LITERACY AND NUMERACY NARRATIVE STRATEGY

Intent:

We are committed to creating a culture where reading and numeracy skills are at the heart of development and bridge the development gap. We are driven by the pedagogy of 'Think Like an Engineer'. The key skills of: Identify/Research/Plan/Create and Evaluate cannot be developed without being underpinned with confident literacy and numeracy skills. At UTC Plymouth, we aim to:

Literacy

We deliver an engaging and inspiring curriculum that sparks creativity, analytical thinking and produces a love for learning and a love of literature. Students are also equipped with essential SPAG and analytical skills in reading, writing and communication, which is phrased within the world of careers . This enables them to be evaluative, reflective and effective communicators ready for the world of work and beyond.

Aims:

- To develop confident, competent, regular readers who value reading for purpose, pleasure and progress
- To develop confident writers who are able to apply their skills for a range of writing purposes
- To develop resilience and stamina for extended writing

Numeracy

Our aim is to foster a whole school approach to Numeracy which results in students' abilities to ambitiously solve problems and think critically like an engineer.

Aims:

- To develop students that are able to recall facts and procedures from their working and long term memories
- To develop students who can use their numeracy skills flexibly and fluidly between different contexts and subjects
- To develop students to recognise and make connections in numeracy understanding throughout the whole school curriculum

Implementation:

Literacy and Reading

The mechanism for ensuring that developing reading is at heart of UTC culture is through the teaching and promotion of reading and reading strategies. This will be delivered through

our English curriculum, pastoral programme and character curriculum in addition to the whole school Reading Champions Scheme. The library facilitates structured activities that encourage, foster and nurture a love, enjoyment and appreciation of reading amongst our students. Students will be able to confidently articulate their love and passion for reading, the benefits that it has to their learning, mental health, confidence and growth as a person. They will become active, accurate readers that can read for meaning, interpret and analyse a range of texts.

Teachers support students by modelling high quality talk, for example including and embedding key vocabulary.

For struggling readers, we identify the areas for support through a triangulation of SATs, CATs and initial teacher assessment. Once this process has taken place, our SEND/Inclusion Team will use a variety of methods to support the individual pupil. This could include a Toe-by-Toe assessment, Fresh Start Phonics or Bedrock. All support will be delivered by trained specialists.

Numeracy
Students follow a mastery method for mathematics. The adoption of the 'White Rose' scheme for maths ensures full coverage of the National curriculum.

Lessons aim to develop an in-depth understanding opposed to simply remembering facts. Students are encouraged to develop self discipline and a determined and resilient attitude to learning. Maths lessons follow a "small steps" progression. This ensures that students achieve high standards whilst also being able to approach the learning at their own pace and at the relevant level.

In order to ensure that Numeracy teaching and learning is consistent across the wider school and access to the curriculum for all students we:

- Ensure that all staff are aware of the mathematical demands of their own subject and the range of mathematical knowledge and skills that pupils bring to their lessons
- Promote a common approach to the teaching of key mathematical ideas and processes in all subjects and to standardise common themes that may be taught in different ways by different subjects
- Ensure that a range of strategies are employed to suit the abilities of all pupils, assisting those with numeracy difficulties and providing a challenge for more able pupils

Impact:

