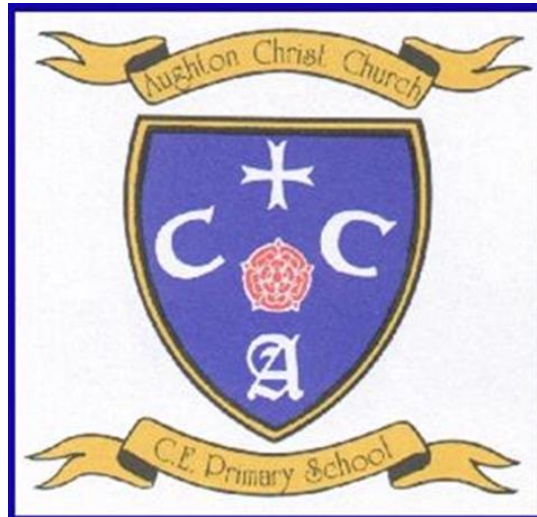


Maths Parent Workshops – KS2

Wednesday 16th March, 2016

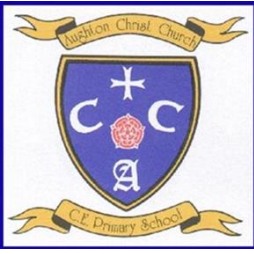




Our aims for this evening are:

- To explain the changes to the Maths curriculum
- To explain how we teach Maths to your child in school
- To provide some ideas on how you can support your child at home





Aims of Maths Curriculum 2014

- Become **fluent** in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time, so that pupils develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately.
- **Reason mathematically** by following a line of enquiry, conjecturing relationships and generalisations and developing an argument, justification or proof using mathematical language.
- **Solve problems** by applying their mathematics to a variety of problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.





How Maths teaching has changed

- To give children a chance to **explore** ways of finding an answer and being able to **explain** why it works
- To give them the **key skills** needed to solve **real world** problems and examples
- To provide opportunities to **apply** these skills in practical situations





Assessment

- National Curriculum levels have been removed.
- New end of key stage statutory assessments introduced this year for Year 6 where children will be judged to have met (or not) end of key stage expectations.
- 3 Maths papers
 - Paper 1 – Arithmetic (30 mins)
 - Paper 2 & 3 – Reasoning (40 mins)
 - Multiple choice
 - True or false
 - Constrained questions, e.g. giving the answer to a calculation, drawing a shape or completing a table or chart
 - Less constrained questions, where children will have to explain their approach for solving a problem
- The New National Curriculum tests will be more demanding, with a higher and more ambitious expected standard





Assessment

- Throughout school, children will be teacher assessed on whether they are secure in their year group age related expectations.
- At Aughton Christ Church we assess children's learning against the Key Learning Indicators of Performance (KLIPs) to help teachers make a judgement as to whether a child is "on track" to achieve that year group's expectations. Children are judged termly to be entering, developing or secure in their particular year group.

(Key Learning Documents on school website).



