



BROOK INFANT SCHOOL  
AND NURSERY

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# Mathematics Intent



At Brook Infant School, our aim is for all children to enjoy mathematics and have a secure and deep understanding of the fundamental mathematical concepts and procedures when they leave us to go to Junior School. We want children to see the mathematics that surrounds them every day and enjoy developing vital life skills in this subject. We want the children to be excited about mathematics and be confident learners to access mathematics on all levels.

We ask questions constantly in mathematics to support our assessment and to deepen the children's understanding. How did you work that out? How did you get to the answer? What did you do? What is the odd one out? Why? How? Can you tell me something about this? Are questions that we would be asking on a daily basis?

We have high expectations and encourage a positive 'can do' mindset towards mathematics in all children, creating learning experiences which develop children's resilience in the face of a challenge and carefully scaffold learning so that everyone can make progress. We do this with deep and sustainable learning - lessons are designed with careful small steps, questions and tasks in place to ensure the learning is not superficial. We create an environment that builds on something that has already been sufficiently mastered and our children's learning of concepts is seen as a continuum across the school.

FEBRUARY 2021

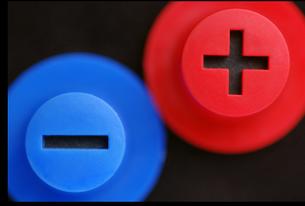
We develop our children's ability to reason about a concept and make connections and we actively encourage them to spot patterns and make connections between different concepts, e.g., the link between ratio, division and fractions, and to use precise mathematical language, which frees up working memory and deepens conceptual understanding. We have moved to a conceptual and procedural fluency and teachers move mathematics from one context to another (using objects, pictorial representations, equations and word problems). There are high expectations for children to learn times tables, key number facts (so they are automatic) and have a true sense of number. Our children are also encouraged to think whether their method for tackling a given calculation or problem is 'Appropriate, Reliable and Efficient' (ARE).

These are grounded by making problem solving central and this develops our children's understanding of why something works so that they truly have an appreciation of what they are doing rather than just learning to repeat routines without grasping what is happening.



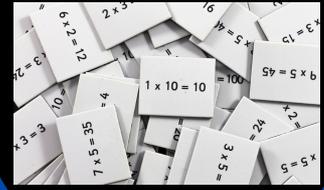
## NUMBER AND PLACE VALUE

- Can you count in steps of 2,3,5 and 10?
- Can you count backwards?
- What do the digits represent in this number?
- What is a ten and what is a one?
- How many ones make a ten?
- How many digits is this number?
- What is the value of 0?
- Is it bigger or smaller than ...?
- How would you represent this number?
- Can you order these numbers from the smallest to the largest?
- Can you write these numbers in numerals and words?



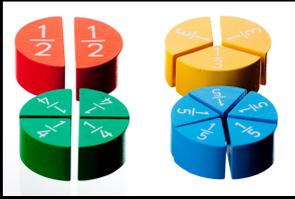
## ADDITION AND SUBTRACTION

- Can you read this number sentence?
- What is the number sentence asking you to do?
- Can you recognise the equal to, add and subtract symbols?
- What two numbers make 5, 10, 20?
- Do you know any subtraction facts?
- What about 100?
- What concrete objects or pictures would you use or draw to represent this?
- Do you need to add in a certain order?
- What about subtraction?
- What about if we were adding money?
- What about if we were subtracting measurements? Do we need to do things differently?
- Can you work that out in your head?
- What method would you use to work this out?
- Can you use the inverse to check your answer?
- What number is missing? How could you work this out?



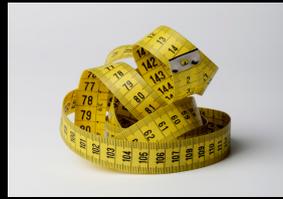
## MULTIPLICATION AND DIVISION

- Can you count in 2's, 3's, 5's and 10's?
- Can you recognise odd and even numbers?
- Can you recognise the multiply and divide symbols? What do you have to do? What does sharing mean?
- What does lots of mean?
- Can you use practical equipment to show your understanding?
- Can these numbers be multiplied in any order?
- Can these numbers be shared in any order?



## FRACTIONS

- Can you practically cut this shape into fractions of  $1/2$ ,  $1/3$  and  $1/4$ ?
- Can you cut this given length (strip of paper) into fractions?
- Can you find a fraction of this number?
- Can you begin to show your understanding of equivalence, e.g.,  $2/4 = 1/2$ ?



## MEASUREMENT

- How long is this?
- How do we measure it? How high is it?
- How much water is in this? Is it more or less?
- Which holds more water? Why?
- How much money is there? What is the value of the coins? How could you make that value? What coins do I need? Is there another way of making it? Can you buy something and give change?
- What time is it? What do the hands point to? Where is the minute hand? How many hours are there in a day? How many days in a week? How many weeks in a year?



## GEOMETRY AND POSITION

- What is this shape? How do you know?
- Is it a 2D or 3D shape? How do you know?
- What shapes can you see in the environment?
- How would you sort these shapes?
- What are the features of this shape?
- Is this shape symmetrical? How can you prove it?
- What pattern is this in?
- What is the sequence? What would the next item be?
- Can you use these directions to move a Beebot, friend or car?
- Can you extend your understanding to add quarter and three quarter turns both clockwise and anticlockwise?



## STATISTICS

- How many people like ...?
- How could you show this information?
- What categories would you choose?
- How many people liked ... and ...?
- What is the difference between ... and ...?
- What is a pictogram?



## PROBLEM SOLVING AND REASONING

- With all of the skills that are taught in each area, we promote that the children use their understanding to problem solve in a variety of ways and with different skills.
- We give our children open ended questions to apply their mathematical thinking with increasing sophistication, argument and proof using mathematical language and critical thinking. The use of stem sentences reinforces this understanding of mathematical language.