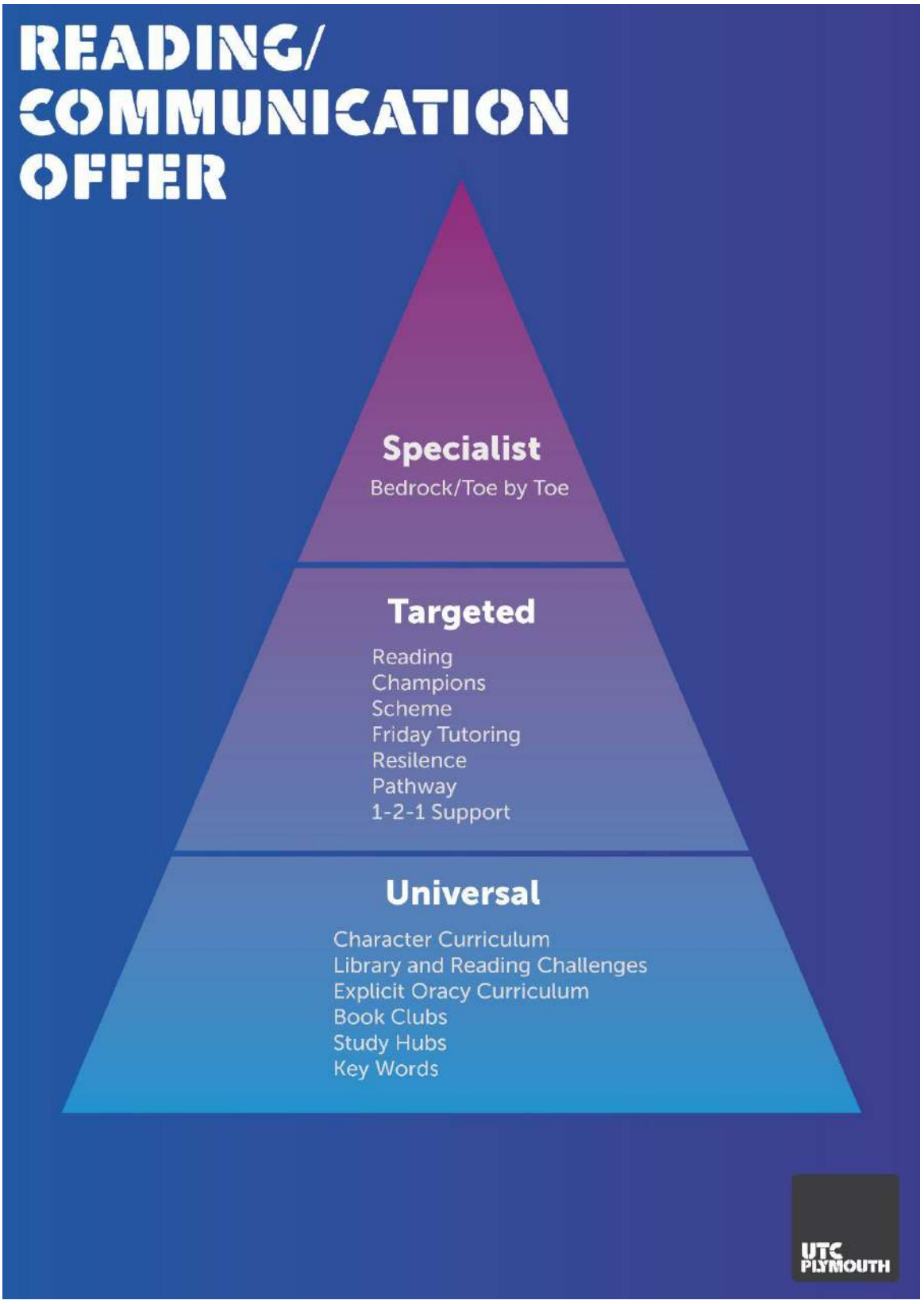
Literacy and Reading:
Students will be able to perform at age-related expectations in both reading and writing.

- Students will have a comprehensive subject specific vocabulary.
- Students will have an understanding of where words come from, what words mean and how to figure out the meaning of unfamiliar words.
- Through reading strategies, such as activating prior knowledge, prediction and questioning, students will be able to navigate and comprehend complex and academic texts.
- Students will utilise their knowledge of spelling, grammar and punctuation in all writing.
- Students will recognise features, aims and conventions of good writing within each subject.

This will enable them to access the curriculum and successfully apply the functions of our 'Think Like and Engineer' pedagogy and apply the skills needed for a successful career in STEAM.

Numeracy:

Students will become fluent in the foundations of mathematics. They will develop conceptual understanding and the ability to recall mathematical facts quickly and accurately.
Students will reason mathematically by following a line of enquiry, they will use mathematical language to communicate and justify their ideas and solutions.
Students will solve problems by applying their mathematical skills to a variety of problems across a range of subjects with increasing complexity.