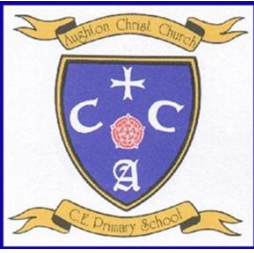


Key Learning

Key Learning in Mathematics – Year 4

Number – number and place value	Number – addition and subtraction	Number – multiplication and division
<ul style="list-style-type: none"> Count in multiples of 6, 7, 9, 25 and 1000 Count backwards through zero to include negative numbers Count up and down in hundredths Read and write numbers to at least 10 000 Read and write numbers with up to two decimal places Recognise the place value of each digit in a four-digit number Identify the value of each digit to two decimal places Partition numbers in different ways (e.g. $2.3 = 2+0.3$ & $1+1.3$) Identify, represent and estimate numbers using different representations (including the number line) Order and compare numbers beyond 1000 Order and compare numbers with the same number of decimal places up to two decimal places Find 0.1, 1, 10, 100 or 1000 more or less than a given number Round any number to the nearest 10, 100 or 1000 Round decimals (one decimal place) to the nearest whole number Find the effect of dividing a one- or two-digit number by 10 and 100, identifying the value of the digits in the answer Describe and extend number sequences involving counting on or back in different steps, including sequences with multiplication and division steps Read Roman numerals to 100 and know that over time, the numeral system changed to include the concept of zero and place value Solve number and practical problems that involve all of the above and with increasingly large positive numbers 	<ul style="list-style-type: none"> Choose an appropriate strategy to solve a calculation based upon the numbers involved (recall a known fact, calculate mentally, use a jotting, written method) Select a mental strategy appropriate for the numbers involved in the calculation Recall and use addition and subtraction facts for 100 Recall and use +/- facts for multiples of 100 totalling 1000 Derive and use addition and subtraction facts for 1 and 10 (with decimal numbers to one decimal place) Add and subtract mentally combinations of two and three digit numbers and decimals to one decimal place Add and subtract numbers with up to 4 digits and decimals with one decimal place using the formal written methods of columnar addition and subtraction where appropriate Estimate; use inverse operations to check answers to a calculation Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why Solve addition and subtraction problems involving missing numbers 	<ul style="list-style-type: none"> Choose an appropriate strategy to solve a calculation based upon the numbers involved (recall a known fact, calculate mentally, use a jotting, written method) Recognise and use factor pairs and commutativity in mental calculations Recall multiplication and division facts for multiplication tables up to 12×12 Use partitioning to double or halve any number, including decimals to one decimal place Use place value, known and derived facts to multiply and divide mentally, including: <ul style="list-style-type: none"> - multiplying by 0 and 1 - dividing by 1 - multiplying together three numbers Multiply two-digit and three-digit numbers by a one-digit number using formal written layout Divide numbers up to 3 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context Use estimation and inverse to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy Solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit, division (including interpreting remainders), integer scaling problems and harder correspondence problems such as n objects are connected to m objects
Number – fractions and decimals <ul style="list-style-type: none"> Understand that a fraction is one whole number divided by another (e.g. $\frac{3}{4}$ can be interpreted as $3 \div 4$) Recognise, find and write fractions of a discrete set of objects including those with a range of numerators and denominators Recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten Count on and back in steps of unit fractions Compare and order unit fractions and fractions with the same denominators (including on a number line) Recognise and show, using diagrams, families of common equivalent fractions Recognise and write decimal equivalents of any number of tenths or hundredths Recognise and write decimal equivalents to $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$ Add and subtract fractions with the same denominator (using diagrams) Solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number Solve simple measure and money problems involving fractions and decimals to two decimal places 	Geometry – properties of shapes <ul style="list-style-type: none"> Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes Identify lines of symmetry in 2-D shapes presented in different orientations Complete a simple symmetric figure with respect to a specific line of symmetry Continue to identify horizontal and vertical lines and pairs of perpendicular and parallel lines Identify acute and obtuse angles and compare and order angles up to two right angles by size 	Measurement <ul style="list-style-type: none"> Estimate, compare and calculate different measures, including money in pounds and pence Order temperatures including those below 0°C Measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres Know area is a measure of surface within a given boundary Find the area of rectilinear shapes by counting squares Convert between different units of measure (e.g. kilometre to metre; hour to minute) Read, write and convert time between analogue and digital 12- and 24-hour clocks Write amounts of money using decimal notation Recognise that one hundred 1p coins equal $\text{£}1$ and that each coin is $\frac{1}{100}$ of $\text{£}1$ Solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days and problems involving money and measures
	Geometry – position and direction <ul style="list-style-type: none"> Describe positions on a 2-D grid as coordinates in the first quadrant Plot specified points and draw sides to complete a given polygon Describe movements between positions as translations of a given unit to the left/right and up/down 	
	Statistics <ul style="list-style-type: none"> Use a variety of sorting diagrams to compare and classify numbers and geometric shapes based on their properties and sizes Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts, time graphs Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs 	

