Longley Park Sixth Form Transition Pack

Core Maths

Get Ready for Core Maths

Core Maths Preparation Booklet 21/22

What is Core Maths?

- A course for those who want to keep up their valuable maths skills but are not planning to take A level Mathematics.

- A one-year Level 3 qualification, with UCAS points to add to your university application.

- Suitable for students with the equivalent of a GCSE Mathematics grade 4 or above.

- Focuses on using and applying maths to address authentic problems drawn from study, work and life.

- Includes new content such as statistics, financial maths and using algebra.

- Develops valuable real-life skills, to understand mathematical information and make better informed decisions.

- Supports other A level subjects such as geography, social sciences and business.

- Develops knowledge, confidence and understanding in maths in preparation for university study.

- Provides useful skills for employment.

This booklet contains a series of activities to help support you with the transition from GCSE to Core Maths.

These are activities to keep your Maths skills fresh in your mind to give you the best start to your Core Maths course.

LEVEL 3 CERTIFICATE
Specification

Core Maths B (MEI)

H869
For first assessment in 2016
ocr.org.uk/maths

Version 2.1 (March 2020)

Accredited

Activities

1. More information

2. Core Maths style problems

3. Visualising the Climate Crisis

4. I share my birthday with...

5. Reading

6. Questions to complete and bring to your first Maths lesson at LPSF

1. More information

A GCSE grade of 4 in Maths and English is the minimum requirement to access the content of this Level 3 course.

You will develop the mathematical knowledge and skills you have learnt at GCSE so that you can apply them to the problems that they will encounter in their other level 3 courses, further study, life and employment.

Core Maths is particularly useful alongside studying subjects such as Geography, Business, Chemistry, Biology, Sociology, and Health and Social care, giving you the mathematical skills to tackle problems in a variety of authentic situations. It is also particularly useful as an examined subject alongside a BTEC L3 extended diploma.

Examples of content:

- Use of spreadsheets
- Modelling and estimation
- Statistical problem solving - mainly with GCSE techniques
- Financial problem solving- including percentages and foreign exchange
- Exponential growth, standard form, logarithmic scales on graphs
- Graphs and gradient as rate of change
- Probability and risk

There is no revision guide available specifically for this course. There are also no available textbooks. You will be given notes and worksheets throughout the course as we are working through the topics.

Click on the title of this page if you want more information on the course you will be studying next year.

Another very good website to look at is the one below, however this covers all exam boards, so it is not specific to ours.

https://www.stem.org.uk/core-maths

You can also watch this short **video** about the benefits of Core Maths.

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2. Core Maths style problems

Core Maths style problems

How much domestic water does the UK require every year?	A newly qualified teacher earns £23,000 per year, has no student loans, and pays 7.4% of their salary into a pension scheme. What is the teacher's net monthly salary after tax and national insurance contributions?
A genetic disease occurs in one in every 10,000 people. A test for the disease is accurate 98% of the time. If you are tested and the result is positive, what are the chances of you actually having the disease?	The speed of cars driving down a road with a speed limit of 50mph is recorded. The mean speed was 47mph and the standard deviation of the speeds was 5mph. What percentage of the cars were breaking the speed limit?

NUMBERS AND MEASURES

Find resources to support the study of number and measures in Core Maths.

FINANCIAL MATHS

Enable students to use and apply mathematics in unfamiliar contexts.

DISCRETE MATHS

Resources to support the study of discrete mathematics in Core Maths.

ALGEBRA AND GRAPHS

This collection of resources contains a range of alegbra and graph materials.

PROBABILITY

Find all the materials to support the study of probability.

3. Visualising the Climate Crisis

Click on the title above to open this task that requires you to do some estimations in order to tackle the bigger picture problem. The questions below follow the slides.

This might feel a bit strange when you start ….. but keep on going and see how you get on!

What did you estimate the volume of a bath to be? Give your answer in litres	How did you work this out?
The article said 500,000 bath tubs. Work out the total volume of water in litres.	An Olympic swimming pool holds 2,500,000 litres of water. How many Olympic swimming pools could you fill with your answer? Show your working. How else could you visualise this quantity?
What did you estimate the volume of a balloon to be? Give your answer in litres	How did you work this out?
The article said 179 balloons for **every** person in the UK in 2016. What is the volume of this?	How did you work this out?