READING/
COMMUNICATION
OFFER
Specialist
Bedrock/Toe by Toe
Targeted
Reading
Champions
Scheme
Friday Tutoring
Resilence
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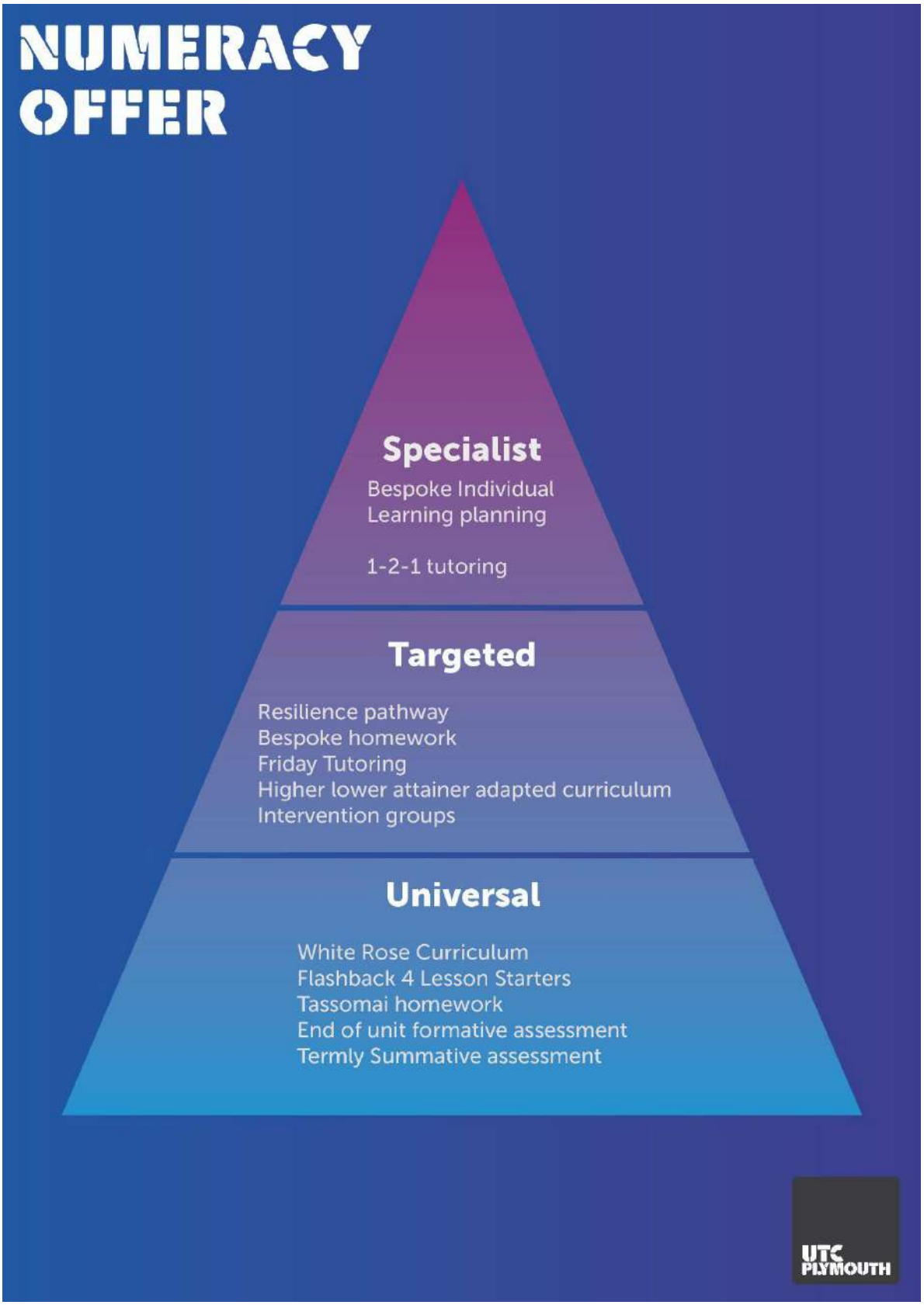
1-2-1 Support
Universal
Character Curriculum
Library and Reading Challenges
Explicit Oracy Curriculum
Book Clubs
Study Hubs
Key Words



Key Stage 3 Transition

This area of the document aims to give guidance and information about

Literacy and mathematics at UTC Plymouth for students and parents making the transition from primary school.

Literacy

Literacy is essential to our students' wellbeing. It enables them to function in everyday life whilst arming them with the lifelong skills to be able to communicate and create. It enables people to convey their ideas and understand the ideas of others.

Simply, Literacy is the ability to read and write. At UTC Plymouth, Literacy is split into four parts:

1. Speaking / Oracy

"Oracy is being able to express yourself well. It's about having the vocabulary to say what you want to say and the ability to structure your thoughts so that they make sense to others." - ***English speaking union.***

At UTC Plymouth, students engage in weekly Oracy lessons. Students will consider "*how*" they speak using tone, volume and intonation. They will consider and improve their vocabulary. They will study how to structure ideas. Working independently and within a group they will practise speaking and presenting confidently. Students will consider some controversial topics enabling them to make formal presentations, demonstrate ideas to others and participate in debate.

