Welcome to our Maths Workshop

Y1/Y2

Session aims:

- What does maths look like in Y1 and Y2?
- How is maths taught at Birley Primary Academy?
- How can children be supported?

At Birley Primary Academy, our shared vision for mathematics is:

· To foster a sense of curiosity and excitement about the subject
· For every child to develop their mathematical fluency and to be able to reason and problem solve confidently.
· To provide a context for learning to ensure children develop an understanding of how mathematics is used in the wider world
· To provide a mathematics curriculum where children continually build on the knowledge they have already mastered and are able to make rich connections across mathematical ideas
· To enable children to confidently reason about their mathematics by promoting the use of accurate mathematical language
· To secure children's knowledge and accuracy when recalling number facts
· To develop children's mathematical thinking by using a range of models to support learning e.g. concrete manipulatives and pictorial representations, before moving onto abstract symbols
· To promote enjoyment of learning through practical activity, exploration and discussion
· To build resilience and promote a positive growth mind set in mathematics

What are the National Curriculum Programmes of Study?

The link below will take you to the programmes of study for each year group. This shows you what your child will be learning when at school and what a child of that age is expected to achieve by the end of the year (Age Related Expectations).

National Curriculum Programmes of Study for Key Stage 1 and Key Stage 2

Y1 Programme of Study:

Number and Place Value

- I can count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number.
- I can count, read and write numbers to 100 in numerals; count in multiples of twos, fives and tens.
- I can, given a number, identify one more and one less.
- I can 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.
- I can read and write numbers from 1 to 20 in numerals and words.

Addition and Subtraction

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

Fractions

- I can recognise, find and name a half as one of two equal parts of an object, shape or quantity.
- I can recognise, find and name a quarter as one of four equal parts of an object, shape or quantity.

Multiplication and Division

- I can 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.

Geometry– Position and Direction

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

Geometry – Properties of Shapes I can: 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].

Measurement I can:

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]
- given a number, identify one more and one less.
- 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

Y2 Programme of Study:

Number and Place Value
- I can count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backwards
- I can recognise the place value of each digit in a two-digit number (tens, ones)
- I can identify, represent and estimate numbers using different representations, including the number line
- I can compare and order numbers from 0 up to 100; use <, > and = signs
- I can read and write numbers to at least 100 in numerals and in words
- I can use place value and number facts to solve problems.

Addition and Subtraction
I can solve problems with addition and subtraction:
- using concrete objects and pictorial representations, including those involving numbers, quantities and measures
- applying my 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 ones
  - a two-digit number and tens
  - two two-digit numbers
  - adding three one-digit numbers
- show that addition of two numbers can be done in any order (commutative) and subtraction of one 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.

Geometry- Properties of Shape
- I can identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line
- I can identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces
- I can identify 2-D shapes on the surface of 3-D shapes, (for example, a circle on a cylinder and a triangle on a pyramid)
- I can compare and sort common 2-D and 3-D shapes and everyday objects.

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

Fractions
- I can recognise, find, name and write fractions 1/3, 1/4, 2/4, and 3/4 of a length, shape, set of objects or quantity
- I can write simple fractions for example, 1/2 of 6 = 3 and recognise the equivalence of 2/4 and 1/2

Geometry- Position and Direction
- I can order and arrange combinations of mathematical objects in patterns and sequences
- I can 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).

Measurement
- I can choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature (°C); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels
- I can compare and order lengths, mass, volume/capacity and record the results using >, < and =
- I can recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value
- I can find different combinations of coins that equal the same amounts of money
- I can solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change
- I can compare and sequence intervals of time
- I can 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
- I know the number of minutes in an hour and the number of hours in a day.

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

YEAR 2

Maths Objectives

Coverage Throughout the Year

Maths lessons are carefully planned throughout the year to ensure full coverage of the National Curriculum Programmes of Study. Please see the overview below for Y1 and Y2.

