

Arithmetic Lessons

According to the National Curriculum in maths children should:

“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.”

At Holland Park, alongside our teaching of reasoning, children will receive arithmetic lessons to develop fluency, recall and a deep understanding of the four operations and a range of age appropriate skills through practice, varied questions and opportunities to spot errors. Our teaching of arithmetic focuses on the declarative and procedural elements of the maths curriculum to ensure that they are truly fluent in all skills, concepts and methods which feed into the conceptual understanding required in reasoning lessons.

Declarative and procedural knowledge and skills to be rehearsed include (but are not limited to):

- Number bonds
- Place value knowledge
- Addition
- Subtraction
- Multiplication
- Division
- Fractions
- Percentages
- Rounding

Lessons vary in length depending on the age of the children from 15 minutes in length in Yr 1 through to 30 minutes in Yr 6 (years 3, 4 and 5 complete 4 lessons per week to enable to teaching of times tables during the fifth session). These lessons are separate from the main maths reasoning lesson and will usually not cover the same subject matter being taught in the reasoning lesson.

Format of an arithmetic lesson:

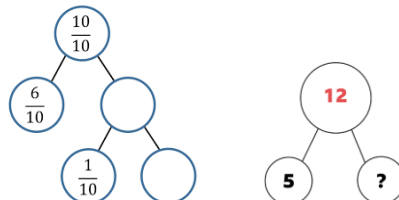
- Lessons cover parts of the curriculum with which the children are already familiar (e.g. arithmetic will only include division when it has been taught as part of the reasoning lessons).
- Children will be given a maximum of 10 questions to complete.
- Questions will vary in style:
 - Variation theory - a series of related questions where one variable only alters each time to enable children to see the link between the skill being practised. For example:

$25 \times 6 =$
$26 \times 6 =$
$27 \times 6 =$
$2.7 \times 6 =$
$2.7 \times 0.6 =$
$2.7 \times 60 =$

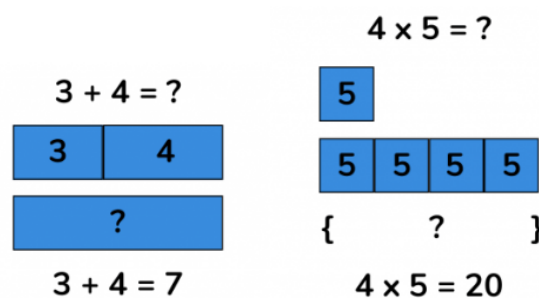
- Missing number problems - problems with missing elements to the question to support the use of inverse methods. For example:

$12 + \square = 17$
$\square - 6 = 22$

- 'Reversed' order - problems are shown in a order which is unfamiliar to the children e.g. $\square = 17 - 2$
- Part-whole models - used across all age groups to develop understanding of the relationship between numbers.



- Bar models - used to check understanding of a range of problems from all areas of the curriculum.



- Methods will not be explicitly taught (as this should have happened during prior teaching in reasoning lessons) but teachers will support children who are finding concepts challenging during independent practice.
- Children who finish the questions before others are challenged to find alternate methods to solving the problem so they can prove they are correct. They will also be asked to explain their original methods to ensure they are understanding why their method works.
- Children self mark from teacher's modelled answers on the board. Teachers are expected to explain each step of the method being modelled and, occasionally, deliberately put in errors to ensure children understand that is happening.
- Children can be asked to talk through their thinking and will be asked why particular methods are used.

- Children are expected not to simply mark and answer as correct or incorrect but are, instead, expected to alter their work in purple pen as the teacher goes through the answers.