2. Listening

Another key aspect of our oracy learning is to 'actively listen.' Students should be able to sit professionally, listen to others, ask questions, not opt out of discussions or questioning and take turns when participating in class discussions and debate. Listening forms the basis for students to develop their empathetic skills, which underpins social relationship development and imaginative writing skills.

3. Reading

We firmly believe that reading is an essential skill for life. We encourage students to 'read for pleasure, purpose and progress' which not only focuses on reading for enjoyment, but also highlights the importance of reading to succeed in all areas of education, and beyond. We expect all of our students to read in their own time and encourage them to bring their current reading book to school every day. We promote reading through a range of events and through the use of our school library. Having adults as literacy role models is vital as we regularly discuss with students what they are reading. We aim to listen to all of our students

read and discuss the information, ideas and stories that they share, whether that be through our reading champions programme, reading is class or with our 'reading to succeed' portfolio challenges. We also provide age related reading recommendations for students, using recommended reading lists, texts in English lessons and 'Book of the Month' recommendations in the library . Students will be required to engage with longer texts as well as exploring a variety of different text types, through all curriculum areas. They will practise the retrieval of details from a text and will also further their ability to infer information from a text. (See below: **Literacy resources and key terms**)

Non-fiction reading is vitally important to all young people, but even more so for our STEAM focused curriculum. Each week, our pastoral programme focuses on the active reading of 'The Day'. These articles will cover a range of 'real-world' topics and will act as a stimulus for the practising of key reading strategies including: skimming, scanning, close reading and predicting.

4. Writing

Writing is a fundamental part of communication. During Key Stage three, students will continue to build upon the skills that they learnt during their primary education. By the end of Key stage three it is our aim that every child should be increasingly able to write accurately, fluently, effectively and at length. This will be achieved by learning and practising the skills of planning, drafting, editing and proof-reading. They will continue to build on their knowledge of grammar and vocabulary, whilst fine-tuning spelling and punctuation application through analysing more challenging texts. (See below: **Literacy resources and key terms**)

'Write Like an Engineer'- The students' writing will cover a wide range of text types including non-fiction texts, stories and other imaginative writing. Writing will form an intrinsic part of all of the subjects within the curriculum as it is a vital mechanism for future success in careers and the world beyond. We actively teach students to 'write' for a range of purposes.

UTC Library

To support our students to build a lifelong love of reading and to encourage our students to read for purpose, pleasure and progress, we have worked hard to provide a comfortable and welcoming library space for all students to enjoy. Through donations and fundraising events, such as book fairs and sponsored reads, we are proud to have an extensive range of books

that caters for all reading abilities. We have a vast selection of different genres to captivate an inquisitive and curious mind, as well as a range of relevant and purposeful non-fiction texts. Our current library theme is 'BookFlix' which is a range of books that popular and current Netflix, Amazon Prime and Disney+ shows and films are based on. We have something for everyone! Our library is run by our dedicated team library ambassadors, students from yr 7 to 11, who support our students with their reading choices and enquiries.

To encourage students to explore the benefits of reading, we have launched a set of 'Read to Succeed' portfolio challenge tasks, which need to be signed off by an adult once each task has been completed. Students who complete a task sheet will receive a badge and a certificate!

Read to succeed challenges

Literacy resources and key terms

Year 7 / 8 - Recommended reading

Year 8 Recommended Reading List

Wink by Rob Harrell
Madame Doubtfire by Anne Fine
Liccle Bit by Alex Wheatle
Welcome to Nowhere by Elizabeth Laird
The Outsiders by S.E. Hinton
Animal Farm by George Orwell
Be Resilient by Nicola Morgan
Chinese Cinderella by Adeline Yen Mah
The Coral Island by R.M. Ballantyne
Coram Boy by Jamila Gavin
The Curious Incident of the Dog in the Night-time by Mark Haddon
The Day of the Triffids by John Wyndham
The Flame Trees of Thika by Elspeth Huxley
Goggle-Eyes by Anne Fine
Raspberries on the Yangtze by Karen Wallace
The Hitchhiker's Guide to the Galaxy by Douglas Adams
Small Steps by Louis Sachar
The Hound of the Baskervilles by Arthur Conan Doyle
How I live Now by Meg Rosoff
I am David by Anne Holm
Journey to the River Sea by Eva Ibbotson
A Kestrel for a Knave by Barry Hines
Looking for JJ by Anne Cassidy
Unbearable by Paul Jennings
Tightrope by Gillian Cross

Grammar Terms

Please see the useful websites section below for online resources and video guides.

