ETHOS
COLLEGE

Ethos College

Curriculum Planning
Group 2 Maths

Curriculum intent statement: Maths

Intent:

The intent of our mathematics curriculum is to provide pupils at Ethos with a foundation for understanding number, reasoning, thinking skills and problem solving with resilience so that they are fully prepared for everyday life and future employment. We aim to challenge the misconception that maths is difficult. We identify what students need to make progress and provide a curriculum, incorporating the aims of the National Curriculum, that meets SEND and SEMH targets and maximises the outcomes for those that have often missed out on previous essential learning in mathematics. We offer both Entry Level, Functional Skills and GCSE qualifications at Ethos depending upon a student's identified pathway through Key Stage 4.

Implementation:

Our teaching and learning are underpinned by an approach designed to develop student's understanding.

Baseline assessments and prior knowledge provide our starting point for planning and teaching. We incorporate all the information we have gathered, academic targets, SEND and SEMH needs as identified on each pupil's one page profile, to provide a bespoke learning experience which takes into account additional needs, learning styles and gaps in curriculum of every pupil within each group.

New concepts and skills are broken down into small connected and structured steps enabling application to range of contexts and pupils are given opportunities to practice skills and apply them to solve more complex problems. Links are made between other areas in maths, different subjects in school and real life situations. Pupils are encouraged to communicate, justify, argue and prove using mathematical vocabulary.

Knowledge is embedded using retrieval practice tasks at the start of each lesson and revision of key skills prior to extended learning. Marking and feedback addresses misconceptions promptly and enables interventions that are timely. Summative assessments are undertaken supportively each half term and we further develop confidence by gradually building up pupils' familiarity with exam papers and requirements. Lots of topic revision and exam paper practice is provided in the weeks prior to the formal exam period each Summer term.

Impact:

At Ethos the mathematics curriculum ensures that the needs of all the pupils are met through high quality first teaching and intervention where appropriate.

Pupils achieve or exceed their expected targets in mathematics. Required grades are attained to enable pupils to follow their chosen Post 16 pathways. By addressing SEMH alongside academic requirements in lessons, pupils make exceptional progress towards their Boxall targets.

Pupils recognise that mathematics is essential in everyday life and develop resilience and confidence in becoming more independent learners. They are fluent in the fundamentals of mathematics and have a wide range of skills to apply to problems beyond their school environment.

Year 1

Time	Key Subject Content	Sequencing	Rationale	Careers, Industry Links and Cultural Capital	Reading	SEMH
Half Term 1: Sep – Oct	Entry Level Number: Count, Read, Write and Order.	Count, read and write numbers in numerals or words - Recognise different representations of numbers - Know the value of each digit in a number - Expanded form partitioning Recognise odd and even numbers - Compare and order numbers - Count on and back in one, ten, (hundred and thousand) from any number - Count on and back in steps of different numbers - Round numbers to the nearest 10 - Order a set of positive and negative numbers, including placing them on a number line	Counting is an essential building block of mathematics. It is important because the meaning attached to counting is the key conceptual idea on which all other number concepts are based. Knowledge of number and place value underpins all other mathematical learning. An understanding of this is central to understanding our **number** system and underpins most written calculation methods. Students' understanding of the number system is extended to include negative numbers. It is useful to introduce these in ways students can easily identify, such as floors below ground level in a building or steps into a swimming pool some above and some below the surface of the water. This understanding can then be applied to more abstract concepts such as temperature.	Understanding numbers and the number system in real-life contexts. Make explicit links to the skills and knowledge being learned, to everyday life and careers.	Ensure students acquire and understand the appropriate vocabulary for each topic/area. Ensure students can identify the written format of all number and identify place value of individual digits. number numeral zero one, two, three … twenty teens numbers, eleven, twelve … twenty twenty-one, twenty-two … one hundred, two	Opportunities will be planned for to enable the students to develop Boxall strands A to E which are: A. Giving purposeful attention B. Participating constructively C. Connects up experiences D. Showing insightful involvement

