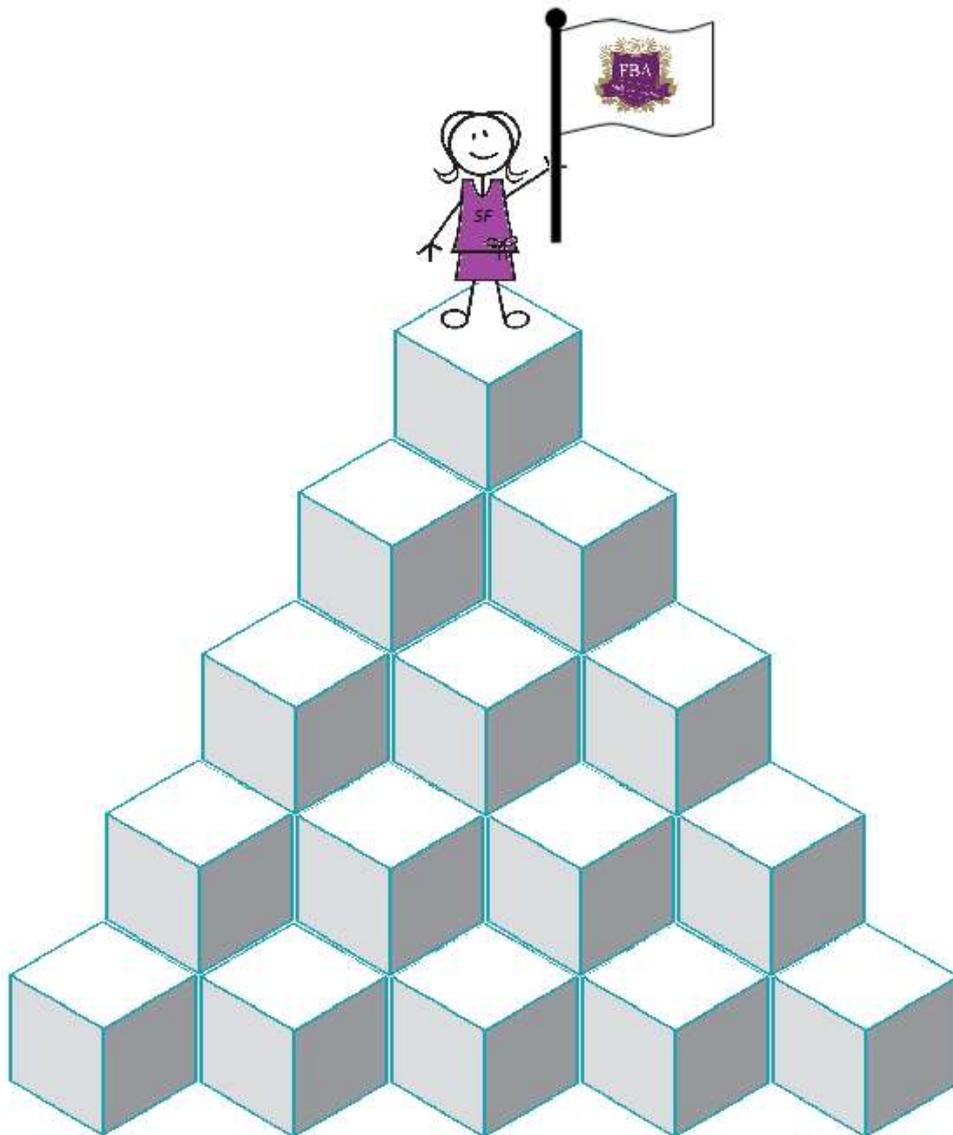




Building for Success in Further Maths



Name: _____

Welcome!

You have made the decision to extend your knowledge of mathematical ideas and concepts beyond those of the standard A Level Maths. If you are still a little unsure, then remember all of the areas (not normally associated with Maths) that benefit from you studying Maths post-GCSE:

- Sports Science
- Psychology
- Health and Social Care
- Geography
- Sociology
- Business
- Economics
- Biology
- Environmental Science

Obviously there is also Maths, Physics and Chemistry 😊

A Further Maths qualification can sometimes lead to a reduced offer from universities and is often required/preferred by the leading universities.

Helpful Websites

NRich

<http://nrich.maths.org/secondary-upper>

Desmos

<https://www.desmos.com/calculator>

The History of Maths – Wikipedia

https://en.wikipedia.org/wiki/History_of_mathematics

The History of Maths – Youtube video

<https://www.youtube.com/watch?v=cy-8IPVKLlo>

Dr Frost Maths

<https://drfrostmaths.com/>

Introducing Further Mathematics: Complex Numbers

There are going to be lots of new and exciting ideas in the Further Maths course. This booklet is going to introduce you to two of them, ready for September.

The first of these is Complex Numbers.

Think about the following:

“What is the square root of 4?”

Well that’s easy, you may say. It is 2.

However, if you were particularly awake when you were doing this, you might point out that the answer could also be -2, since $-2 \times -2 = 4$.

What about if I asked you the following:

“What is the square root of -4?”

At this point, you may tell me that you can’t do it, that it doesn’t exist. Or you may go for my favourite reason “the calculator says ‘Maths error!’”

What if I told you that you **could** work it out? What would you say?

Task

1. Watch the following video: <https://www.youtube.com/watch?v=6vxSWZao4ug>
2. Now head to Desmos Classroom and try out the activity:
<https://student.desmos.com/join/y274vg>

You do not need to create an account for Desmos (unless you want to), but if you do not then you must complete the activity in one go. If you create an account, you can come back to the activity and your progress is saved.

This activity should be completed before you start in September.

Introducing Further Mathematics: Matrices

The second topic that this booklet will introduce you to is Matrices.

You might be thinking “What even is a matrice?”.

Matrices (plural) are one of the most useful bits of Maths. A **matrix** (singular) is actually something you have already been using at GCSE Maths, you just didn’t know it.

You can do some amazing Maths with matrices and if you are planning on working in a Maths, Computer Science or Operational Research, then matrices are an essential piece of knowledge.

Task

1. Watch the following video: <https://www.youtube.com/watch?v=IqtKObyRV0E>
2. Now head to Desmos Classroom and try out the activity:
<https://student.desmos.com/join/qyctd6>

You do not need to create an account for Desmos (unless you want to), but if you do not then you must complete the activity in one go. If you create an account, you can come back to the activity and your progress is saved.

This activity should be completed before you start in September.