

Oliver Goldsmith Primary School
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KS1 MATHS PARENT TIME



THURSDAY 9TH FEBRUARY 2023
LED BY MISS DOBROWOLSKI
MATHS LEADER

**Pupils are neither 'born with the maths gene'
nor
'just no good at maths'.**

With good teaching, appropriate resources, effort and a 'can do' attitude all children can achieve in and enjoy mathematics.

-NCETM



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Introductions & Housekeeping...

- Mrs McAndrew- Assistant Head & Assessment Leader
- Miss Dobrowolski- Maths Faculty Leader
- Evacuation if alarm sounds (not planned)



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This presentation will cover:

- What maths mastery is
- The school calculation policy
- The school Fluency policy
- Some strategies and resources to help you support your children at home



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What do we mean by mastery?

You know and understand something so deeply that you:

- Are confident and able to do it
- Do it to automaticity (driving a car, reading a book, brushing your teeth etc.)
- Can explain it to someone else so that they can understand it too



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How does teaching for mastery work?

- All children have equitable access to the curriculum- everyone can achieve and no one gets left behind
- Less is more (depth not breadth of learning is prioritised)
- Teaching and learning is done through small steps to avoid cognitive overload and gaps in learning
- Fluency is key- knowing your number bonds, doubles, near doubles, times tables
- Reasoning and making connections between concepts is embedded into each lesson



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How do we add challenge?

- Rather than moving onto the next topic or next years curriculum we add challenge through deepening understanding.
- For example: How do you know...
 - If I know...what else do I know?
 - Explain how you worked this out...
 - Do you agree or disagree/ Why?



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Let's have a look at our calculation policy



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Let's have a look at our Fluency policy

- [Fluency Policy](#)



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Strategies for calculation

- Addition
 - adding on one more through knowledge of doubles (If I know, $5 + 5$ then I know $5 + 6$ because....)
 - adding through ten by partitioning an addend and using knowledge of number bonds ($7 + 5 = ?$ I know $7 + 3 = 10$ so then I add ...)
 - adding by partitioning BOTH addends ($23 + 16 = ?$ I know $20 + 10 = 30$ and $3 + 6 = 9$ so the sum is 39)



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Strategies for calculation

- Subtracting single digits by partitioning ($15 - 3 = ?$ If I know $5 - 3 = 2$ then I know $15 - 3 = 12$)
- Subtracting through ten- also called bridging ($13 - 7 = ?$ I can partition the subtrahend into 3 and 4 So, $13 - 3 = 10$ then I know my number bonds so $10 - 4 = 6$)
- Subtracting from ten by partitioning minuend ($13 - 7 = ?$ I can partition the minuend into 10 and 3. I know my number bonds so $10 - 7 = 3$ and $3 + 3 = 6$)
-



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Strategies for calculation

- Formal column addition and subtraction (with/without exchange)
- Please note here showing the exchange when adding vs. when subtracting

46 + 17 then 45 - 18

Year 1 programme of study

Number - number and place value

Pupils should be taught to:

- count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number
- count, read and write numbers to 100 in numerals; count in multiples of 2s, 5s and 10s
- given a number, identify 1 more and 1 less
- identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least
- read and write numbers from 1 to 20 in numerals and words

Number - addition and subtraction

Pupils should be taught to:

- read, write and interpret mathematical statements involving addition (+), subtraction (−) and equals (=) signs
- represent and use number bonds and related subtraction facts within 20
- add and subtract one-digit and two-digit numbers to 20, including 0
- solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as $7 = ? - 9$

Number - multiplication and division

Pupils should be taught to:

- solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher.

Through grouping and sharing small quantities, pupils begin to understand: multiplication and division; doubling numbers and quantities; and finding simple fractions of objects, numbers and quantities.

They make connections between arrays, number patterns, and counting in 2s, 5s and 10s.

Number - fractions

Pupils should be taught to:

- recognise, find and name a half as 1 of 2 equal parts of an object, shape or quantity
- recognise, find and name a quarter as 1 of 4 equal parts of an object, shape or quantity

Notes and guidance (non-statutory)

Pupils are taught half and quarter as 'fractions of' discrete and continuous quantities by solving problems using shapes, objects and quantities. For example, they could recognise and find half a length, quantity, set of objects or shape. Pupils connect halves and quarters to the equal sharing and grouping of sets of objects and to measures, as well as recognising and combining halves and quarters as parts of a whole.

