

Cultural Capital – Mathematics

Key Stage 3

Autumn Term

In lesson:

Year 7- Data Handling and Number

Students will explore major parts of the data handling cycle. How they can take numbers and present them in a way that tell clear stories and comparisons visually. From Compound bar graphs to scatter graphs where clear patterns can arise from seemingly random data.

During the unit on multiples and factors pupils have the opportunity to discuss planetary alignment and how we can use LCM to decide the best time for satellite flybys.

In introducing squares students can begin to look at formulae for motion and energy and have a conversation about the famous $E=mc^2$ relativity formula

Year 8 and 9- Number

Pupils will study standard form which is a form of presenting very large and very small numbers in a manageable way. In Science when dealing with the physics of the universe or studying micro-organisms. This leads to the topic of computing where prefixes like Giga and nano are used to present very large amounts.

Students study the reasons we round when reporting numbers in newspapers or other sources of information.

Spring Term

In lesson:

Year 7- Polygons and decimals

In polygons pupils can experiment with the idea of tessellation and combining polygons. Many patterns in the world including balls used for sport and floors tiles in the world rely on tessellation to avoid gaps which would destroy functionality.

Especially in top sets you can explore the reasons that bees use hexagons to store wax rather than any other shape.

In decimals topic students learn their uses in comparing very close together values arising from real life situations. A common discussion is the tight lap times between formula one drivers, or measures in olympic feats.

Year 8- Area and Graphs and transformations

Students will learn about circles and come across the concept of the value Pi, a mysterious universal constant which seemingly has no end to it. They will then discuss the famous pythagoras theorem and the historical figures associated with it.

Students will then have part of the Graphs unit studying financial graphs and how they can be used to make predictions and decisions.

During the unit on transformations students study it's link with art and video game design.

Year 9- Algebra

Students will revise algebra manipulation methods and in doing so look into how complicated real life problems can be made much simpler and the link between Algebra and computing.

Outside of lesson:

UK Maths challenge, senior and junior

UK Team Maths challenge

Stem Statistics project

Guest speakers

None booked as yet but the intention is for one for each year group

Summer Term

In lesson:

Year 7- Percentages and units of measure

Students will begin to talk about money, first when studying decimals but more commonly with regards to percentages. Teachers should discuss the idea of investments and savings and with top sets may explore the compound interest that we are all used to dealing with in mortgages and other loans.

While studying measures students learn about the difference between metric and imperial, which ones are used in this country and why started with the imperial system and switched over.

Year 8- 3D shapes and probabilities

Students will learn about nets and gain an understanding of how they are used to put together packaging, students in some sets will experiment by making their own nets to create their 3D objects.

Students will also learn about probability and investigate the fairness of the national lottery and various other gambling outlets.

Year 9- Graphs

Students will make comments and observation on data describing past events such as the olympics in 2008 and 2012 or review the rise of e-books and the fall of physical books using given data to draw graphs detailing this.

In STEM and leaf students will look at the differences between gender and learn to make informed observations about distribution and averages of each side. These will be purely scientific such as heart beat and height.

Finally students will have a part of a unit looking at worldwide statistics of different countries in a table and make observations. Does a higher GDP relate to mortality rate, unemployment etc?