Maths Workshop 2019

What is mastery?

- When teaching maths for mastery, the whole class moves through topics at broadly the same pace. Each topic is studied in depth and the teacher does not move to the next stage until all children demonstrate that they have a secure understanding of mathematical concepts.

What is mastery?

- Students are given time to think deeply about the maths and really understand concepts, rather than as a set of rules or procedures. This slower pace leads to greater progress because it ensures that students are secure in their understanding and teachers don't need to revisit topics once they've been covered in depth.

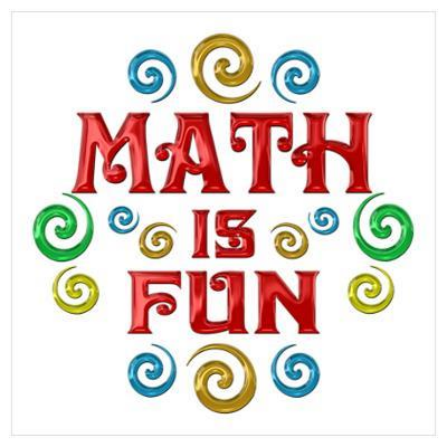
What is mastery?

- Although we set our children for maths, teaching maths for mastery offers all pupils access to the full maths curriculum. This inclusive approach, and its emphasis on promoting multiple methods of solving a problem, builds self-confidence and resilience in pupils.

What is mastery?

- Though the whole class goes through the same content at the same pace, there is still plenty of opportunity for differentiation. Unlike the old model, where advanced learners are accelerated through new content, those pupils who grasp concepts quickly are challenged with rich and sophisticated problems within the topic. Those children who are not sufficiently fluent are provided additional support to consolidate their understanding before moving on through small group intervention.

How can you help your child with maths at home?



APPS & Websites

* Times Table Rockstars
* Purple Mash
* Komodo Maths
* DragonBox Elements
* DoodleMaths
* www.ilovemathsgames.com
* www.topmarks.com
* www.mathsisfun.com

Number

* **Year 3** – Compare and order numbers to 1000.
  Recognise the place value of each digit in a 3-digit number
  Find 10 or 100 more or less than a given number.
  Count in multiples of 4, 8, 50 and 100.
  Read and write numbers up to 1000 in digits and words.

* **Year 4** – Count in multiplies of 6, 7, 9, 25 and 1000.
  Find 1000 more or less than a given number.
  Count backwards through zero into negative numbers.
  Order and compare numbers beyond 1000.
  Recognise the place value of 4-digit numbers.
  Read Roman numerals to 100 (I to C)

* **Year 5** – Read, write, order and compare numbers to at least 1,000,000 and know what each digit represents.
  Count forwards and backwards in steps of 10 from any given number up to 1,000,000.
  Round any number up to 1,000,000 to the nearest 10, 100, 1000, 10,000 and 100,000.
  Read Roman numerals up to 1000 (M)

* **Year 6** – Round any whole number to a required degree of accuracy
  Use negative numbers in context, and calculate intervals across zero.
  Solve number and practical problems that involve all of the above.

Number

* Place value counters (About £10 from Amazon)
* Place value arrow cards.
* I'm thinking of a number game.
* Use dice to make a number then partition,
  e.g. 1355 = 1000 + 300 + 50 + 5
* Counting activities – counting coins, Pokemon cards, anything!
* Suduko!

Measuring

* **Year 3** – measure and compare, add/subtract lengths (mm/ cm/m); mass (g/kg); volume/capacity (ml/l).
  Add and subtract amounts of money to give change.

* **Year 4** – convert between different units of measurement (km to m; hours to minutes).
  Estimate, compare and calculate different measures, including money in pounds and pence.

* **Year 5** – Convert between different units of metric measure (e.g. km to m, cm to m, cm to mm, g to kg, l to ml)
  Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints.
  Use all four operations to solve problems involving measure.

* **Year 6** – convert between miles and kilometres.
  Use, read, write and convert between standard units of length, mass, volume and time for a smaller unit of measure to a larger unit, and vice versa, using decimals up to three decimal places.
  Solve problems involving the calculation and conversion of unit of measurement using decimals up to three decimal places.

Measuring

* Capacity in the bath – measuring liquids with no mess!
* Cooking – measuring out ingredients (solids on analogue scales please).
* Measure things around the house and compare them.
* Pocket money – count their money in their money box; when they buy something, make them count out the money and consider how much change they should get.

Time

* **Year 1** need to learn to tell the time to the hour and half hour.