Measurement

- compare, describe and solve practical problems for:
 - lengths and heights [for example, long/short, longer/shorter, tall/short, double/half]
 - mass/weight [for example, heavy/light, heavier than, lighter than]
 - capacity and volume [for example, full/empty, more than, less than, half, half full, quarter]
 - time [for example, quicker, slower, earlier, later]
- measure and begin to record the following:
 - lengths and heights
 - mass/weight
 - capacity and volume
 - time (hours, minutes, seconds)
 - recognise and know the value of different denominations of coins and notes
 - sequence events in chronological order using language [for example, before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening]
- recognise and use language relating to dates, including days of the week, weeks, months and years
- tell the time to the hour and half past the hour and draw the hands on a clock face to show these times

Geometry - properties of shapes

Pupils should be taught to:

- recognise and name common 2-D and 3-D shapes, including:
 - 2-D shapes [for example, rectangles (including squares), circles and triangles]
 - 3-D shapes [for example, cuboids (including cubes), pyramids and spheres]

Pupils handle common 2-D and 3-D shapes, naming these and related everyday objects fluently. They recognise these shapes in different orientations and sizes, and know that rectangles, triangles, cuboids and pyramids are not always similar to each other.

Geometry - position and direction

Pupils should be taught to:

- describe position, direction and movement, including whole, half, quarter and three-quarter turns

Pupils use the language of position, direction and motion, including: left and right, top, middle and bottom, on top of, in front of, above, between, around, near, close and far, up and down, forwards and backwards, inside and outside.

Pupils make whole, half, quarter and three-quarter turns in both directions and connect turning clockwise with movement on a clock face.

Year 2 programme of study

Number - number and place value

Pupils should be taught to:

- count in steps of 2, 3, and 5 from 0, and in 10s from any number, forward and backward
- recognise the place value of each digit in a two-digit number (10s, 1s)
- identify, represent and estimate numbers using different representations, including the number line
- compare and order numbers from 0 up to 100; use $<$, $>$ and $=$ signs
- read and write numbers to at least 100 in numerals and in words
- use place value and number facts to solve problems

Number - addition and subtraction

Pupils should be taught to:

- solve problems with addition and subtraction:
 - using concrete objects and pictorial representations, including those involving numbers, quantities and measures
 - applying their increasing knowledge of mental and written methods
- recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100
- add and subtract numbers using concrete objects, pictorial representations, and mentally, including:
 - a two-digit number and 1s
 - a two-digit number and 10s
 - 2 two-digit numbers
 - adding 3 one-digit numbers
- show that addition of 2 numbers can be done in any order (commutative) and subtraction of 1 number from another cannot
- recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems

Number - multiplication and division

Pupils should be taught to:

- recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers
- calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (\times), division (\div) and equals (=) signs
- show that multiplication of 2 numbers can be done in any order (commutative) and division of 1 number by another cannot
- solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts

Number - fractions

Pupils should be taught to:

- recognise, find, name and write fractions $\frac{1}{3}$ $\frac{1}{4}$ $\frac{2}{4}$ $\frac{3}{4}$

of a length, shape, set of objects or quantity

write simple fractions, for example $\frac{1}{2}$ of $6 = 3$ and recognise the equivalence of $\frac{2}{4}$ and $\frac{1}{2}$

Pupils should count in fractions up to 10, starting from any number and using the and equivalence on the number line (for example, 1, 1, 1 (or 1), 1, 2). This reinforces the concept of fractions as numbers and that they can add up to more than 1.

