formal assessments at the end of every unit**.
- There will be a **separate end-of-year exam**.



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Year 7
Mathematics
Unit 1 Assessment
40 Minutes
Non-Calculator

Full Name: _____

Class: _____

Section A: / 30

Section B: / 20

Total: / 50

Instructions

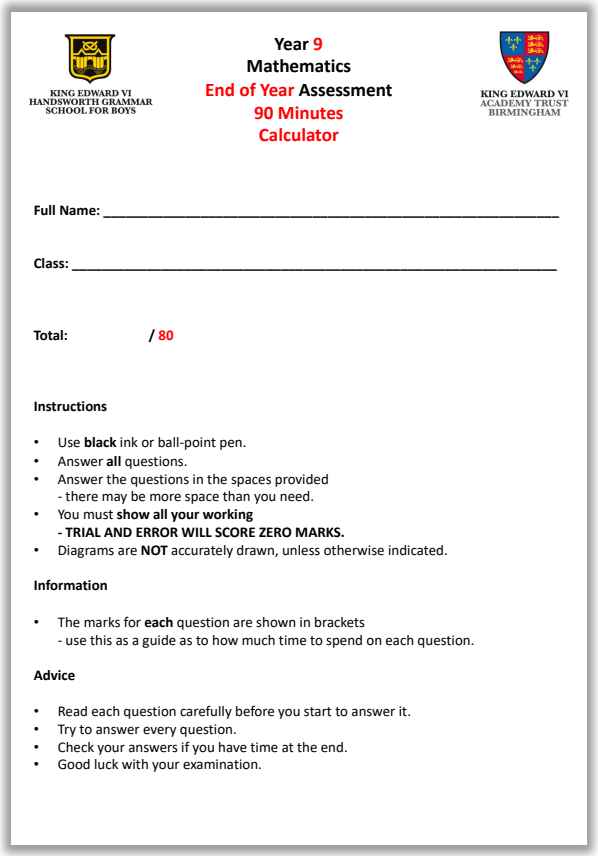
- Use **black** ink or ball-point pen.
- Answer **all** questions.
- Answer the questions in the spaces provided
  - there may be more space than you need.
- You must **show all your working**
  - **TRIAL AND ERROR WILL SCORE ZERO MARKS.**
- Diagrams are **NOT** accurately drawn, unless otherwise indicated.

Information

- The marks for **each** question are shown in brackets
  - use this as a guide as to how much time to spend on each question.

Advice

- Read each question carefully before you start to answer it.
- Try to answer every question.
- Check your answers if you have time at the end.
- Good luck with your examination.



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Year 9
Mathematics
End of Year Assessment
90 Minutes
Calculator

Full Name: _____

Class: _____

Total: / 80

Instructions

- Use **black** ink or ball-point pen.
- Answer **all** questions.
- Answer the questions in the spaces provided
  - there may be more space than you need.
- You must **show all your working**
  - **TRIAL AND ERROR WILL SCORE ZERO MARKS.**
- Diagrams are **NOT** accurately drawn, unless otherwise indicated.