Y1

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7
Autumn 1	Number: Place Value (within 10) *addition and subtraction (within 10) can be moved onto towards the end of this half term if children are ready for this step						
Autumn 2	Number: Addition and Subtraction (within 10)				Geometry: Shape		Consolidation
Spring 1	Number: Place Value (within 20)			Number: Addition and Subtraction (within 20)			Consolidation
Spring 2	Number: Place Value (within 50)		Measurement: Length and Perimeter		Measurement: Mass and Volume		
Summer 1	Number : Multiplication and Division			Number: Fractions		Geometry: Position and Direction	
Summer 2	Number: Place Value (within 100)		Measurement: Money		Measurement: Time		Consolidation

Y2

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7
Autumn 1	Number: Place Value				Number: Addition and Subtraction		
Autumn 2	Number: Addition and Subtraction	Measurement: Money		Number: Multiplication and Division			
Spring 1	Number: Fractions			Geometry: Shape			
Spring 2	Statistics		Measurement: Length and Height	Geometry: Position and Direction	Measurement: Mass and Capacity		
Summer 1	Measurement: Time		Consolidation			Challenge Work	
Summer 2	Measurement: Temperature	Recap of Key Skills: Place Value, Addition, Subtraction, Time, Money					

What does work look like in Y1?

What does work look like in Y1?

Wednesday 27th September 2023

WALT: Compare numbers using <, > and =

Success Criteria:

- I know that < means less than
- I know that > means greater than.
- I know that = means equal to.
- I can write a statement that uses the correct sign.

I   T   TA   SCAF

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A L.E.A.D. Academy

Teacher Self Peer

7	<	10	✓
8	>	4	✓
9	=	9	✓
2	<	6	✓
15	>	12	✓

Is this true or false?

4 > 2

True

If it is false, could you write it so that it is now true?

✓

Monday 3rd October 2023

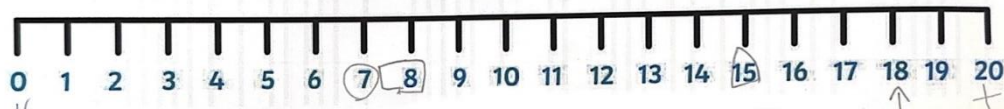WALT: Apply knowledge of place value to the accurate use of a number line.

Success Criteria:

- I can count to 20.
- I find two more and less of a number.
- I understand the language greater/ less than.
- I know the biggest and smallest number on a number line to 20.

I   T   TA   SCAF

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A L.E.A.D. Academy

Teacher Self Peer

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

Instructions for our numberline.

Put a circle around the number 7. ✓

Put a triangle around a number greater than 6. ✓

Draw an arrow to a number greater than 10. ✓

Put a rectangle around 2 more than 6 ✓

Tick the smallest number on the number line. ✓

Put a cross under the greatest number.

What does work look like in Y1?

What does work look like in Y2?

Left page

28.09.2023

<u>WALT:</u> develop the skill of counting in 2s, 5s and 10s.

Steps to Success;

- I can count forwards in steps of 2.
- I can count forwards in steps of 5.
- I can count forwards and backwards in steps of 10.
- I can spot numbers which do not fit within a given pattern.

IND   T   TA   SCAF

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Teacher   Self   Peer

1. Count and write the numbers forwards from 0-20 in 2s.

2 4 6 8 10 12 14 16 18 20 ✓

2. Count and write the numbers forwards from 0-50 in 5s.

5 10 15 20 25 30 35 40 45 50 ✓

3. Count and write the numbers forwards from 0-100 in 10s.

10 20 30 40 50 60 70 80 90 100 ✓

4. Write which number does not fit in the pattern.

10, 12, 20, 25, 30, 35

10 20 30 40 50 60 70 80 90 100

2, 4, 6, 8, 9, 10, 12

11 12 25 35 9 ✓

5. Mr Ward is counting in 5's.

When counting forwards in 5s from zero, all the numbers end in either five or zero.

Is Mr Ward correct? Explain. Yes

because the odd numberd and even number aht theres also no five.

Right page

04.10.2023

<u>WALT:</u> develop the skill of using related facts up to 100.
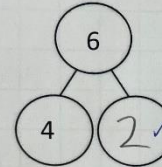
Steps to Success:

- I know number bonds to 20.
- I can count in tens
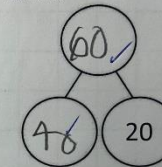- I can see the pattern between ones and tens.

IND   T   TA   SCAF

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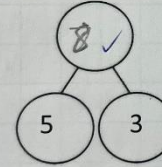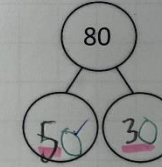
Teacher   Self   Peer

1. If I have...   Then I have...

6 → 4, 2 ✓   60 ✓ → 40, 20

2. If I have...   Then I have...

8 ✓ → 5, 3   80 → 50, 30

3.