* **Year 2** they will go on to learning to tell the time to the quarter hour and then to the nearest five minutes.

* **Year 3** children start learning about the 24-hour clock, therefore at this point, they will start looking at digital time.

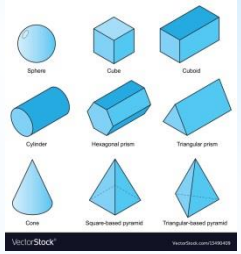
* **Year 4**, children need to convert the time between analogue and digital 12- and 24-hour clocks with confidence.

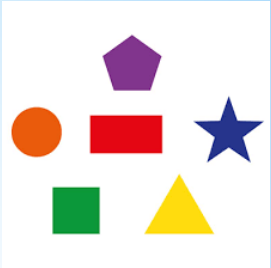
* **Years 5 and 6** children solve problems involving converting between units of time.

Time

* Practise telling the time at home (always analogue first!)
* Have a clock in their bedrooms.
* Buy them a children's watch (Around £8-£15)
* Small telling the time clocks can be bought from Amazon for £3
* How many minutes until questions.

Geometry





* **Year 3** – Draw 2D shapes and make 3D shapes using modelling materials.
  Recognise different angles as property of a shape or a description of a turn
  Identify right angles,, that two right angles make a half-turn, three make a three quarter of a turn and four a complete turn.
  Use words such as obtuse and acute to describe angles.
  Identify horizontal and vertical lines and pairs of perpendicular and parallel lines.

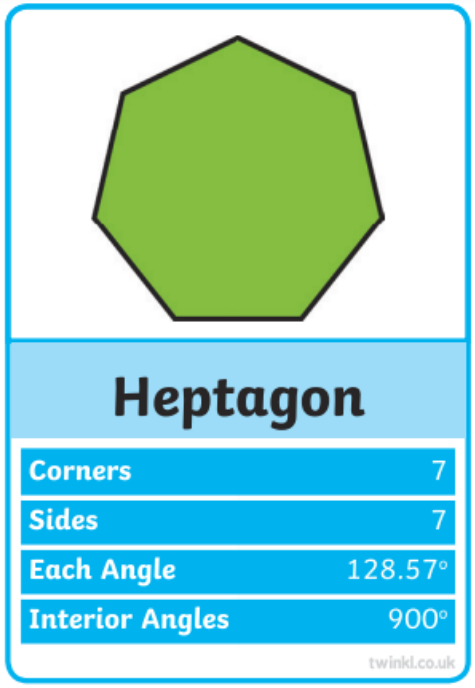
* **Year 4** – Compare and classify shapes based on their properties.
  Have an understanding of symmetry within 2D shapes.
  Compare and order angles up to two right angles by size.

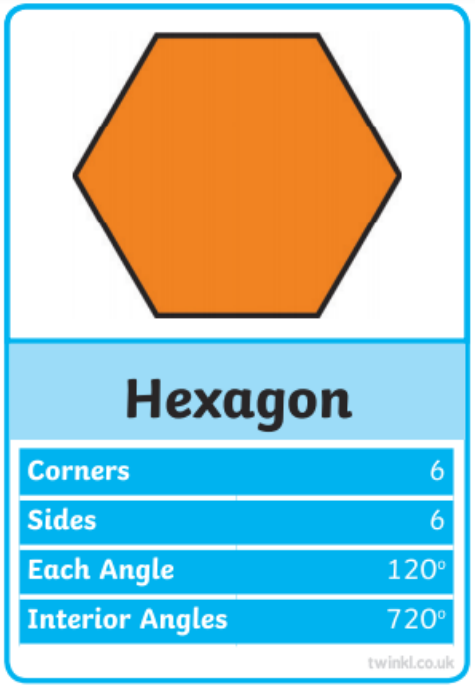
* **Year 5** – Identify, describe and represent the position of a shape following a reflection or translation.
  Draw angles accurately
  Estimate and compare acute, obtuse and ref reflex angles
  Identify 3D shapes from 2D representations

* **Year 6** - Draw 2D shapes using given dimensions and angles
  Recognise, describe and build simple 3D shapes, including making nets
  Describe positions on the full coordinate grid (all four quadrants)
  Draw and translate simple shapes on the coordinate plane, and reflect in the axes.
  Compare and classify shapes based on their properties and sizes.
  Find unknown angles in any triangles, quadrilaterals and regular polygons (2D shapes).
  Illustrate and name parts of circles, including radius, diameter and circumference.

