



# Learning to fly in Maths

These are the skills and habits which outstanding students of Maths develop. Do as many of these as possible to become completely independent in the subject and to develop the skills and knowledge needed to attain 8/9 at GCSE and A\* at A Level.

## In your lessons

- Dive in and have a go. Mistakes are good! They lead you to a deeper understanding.
- Correct your homework and classwork and address any errors. As well as writing the correct answer write enough method so you will understand it when you come to revise.
- Ask for help if you do not understand *any* part of a topic. Your questions may help the rest of the class.
- Recognise connections within mathematics.
- Work independently.
- Persevere and don't be afraid to work at your own pace.
- Work with other students. Discussion and explanation to each other also helps you to learn.

## Between your lessons

- Do your homework! If you are stuck on a significant part of it get help in a lunchtime session.
- Always show your method/working. You need to be able to explain your mathematical thinking.
- Make notes of any questions to ask your teachers in class.
- Before a unit assessment attempt the check up worksheet.
- After a unit assessment attempt the strengthen or extend worksheet to support your gaps/ provide extra challenge.
- After an end of term or year examination analyse your gap analysis for your individual areas of improvement.

## Beyond your lessons

- Read a general maths book. See how maths is used in other subjects.
  - **Why do Buses come in Threes** Eastaway and Wyndham
  - **How Long is a Piece of String** Eastaway
  - **Does God Play Dice** Ian Stewart (or many other books by the same author)
  - **You are a Mathematician** David Wells (or many other books by the same author)
  - **Fermat's Last Theorem** Simon Singh (or many other books by the same author)
  - **Chaos** James Gleick
  - **Music of the Primes** Marcus du Sautoy (or many other books by the same author)
  - **50 Maths Ideas that you really need to know** Tony Crilly
  - **The Tiger that isn't** Blastland and Dilnot
  - **How to lie with Statistics** Darrell Huff
  - **Bad Science** Ben Goldacre
  - **1089 and all that** David Acheson
  - **The man who loved numbers** Ben Hoffman
  - **The Joy of Counting** Tom Korner
- Do a logic problem.
- Enter additional competitions such as the Cipher Challenge or RITANGLE.
- Attempt past UKMT challenges. [Junior](#), [Intermediate](#), [Senior](#)

- Watch a **Numberphile** video <https://www.youtube.com/channel/UCoxcjg-8xIDTYp3uz647V5A> .
- After tests go through and revisit the questions on which you lost marks.
- In KS5 apply to be a maths student subject leader.

Everyone has a log in for **Sparx**. You should always use this resource to support your learning and revision.