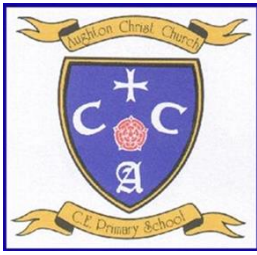




Maths at Aughton Christ Church Primary School

- Morning Work
 - Independent
 - 15 mins.
- Maths lesson
 - Daily
 - 1 hour
 - Start each lesson with a problem to generate thinking and discussion
- Times Tables
 - 15 mins at the end of each day
 - Written calculations/Games/Multiplication & related division facts
- Maths Displays
 - Vocabulary
 - Examples of problem solving
 - Challenges

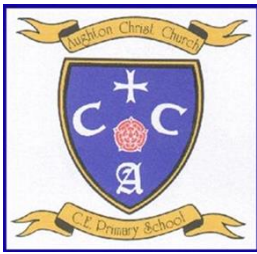




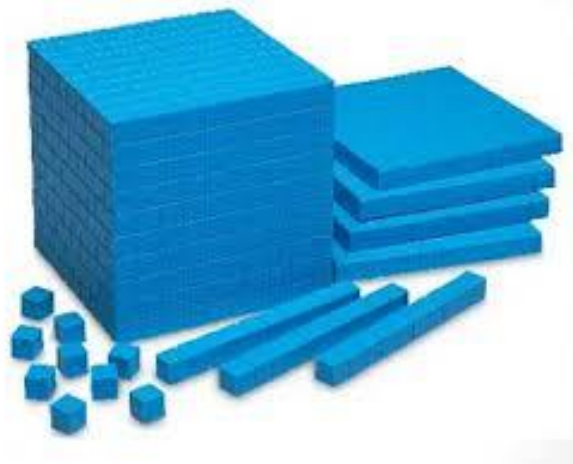
Developing Understanding

- Prompting thinking and questioning
- Providing opportunities to manipulate, experience and see (through use of resources)
- Develop thinking through investigation
- Reasoning & making connections
- Engaging in talk using mathematical vocabulary
- Encouraging children to make links and generalise

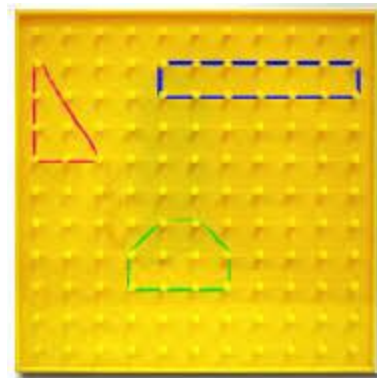
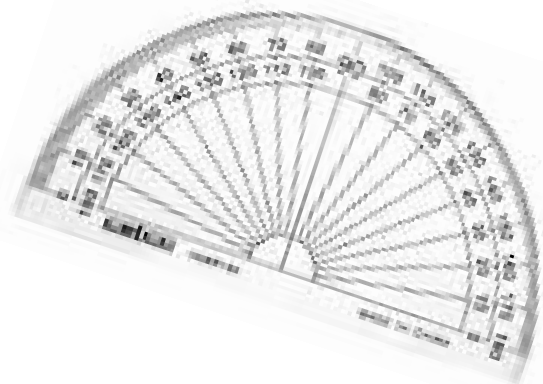
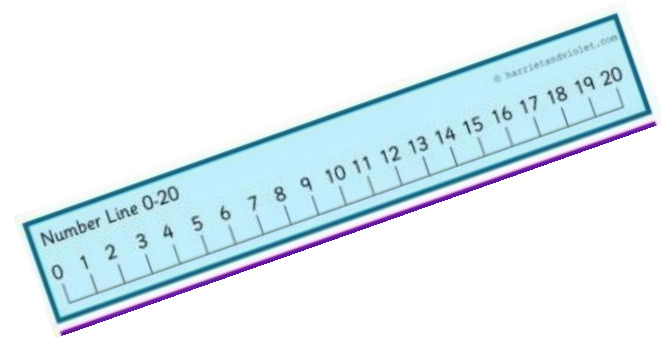