Geometry

* Build things from shapes!
* Look at the nets of different shape boxes.
* Describe different shapes – make it into a game.
* Get them to make their own Top Trump cards based on different shapes.
* Playing Battleships.
* Shape barrier game – using shape and positioning vocabulary.


Heptagon
Corners 7
Sides 7
Each Angle 128.57°
Interior Angles 900°
twinkl.co.uk


Hexagon
Corners 6
Sides 6
Each Angle 120°
Interior Angles 720°
twinkl.co.uk

Fractions and Decimals

* **Year 3** – Count up and down in tenths.
  Recognise and find fractions of discrete objects
  Recognise and show, using diagrams, equivalent fractions with small denominators.
  Add and subtract fractions with the same denominator
  Compare and order unit fractions and those with the same denominator
  Solve problems that involve all of the above.

* **Year 4** – Count up and down in hundredths
  Recognise and write decimal equivalents, e.g. 1/10 = 0.1
  Round decimals with one decimal place to the nearest whole number
  Solve simple money and measure problems involving fractions and decimals to two decimal places.
  Compare numbers with the same number of decimal places up to two decimals places.

* **Year 5** – Compare and order fractions whose denominators are all multiples of the same number.
  Recognise mixed number and improper fractions of a given fraction, including tenths and hundredths.
  Add and subtract fractions
  Read and write decimals as fractions
  Recognise and use thousandths
  Solve problems involving decimals, percentages and fractions.
  Write, order and compare numbers with up to three decimal places.
  Round decimals with two decimal places to the nearest whole number and to one decimal place.

* **Year 6** – Multiply simple pairs of proper fractions, writing the answer in the simplest form.
  Divide proper fractions by whole numbers.
  Identify the value of each digit in numbers with up to three decimals places.
  Associate a fraction with a division and calculate decimal fraction equivalents for a simple fraction
  Use common factors to simplify fractions use common multiples to express fractions in the same denomination.

Fractions and Decimals

* Pizzas, cake, chocolate – turn it into fractions!
* Fraction/decimal snap.
* Buy a fraction wall set to help compare fractions (some have decimals on the other side fraction)
* Looking at money and the equivalent, e.g. £1.42 is 142p.
* Use dice to create decimal numbers and round to the nearest whole number, nearest tenth, hundredth etc.
* Number line game.

Multiplication and Division

* **Year 3** – Recall and use multiplication and division facts for the 3, 4, and 8 multiplication tables.
  Multiply a 2-digit number by a 1-digit number using mental facts then progressing to a formal written method.

* **Year 4** – Recall all multiplication and division facts for multiplication tables up to 12 x 12
  Multiply a 2-digit numbers and 3-digit numbers by a 1-digit formal written layout.
  Solve problems involving multiplying and adding/

* **Year 5** – Identify multiples and factors
  Understand prime numbers up to 100.
  Divide numbers up to 4 digits by a 1 digit number using a formal written method
  Multiply and divide whole numbers and those with decimals by 10, 100 and 1000.

* **Year 6** – Identify common factors, common multiples and prime numbers.
  Divide numbers up to 3 digits by a 2-digit number using a formal written method.
  Multiply up to 4 digits by a 2-digit number using a formal written method.
  Solve problems involving addition, subtraction, multiplication and division.

Multiplication and Division

* Times Table Rockstars!!!!
* Times Table songs in the car
* Quick fire random questions
* Get them to show you and explain how to use the methods for multiplication and division.
* A whiteboard and pen means mistakes can easily be rubbed out.
* Pairing socks – counting in 2s.
* Use dice to come up with a question.
* Jenga – write questions on the side of the bricks.

Addition and Subtraction

* **Year 3** – Add and subtract mentally, including a 3-digit number and ones, a 3-digit number and tens, a 3-digit number and hundreds.
  Add and subtract with up to three digits using a formal written method.
  Estimate and check answers.
  Solve problems, including missing number problems.

* **Year 4** – Add and subtract numbers up to 3 digits using the formal written method.
  Solve addition and subtraction problems with two steps.

* **Year 5** – Add and subtract with more than 4 digits using a formal written method.
  Add and subtract increasingly larger numbers mentally.
  Use rounding to check answers to calculations.
  Solve addition and subtraction multi-step word problems.

* **Year 6** – Solve addition and subtraction multi-step word problems and know which operation to use and why.

Addition and Subtraction

* Counting money.
* Looking at door numbers for counting on/back in odd or even numbers.
* Mental addition and subtraction with quick fire questions.
* Rolling dice and adding them together.

Any questions?