	Number: Pattern Number: Facts	- Use repeated patterns to develop ideas of regularity and sequencing - Explore and record patterns in addition and subtraction, explaining the patterns and using them to make predictions - Addition and subtraction facts for each number to 20 - Inverse relationships between addition and subtraction	Memorising **facts** and lists can build the foundations for higher thinking and problem solving		hundred … one thousand … ten thousand, hundred thousand, million none how many …? count, count (up) to, count on (from, to), count back (from, to) forwards backwards count in ones, twos, fives, tens, threes, fours, eights, fifties, sixes, sevens, nines, twenty-fives and so on to hundreds, thousands equal to equivalent to is the same as more, less most, least tally many odd, even multiple of, factor of sequence continue predict few pattern pair, rule relationship	E. Engaging connectively with peers
Half Term 2: Oct – Dec	Number: Operations and Equipment (Addition and Subtraction)	- Using apparatus to add - Understand that there are different strategies for adding and subtracting - Add one- and two-digit numbers (partition method, Base 10, column method	Students build on their understanding of place value to develop a written method of addition and multiplication. Develop and rehearse the processes in written addition and subtraction. Calculations are presented in different contexts of money and measures to consolidate understanding of these processes.	Understanding numbers, the number system, operations and geometry in real-life contexts. Make explicit links to	addition add, more, and make, sum, total altogether double near double half, halve one more, two more… ten more… one hundred more	Opportunities will be planned for to enable the students to develop Boxall strands A to E which are:

Topic	Objectives	Description	Application	Vocabulary	Engagement
	- Know how to align in column addition and subtraction (understanding place value) - Understand subtraction as the inverse of addition - Adding 2-digit numbers and tens - Using apparatus to subtract - Subtract one- and two-digit numbers - Solve problems involving additions and subtraction - Select method of calculation		the skills and knowledge being learned, to everyday life and careers.	how many more to make ...? how many more is ... than ...? how much more is ...? subtract take away how many are left/left over? how many have gone? one less, two less, ten less ... one hundred less how many fewer is ... than ...? how much less is ...?	A. Giving purposeful attention B. Participating constructively C. Connects up experiences D. Showing insightful involvement
Geometry: 2D and 3D shapes	- Name and describe 2D shapes - Sort shapes according to mathematical criteria - 2D and 3D shapes in the environment - Name and describe 3D shapes - Recognise reflective symmetry in simple case	Understanding colour and shape is a tool for learning many skills in all curriculum areas, from math and science to language and reading. Students gain practical experience of drawing and making shapes, in order to support their work on recognising, describing, comparing and classifying objects. Sorting is an important skill as it helps to develop the ability to think about the attributes of objects and how they relate to other objects. Sorting by colour and shape prepares for the future application of these skills in making graphs or searching for a book at the library.		2-D shape 2-D, two-dimensional corner, side point, pointed rectangle (including square), rectangular, oblong rectilinear circle, circular triangle, triangular equilateral triangle, isosceles triangle, scalene triangle pentagon, pentagonal hexagon, hexagonal heptagon octagon, octagonal quadrilateral parallelogram,	E. Engaging connectively with peers
Assess and review	Assess and review	It is useful at regular intervals for teachers to consider the learning that has taken place over a term (or half term), assess and review students' understanding of the learning and use			