If I know that 3 + 2 = 5 then I know that 30 + 20 = 50 ✓

If I know that 4 + 3 = 7 then I know that 40 + 30 = 70 ✓

If I know that 8 - 6 = 2 then I know that 80 - 60 ✓ = 20

If I know that 7 - 1 = 6 ✓ then I know that 70 - 10 ✓ = 60

What does work look like in Y2?

Left page

.09.2023

<u>WALT:</u> develop the skill of comparing numbers.

Steps to Success;

- I can count the objects and write the number.
- I can compare two numbers using the language
  - greater than   - less than   - equal to
- I can compare two numbers using the symbols < > or =

| IND | T | TA | SCAF |

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Teacher   Self   Peer

1. 47 < 74 ✓
2. 19 < 90 ✓
3. 15 ones < 2 tens ✓
4. 8 tens > 90 ones ✓
5. 30 ones = 3 tens ✓
6. 10 < 15 ✓
7. 6 tens = 60 ones ✓
8. 80 > 11 ✓

26.09.2023

Challenge
2 tens and 13 ones is less than 3 tens
Is the statement true or false?
Draw using base 10 how you know.

false ✓

26.09.2023

Challenge
Complete the number sentence.
21 < 100 > 30 ✓
Are there any other answers?
100000
80   40

Right page

<u>WALT:</u> Know bonds to 100 when counting in 10's.

DATE: 5.10.23

Steps to Success;

- I can count in tens with visual support.
- I can see the pattern between ones and tens with support.

| IND | T | TA | SCAF |

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Teacher   Self   Peer

Match the tens frame to the sentences. Each counter represents 10.

| 30 + 70 = 100 |
| 100 = 60 + 40 |
| 80 + 20 = 100 |
| One hundred equals ten plus ninety. |

✓ Support

a   40 + 0 = 100

b   50 + 50 = 100

c   90 + 10 = 100 ✓

Calculation Policy

This document guides you through the **appropriate calculation methods within each year group** and the **progression** of skills **throughout the school**.

The content of this document is set out in year group blocks under the following headings: **addition, subtraction, multiplication and division**.

The calculation policy can be found on the school website.

Concrete, Pictorial, Abstract

The concrete, pictorial, abstract approach (or CPA method) is a process of using "concrete" equipment to represent numbers (including fractions) and operations, such as addition, subtraction, division and multiplication, followed by a pictorial representation to represent the equipment or derived structures (like bar and part-whole models), before moving on to the "abstract" digits and various other symbols used in mathematics.
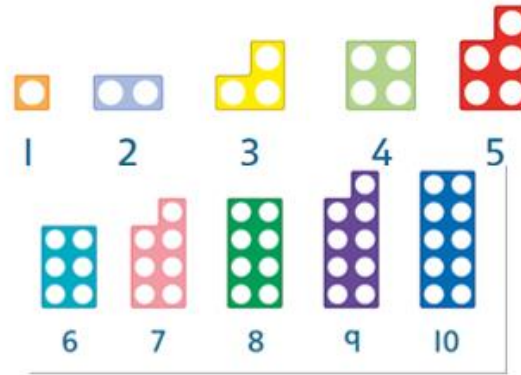
Which concrete resources to we use in Y1/2?

place value counters

dienes

numicon

1 2 3 4 5
6 7 8 9 10
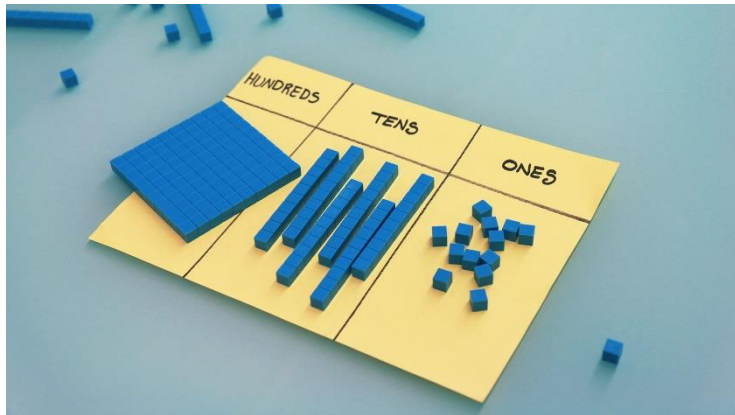
Resources you can use at home...

Counters

Or you could use ⇨

Smarties

3D shapes

Or you could use ⇨

Food packaging

Counting bears

Anything you have a lot of!

Or you could use ⇨

Resources you can use at home...