Information

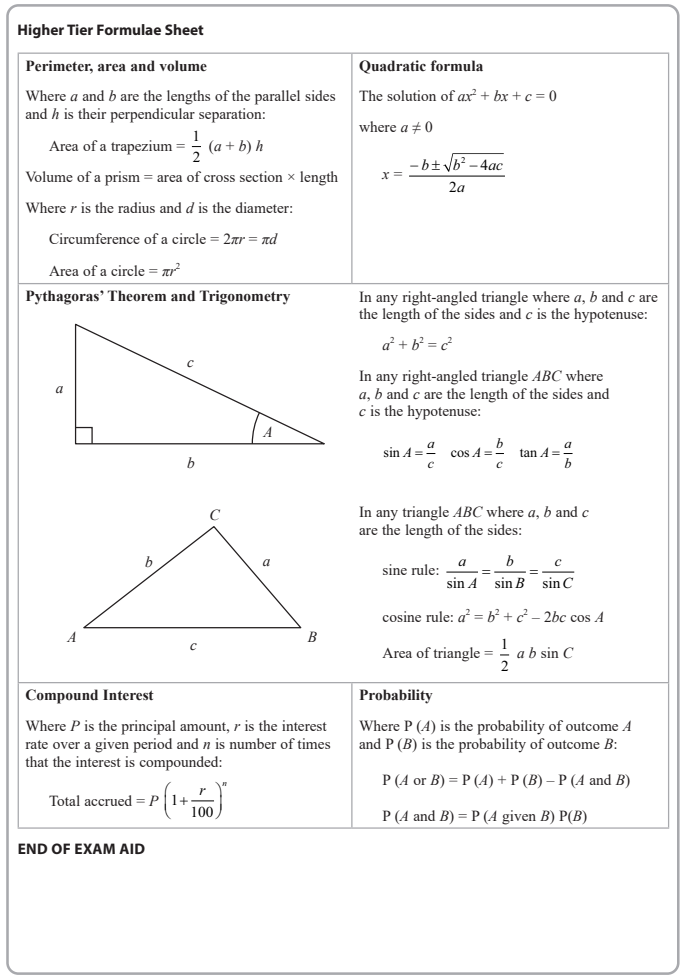
- The marks for **each** question are shown in brackets
  - use this as a guide as to how much time to spend on each question.

Advice

- Read each question carefully before you start to answer it.
- Try to answer every question.
- Check your answers if you have time at the end.
- Good luck with your examination.

GCSE Mathematics

- Everyone is entered for **Higher Tier** (Grades 4 to 9).
- Exam board: **Edexcel**.
- You will sit three papers at the end of Year 11:
  - **Paper 1: Non-Calculator**
  - **Paper 2 and Paper 3: Calculator**
- Each paper is **1 hour 30 minutes**, worth **80 marks**.
- A **formula sheet (exam aid)** will be provided in the exam.



Higher Tier Formulae Sheet

Perimeter, area and volume

Where a and b are the lengths of the parallel sides and h is their perpendicular separation:

Area of a trapezium = $\frac{1}{2}(a+b)h$

Volume of a prism = area of cross section × length

Where r is the radius and d is the diameter:

Circumference of a circle = $2\pi r = \pi d$

Area of a circle = πr^2

Quadratic formula

The solution of $ax^2 + bx + c = 0$

where $a \neq 0$

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

Pythagoras' Theorem and Trigonometry

In any right-angled triangle where a, b and c are the length of the sides and c is the hypotenuse:

$a^2 + b^2 = c^2$

In any right-angled triangle ABC where a, b and c are the length of the sides and c is the hypotenuse:

$\sin A = \frac{a}{c}$ $\cos A = \frac{b}{c}$ $\tan A = \frac{a}{b}$

In any triangle ABC where a, b and c are the length of the sides:

sine rule: $\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$

cosine rule: $a^2 = b^2 + c^2 - 2bc\cos A$

Area of triangle = $\frac{1}{2}ab\sin C$

Compound Interest

Where P is the principal amount, r is the interest rate over a given period and n is number of times that the interest is compounded:

Total accrued = $P\left(1+\frac{r}{100}\right)^n$

Probability

Where P (A) is the probability of outcome A and P (B) is the probability of outcome B:

P (A or B) = P (A) + P (B) – P (A and B)

P (A and B) = P (A given B) P(B)

END OF EXAM AID

Level 2 Further Mathematics

- This is an extra qualification for students in Sets 1 and 2.
- Exam board: **AQA**.
- You will sit two papers at the end of Year 11:
  - **Paper 1: Non-Calculator**
  - **Paper 2: Calculator**
- Each paper is **1 hour 45 minutes**, worth **80 marks**.
- A **formula sheet** is provided in the exam.