Below is a list of grammatical terms and their definitions.

Concrete noun: a person, place or thing.
E.g. ***man, shop and chair.***

Abstract noun: A feeling or emotion.
E.g. ***hope, love or sorrow***

Pronoun: use instead of a noun.
E.g. ***he, she, it, they, we, us, me, my, I etc.***

Verb: expresses a physical action or mental action. A verb can usually be proceeded by the word 'to'.
To jump; to consider; to cry

The most common verb is the verb '***to be***'. It is written in various ways.
e.g. ***was, am , is , were, are, being*** and ***been***.
I have ***been*** out. I ***am*** going out. It ***is*** really loud! We ***were*** sitting down.
We ***are*** talking. I ***was*** shocked! You ***are being*** annoying!

Modal verb: shows how *likely* something is to happen.
E.g. ***might, should, would, could, will***

Adjective: describes a noun.
E.g. The ***blue*** chair

Adverb: describes a verb.
E.g. The boy ran ***quickly***.

Preposition: shows the relationship between the noun and the other words in the sentence.
E.g. The boy was ***under*** the stairs.

Numeracy (Mathematics)

"Mathematics is a creative and highly interconnected discipline that has been developed over centuries, providing the solution to some of history's most intriguing problems. It is essential to everyday life, critical to science, technology and engineering, and necessary for financial literacy and most forms of employment. A high-quality mathematics education therefore provides a foundation for understanding the world, the ability to reason mathematically, an appreciation of the beauty and power of mathematics, and a sense of enjoyment and curiosity about the subject." - **Department of Education 2013**

At UTC Plymouth our intention is to develop a functional, purposeful use of mathematics that can be applied in a range of situations and circumstances, particularly in the real world.

During Key stage 3 (Years 7,8 & 9) students will build knowledge and understanding of mathematical concepts in order to build confidence in their application.

Our scheme of work is separated into six subject areas:

Number

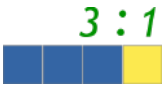
This topic is the ''foundation of arithmetic.' Students will learn about place value and ordering of integers and decimal numbers. They will learn to accurately calculate using the four operations (Addition, subtraction, multiplication and division) using mental and written methods. They will also learn how to use a calculator. Students will consider 'parts of a whole' using fractions, percentages and decimals and they will learn to use and convert standard units of measurement. (e.g. Kilometres, metres, Kilograms etc)

Algebra

Algebra is the strand of mathematics in which letters and other symbols are used to represent numbers. Students will learn how to use and interpret Algebraic notation. They will learn how to write, read and solve algebra based expressions and equations. Students will consider how to read and draw algebraic formulas and graphs and will apply these to model real life situations.

Ratio / Proportion

A ratio says how much of one thing there is compared to another thing.
For example:



For every 3 blue squares there is 1 yellow square.

Students will learn about ratio notation and learn how to express a quantity as a fraction of another. They will consider how to use scale factors and diagrams and apply these to using maps. They will learn about percentage increase and decrease and then apply this knowledge to learning about financial questions and problems about 'original value' and interest.

Geometry and measure

Geometry is the area of mathematics that focuses on the measurement, properties, and relationships of points, lines and angles. A simple definition is the study of shape.
Students will learn how to measure and calculate the areas and perimeters of a wide range of 2D shapes. They will learn to draw and solve problems about shapes using the terms parallel lines, perpendicular lines, right angles and symmetry.
They will learn how shapes can 'move' or translate on a coordinate grid and will learn to visualise how shapes look after rotation and reflection. Students will further their knowledge of triangles and Pythagoras' theorem. They will also learn to solve problems about 3D shapes.

Probability

Probability defines the extent of how likely it is that something is to happen. Probabilities can be described using words or numbers. Probabilities range from 0 to 1 and can be written as fractions, decimals or percentages.