Pasta shapes for counting

Playing cards for number recognition

Toys to put in size order

Money for counting or creating your own money problems

Recognising that numbers are all around us...

Mastering Number

This year, we have started a new maths programme called Mastering Number.

This project aims to secure firm foundations in the development of good number sense for all children from Reception through to Year 1 and Year 2. The aim over time is that children will leave KS1 with fluency in calculation and a confidence and flexibility with number. Attention will be given to key knowledge and understanding needed in Reception classes, and progression through KS1 to support success in the future

Mastering number sessions last around 15 minutes and are in addition to the regular maths lesson. During these sessions, children will sometimes use a rekenrek (you may know this as an abacus) to support their learning.

If you would like to know more about the Mastering Number Programme, please follow the link below.
https://www.ncetm.org.uk/maths-hubs-projects/mastering-number-at-reception-and-ks1/

Speak Like a Mathematician

During maths lessons children are encouraged to "SLAM" which means to Speak Like A Mathematician. The main reason for this is to improve children's ability to talk and write about maths, therefore developing their overall maths skills. There is also evidence which suggests that rich mathematical talk enables children to develop and use a wide range of mathematical vocabulary accurately, guides children towards a deeper understanding of mathematical structures, supports with understanding and remembering key facts, increases confidence and is beneficial for children who are new to learning English.

Working with the person next to you can you write a number sentence to go with the dotted formation?