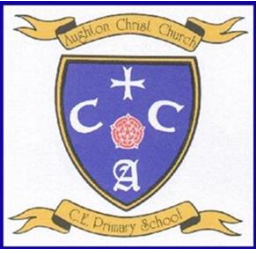


Resources



1	2	3	4	5	6	7	8	9	10	
11	12	13	14	15	16	17	18	19	20	
21	22	23	24	25	26	27	28	29	30	
31	32	33	34	35	36	37	38	39	40	
41	42	43	44	45	46	47	48	49	50	
51	52	53	54	55	56	57	58	59	60	
61	62	63	64	65	66	67	68	69	70	
71	72	73	74	75	76	77	78	79	80	
81	82	83	84	85	86	87	88	89	90	
91	92	93	94	95	96	97	98	99	100	





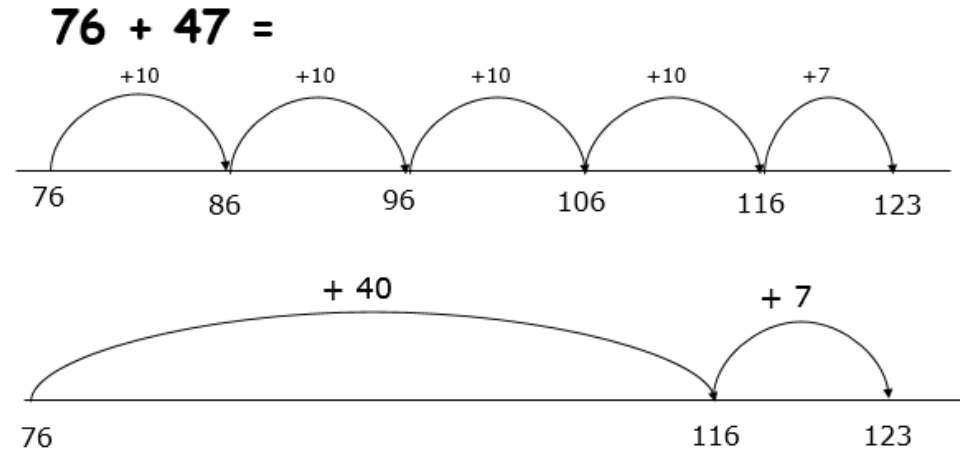
Addition

Adding 3 digits → Adding 4 digits and decimals with 2d.p.

$$\begin{array}{r}
 2 \quad 3 \quad 4 \\
 3 \quad 5 \quad 7 \\
 \hline
 5 \quad 9 \quad 1 \\
 \hline
 1
 \end{array}$$

$$\begin{array}{r}
 2 \quad 2 \quad 8 \quad 3 \cdot 4 \quad 0 \\
 1 \quad 3 \quad 4 \quad 6 \cdot 7 \quad 4 \\
 \hline
 3 \quad 6 \quad 3 \quad 0 \cdot 1 \quad 4 \\
 \hline
 1 \quad 1 \quad 1
 \end{array}$$

Multi-step Problem Solving

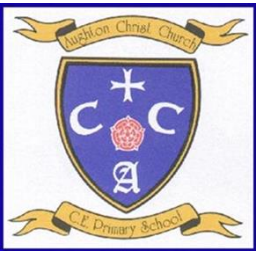


Write the four missing digits to make this **addition** correct.

$$\begin{array}{r}
 \boxed{} \quad 6 \quad \boxed{} \quad 8 \\
 + \quad 3 \quad \boxed{} \quad 9 \quad \boxed{} \\
 \hline
 9 \quad 0 \quad 1 \quad 9
 \end{array}$$

Check your answer makes sense!





