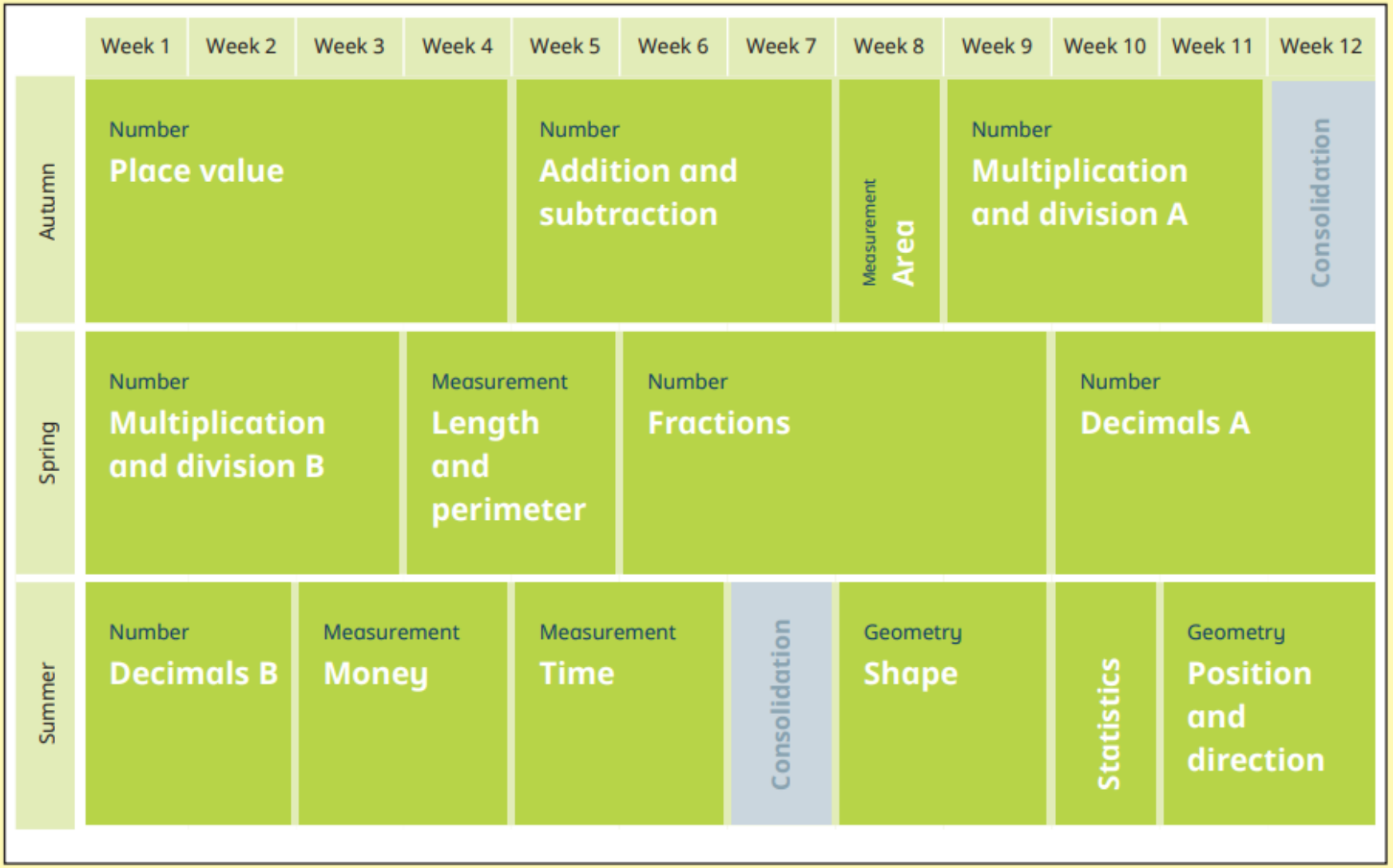
Mathematics
at
Mount Hawke

The Mathematics Mastery Approach

- Depth before breadth – a rigorous and systematic programme that is developed to ensure every child can achieve excellence.
- Children are kept together to work on the same concept and have the same opportunities.
- Differentiation is achieved through support and depth and breadth of questions
- It provides a deep understanding of the subject through a Concrete, Pictorial and Abstract approach.
- Mastery – when a concept or skill can be applied over time in a multiple of ways and to an unfamiliar setting
- A child's mindset is more important than prior attainment.

