Introduction to: **GCSE Maths**

Choosing GCSE Maths as part of your study programme was a brilliant decision!

What is so great about doing GCSE Maths and where can it take you?

As an introduction to this course, we'd like to help you find out more about the subject and how studying it might open doors for you in the future.

Lesson	Topic/Content
Introduction	*A GCSE in mathematics is a highly regarded level 2 qualification which opens doors for future study and careers.* *You will gain a strong knowledge of mathematical concepts and how to apply these in different contexts which is essential for a wide range of jobs. Examples of career paths which typically require GCSE maths are: healthcare; engineering; finance; law; management; sports science and computer programming.* • *Careers powered by Maths: https://www.youtube.com/watch?v=Pd1hDVEfTh4*
Feed your Curiosity	• *Mind blowing Maths: https://www.youtube.com/watch?v=uNS1QvDzCVw* • *Ratio with Bar Modelling: https://www.youtube.com/watch?v=7rZ8JEHGl54* • *Films: Why not try watching films such as The Imitation Game, Hidden Figures, The Theory of Everything, Good Will Hunting, A Beautiful mind, or 21 to see maths in a new light!*

Introduction to: A level Maths

Choosing A-level Maths as part of your study programme was a brilliant decision!

What is so great about doing A level Maths and where can it take you?

As an introduction to this course, we'd like to help you find out more about the subject and how studying it might open doors for you in the future.

Lesson	Topic/Content
Introduction	*A level Maths is a highly regarded level 3 qualification.* *We use **The OCR A-level Mathematics specification.** Our entry requirements and SoW is designed so that there is a seamless transition between A level and GCSE Higher.* *In the A level mathematics course there is now a large focus on the use of technology so that* *students are able to problem solve without the need for long calculations.* *Students will use scientific, graphical calculators Casio FX-CG50 in lessons and in all exams.* *Mathematics is one of the biggest facilitating subjects.* *Problem solving skills acquired studying A level Maths transcends across many different careers.* *We provide for learners requiring the development of logical and critical thinking.* *A Level Mathematics is essential for many higher education courses with a wide range of* *destinations, requiring the subject specific knowledge to support further study or application in the workplace.* *https://www.my-mooc.com/en/categorie/mathematics*
Feed your Curiosity	*Some activities to explore:* *https://undergroundmathematics.org*

Introduction to:
A level Further Maths

Choosing Further Maths as part of your study programme was a brilliant decision!

What is so great about doing Further Maths and where can it take you?

As an introduction to this course, we'd like to help you find out more about the subject and how studying it might open doors for you in the future.

Lesson	Topic/Content
Introduction	In order to study A level Further Maths, you need to study A level Maths as well. The A level in Further Mathematics is a highly regarded Level 3 qualification. We use **The OCR A level Further Mathematics specification.** Our entry requirements and SoW is designed so that there is a seamless transition between A level and GCSE Higher. You need to achieve at least a grade 7 in GCSE Maths. In both the A level mathematics and Further Maths there is now a large focus on the use of technology so that students are able to problem solve without the need for long calculations. Students will use **scientific, graphical calculators Casio FX-CG50** in lessons and in all exams. A Level Further Mathematics is essential for many higher education courses with a wide range of destinations, requiring the subject specific knowledge to support further study or application in the workplace. *https://www.my-mooc.com/en/categorie/mathematics*
Feed your Curiosity	Further Mathematics is one of the biggest facilitating subjects. Problem solving skills acquired studying A level Maths and Further Maths transcends across many different careers. We provide for learners requiring the development of logical and critical thinking. **Extension Tasks to stretch and challenge you:** • prerequisite/massive-open-online-course-mooc-for-mathematics.html *https://undergroundmathematics.org*

Introduction to: **Biology (A level)**

Choosing A level Biology as part of your study programme was a brilliant decision!

What is so great about doing A level Biology and where can it take you?

As an introduction to this course, we'd like to help you find out more about the subject and how studying it might open doors for you in the future.