White Rose Maths

www.stevewyborney.com
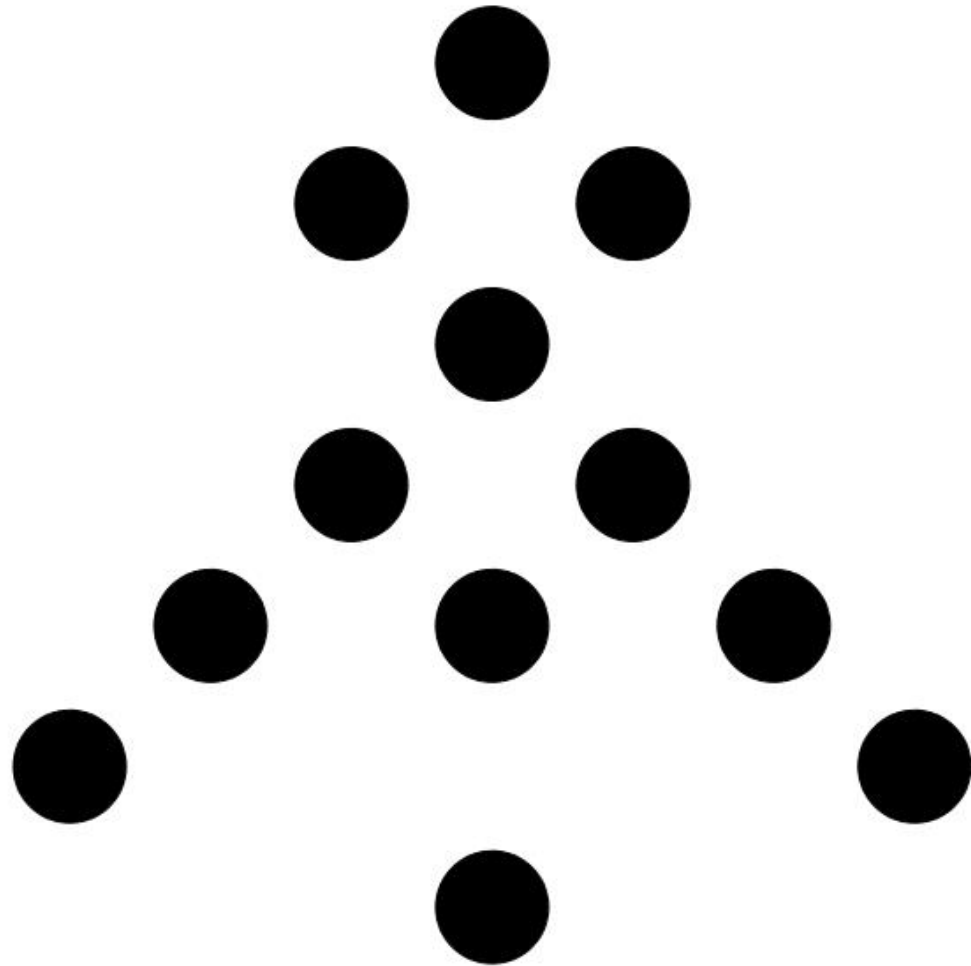
Number Talks

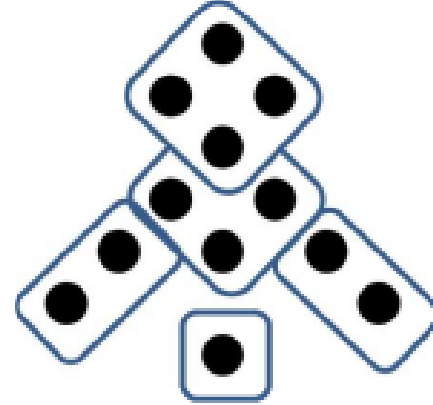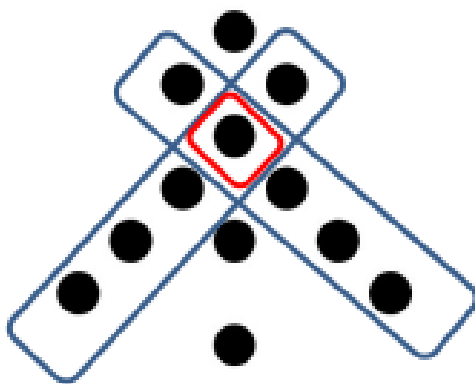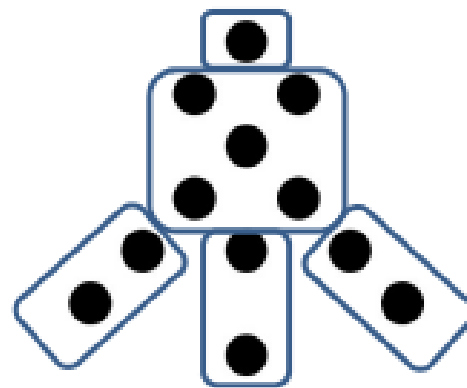## How many ways …?

$4 + 3 + 3 + 2 = 12$

$4 + 3 + 2 + 3 = 12$
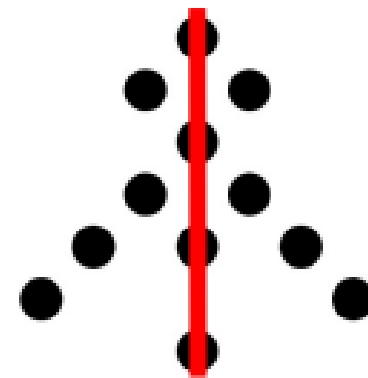

$4 + 3 + 2 + 2 + 1 = 12$

$5 + 5 + 3 - 1 = 12$

$1 + 5 + 2 + 2 + 2 = 12$

$6 + 6 = 12$

What is the same? What is different?

How do you know...   Why do you know...

Explain why...

$$17 + 10 > 17 + 8$$

What does work look like in Y2?

How can you support your child at home?

- Take away their fear and reassure and praise whenever possible
- Refer to the calculation policy (this can be found on the website) if you are unsure of the calculation method your child will use in school
- Use maths in everyday routines at home and involve children in this process e.g. portioning meals, cutting vegetables into halves, quarters etc.
- Encourage games that use shapes and numbers
- Recognise the importance of maths in everyday life e.g. telling the time and managing money

Ideas for everyday maths opportunities...

Count - steps up the stairs, money into a money box etc.

Ask children to say how many without counting (5 or fewer)

Play games using dice/dominoes and encourage child to say how many spots without counting.

Hide numbers around the house or garden for children to find.

Read books with maths concepts eg The Very Hungry Caterpillar, One is a snail, ten is a crab, What's the time, Mr Wolf? The doorbell rang.

Ask children to set the table with enough knives, forks and plates for everyone.

Spot numbers in the environment - on phones, microwaves, clocks, registration plates, doors.

Watch Numberblocks on Cbeebies. This programme is written by maths specialists to model maths concepts and represents number brilliantly.

Websites to Support Children's Maths Learning at Home:

Cbeebies – https://www.bbc.co.uk/cbeebies/topics/numeracy
Maths Zone – https://mathszone.co.uk/
BBC Bitesize – https://www.bbc.co.uk/bitesize/subjects/z826n39
I See Maths – https://www.iseemaths.com/games-resources/
Hit the Button – https://www.topmarks.co.uk/maths-games/hit-the-button

Thank you for taking the time to attend the workshop today. If you have any questions, please feel free to stay and ask a member of staff.