Subtraction

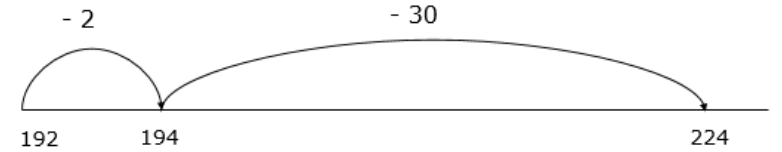
Subtracting 3 digit numbers → Subtracting 4 digit numbers with 2d.p.

$$\begin{array}{r} 2754 \\ -1432 \\ \hline 1322 \end{array}$$

$$\begin{array}{r} ^6 ^1 54 \\ -2754 \\ \hline 1562 \\ \hline 1192 \end{array}$$

$$\begin{array}{r} ^0 ^9 ^1 ^3 ^1 \\ -105.419\text{kg} \\ \hline 36.080\text{kg} \\ \hline 69.339\text{kg} \end{array}$$

$$224 - 32 =$$



A drink and a box of popcorn together cost 90p.



2 drinks and a box of popcorn together costs £1.45.



What does a box of popcorn cost?

Explain how you got your answer.

.....

.....

Check your answer makes sense!





Multiplication

Always show your working out!

$$327 \times 4$$

$$\begin{array}{r} 327 \\ \times 4 \\ \hline 1308 \\ \hline 1 \quad 2 \end{array}$$

Year 5

$$124 \times 26$$

$$\begin{array}{r} 124 \\ \times 26 \\ \hline 744 \\ + 2480 \\ \hline 3224 \\ \hline 1 \quad 1 \end{array}$$

A farmer has £1200 to buy apple trees and pear trees.

Apple trees cost £24.75 each.

Pear trees cost £12.50 each.



He buys 35 apple trees.

How many pear trees can he buy with the money he has left?





Division

Short formal division \longrightarrow Long division & interpret remainders as whole number remainders, fractions or by rounding if appropriate for the context.

$$432 \div 5 = 86 \text{ r } 2$$

$$\begin{array}{r} 86 \text{ r} 2 \\ 5 \overline{) 432} \end{array}$$

$$\begin{array}{r} 972 \div 36 \\ 27 \\ 36 \overline{) 972} \\ \underline{- 720} \quad (20 \times 36) \\ 252 \\ \underline{- 180} \quad (5 \times 36) \\ 72 \\ \underline{72} \quad (2 \times 36) \\ 0 \end{array}$$

Write the missing number.

 $12.5 \div \square = 7.5 \div 1.5$





Helping your child at home

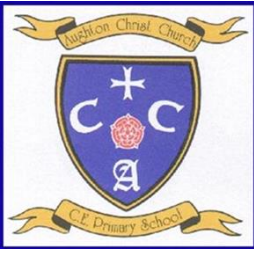
- Research shows that families have the first and most significant influence on their children's learning and development. Practising with your child at home can play a key role in helping your child succeed at school.

What methods should I use?

I wasn't taught to do it that way!

I don't want to make them more confused!





Times Tables

It is really important for children to learn their times tables up to 12×12 .

- Year 3 & 4
 - Recall multiplication and division facts for multiplication tables up to 12×12 .
- Year 5
 - Identify multiples & factors, including finding all factor pairs of a number and common factors of two numbers.
- Year 6
 - Identify common factors, common multiples and prime numbers.
- Rapid recall
- Relate to problem solving