Perimeter, area and volume

Where a and b are the lengths of the parallel sides and h is their perpendicular separation:

Area of a trapezium $= \frac{1}{2}(a+b)h$

Volume of a prism = area of cross section × length

Where r is the radius and d is the diameter:

Circumference of a circle $= 2\pi r = \pi d$

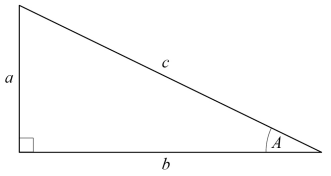
Area of a circle $= \pi r^2$

Quadratic formula

The solution of $ax^2 + bx + c = 0$ where $a \neq 0$

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

Pythagoras' Theorem and Trigonometry

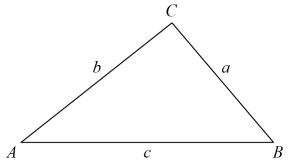


In any right-angled triangle where a, b and c are the length of the sides and c is the hypotenuse:

$$a^2 + b^2 = c^2$$

In any right-angled triangle ABC where a, b and c are the length of the sides and c is the hypotenuse:

$$\sin A = \frac{a}{c} \qquad \cos A = \frac{b}{c} \qquad \tan A = \frac{a}{b}$$



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sine rule: $\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$

cosine rule: $a^2 = b^2 + c^2 - 2bc\cos A$

Area of triangle $= \frac{1}{2}ab\sin C$

For any angle θ $\tan\theta = \frac{\sin\theta}{\cos\theta}$

and $\sin^2\theta + \cos^2\theta = 1$

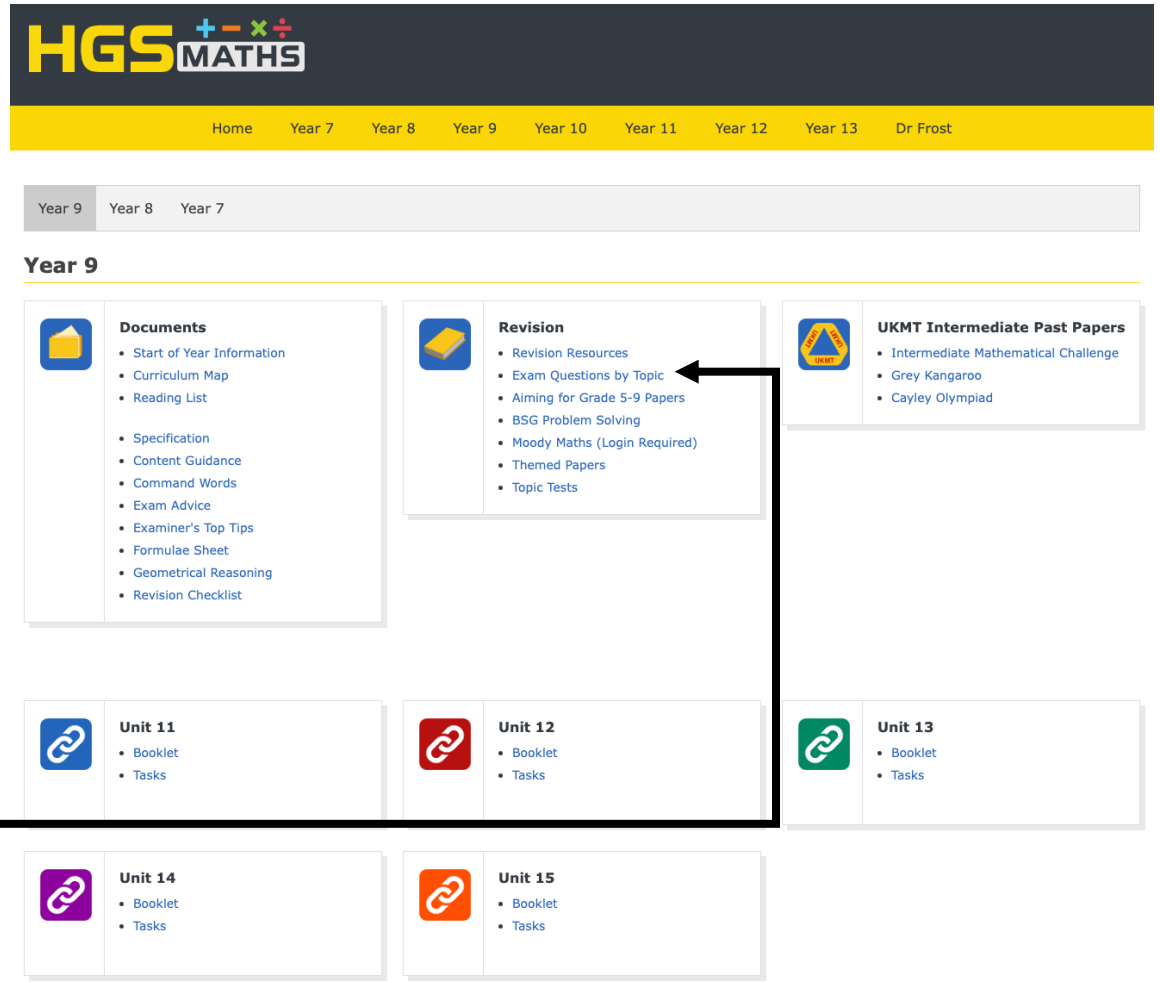
Coordinate Geometry

Equation of a straight line passing through (x_1, y_1) with gradient m $y - y_1 = m(x - x_1)$

The general equation of a circle, centre (a, b), radius r $(x-a)^2 + (y-b)^2 = r^2$