Lesson	Topic/Content
Introduction	*The studies encompassed by biology are wide-ranging, from the way we look at how biological molecules drive living processes to the studying of whole planetary ecosystems and how organisms interact with the physical world.* 1. *Which 'bit of biology' most fascinates you from the list below (if there's something specific that's not on the list just add your own)* *Biological molecules, biochemistry, cells and microscopic structures, organs & systems (anatomy and physiology), ecology and genetics.* *Try to describe why this part of biological study is so interesting to you.* 2. *Consider your reasons for wanting to study A level biology.* *Do your reasons link to working towards a particular Higher Education course or future job role? Maybe you had a fantastic teacher who inspired you at school!* *To help you, take a look at the following link* Future (rsb.org.uk). What are the jobs or areas of work that really take your interest? At the bottom web page the first link on the list 'Becoming a Biologist' takes you to some fascinating examples of what you can do.
Feed your Curiosity	*Here are some things you can do if you want to develop your understanding of A level Biology:* 1. ***Read*** *this World Health Organisation Article about Vaccines and their development* 2. ***Watch*** *this short video clip describing how the heart works – it's fascinating!* 3. ***Listen*** *to the podcast The Natural Selection -all about Ecology and Conservation* 4. *If you're a tweeter* ***follow on twitter****: @Rebeccaskloot, @Scicurious, @Neuroconscience.* *In the last 12 months has there been an article/website/documentary or podcast which has inspired you.* ***We would be really interested in you telling us about this!***

Introduction to: **Chemistry (A level)**

Choosing Chemistry as part of your study programme was a brilliant decision!

What is so great about doing A level Chemistry and where can it take you?

As an introduction to this course, we'd like to help you find out more about the subject and how studying it might open doors for you in the future.

Lesson	Topic/Content
Introduction	*In preparation for A level Chemistry at Franklin College the following tasks will require you to review and develop your knowledge and understanding of some the key topics, including atomic structure, formulae and maths for chemistry.* *A-level Chemistry is a challenging but rewarding subject that can open up many doors for you in your future career. It will teach you about the fundamental principles of chemistry, such as the structure of atoms and molecules, chemical bonding, and reaction mechanisms. You will also learn about the properties of different substances, and how they can be used to create new products and materials.* *Studying A-level Chemistry will give you a strong foundation in science, which is essential for many different careers. You could go on to study chemistry at university or use your skills in a variety of other fields, such as engineering, medicine, or environmental science.* *In addition to the academic benefits, studying A-level Chemistry can also be a lot of fun. You will get to work on challenging problems and learn about the latest research in the field. You will also have the opportunity to meet other students who are interested in science and make new friends.* *If you are looking for a challenging and rewarding subject that will prepare you for a successful career, then A-level Chemistry is the perfect choice for you.* *Here are some additional reasons why **you** should study A-level Chemistry:* • *It will help you develop your problem-solving skills.* • *It will teach you how to think critically and analytically.* • *It will improve your communication skills.* • *It will give you a better understanding of the world around you.* • *It will make you more competitive for university and jobs*
Feed your Curiosity	*Follow the link to explore moles and molar calculations - Online task* *You may wish to use the following playlist to help you - A-level Chemistry from GCSE bridging videos* *Wondering if A-level Chemistry is right for you? Here is a YouTube link discussing the reasons for and against choosing it to help inform your decision - Should you take A-level Chemistry?*

Introduction to: Physics (A level)

Choosing A level Physics as part of your study programme was a brilliant decision!

What is so great about doing A level Physics and where can it take you?

As an introduction to this course, we'd like to help you find out more about the subject and how studying it might open doors for you in the future.

Lesson	Topic/Content
Introduction	*The topics studied in physics are wide-ranging, from the basic building blocks that make up all matter in the universe to the universe itself. Physics explores the laws that govern everyday life, that without which nothing could exist.* *Here's a quick guide to your future in Physics, click the link to find out more about where A-Level physics can take you:* Your future with physics: A guide for young people
Feed your Curiosity	Here are some things you can do if you want to develop your understanding of A level Physics: 1. ***The Youtube channel***- check out some of these videos from Physics online to reinforce GCSE knowledge and get a taste of what A-Level will bring Physics Online - YouTube 2. ***The Podcast*** - Listen to the Physics World Stories Podcast to hear a diverse mix of scientists bring you inspiring and intriguing scientific stories Physics World Stories Podcast 3. ***The book*** - Six Easy Pieces: Fundamentals of Physics Explained (Penguin Press Science) (Paperback) by Richard P Feynman (Author) 4. ***The Game*** - Wired game Wired is an atmospheric puzzle-platform game where you must wire up electrical circuits to get through. It is built on a realistic physical model of electricity and so by playing the game, you will also learn how electricity behaves.

