Year 10 LONG-TERM SEQUENCE for Mathematics Higher Tier

Bishop Milner CATHOLIC COLLEGE

Year 10 LONG-TERM SEQUENCE for Mathematics Higher Tier

The curriculum for this stage of students' education has been designed to build upon their knowledge of percentages to enable them to calculate compound interest as well as calculating direct proportion. Students will also have the opportunity to study different methods of sampling and how to interpret grouped data, as well as being introduced to histograms and cumulative frequency curves to represent grouped data. Students will also have the opportunity to look at angles in polygons and angles associated with parallel lines. Building on this, students will study Pythagoras' theorem and trigonometry as well as looking at how to carry out various constructions. Each half term, students will focus on one particular area of Mathematics, allowing for a greater depth of that topic and allowing regular repetition of skills, as well as allowing students to make links between topics. Throughout the year, students will be exposed to regular exam questions and exam papers to prepare them fully for their mock exam at the end of the year. Underpinning the curriculum areas, will be the opportunity to explore how the skills they are developing can be used in real life situations and applied to problem solving questions.

HALF TERM 1: RATIO AND PROPORTION & GEOMETRY

STUDENTS MUST KNOW:

The importance of right-angled triangles including

- Pythagoras' theorem.
- Trigonometric ratios with standard ratios.
- Angles of elevation and depression.

How to use a compass to carry out constructions including

- Bisectors, angles and constructions of 2D shapes
- Carrying out transformations.
- Describing transformations.

HOW THIS WILL BE ASSESSED:

Assessments will be completed at the end of each topic and one main assessment will occur during each term to assess progress.

HALF TERM 2: GEOMETRY

STUDENTS MUST KNOW:

- How to find the Areas of sectors and lengths of arcs
- How to find volume of prisms
- How to find surface area of various 3D objects

HOW THIS WILL BE ASSESSED:

Assessments will be completed at the end of each topic and one main assessment will occur during each term to assess progress.

HALF TERM 3: ALGEBRA & NUMBER

STUDENTS MUST KNOW:

- How to plot quadratic graphs
- How to solve quadratic equations
- Important aspects of a quadratic graph (roots, intercept etc)
- How to calculate in Standard form
- How to work with indices

HOW THIS WILL BE ASSESSED:

Assessments will be completed at the end of each topic and one main assessment will occur during each term to assess progress.

HALF TERM 4: PROBABILITY

STUDENTS MUST KNOW:

- Read 2-way tables and use them to work out probabilities
- Use Venn diagrams to solve probability questions
- Create and use tree diagrams to find probabilities
- Work out the probability of different outcomes of combined events.
- Use the connectors 'and' and 'or' to work out the probabilities for combined events.

HOW THIS WILL BE ASSESSED:

Assessments will be completed at the end of each topic and one main assessment will occur during each term to assess progress.

HALF TERM 5: NUMBER and GRAPHS

STUDENTS MUST KNOW:

- Find the *n*th term of a sequence form a diagram or practical problem.
- Generate the terms of a quadratic sequence from the *n*th term.
- How to work out the *n*th term of a quadratic sequence.
- how to read and interpret various graphs including distance/time and velocity/time graphs.
- Find and know how to interpret the meaning of the area under a curve.

HOW THIS WILL BE ASSESSED:

HALF TERM 6: GEOMETRY

STUDENTS MUST KNOW:

- Solve problems where two variables have a directly or inversely proportional relationship.
- Understand the use of vectors
- Be able to perform operations using vectors
- Use vector geometry

HOW THIS WILL BE ASSESSED:

Assessments will be completed at the end of each topic. All students will sit a mock GCSE exam in the summer term.

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Embedding this knowledge can be supported at home by using Dr Frost Maths website to consolidate learning that has taken place in class, attempting questions which can be found online at www.corbettmaths.com, practising exam papers from the AQA website and www.mathsgenie.co.uk and using revision guides and the CGP workbook provided.		