Statistics

The Statistics topic covers the collection, presentation and analysis of data. Students will learn to read, interpret and draw a range of different graphs and charts. They will also learn to calculate averages such as the mean, median, mode and range

Whilst studying these topics the students will be encouraged to use these skills to reason mathematically using their newly learned skills

Develop Fluency and Reason Mathematically

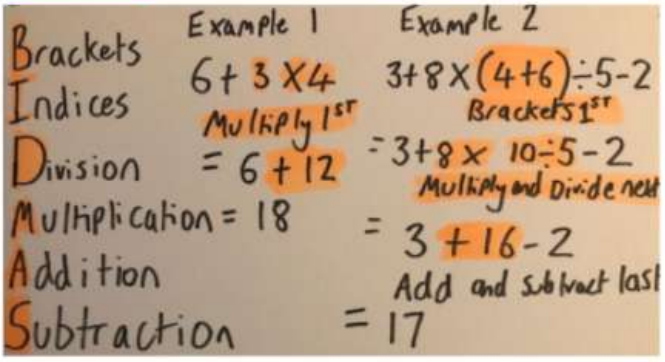
"Fluency in maths is about developing number sense and being able to select the most appropriate method for the task at hand; to be able to apply a skill to multiple contexts." - **thirdspacelearning**

Students will use their maths knowledge and apply it to real world situations. At UTC Plymouth we encourage the students to consider how their maths learning relates to Science, Technology, Art and Maths. They will also apply their maths skills to financial questions and problems.

Common Core Methods

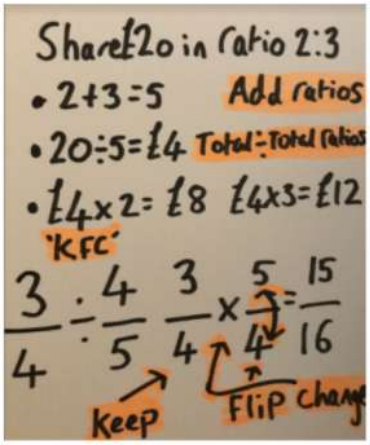
The common core methods have been developed so that throughout a students journey at UTC Plymouth they can find similarities in how to answer the most common questions that reoccur in Maths. Parents, carers and teachers from across the school can also support students' learning by showing them the same method of working out a question and therefore supporting their working memory of a topic.

BIDMAS



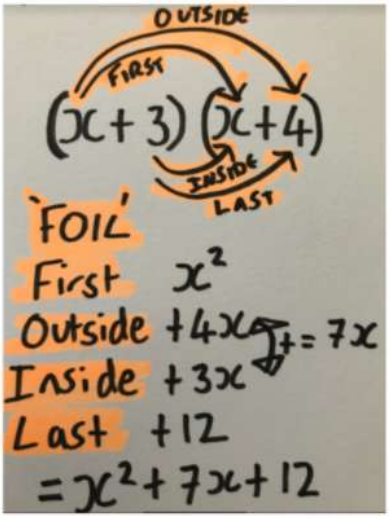
BIDMAS is the order of answering a Maths question. In example 1 because there is a multiply that needs to be done first. The answer of 12 is then added to 6 to make the answer. In example 2 as there is brackets that must be first. Then the division 10 divide 5 =2 then 8 multiplied by 2 which is 16, finally 3 add 16 take 2 which is 17.

SHARING RATIO



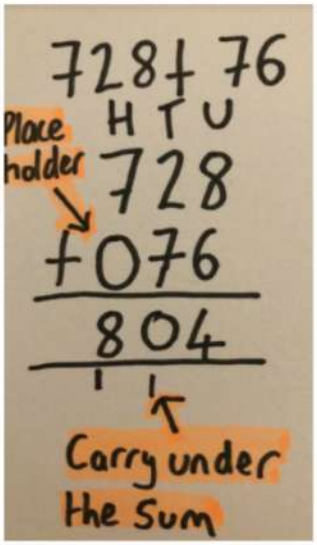
When you share the ratio you;
Add the ratios together
Total amount divide by the total ratios, this finds the value of 1 ratio
Once you have 1 ratio you can multiply that by the amount of ratios you have on each side of the ratio to find your answers.

EXPANDING BRACKETS



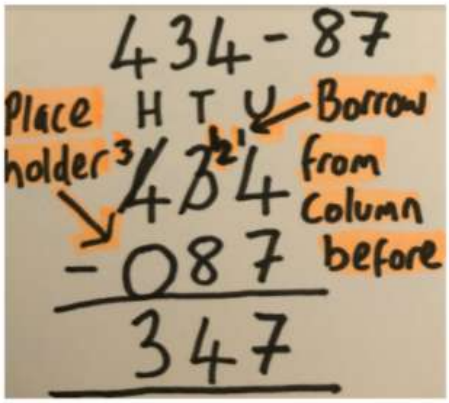
When expanding a bracket we multiply the terms in order using 'FOIL' First left part of both brackets, Outside right side of both brackets, Inside- right side of left bracket left side of right bracket then last which is right hand side of both brackets. Once done collect the like terms together to create your final answer.