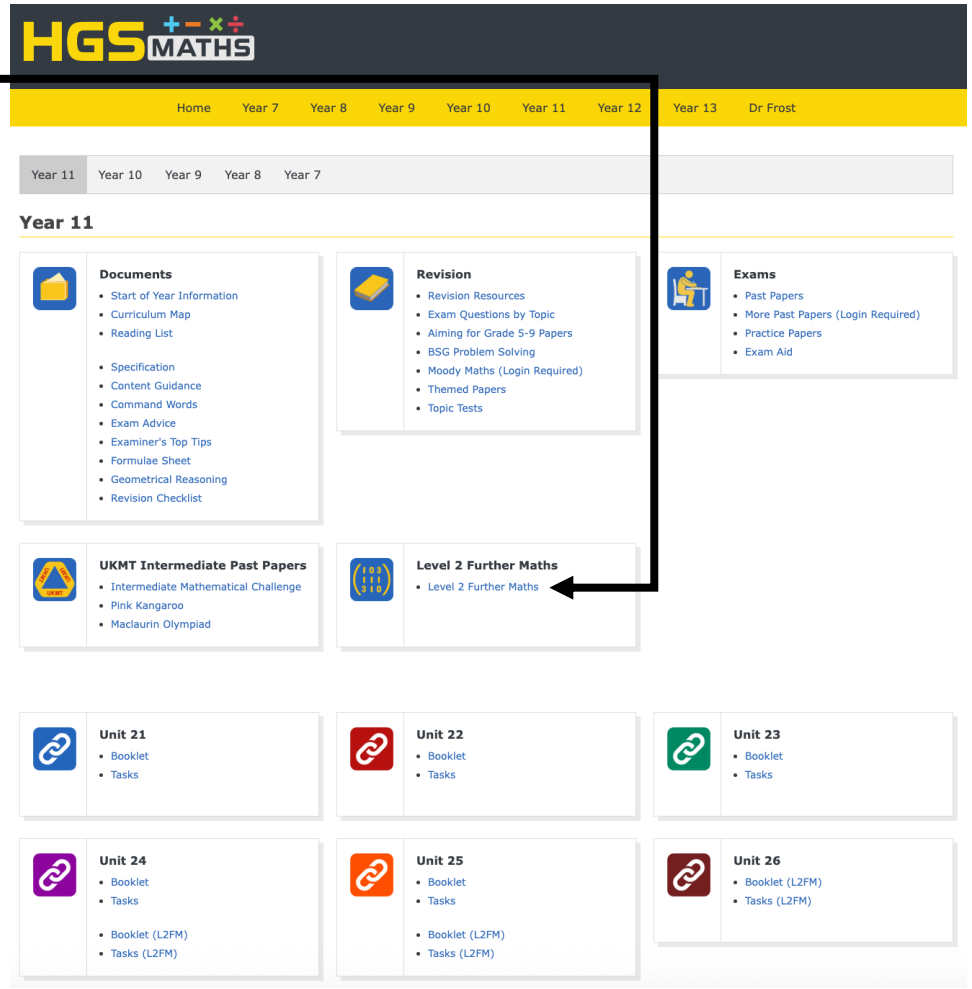
Website

- You will find the **school's mathematics curriculum map, reading list, student and task booklets, and UKMT past papers** on the relevant page for your year group.
- On the Year 8 to Year 11 pages, you can access **blank copies of the previous year's booklets** by clicking the relevant year tab.
- The Year 9 to Year 11 pages also include the **GCSE specification, revision resources, and past paper questions**.
- **The recommended resource for past paper questions is the following link.**



Website (Set 1 and Set 2 Only)

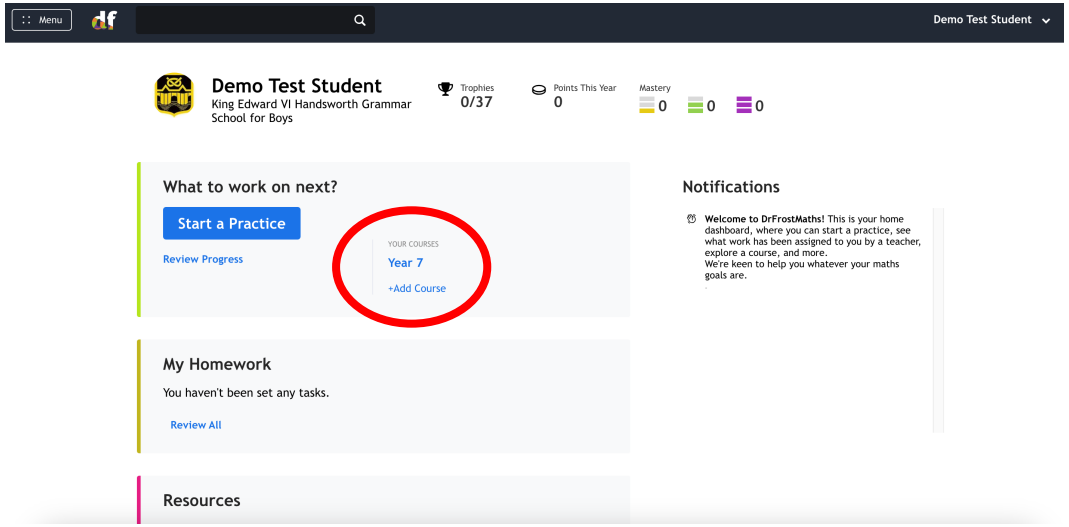
- **If you are studying Level 2 Further Maths, you can access resources through this link.**

