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ETHOS COLLEGE

Ethos College

Curriculum Planning

Entry Level Certificate L1-3

Curriculum intent statement: Maths

Intent:

The intent of our mathematics curriculum is to provide students 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. The Entry Level Certificate qualification can lead into either Functional Skills (L1) or 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 student's 'supporting me to learn plans', to provide a bespoke learning experience which takes into account additional needs and gaps in curriculum of every student within each group.

New concepts and skills are broken down into small connected and structured steps enabling application to range of contexts and students 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. Students 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 and further develop confidence by gradually building up students' familiarity with exam papers and requirements.

Formative assessment of the AQA ELC is through 8 test papers which accompany each topic and are internally assessed before external verification.

Should students move onto GCSE, 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 students are met through high quality first teaching and intervention where appropriate.

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

Students 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: Sept-Oct	Component 1: Properties of Number	1.1 Count reliably up to 20 items 1.2 Read, write, order and compare 1.3 numbers up to 20, including zero 1.4 Complete a number line up to 20 2.1 Read, write, order and compare numbers up to 100 2.2 Recognise place value in two-digit numbers 2.3 Count from 0 in steps of two, three and five Fill in blanks in the list of multiples of 2 up to 24 (36 for 3 and 60 for 5) 2.4 Round numbers less than 100 to the nearest 10 2.5 Understand and identify odd and even numbers 3.1 Read and write numbers up to 1,000 3.2 Order and compare numbers up to 1,000	**This content aims to develop the student's understanding and use of number.** Students will learn about place value within whole numbers and will undertake calculations using mental arithmetic and using a calculator. Students will understand the terms odd and even, and rounding will be introduced. 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	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 hundred ... one thousand ... ten thousand, hundred thousand, million	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 E. Engaging connectively with peers

		3.3 Recognise place value in three-digit numbers In 482, which is the units digit? 3.4 Round numbers less than 1,000 to the nearest 10 3.5 Round numbers less than 1,000 to the nearest 100 N15 3.6 Find 10 or 100 more or less than a given number 3.7 Recognise and use multiples of 2, 3, 4, 5, 8, 10, 50 and 100	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.		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	
Half Term 1: Sept-Oct	Component 2: The four Operations (Calculator NOT allowed)	1.1 Add two whole numbers with a total up to 20 1.2 Subtract one number up to 20 from another 1.3 Understand and use the + and – signs to solve simple number problems 2.1 Add whole numbers with a total up to 100 2.2 Subtract one number up to 100 from another	**This content aims to develop the student's understanding and use of the four operations.** Students will undertake calculations using mental arithmetic involving addition, subtraction, multiplication and division. Memorising facts and lists can build the foundations for higher thinking and problem solving.	Understanding numbers, the number system, operations and geometry in real-life contexts. Make explicit links to the skills and knowledge being learned, to everyday life and careers.	addition add, more, and make, sum, total altogether double near double half, halve one more, two more... ten more... one hundred more how many more to make ...? how many more is ... than ...? how much more is ...? subtract take away how many are left/left over?	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

		2.3 Multiply using single digit whole numbers 2.4 Use and interpret +, -, × and = in real-life situations 2.5 Recall and use multiplication facts for the 2, 5 and 10 multiplication tables 3.1 Add and subtract using three-digit numbers 3.2 Multiply a two-digit whole number by a single digit whole number 3.3 Divide a two-digit whole number by a single digit whole number 3.4 Use and interpret +, –, x ,÷ and = in real-life situations for solving problems 3.5 Use inverse operations to find missing numbers 3.6 Estimate the answer to a calculation 3.7 Recall and use multiplication facts for the 3, 4 and 8 multiplication tables	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.		how many have gone? one less, two less, ten less ... one hundred less how many fewer is ... than ...? how much less is ...?	C. Connects up experiences D. Showing insightful involvement E. Engaging connectively with peers
Half Term 2: Nov-Dec	Component 3: Ratio	1.1 Understand equality Use and understand the = sign 1.2 Identify or show one half of a quantity up to 20 Shade half of a shape 1.3 Work out half of an even number up to 20	**This content aims to develop the students understanding of equality and basic fractions.** 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, measures and the number system in real-life contexts. Make explicit links to the skills	fraction equivalent fraction mixed number numerator, denominator equal part equal grouping equal sharing parts of a whole half, two	Opportunities will be planned for to enable the students to develop Boxall strands A to E which are:

		2.1 Identify or show one third or one quarter of a quantity up to 24 Shade one third or one quarter of a shape 2.2 Work out one third or one quarter of a number up to 24 Without remainder 2.3 Count in fractions of one half or one third or one quarter 2.4 Work out amounts two, three or four times the size of a given amount 2.5 Recognise the equivalence of 1/2 and 2/4	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. .	and knowledge being learned, to everyday life and careers.	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 equivalent proportion	A. Giving purposeful attention B. Participating constructively C. Connects up experiences D. Showing insightful involvement E. Engaging connectively with peers
Half Term 3: Jan-Feb	Component 4: Money	1.1 Recognise coins and notes up to £20 1p, 2p, 5p, 10p, 20p, 50p, £1, £2, £5, £10, £20 1.2 Exchange money up to 20p for an equivalent amount in other denominations 1.3 Add up to 20 coins 2.1 Appreciate the purchasing power of amounts of money (coins) 2.2 Convert from pence to pounds and vice versa How many pence is £4.30? G14 2.3 Make	**This content aims to develop the student's understanding and use of money.** Students will learn through practical activities about the value of coins in everyday use in the UK. They will convert units of money and use a calculator to do simple calculations of money using decimals.	Understanding numbers, the number system, operations and geometry in real-life contexts. Make explicit links to the skills and knowledge being learned, to everyday life and careers.		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

		amounts of money up to £2 from given coins 2.4 Make amounts of money in multiples of £5 from £5, £10 and £20 notes How can you make £55 using only £20 and £5 notes? 2.5 Calculate with amounts of money in pence up to £1 and whole pounds up to £100 and give change 3.1 Appreciate the purchasing power of amounts of money (notes) 3.2 Exchange notes for an equivalent value in coins 3.3 Use decimal notation for money 3.4 Interpret a calculator display 3.5 Solve real life problems involving what to buy and how to pay 3.6 Add amounts of money and give change 3.7 Carry out investigations involving money	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.			C. Connects up experiences D. Showing insightful involvement E. Engaging connectively with peers

Half Term 3: Jan-Feb	Component 4: The calendar and Time	1.1 Know the days of the week and their order Key words are today, yesterday, tomorrow, now, before, after, next What 1.2 Read the time to the hour or half hour on an analogue clock and draw the hands on a clock to show these times 1.3 Order familiar events 2.1 Know the seasons and months and their order What is the season after summer? 2.2 Know that 1 week = 7 days; 1 day = 24 hours; 1 hour = 60 minutes; 1 minute = 60 seconds 2.3 Read the time displayed on an analogue or 12 hour digital clock in hours, half hours and quarter hours and draw the hands on a clock or the digital display to represent these times Students should be able to convert 'quarter past eight' to 8.15 and draw the hands on a clock to show this time 2.4 Read the time to the nearest five minutes on an analogue clock, draw the hands on a clock to show the time, and read any time on a digital clock 2.5 Find the difference between two times given in hours, half hours and quarter hours.	**This content aims to develop the student's understanding and use of 12 and 24-hour time and of calendars and timetables in everyday use.** Students will learn how to read digital and analogue clocks, including using roman numerals and learn how to convert between 12 and 24-hour times. They will also learn about days, weeks and months of the year 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. When learning multiplication tables, students should experience a blend of practical, visual activities, pattern spotting, generalising as well as rote learning. 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	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.		

		3.1 Solve problems involving time Mohammed got on the bus at 10 o'clock. His journey lasted 45 minutes. 3.2 Know that there are 365 days in a year, 366 days in a leap year, 12 months in a year and 52 full weeks in a year 3.3 Use a calendar and write the date correctly (day/month/year) 3.4 Tell and write the time from an analogue clock, including using Roman numerals from I to XII 3.5 Understand and use the 12-hour and 24-hour clock systems and convert from one system to the other 3.6 Convert between hours, minutes and seconds 3.7 Add up to three lengths of time given in minutes and hours				
Half Term 4: Feb-Mar	Component 6: Measures	1.1 Compare lengths, heights, weights and capacities 1.2 Give the length of a line drawn on a centimetre grid Up to 20 cm 1.3 Describe capacity in fractions 2.1 Choose appropriate standard units of length, capacity and weight mm, cm, m, km, g, kg, ml, cl, l	**This content aims to develop the student's understanding and use of measures.** Students will learn through practical activities about methods used to measure length, weight and capacity using standard and non-standard units. They will begin to convert units of length, weight and capacity and learn how to read scales of measurement.		measure measurement size compare unit, standard unit metric unit 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,	