Measurement

Pupils should be taught to:

- choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature ($^{\circ}\text{C}$); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels
- compare and order lengths, mass, volume/capacity and record the results using $>$, $<$ and $=$
- recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value
- find different combinations of coins that equal the same amounts of money
- solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change
- compare and sequence intervals of time
- tell and write the time to five minutes, including quarter past/to the hour and draw the hands on a clock face to show these times
- know the number of minutes in an hour and the number of hours in a day

Geometry - properties of shapes

Pupils should be taught to:

- identify and describe the properties of 2-D shapes, including the number of sides, and line symmetry in a vertical line
- identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces
- identify 2-D shapes on the surface of 3-D shapes, [for example, a circle on a cylinder and a triangle on a pyramid]
- compare and sort common 2-D and 3-D shapes and everyday objects

Geometry - position and direction

Pupils should be taught to:

- order and arrange combinations of mathematical objects in patterns and sequences
- use mathematical vocabulary to describe position, direction and movement, including movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anti-clockwise)
-

Pupils use the concept and language of angles to describe 'turn' by applying rotations, including in practical contexts (for example, pupils themselves moving in turns, giving instructions to other pupils to do so, and programming robots using instructions given in right angles).

Statistics

Pupils should be taught to:

- interpret and construct simple pictograms, tally charts, block diagrams and tables
- ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity
- ask-and-answer questions about totalling and comparing categorical data

Year 2 SATS Tests- Maths

- **The children will sit their SATs tests from Monday 15th May.**
- **Due to their age, we avoid making the assessments too formal for the children. The children have completed two practice assessments so far so are used to the structure of the tests.**
- **Paper 1 - Arithmetic assessment- 20 minutes- not strictly timed.**
- **Paper 2- Reasoning Test- 35 minutes- not strictly timed-**
- **This paper has 2 sections:**
 - **Section 1: an aural section with 5 questions**
 - **Section 2: approximately 26 written questions.**
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- **The tests are used to INFORM teacher assessment at the end of KS1. Pupils are teacher assessed as PKF, WTS, EXS or GDS.**



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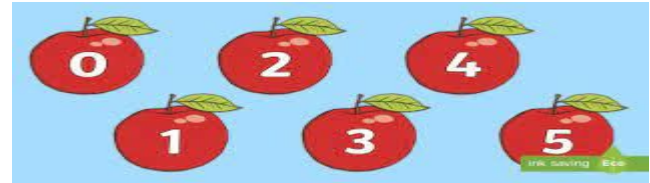
Examples of Reasoning questions from the
KS1 Maths SATs test:

1. Abdul has some toy cars.
He gives half of them to Ben.
He has four toy cars left.



How many toy cars did Abdul start with?

2. Miss Smith needs 30 apples for her class. There are 5 apples in each bag.



How many bags of apples does Miss Smith need altogether?

3. One length of a swimming pool is 10 metres.

Abdul swims the length of the pool 4 times.

Abdul works out how many metres he swims altogether.

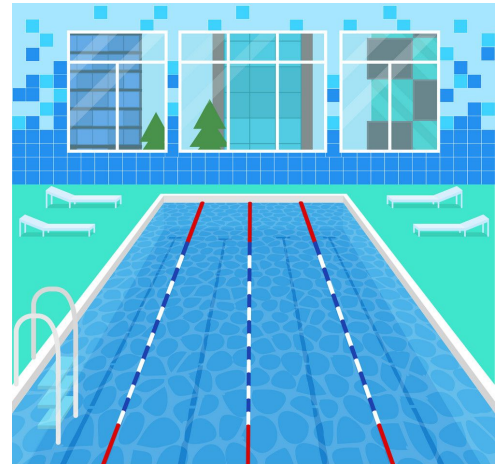
Circle the two calculations that Abdul can use.

$$10 + 4$$

$$4 \times 10$$

$$10 + 10 + 10 + 10$$

$$4 + 4 + 4 + 4$$



4. There are 40 crayons in a box.

Sam takes 17 crayons.

Kemi takes 10 crayons.

How many crayons are left?



Tick the two sentences that are correct.

- A square has sides of equal length.
- A square has curved sides.
- A square has lines of symmetry.
- A square has five sides.