COLUMN METHOD ADDITION



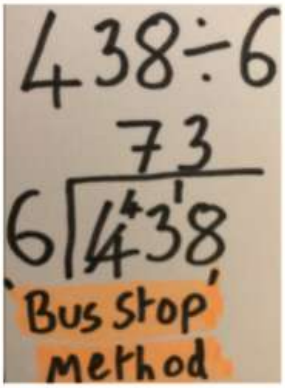
Line up one number under the other with the correct place value, then add units, tens etc. in order. If the addition makes more then ten carry that number under the sum and add it to the answer of the next column.

COLUMN SUBTRACTION METHOD



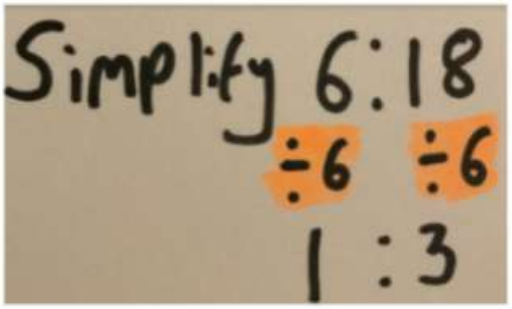
Line up one number under the other with the correct place value, then subtract units, tens etc. in order. If the above number is smaller than the below, like in the example borrow from the column before by crossing out that number putting one less and adding it to the column that needs it.

DIVISION BUS STOP METHOD



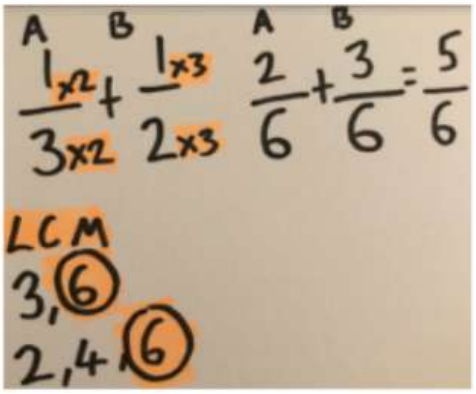
438 goes inside the bus stop as the first number in the sum, 6 goes outside the bus stop as the second number in the sum. Then decide how many time the outside number goes into the in turn inside numbers. If like the example 6 does not go into 4 carry the 4 to make 43 then 6X7 makes 42 so put 7 and carry the 1. This continuous until all numbers go in.

SIMPLIFYING RATIO



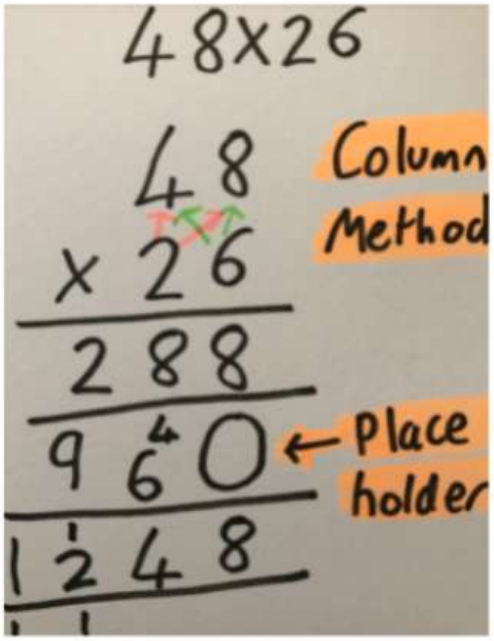
When simplifying a ratio check to see the highest times table both numbers are in then divide by that value. In the example 6 and 18 are both in the 3 and 6 times table. As the sixes is the highest divide by 6 to make 1:3. If it does not divide but both numbers are even divide by 2 and continue until the numbers are in the lowest form.