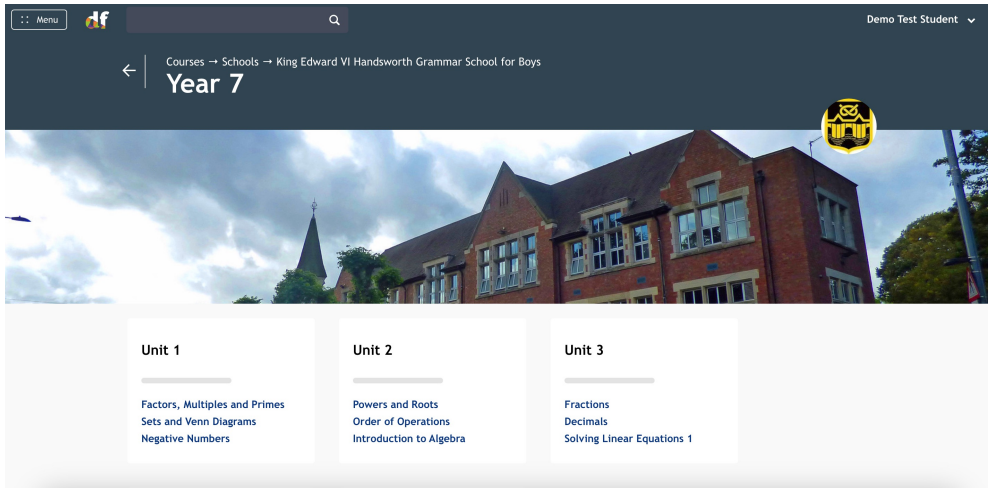


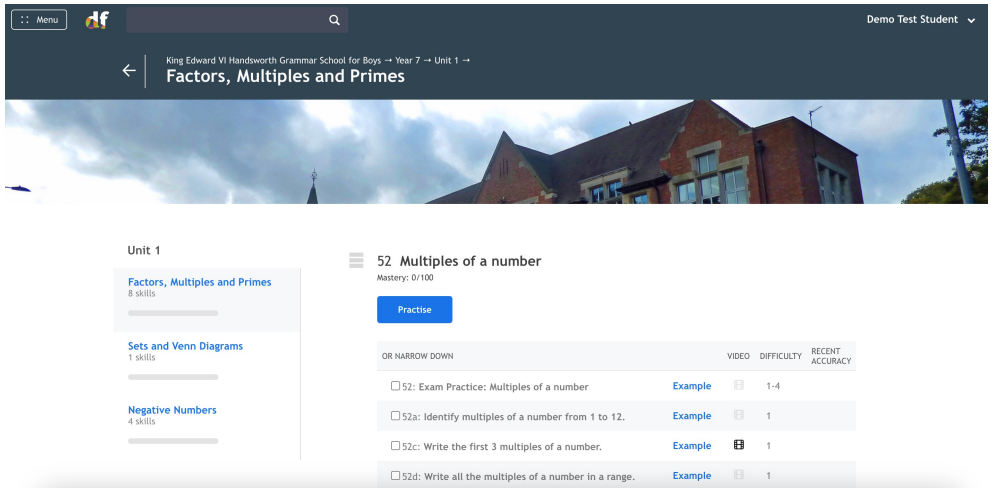
Dr Frost

- **We have uploaded our curriculum to Dr Frost** so you can easily complete independent work based on what you have covered in lessons.

- In each course, you can **click into the unit and topic you want to practise, and complete key skills or exam-style questions**.







Revision

You remember what you practise, not just what you look at.

- **Don’t just read notes** – practise questions regularly.
- **Use your booklets, Dr Frost, and past papers** to practise and test yourself.
- **Focus on topics you find hard**, not just favourites.
- Use your exercise book to write out full solutions and working.
- Mark your answers and learn from mistakes.
- Little and often is more effective than cramming.