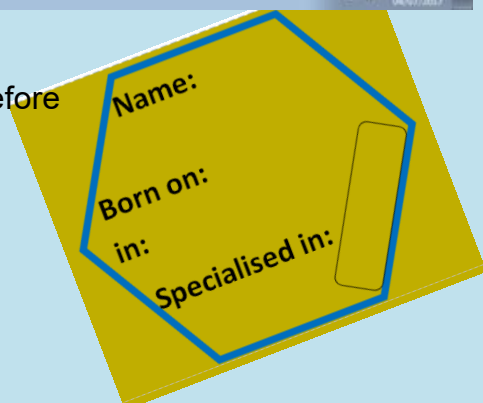|	
Carbon dioxide has a mass of 1.964g/litre. What is the mass of carbon dioxide using your answer from question 7? Give your answer in tonnes (1 tonne = 1000kg)	How did you work this out?
How many people could fly from Paris to New York to generate the same carbon as what has been produced from Christmas jumpers?	Show your working Hint: 1 tonne is equivalent to 1000kgs The average emission of one passenger on a return-flight from Paris to New York
Use this calculator to research other things that will have a similar environmental impact.	Which one did you find most shocking? How could you visualise this to have a strong impact?

4. I share my birthday with…

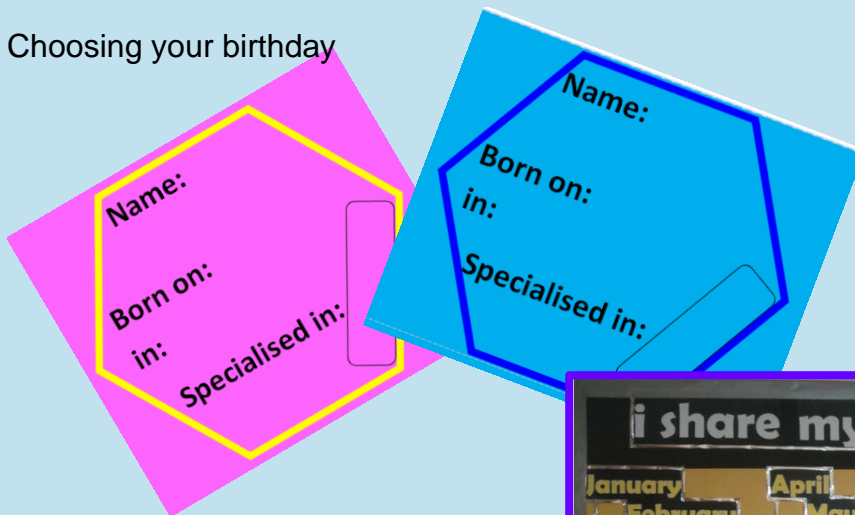Another task is to find a Mathematician who shares your birthday!

Open the website by clicking on the title of this page and follow these simple instructions:

Click on "Mathematicians of the day" then
Open the calendar by clicking on "Whole year" before

Name:

Born on:

in:

Specialised in:

Choosing your birthday

Name:

Born on:

in:

Specialised in:

Name:

Born on:

in:

Specialised in:

MAKE A NOTE OF THEIR NAME, THEIR PLACE OF BIRTH AND WHAT MATHS THEY SPECIALISED IN AND BRING IT TO YOUR FIRST LESSON TO ADD IT ON OUR CLASSROOM DISPLAY

5. Reading

If you fancy a bit of reading why not try one of the books about Maths:

...summer reading suggestions

HIDDEN FIGURES
THE PARROT'S THEOREM
THE NUMBER DEVIL
INFINITY
FLATLAND
AN ABUNDANCE OF KATHERINES
SECRETS, LIES & ALGEBRA
NUMBER 8
THE DOT AND THE LINE
UNCLE PETROS' CONJECTURE
POPCO
THE SIMPSONS AND THEIR MATHEMATICAL SECRETS

6. Questions to complete and hand in

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By clicking the title on this page, you can access a booklet of GCSE questions on topics that are relevant to the Core Maths syllabus.

It is important that you have a good understanding in these topics so that when we meet them again on this course you can extend your knowledge without having to worry about remembering the basics.

The answers for each of the topics covered are at the bottom of each page so you can independently check your work and highlight any areas that you need to work on more before starting this Level 3 course.

When you have completed the practice questions, here are 2 GCSE papers that you need to hand in when lessons start in September from which I can access your areas of strength and improvement right at the start of the course.

https://drive.google.com/file/d/1S_AkDZcaVWIdLJSfbEjc2_agmQCuYmI0/view?usp=sharing

https://drive.google.com/file/d/1PGuXoeoMHn-Y34wIdYpIkxIjKbzmlCiJ/view?usp=sharing

Have a nice summer, and hope to see you in September,

The LPSF Maths Team 😁

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