

## **Subject: Maths**

Childwall Sports and Science Academy has a mission statement of 'Learning without Limits'. This means that we seek to engage students in the best possible learning experiences in order to enable them to achieve their potential. Be ambitious activities are those that take your regular curriculum further. They take the subjects you study in the classroom beyond that which your teacher has taught you or what you've done for home learning. For example, you may go into more depth on something you picked up in the classroom or learn about a new topic altogether. These activities are normally in the form of extra reading, but they can take many other forms, like watching videos online, downloading podcasts, attending lectures, visiting museums or entering academic competitions.

Engaging in be ambitious activities will help you develop a love for your favourite subject or subjects. In this booklet, there are a range of activities, suggested by your teachers. They are by no means exhaustive lists but should get you started. We would encourage you to share ideas and opportunities you come across with your teachers so that, over time, the recommended activities in this booklet can grow.

In the future, employers or universities will be interested to hear about what Be ambitious activities you have engaged in; they will be interested in what you have learnt and impressed by your efforts.

We wish you well in your pursuit of be ambitious activities!

## Be Ambitious – Key Stage 3

### Subject: Maths

 <p>Hidden Figures, by Margot Lee Shetterly The story of the African-American Mathematicians of NASA who helped America win the Space Race. Read the book and watch the film</p>	 <p>This is not a Maths Book, by Anna Weltman A fusion of maths and art/drawing. Work through fun drawing challenges with a mathematical basis.</p>	 <p>Listen to A Brief History of Mathematics, a BBC Radio 4 podcast by Marcus du Sautoy Listen to all 10 episodes <a href="https://www.bbc.co.uk/programmes/b00srz5b/episodes/player">https://www.bbc.co.uk/programmes/b00srz5b/episodes/player</a></p>
 <p>Love a maths joke! Love a puzzle. Find them all here <a href="http://www.mrbartonmaths.com/jokes/#general">http://www.mrbartonmaths.com/jokes/#general</a></p>	 <p>Watch ‘The Man Who Knew Infinity’, starring Dev Patel Enjoy the biography based drama about the mathematician Srinivasa Ramanujan.</p>	 <p>Simon Singh’s Numbers Listen to 5 BBC Radio 4 podcasts on ‘special numbers’ <a href="https://www.bbc.co.uk/programmes/p00cl746/episodes/player">https://www.bbc.co.uk/programmes/p00cl746/episodes/player</a></p>
 <p>Listen to Travels in a Mathematical World podcast, by Peter Rowlett - featuring mathematicians talking about their work as well as features on maths history and maths news; <a href="https://www.travelsinamathematicalworld.co.uk/">https://www.travelsinamathematicalworld.co.uk/</a></p>	 <p>Visit Breakout Liverpool or Escape Hunt Liverpool. Solve puzzles and complete challenges before the time runs out. <a href="https://breakoutliverpool.com/">https://breakoutliverpool.com/</a> <a href="https://escapehunt.com/uk/liverpool/">https://escapehunt.com/uk/liverpool/</a></p>	 <p>BBC Magic Numbers Mysterious World of Maths BBC documentary exploring the world of maths with Dr Hannah Fry <a href="https://www.youtube.com/watch?v=TKKUZOqSTxw">https://www.youtube.com/watch?v=TKKUZOqSTxw</a></p>
 <p>Visit catalyst - <a href="https://www.catalyst.org.uk/">https://www.catalyst.org.uk/</a> A host of interactive exhibits, bringing a range of subjects to life from Science, Maths, Engineering and Technology</p>	 <p>Take part in the Alan Turing Cryptography Competition <a href="https://www.maths.manchester.ac.uk/cryptography_competition/">https://www.maths.manchester.ac.uk/cryptography_competition/</a></p>	 <p>Explore ideas that change the world at Manchester’s science and industry museum. <a href="https://www.scienceandindustrymuseum.org.uk/">https://www.scienceandindustrymuseum.org.uk/</a></p>



Reading task



Writing task



Listening task



Watching task



Research task



Trip or visit



Creative task



Student-led task

## Be Ambitious – Key Stage 4

### Subject:

 Alex's Adventures in Numberland, by Alex Bellos Read an exhilarating cocktail of history, reportage and mathematical proofs that will leave you awestruck.	 Visit Breakout Liverpool or Escape Hunt Liverpool. Solve puzzles and complete challenges before the time runs out. <a href="https://breakoutliverpool.com/">https://breakoutliverpool.com/</a> <a href="https://escapehunt.com/uk/liverpool/">https://escapehunt.com/uk/liverpool/</a>	   Watch/attend a Liverpool Maths Society Lecture covering popular topics from party maths to the secret life of bubbles (!) and the maths of rainbows!] <a href="http://www.livmathssoc.org.uk/cgi-bin/sews.py?PopularLectures">http://www.livmathssoc.org.uk/cgi-bin/sews.py?PopularLectures</a>
  Can you take the square root of a negative number? Learn about IMAGINARY numbers here... <a href="https://www.khanacademy.org/math/algebra2/introduction-to-complex-numbers-algebra2?t=practice">https://www.khanacademy.org/math/algebra2/introduction-to-complex-numbers-algebra2?t=practice</a>	 The Simpsons and their mathematical secrets, by Simon Singh See how a writing team of mathematicians include mathematics within this popular animation.	  Research the life and work of Alan Turing. Watch 'The Imitation Game' and read the book of the same name, about his involvement in code breaking of Enigma
  Research Homer Hickman. Read his biography Rocket Boys. Watch the movie October Sky starring Jake Gyllenhaal. Learn how the son of a coal miner designed the space shuttle for NASA.	 Listen to maths documentary podcast – Relatively Prime, by Samuel Hansen <a href="http://relprime.com/">http://relprime.com/</a>	  Read articles, investigate problems, get creative and plan visits. Everything mathematical! <a href="https://www.mathscareers.org.uk/ilove-maths/">https://www.mathscareers.org.uk/ilove-maths/</a>
 Join the University of Liverpool Maths Club <a href="http://www.maths.liv.ac.uk/~mathsclub/">http://www.maths.liv.ac.uk/~mathsclub/</a>	 Take part in the Alan Turing Cryptography Competition <a href="https://www.maths.manchester.ac.uk/cryptography_competition/">https://www.maths.manchester.ac.uk/cryptography_competition/</a>	   Sign up for free classes and activities with Liverpool Maths School <a href="https://liverpoolmathsschool.org/outreach-reaching-your-potential/">https://liverpoolmathsschool.org/outreach-reaching-your-potential/</a>



Reading task



Writing task



Listening task



Watching task



Research task



Trip or visit



Creative task



Student-led task