ST MARY'S RC HIGH SCHOOL: CULTURAL CAPITAL

SUBJECT: Maths

The maths curriculum aims to ensure that students become resilient, creative problem solvers. We place a great importance on 'Growth Mindset' and spend the first two weeks of year 7 in mixed ability groups discovering what is means to have a growth rather than fixed mind set and we constantly refer back to these principles throughout their time at St Mary's. Students understand that maths is for everyone and that they can all succeed if that have the right attitude. Mistakes are celebrated as a way of learning; we promote an atmosphere of supportive challenge where students are not afraid to try their best. Lessons involve plenty of pair and group work, peer assessment and feedback is routine.

We aim to develop financially capable young people, equipped with the required skills and knowledge to improve their life chances, become financially aware citizens and discerning consumers. We contribute to social, cultural and moral education by exploring the pressures that influence their financial decision-making and the subsequent consequences of poor choices for them and others. Students understand how society is organised financially including the banking system, budgeting, taxation and the welfare state. Understanding decimals and percentages including compound percentage change is vital in appreciating special offers and best buys, VAT and interest rates etc.; students learn these key skills and apply them in context throughout the 5 year curriculum.

We help equip students with key life skills including: being able to read timetables and scales; understand proportion in contexts such as recipes and currency conversion; speed, distance and time calculations; understanding measures and how to convert within the metric system.

Through working on understanding graphical and numerical representation of data, students learn how to critically analyse information presented to them, spotting misleading or misquoted statistics that are used to support flawed conclusions.

Speaking across the curriculum is developed through, questioning, encouraging conversation, modelling verbal answers and use of subject specific terminology, group work and discussion. The White Rose Maths scheme of work that we use places great importance on correct use of vocabulary from the beginning; students in all groups are supported to understand and use the correct terminology. Reading across the curriculum is developed through teaching reading techniques such as scanning, skimming, breaking worded questions down into chunks, reading aloud and reading to students to allow them to understand the meaning of a text, developing a word rich learning environment through word walls and displays for learning. Listening across the curriculum is developed through reading to students for understanding, oral instructions and verbal communications is every lesson.

We want all students to develop a love of maths! We have a popular weekly challenge board in the maths area which is also shared with students in form time. We take students to competitions such as Maths Picnics and Feasts organised by the Advance Mathematics Support Programme. We take students to workshops at local Universities and enter them for UKMT competitions. We look at ways of celebrating maths during the year such as Pi and National numeracy day as well as celebrating other cultures by exploring other number systems, highlighting the contributions of mathematicians from across the world or celebrating festivals such as using mandarin numbers in a starter challenge to celebrate the Chinese New Year. Many of our students continue with their maths studies; this year we have started an 'A Level Maths' club to support students wishing to study Maths / Further maths at A Level. In 2023 we are introducing Level 2 Certificate in Further mathematics for our most able mathematicians.

Year Group	Personal	Social	Physical	Spiritual	Moral	Cultural
7	Finance – working with decimals. Percentages, VAT and income tax Understanding fractions. Numeracy Ninjas – ensures they are numerate. Growth Mindset focus in first fortnight and beyond helps build positive attitudes and resilience Essential arithmetic skills including with money and time.	Peer assessment Opportunities for pair and group work. Support maths department on open morning/ evenings. Team building activities and competitions. Challenge board and weekly numeracy activities in form time. Speaking across the curriculum is developed through, questioning, encouraging conversation, modelling verbal answers and use of subject specific terminology, group work and discussion	Measuring with instruments (rulers, protractors) Constructing Triangles and bisecting angles and lines. Experimental probability, carrying out experiments to investigate. Using a calculator Collecting data. Treasure hunt, dominoes, bingo activities.	Concept of infinity Sequences in the natural world such as Fibonacci. Primes as building blocks of numbers and use in modern world such as encryption.	Probability, risks and ethics of gambling	Contributions of different cultures to our understanding of maths, e.g. who first discovered Pi? Our denary number system and how that differs to others when we look at place value. History of maths, celebration of mathematicians on displays and in lessons with emphasis on Women in STEM subjects. Enrichment activities focusing on code breakers through history including the role of women working at Bletchley park in WW2

8	Numeracy Ninjas for lower ability groups – ensures they are numerate. Ratio and Proportion including recipes and best buys. Finance – compound percentage change The data handling cycle, how to propose a hypothesis, investigate, report and analyse. Continue to develop understanding of fractions, decimals and percentages. Number sense and efficient calculations. Estimating. Measures of location, investigating averages, use examples of misleading headlines.	Peer assessment. Opportunities for pair and group work. Support maths department on open morning/ evenings. Challenge board and weekly numeracy activities in form time. Team building activities and competitions. Speaking across the curriculum is developed through, questioning, encouraging conversation, modelling verbal answers and use of subject specific terminology, group work and discussion.	Exploring properties of shape. Cartesian plane. Representing data, drawing graphs. Reflection and symmetry. Treasure hunt, dominoes, bingo activities.	Concept of infinity. Pi as a ratio	Compound percentage change in relation to borrowing and investing. Risks of credit cards etc.	Currency conversion, why rates vary. History of maths, celebration of mathematicians on displays and in lessons with emphasis on Women in STEM subjects

9	Numeracy Ninjas for lower ability groups – ensures they are numerate. Finance – compound percentage change. Solving problems with ration and proportion including best buys.	Peer assessment Opportunities for pair and group work. Support maths department on open morning/ evenings. Challenge board and weekly numeracy activities in form time. Team building activities and competitions. Speaking across the curriculum is developed through, questioning, encouraging conversation, modelling verbal answers and use of subject specific terminology, group work and discussion. Maths competitions such as Maths picnic (AMSP event)	Transformations. Drawing graphs. Constructions and nets. Treasure hunt, dominoes, bingo activities.	Testing conjectures, algebraic proof. Pythagoras' theorem.	Maths and money including interest rates. Probability, risks and ethics of gambling	Contributions of different cultures to our understanding of maths, how did ancient cultures use their knowledge of triangles? Is it really Pythagoras' theorem? History of maths, celebration of mathematicians on displays and in lessons with emphasis on Women in STEM subjects

10 and 11	Continue to develop financial capabilities: Students to improve understanding and use of fractions, decimals and percentages; students grow increasingly secure in arithmetic skills and are confident in carrying our calculations efficiently and accurately. Students know how to estimate to check their solutions.	Peer assessment Opportunities for pair and group work. Support maths department on open morning/ evenings and for year 6 day. Challenge board and weekly numeracy activities in form time. Team building activities and competitions. Speaking across the curriculum is developed through, questioning, encouraging conversation, modelling verbal answers and use of subject specific terminology, group work and discussion.	Treasure hunt, dominoes, bingo activities. Trigonometry. Vector geometry. Advanced representation of data including cumulative frequency diagrams and histograms. Testing conjectures, algebraic proof.	Algebraic proof	Continue to explore moral issues around gambling (probability) and debt (percentages)	History of maths, celebration of mathematicians on displays and in lessons with emphasis on Women in STEM subjects