My Maths – www.mymaths.co.uk

The screenshot shows the My Maths website interface. At the top, the browser address bar displays the URL <https://app.mymaths.co.uk/myportal/library/10/105/1131#collapse16>. The My Maths logo is on the left, with the tagline "Bringing maths alive". Navigation links for "Assessment Manager", "Help", and "Log out" are in the top right. A search bar is also present. Below the navigation, there is a "My portal" section with fields for "Username", "Password", and a "Login" button. A left sidebar menu lists various categories: "Library", "Number" (highlighted), "Algebra", "Shape", "Data", "fSkills", "Booster packs", and "Games". The main content area is titled "Number" and includes a "Filter: Everything" dropdown. A list of topics is shown on the left, with "Multiply divide mental" highlighted. The main content area features a featured challenge: "4 Mixed tables 2 to 12" with the description "Challenge yourself with all the times tables up to 12. Can you remember them all?". Below this are options for "Lesson" and "Online homework". A list of other topics follows: "3 Multiplying", "3 Multiplying by 10", "4 Multiplying by 10 and 100", and "4 More multiplying". The Oxford logo is at the bottom left. The footer contains copyright information: "© Oxford University Press 2016 v1.11.8 - GMT+00:00" and a list of links: "Help | Contact | News | Privacy | Legal | Terms & Conditions | Cookie Policy".

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Bringing maths alive

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Filter: Everything

- Decimals
- Estimating and accuracy
- Fractions
- Money and finance
- Multiply divide mental
- Multiply divide written
- Percentages
- Powers and roots
- Ratio and proportion

4 **Mixed tables 2 to 12**

Challenge yourself with all the times tables up to 12. Can you remember them all?

Lesson Online homework

- 3 Multiplying
- 3 Multiplying by 10
- 4 Multiplying by 10 and 100
- 4 More multiplying

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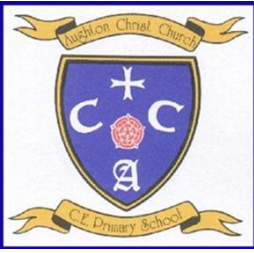
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Ratio

- R1 - Introduction to Ratio
 - a) Real-Life Contexts
 - b) Shading
- R2 - Unit Conversions
- R3 - Expressing Quantities as Fractions
- R4 - Unit Pricing
- R5 - Ratios
 - a) Simplifying
 - b) Sharing

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Mathematics just a click away...



Real Life Problems

- Go shopping with your child to buy 2 or 3 items. Ask them to work out the total amount spent and how much change you will get.
- Buy some items with an extra percentage free. Calculate how much of the product is free.
- Plan an outing during the holidays. Ask your child to think about what time you will need to set off and how much money you will need to take.
- Use a TV guide. Ask your child to work out the length of their favourite programmes. Can they calculate how long they spend watching TV each day/ each week?
- Use a bus or train timetable. Ask your child to work out how long a journey between two places should take.





Real Life Problems

- Help your child to scale a recipe up or down to feed the right amount of people.
- Work together to plan a party or meal on a budget.
- Practise telling the time with your child. Use both digital and analogue clocks.
- Practise measuring the lengths or heights of different objects (in m or cm). Encourage them to estimate before measuring.





Useful Websites

- www.mymaths.co.uk
- www.topmarks.co.uk
- www.ictgames.co.uk
- <http://www.bbc.co.uk/bitesize/ks2/maths/>

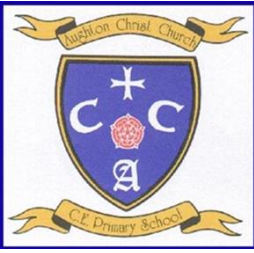




Final Thought

- Be positive about maths
- Make maths fun
- Talk to your child and ask them to explain their thinking
- Numbers are all around us all the time. Notice them and talk about them





Thank you for listening

- We would like to invite you to go to your child's classroom and have a look at the ways that they solve maths problems and some of the resources that they use.
- Year 3 & 4 – Year 3 classroom (Mrs Chapple & Miss Jenkins)
- Year 5 & 6 – Year 5 classroom (Mrs Frackleton & Mr Swift)