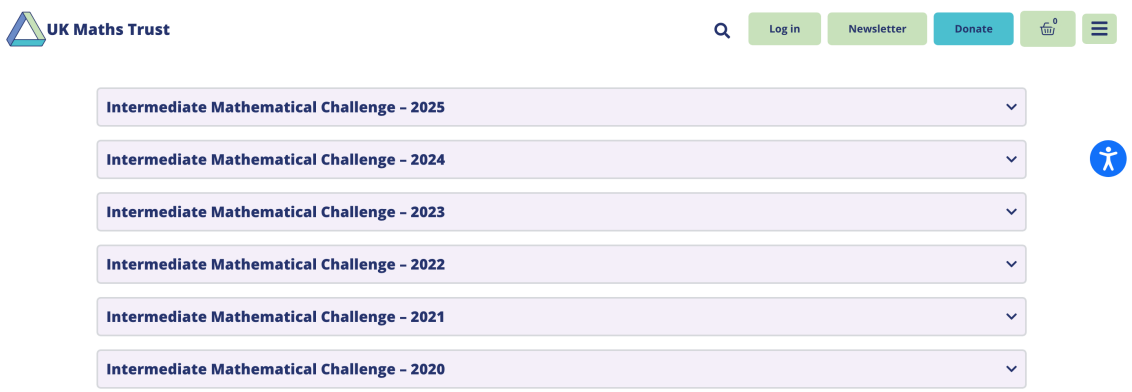
Intermediate Maths Challenge – Wednesday 7 January 2026

- National mathematics competition organised by the UK Maths Trust – a charity promoting advanced maths problem solving in schools.
- Test yourself against the best students in the country.
- Think of it as football trials – but for maths.
- Summer schools, mentorship, nationally recognised certificates. Success isn't easy, but if you achieve it, it means a lot.
- There is everything to gain, and nothing to lose. There are rewards for students who do well – but if you don't, nothing bad happens.

UK Maths Trust

Intermediate Maths Challenge – Wednesday 7 January 2026

- Depth not breadth. Questions are based on problems that test how deep your knowledge is.
- Develop your ability to solve more complicated problems, like the ones in exams further up the school.
- **To practise, complete lots of past papers (you can find links on hgsmaths.com).**
- **Weekly support sessions are available if you would like extra help.**



Support

- Your mathematics teacher is your first point of contact for any questions related to your mathematics learning.
- **You can speak to them in person before school, at break, lunch, or after school.**
- **You can also message them on Teams or send a polite email using your school account.**
- You can ask about **homework, something you didn't understand in class, or help before a test**.
- Don't expect an instant reply to emails or Teams messages. **It is best to ask in person, and well before your homework is due or a test is coming up.**

Maths Clinic

There are three **break time clubs** running for Mathematics. These will be on **Tuesday**.

ROOM 27 – Maths Challenge

- Weekly opportunity to work through questions
- Work with like-minded students in groups
- Attending regularly can lead to being chosen for trips and competitions

ROOM 28 – Dr Frost

- Dr Frost retrieval homework
- Past paper questions
- A quiet space to focus on maths or get extra practice.

ROOM 20 – Mentoring and Intervention

- A teacher and sixth form mentors to support you with any topics you need help with
- Support programmes to help students get back on track