			this to inform where the students need to go next.		rhombus, trapezium polygon right-angled parallel, perpendicular 3-D shape 3-D, three-dimensional face, edge, vertex, vertices cube, cuboid pyramid sphere, hemisphere, spherical cone	
Half Term 3: Jan – Feb	Number: Fractions	- Recognising unit fractions such as ½ and ¼, using them to find fractional quantities of shapes and numbers	The learning of fractions is an extension in understanding of the number system. Learning how to calculate fractions of amounts by sharing in practical contexts, is a valuable experience before making the link to division. Students build on their understanding of fractions of shapes, using these shapes when sharing items into equal groups. The link between finding fractions of amounts and division is made. When finding fractions of amounts, students need to understand that this is division by sharing.	Understanding fractions, measures and the number system in real-life contexts. Make explicit links to the skills and knowledge being learned, to everyday life and careers.	fraction equivalent fraction mixed number numerator, denominator equal part equal grouping equal sharing parts of a whole half, two halves one of two equal parts quarter, two quarters, three quarters one of four equal parts one third, two thirds one of three equal parts sixths, sevenths, eighths, tenths … hundredths decimal, decimal fraction, decimal point, decimal place, decimal	Opportunities will be planned for to enable the students to develop Boxall strands A to E which are: A. Giving purposeful attention B. Participating constructively C. Connects up experiences D. Showing insightful involvement
	Measures: Units - Time	- Telling to time to o'clock, quarter-past, half-past and quarter-to on an analogue (and digital) clock	Students learn the relationships between units of time and other key vocabulary involving time. Students learning to tell the time on analogue and digital clocks, using 12- and 24-hour notation. The learning in this week requires regular revisiting through natural daily activities and routines.			
	Number: Facts and patterns Number: Operations	- Know multiplication facts - Explore and record patterns of multiples - Understand the terms 'factor' and 'product' when calculating - Multiplications expressions using x				

	and Equipment (Addition and Subtraction)	- Know division facts - Understand the operation of division - Understand the inverse relationship - Understand that multiplication can be done in any order but division cannot - Use division to solve problems/puzzles - Revisit and reinforce - Multiplication methods (grid and expanded form) - Division methods (number line and bus top) - Understanding remainders, including simple problems in context	When learning multiplication tables, students should experience a blend of practical, visual activities, pattern spotting, generalising as well as rote learning. Students build on their understanding of place value and multiplication and division facts to develop a written method of multiplication and division. Develop and rehearse the processes involved in written multiplication and division. Pupils continue to solve problems involving addition, subtraction, multiplication and division, and demonstrate their understanding of the meaning of the equals sign. As they begin to solve problems combining all four operations, they appreciate the importance of the order in which operations are used. An opportunity for teachers to consider the learning and development points.		equivalent proportion multiplication multiply multiplied by multiple, factor groups of times product once, twice, three times … ten times repeated addition division dividing, divide, divided by, divided into left, left over, remainder grouping sharing, share, share equally one each, two each, three each … ten each group in pairs, threes … tens equal groups of doubling halving array row, column number patterns multiplication table multiplication fact, division fact inverse square, squared cube, cubed	E. Engaging connectively with peers
	Assess and review	Assess and review				
Half Term 4: Feb – April	Number: Fractions	- Recognising unit fractions such as ½, 1/3, ¼, 1/5, 1/10, and using them to find fractional quantities of shapes and numbers	The learning of fractions is an extension in understanding of the number system. Learning how to calculate fractions of amounts by sharing in practical contexts,	Understanding fractions, geometry, measures and	As Above position over, under,	Opportunities will be planned for to enable the students to

| | Geometry: Position, movement and pattern | - Recognising and using in context simple fractions, including decimal notation in recording money and length.
- Recognising simple equivalents (3/6 & ½, 2/8 & ¼, 0.75 & ¾).
- Interpreting a calculator display as money.
- Using a calculator to add and subtract money.

- Movements in a straight line and rotations.
- Mathematical vocabulary to describe position, direction and movement (including clockwise and anti-clockwise).
- Coordinates. | is a valuable experience before making the link to division.
Students build on their understanding of fractions of shapes, using these shapes when sharing items into equal groups. The link between finding fractions of amounts and division is made. When finding fractions of amounts, students need to understand that this is division by sharing.

Work on fractions continued, in particular linking the images of quarter, half and three-quarters of a circle to fractions of a turn. Their understanding of fractions of a turn should be related to the movement of the minute hand on an analogue clock, introducing language of clockwise, o'clock and half past | statistics in real-life contexts.
Make explicit links to the skills and knowledge being learned, to everyday life and careers. | underneath above, below top, bottom, side on, in outside, inside around in front, behind front, back beside, next to opposite apart between middle, edge centre corner direction journey, route left, right up, down higher, lower forwards, backwards, sideways across next to, close, near, far along through to, from, towards, away from clockwise, anticlockwise compass point north, south, east, west, N, S, E, W north-east, north-west, south-east, south-west, NE, NW, SE, SW horizontal, vertical, diagonal translate, translation | develop Boxall strands A to E which are:

A. Giving purposeful attention

B. Participating constructively

C. Connects up experiences

D. Showing insightful involvement

E. Engaging connectively with peers |
| | Measures: Units & Measuring Instruments | - Compare objects and events using language for direct comparison using common standard units
- Choose and use simple measuring instruments, reading and interpreting number and scales with some accuracy,
- Use a wider range of standard units
- Estimate with units of measure
- Express a length given in centimetres. | Students learn measures and apply them to real life contexts. | | measure measurement size compare unit, standard unit metric unit | |

		- Express a price given in pounds and pence.			measuring scale, division guess, estimate enough, not enough too much, too little too many, too few nearly, close to, about the same as, approximately roughly just over, just under, holds, contains container, measuring cylinder	
Half Term 5&:6 April – Jun	Statistics	- Sort and classify a set of objects using criteria relates to their properties - Collect, record and read data arising from an area of interest, using tally charts with frequency column, data-collection sheets, bar charts, pictograms and simple tables	Statistics is really useful for daily life and has an instrumental role in other disciplines. It is important for developing critical reasoning. Statistics shows an example of maths being useful in real life. Students will start to realise that statistics is about describing a large amount of data simply either pictorially e.g. in a chart or numerically e.g. average. As the data is simplified more information is lost but the data as a whole becomes easier to understand and analyse.		count, tally, sort, vote survey, questionnaire, data graph, block graph, pictogram represent group, set list, table, chart, bar chart, frequency table Carroll diagram, Venn diagram, label, title, axis, axes diagram most popular, most common least popular, least common	Opportunities will be planned for to enable the students to develop Boxall strands A to E which are: A. Giving purposeful attention B. Participating constructively C. Connects up experiences D. Showing insightful
	Statistics: Mean, median, mode and range.	- Order and compare numbers including integers and decimals - Calculate and interpret the mean as an average using addition and division skills	The concepts of mode, median and range can be taught through the measures or alternative data. It is important that students understand that mode and median are forms of average. Identifying the median will consolidate students' ordering skills, and the range			

	Number: Equipment	- Choose a suitable method of computation, using equipment where appropriate. - Use a basic calculator	will support with the concept of subtraction finding the difference. Students work on averages and measurement should reflect their ability in other number work in place value and calculation When ordering numbers from a set of data, they can be introduced to averages. The median could be found once the numbers have been ordered, then leading on to finding the mean, consolidating their addition and division skills. Students learn the basic functions of a calculator and how to input information to perform a calculation. They are encouraged to record the calculation prior to inputting it into the calculator as this supports them to work logically and check results. They learn this is an expectation for some questions within the assessment paper and will enable them to receive more marks if the correct methods are shown.		involvement E. Engaging connectively with peers
	Geometry: Angles Measures: Units and measuring instruments	- Identify an angle as smaller than a right angle, or bigger than a right angle. - Choose and use simple measuring instruments, reading and interpreting number and scales with some accuracy. - Use a protractor to measure acute and obtuse angles to the nearest 10°	Students learn that angles are made where lines/sides meet. This is an understanding of angles as a measure of turn, but the 'turn' is static i.e. the sides of the shape are not turning. The angle understanding also incorporates a dynamic understanding in which movement is made.	angle, is a greater/smaller angle than degree right angle acute angle obtuse angle reflex angle reflection straight line ruler, set square angle measurer, compass, protractor	
	Geometry: Perimeter and area	- Finding perimeter by adding lengths of sides. - Find area by counting squares. - Calculating area by multiplying length by width.			

| | Assessments | Assessments | Area and perimeter are important to mathematics because they are the physical aspects of mathematics. They are the foundation for understanding other aspects of geometry such as volume and mathematical theorems that help us understand algebra, trigonometry, and calculus. Students are introduced to area as a measure of surface within a given boundary. Students investigate how shapes of the same area can have different perimeters and vice versa.

Assessments | | | |