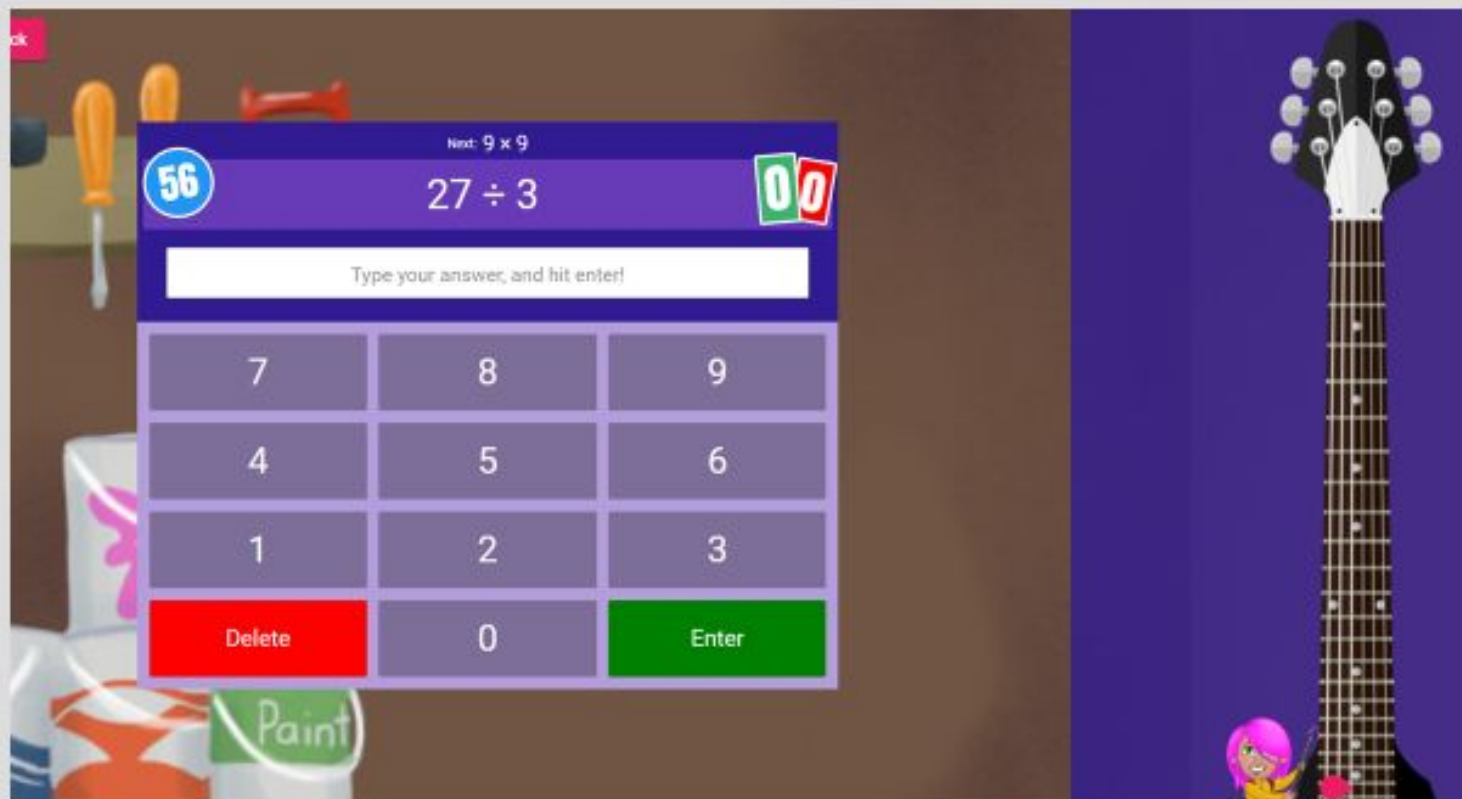


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HOW CAN I SUPPORT MY CHILD AT
HOME?

Times Tables Rock Stars





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Real Maths in Everyday Life

Objective	Activity
Sorting and matching	Pairs of socks, shoes or gloves
Ordering and sequencing	Getting dressed or having a bath
Comparing objects-size, weight or capacity	Spoons, shopping bags, cups and containers
Counting	Laying the table and preparing food
Weighing and measuring	Cooking
Time	Setting times for different events

Objective	Activity
Directions	Playing with toys or walking
Money	Shopping
Shape and position	Building blocks, lego and boxes
Counting	Dominoes, board games and counting on journeys



Useful websites:

- <https://classroom.thenational.academy/subjects-by-key-stage/key-stage-1>
- www.bbc.co.uk/bitesize/primary
- www.topmarks.co.uk/maths-games/5-7-years/counting

Any Questions?

Thank you for your time

Please can you complete the
evaluation forms provided