		2.2 Compare and order lengths, capacities and weights in the same units 2.3 Select a possible length, capacity or weight for a given item 2.4 Measure or draw a length using a ruler In whole mm or whole and half cm 2.5 Estimate the weight, capacity or length of given items 3.1 Add lengths, capacities and weights and compare the total to another total or a requirement 3.2 Convert standard units of length, capacity and weight 3.3 Compare and order lengths, capacities and weights in different standard units 3.4 Measure the perimeter of a simple shape 3.5 Choose an appropriate measuring instrument 3.6 Read values from an appropriate scale Read off a number line 3.7 Read and compare temperature including temperature with negative values	They will also learn to compare temperature including temperature with negative values. 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.		contains container, measuring cylinder	
Half Term 5: April-May	Component 7: Geometry	1.1 Recognise and name squares, rectangles, triangles, circles, and cubes	**This content aims to develop the student's understanding of shapes, coordinates and directions.** The student	Understanding fractions, geometry,	-D shape 2-D, two-dimensional corner, side point, pointed rectangle	

		1.2 Compare and order a group of shapes or pictures or similar shapes of different size and recognise congruent shapes 1.3 Use and understand positional vocabulary 2.1 Recognise and name shapes including pentagons, hexagons and octagons and identify a right-angled triangle from a set of triangles 2.2 Recognise and name cuboids, pyramids and spheres 2.3 Describe the properties of 2D shapes, including straight and curved edges Number of edges and vertices 2.4 Describe the properties of solids Number of edges, vertices and faces 2.5 Understand angle as a measure of turn 3.1 Recognise and name prisms, cylinders and cones 3.2 Draw lines of symmetry on shapes or pictures Including real life items such as road signs 3.3 Recognise and draw nets of cubes and cuboids 3.4 Identify whether an angle is less or more than a right angle 3.5 Identify horizontal, vertical and parallel lines 3.6 Denote the position of a point on a grid by its coordinates or identify a point or item given its coordinates	will learn about 2D and 3D shapes and their properties and they will develop an understanding of the size of angles, including right angles. They will also investigate reflective symmetry, nets of solids and use of coordinates. 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. 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.	measures and statistics in real-life contexts. Make explicit links to the skills and knowledge being learned, to everyday life and careers.	(including square), rectangular, oblong rectilinear circle, circular triangle, triangular equilateral triangle, isosceles triangle, scalene triangle pentagon, pentagonal hexagon, hexagonal heptagon octagon, octagonal quadrilateral parallelogram, 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 position over, under, 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	

		3.7 Use North (N), East (E), South (S) and West (W) to give directions or position from a map			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 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	

Half Term 5&:6 April – Jun	Component 8: Statistics	1.1 Sort and classify objects using a single criterion Shaded/unshaded, round/not round etc 1.2 Interpret and draw conclusions from a list or group of objects 1.3 Construct and interpret simple line graphs 2.1 Sort and classify objects using more than one criterion 2.2 Collect information by survey 2.3 Record results in lists, tally charts and tables 2.4 Construct and interpret pictograms where one picture represents one item 2.5 Interpret simple tables, diagrams, lists and graphs 3.1 Construct and interpret bar charts with the vertical axis scaled in ones or twos 3.2 Construct and interpret pictograms where one picture represents more than one item 3.3 Extract numerical information from lists, tables, diagrams and charts Including timetables, holiday brochures, sports results etc 3.4 Complete a frequency table given the original list of results 3.5 Complete a tally chart and the resulting frequency table 3.6 Compare two or more diagrams 3.7 Solve one-step and two-step problems based on statistical information	**This content aims to develop the student's understanding and interpretation of simple statistical diagrams**. Students will learn how to conduct simple surveys and then analyse and communicate their results. They will also learn to sort information according to set criteria. 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. 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 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		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 involvement E. Engaging connectively with peers

			could be found once the numbers have been ordered, then leading on to finding the mean, consolidating their addition and division skills.			