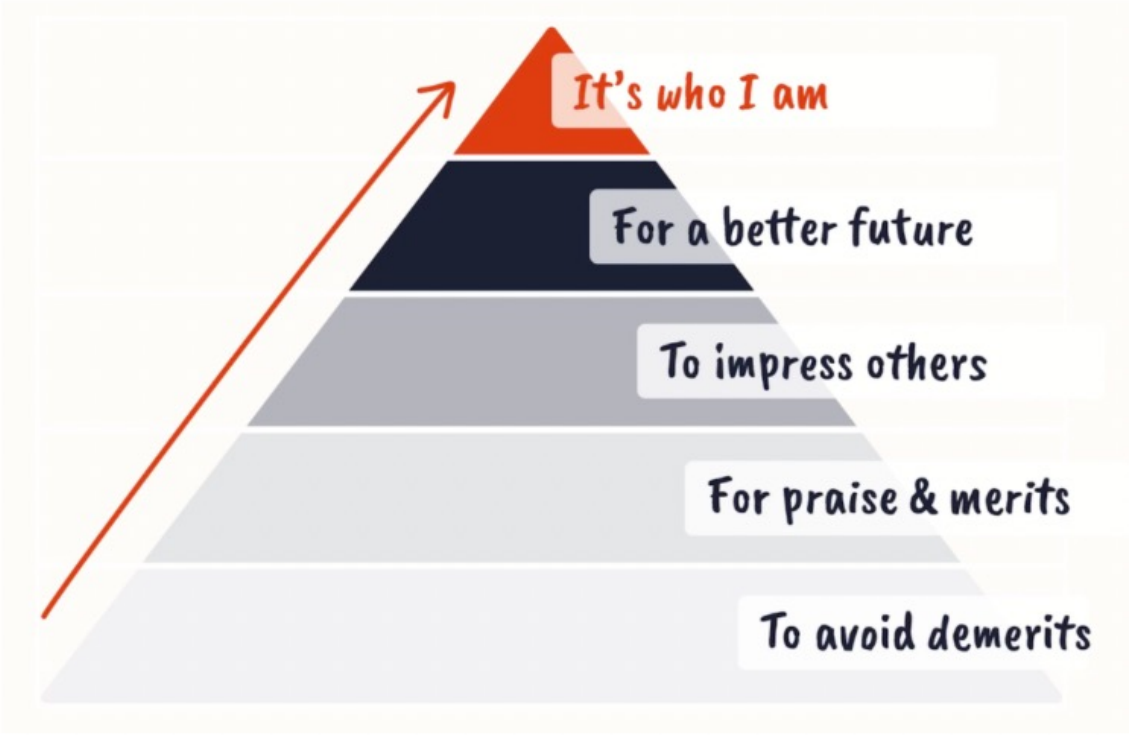
Details will be confirmed on Microsoft Teams.

Motivation

This pyramid shows different reasons why you might do the right thing – like doing homework, behaving, or working hard.

- **To avoid demerits**
  "I just don't want to get into trouble."
- **For praise & merits**
  "I want a reward or recognition."
- **To impress others**
  "I want people to think I'm clever or hardworking."
- **For a better future**
  "This will help me later in life."
- **It's who I am**
  "Doing the right thing reflects my values."

The higher you go, the more your actions reflect your identity, not just rewards or pressure.

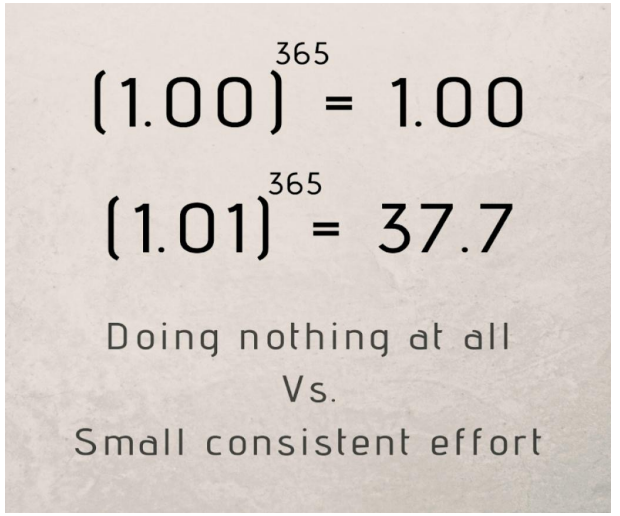


Success

You don’t have to be the best – just be consistent and improve.

- Completing all homework, including retrieval.
- Asking for help when needed.
- Showing full working and using correct methods.
- Taking pride in presentation and effort.
- Supporting your classmates and using support sessions.

Take small steps every day – progress adds up.



What Is Next?

That’s it! You're ready to start your Maths journey!

- You have the resources.
- You know the routines.
- You know how to get support.

Now it’s all about effort, curiosity, and making the most of every lesson.

Quick Reminders

- Bring your equipment every day.
- Complete your homework on time.
- Ask questions — that’s how you learn.

Aim for progress, not perfection.

We’re here to help you succeed — and enjoy the process too.

Need help or stuck on something?

You can email your teacher or send a message on Teams.