Introduction to: **BTEC Applied Science (Level 3)**

Choosing Applied Science as part of your study programme was a brilliant decision!

What is so great about doing Applied Science and where can it take you?

As an introduction to this course, we'd like to help you find out more about the subject and how studying it might open doors for you in the future.

Lesson	Topic/Content
Introduction	*The studies encompassed by BTEC Applied Science are wide-ranging, from Biology, through to Chemistry and Physics. By applying what you learn on the course, into a real-world context, you will understand how science fits into everyday life.* *Many students that study BTEC Applied Science, go on to study for degrees in a range of science disciplines such as Biomedical Science, Forensic Science, Paramedic Science, Marine Biology and Zoology.* *What's your reason for choosing Applied science? Maybe you're working towards a particular Higher Education course or future job role? Perhaps you had a fantastic teacher at school and want to follow in their footsteps!* *Find out more about careers and opportunities available to students with an Applied Science qualification here* What are the jobs or areas of work that really take your interest?
Feed your Curiosity	*Some activities that bring the subjects' interest and progression opportunities to life.* 1. ***The book:*** **Joe and What You Didn't Know: 177 Fascinating Questions & Answers about the Chemistry of Everyday Life** *J. Schwarcz, Dr., ECW Press, 2004* 2. ***The article:*** *Read this World Health Organisation Article about Vaccines and their development https://www.who.int/news-room/feature-stories/detail/how-are-vaccines-developed* 3. ***Take a look at this STEM HEROES colouring book!*** 4. *What makes a scientist? Listen to this podcast to find out more (For more episodes in this podcast series called The Life Scientific click here)* 5. ***Social Media:*** Follow the Science Museum on Twitter @sciencemuseum

Introduction to: **CTEC Engineering (Level 3)**

Choosing Engineering as part of your study programme was a brilliant decision!

What is so great about doing Engineering and where can it take you?

As an introduction to this course, we'd like to help you find out more about the subject and how studying it might open doors for you in the future.

Lesson	Topic/Content
Introduction	*Engineering is the science of design and building of structures and machinery. Our Engineering course is focused upon the **design.** You will learn the theory of the maths and physics needed for engineering design. A multitude of careers are available; in the Grimsby area particularly there are a lot of renewable energy careers. For other examples of engineering careers please watch the Link below.* *What is Engineering and what are the types of Engineering Careers*
Feed your Curiosity	*Click on the links to discover activities based on each of the modules covered in year 1 to deepen your understanding of our course.* *1 – Maths for engineering: Trigonometry quiz* *2 – Physics for engineering: Mechanics quiz* *3 - Principles of mechanical engineering: How gears work Video* *4 – Electrical operations: Software building a circuit, which you will use to make a schematic before building a physical one on a circuit board* *5 – Materials Science: Video explaining nanotechnology and the future of materials used in engineering* *6 – Engineering and the environment: Engineering sustainably video*

Introduction to: **BTEC Applied Human Biology (Level 3)**

Choosing Applied Biology as part of your study programme was a brilliant decision!

What is so great about doing Applied Biology and where can it take you?

As an introduction to this course, we'd like to help you find out more about the subject and how studying it might open doors for you in the future.

Lesson	Topic/Content
Introduction	*The studies encompassed by biology are wide-ranging, from the way we look at how biological molecules drive living processes to the studying of whole planetary ecosystems and how organisms interact with the physical world.* *Which 'bit of biology' most fascinates you from the list below (if there's something specific that's not on the list just add your own):* ***Biological molecules, biochemistry, cells and microscopic structures, organs & systems (anatomy and physiology), ecology and genetics.*** ***Try to describe why this part of biological study is so interesting to you.***
Feed your Curiosity	*Here are some things you can do if you want to discover what is covered in Applied Human Biology* 1. ***Watch this video about Virology: An Introduction To Virology*** 2. ***Watch*** *this short video clip describing how scientists run tests to diagnose diseases.* *In the last 12 months has there been an article/website/documentary or podcast which has inspired you.* ***We would be really interested in you telling us about this!***