ADD AND SUBTRACT FRACTIONS WITH DIFFERENT DENOMINATORS



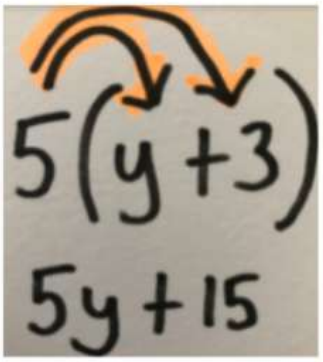
When adding or subtracting fractions if the denominator is different then like the example shows find the lowest common multiple of the two denominators. Once you have done that change both denominators to that number. Then multiply the numerator by the same amount of times the number went into the the new denominator. Once converted add or subtract the numerators for your final answer

COLUMN METHOD MULTIPLICATION



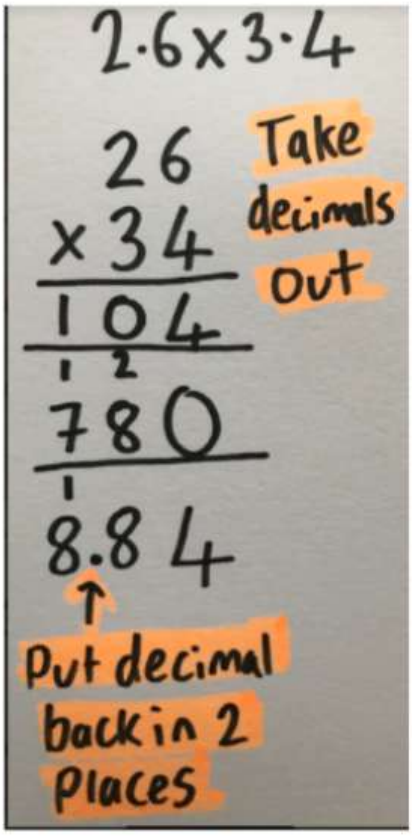
Column method means lining up the numbers under each other in place value order. In the example start with the bottom right (6) and multiply by 8 then 4. Then move to a new row and put a placeholder, then multiply the 2 by 8 and 4.

EXPAND SINGLE BRACKETS



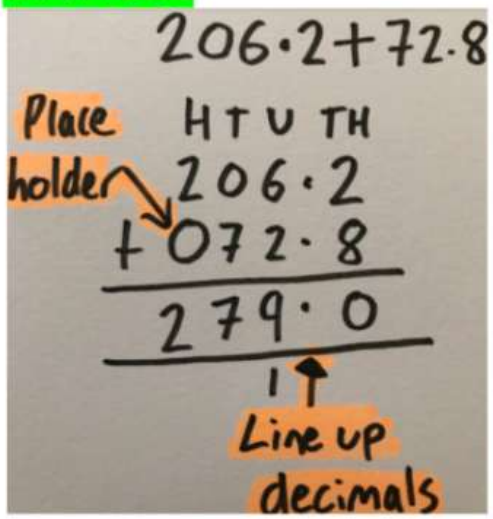
To expand a bracket multiply the number outside the bracket by the number on the left then the right of the bracket. In the example 5 gets multiplied by y to make 5y and then 5 gets multiplied by 3 to make 15 so the answer is 5y+15.

MULTIPLYING DECIMALS



When multiplying decimals create a column method multiplication and take out the decimals. Complete for column method multiplying then move the decimal point into the question from the right counting the same amount of digits that were after the decimal at the start, in this example there are 2 digits after the decimal, one on each side. Therefore the decimal moves back in 2 places.

ADDING/SUBTRACT DECIMALS BUTTON METHOD



When adding or subtracting with decimals the key is to line up the decimal point in column method so like the example it looks like buttons on a shirt. Then add or subtract using column method rules to complete the sum.

Useful websites

Use QR codes on mobile devices for direct access.

BBC - Maths Revisewise - Learner guides detailing exactly how to tackle calculations. https://bbc.in/3ziNmEB

Corbett Maths - A comprehensive collection of teaching videos and exercises covering every aspect of the Key stage 3 maths curriculum. https://corbettmaths.com/contents/

Oxford Owl - Video guides to Grammar terms and phrases used in schools.
https://bit.ly/3zA9niz

Oxford Owl - Mathematics Glossary. Definitions of all the maths related vocabulary used in lessons.
https://bit.ly/3GQvQJL

English Programme of Study KS3 - Department for education. The full official English curriculum https://bit.ly/3GRrbXM

Mathematics Programme of Study KS3 - Department for education. The full official Mathematics curriculum
https://bit.ly/3NXbL6E

Contacts

For further information about mathematics or Literacy at UTC Plymouth please contact:

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english@ utcplymouth.org RSL of English: Tracey Davis

Library Lead: Amanda Lane

SENCo - Esther Knight

Lead on Cultural Curriculum (Director of Pastoral Care) Gemma Laing