

GCSE to A Level Maths Transition work for UTC South Durham

This pack is in two parts. Firstly there is an investigation task to design a box of maximum volume which will give you a flavour of how GCSE Maths transitions into A Level Maths. Secondly there is a task set on Dr Frost Maths, this is a platform we use for some of our GCSE and A Level work at UTC, the initial task is 27 GCSE questions all set on topics which you need to be confident in to access the A Level Maths course. In total these two tasks should take around two hours to complete.

Design a box of maximum volume

Ideally for this task, you will print out the two documents, “Year 12 Induction Worksheets” and “Year 12 Induction Template”. If you don’t have a printer, don’t worry, just work on a piece of paper. When you have finished you can scan or photograph your working and submit it to me at Andrew.Blackett@UTCSouthDurham.org and I will give you some feedback.

You should either watch this video <https://web.microsoftstream.com/video/28554afe-fd11-4d95-9f89-9e8d1076c51f?list=studio>, (you will need to log into Microsoft 365 with your UTC email address and password to watch this) or work through the attached PowerPoint to guide you through the task. The task is designed to be done with a calculator and should take around an hour.

Dr Frost Maths Task

I have set up an account for you on Dr Frost Maths, if you check your UTC email you will have an email explaining how to access your account. If you have any problems then email me at Andrew.Blackett@UTCSouthDurham.org and I will help you get set up.

The initial task (GCSE-A Level transition topics) is 27 questions and is all GCSE content. These are the topics which you need to be confident with before you start the A Level Maths course, if you are already confident with all this work it will take you around an hour to complete. I would expect for many of you that there will be areas of this task that you will struggle with because you have not had the opportunity to complete final revision for your GCSE exams where these higher level skills become more secure. I have set a number of follow on tasks which you should do if you find there are questions which you either get wrong, or don’t know where to start. These follow on tasks will take a variable amount of time depending on how confident you are with the initial task. Built into the follow on tasks are supporting videos which you should watch, if you still need help then please contact me via email and I will support you through this transition process.

If you struggle with the following questions, you should complete the following suggested follow on tasks.

Question number	Follow on task
1 or 2	Expanding double brackets
3 or 4	Surds
5 or 6	Indices
7	Factorising quadratics
8	Completing the square
9	Elimination - Simultaneous Equations
10	Substitution – Simultaneous Equations
11	Linear Inequalities
12	Quadratic inequalities
13 or 14	Transforming graphs of functions
15 or 16	Straight line graphs

17	Pythagoras
18	Trigonometry in Right angled triangles
19 or 20	Sine or Cosine Rule
21 or 22	Rearranging formula
23	Vectors
24 or 25	Proportionality
26 or 27	Trig special angles and graphs