Further Maths
(Mathematics bridging unit should also be completed)

Key skills developed in this work:

1. Diagnostically assess your skills (being able to identify your strengths and weaknesses)
2. Independence (address your own areas of difficulty)
3. Develop and refine key mathematical concepts from Key Stage 4 that are used and applied in Key Stage 5
   a) Number
   b) Basic Algebra
   c) Quadratic Equations
   d) Algebra I
   e) Graphs
   f) Trigonometry and Vectors
   g) Statistics and Probability
4. Develop independent inquiry skills using 'play' with a concept, link what you have found, then devise a conjecture to develop your reasoning further.

Website links:

Maths
Head Start to A-Level Maths available for **free download** via Amazon

https://www.amazon.co.uk/Head-Start-Level-Maths-2017-2018-ebook/dp/B06XD29GX2/ref=sr_1_1?crid=K2DOQHR1H4L0&keywords=head+start+to+a+level+maths&qid=1585509199&s=books&sprefix=head+start+to+%2Cstripbooks%2C263&sr=1-1

Further Maths
http://www.s253053503.websitehome.co.uk/risps/risptopic.html

Tasks to complete

Maths: Head Start to Maths Book
1. Complete the diagnostic test available at the front of the book and mark your work
2. For the areas you got wrong, complete the appropriate sections of the text book to practise and refine your skills – there are worked examples to help and practice

questions. Ensure you mark them and keep practising until you get them right and are confident using the skill.

The page numbers linking to each different concept are stated on the diagnostic test, next to the title.

3. You can complete more than your areas of difficulty if you wish.

All of the concepts covered in the book are skills that you need to be able to apply in the A level course, not simply do.

Further Maths

It is important to note that some of the following investigations are very tough. Please do not be disheartened if you find them difficult, they are designed to challenge you to think carefully about mathematical concepts and think about why something is happening.

1. Follow the instructions on the pdf to investigate a mathematical concept – the key is to 'play' with the numbers to see if you can find any links or patterns
2. Once you have played with the numbers, try to spot a link, from here you need to form a conjecture (form an opinion on incomplete information - the basis being the results of your small trial)
3. Test your conjecture to see if it works – can you prove the conjecture if it works? Can you refine your conjecture if it doesn't?
4. Try to answer each question on each pdf

Only complete the investigations listed below
a) http://www.s253053503.websitehome.co.uk/risps/risp-12.pdf
b) http://www.s253053503.websitehome.co.uk/risps/risp-3.pdf
c) http://www.s253053503.websitehome.co.uk/risps/risp-24.pdf
d) http://www.s253053503.websitehome.co.uk/risps/risp-8.pdf
e) http://www.s253053503.websitehome.co.uk/risps/risp-35.pdf
f) http://www.s253053503.websitehome.co.uk/risps/risp-5.pdf (A useful graphing package is: https://www.desmos.com/calculator)

Other:
These are 10 of our favourite books about Maths – if you would like to read about Maths in the wider world, you could read some of these:

1. 17 maths equations that changed the world
2. The Simpsons and their Mathematical secrets
3. Alex's Adventures in Numberland
4. Alex through the Looking Glass
5. The Music of Primes
6. Humble Pi
7. Maths on the Back of an Envelope
8. How Many Socks Make a Pair?
9. Professor Stewart's Cabinet of Mathematical Curiosities
10. The Code Book