How Maths is taught at Mount Hawke

- Maths is taught in blocked units



How Maths is taught at Mount Hawke

- Maths is taught in blocked units
- These units of work are broken down into small steps of learning
- A range of concrete and pictorial resources are used to support learning
- Children will experience a range of fluency, reasoning and problem solving questions to embed and extend understanding

Times Tables

Why learn our times tables?

It is essential that children see the importance of learning multiplication facts and see how they are used and applied in everyday life

Fractions Money Area and Perimeter

Measures Decimals Time

Percentages Multiplication and division

Factors and multiples Ratio

- It is a skill children will use in life and need to be able to understand it and often be able to do it mentally e.g. cakes for a party.

- Times table knowledge underpins a lot of mathematical understanding and as the children move up the years it becomes more crucial. A good understanding of tables helps with learning long multiplication, division, fractions, percentages, ratio, area and much much more.

- Children who don't know their times tables and associated facts by the end of Year 4 are at a disadvantage when learning the Year 5 and 6 curriculum. The lack of knowledge can become a barrier to learning other areas of maths e.g. *If children are working on a problem and need a multiplication fact which they don't know, they have to move away from the problem to work out the fact. This often causes them to lose track of where they are in the problem. Mistakes? Time lost? Overload of short term memory?*

Knowing times tables makes learning easier in secondary school and beyond. Good multiplication skills are a great help when starting to learn algebra, as well as chemistry, physics, biology and ICT, all of which depend heavily on maths knowledge.

According to a 2011 study published by Ofsted . "Lack of fluency with multiplication tables is a significant impediment to fluency with multiplication and division," the report states. "Many lower-attaining secondary pupils struggle with instant recall of tables."

Your child needs to know all their times tables (up to the 12 times table) by the end of Year 4

In Years 5 and 6 they will be moving onto much more complicated concepts, such as multiplying and dividing using four-digit numbers, plus problem-solving involving fractions and percentages. It is therefore vital that they enter Year 5 really confident in all their times tables

Year	Introduce	End of Year Expectations
1	Multiples of **2, 5** & **10**	Count in multiples of **2, 5** & **10**
2	Multiplication facts for **2, 5** & **10** and related division facts	Know and recall multiplication facts for **2, 5** & **10** and know related division facts
3	Multiplication facts for **3, 4** & **8** and related division facts	Know and recall multiplication facts for **2, 3, 4, 5, 8** & **10** and know related division facts
4	Multiplication facts for **6, 7, 9,11** & **12** and related division facts	Know and recall multiplication facts for **up to 12 x 12** and know related division facts
5	Multiplication facts up to **12 x 12** and use them to multiply pairs of **multiples of 10 and 100**	Revision of multiplication facts for **up to 12 x 12** and know related division facts
6	Use knowledge of multiplication facts to derive quickly **squares of numbers** to 12 x 12	Revision of multiplication facts for **up to 12 x 12** and know related division facts

Steps in learning the times table

Exploring number and patterns

- Solving simple problems with resources, involving doubling and sharing small numbers.

1 x 3 = 3

Showing 1 group of 3 is worth 3

4 x 3 = 12

Showing 4 groups of 3 is worth 12

7 x 3 = 21

Showing 7 groups of 3 is worth 21

Children will then focus on a specific table

- **To** count up in multiples (jumps) of this number.

(Use counting stick/post its for support)

- To recite the table fully e.g. zero times three is zero, one times three is three...

- **To** answer random multiplication questions on this table e.g. what is four times three? What is the product of seven and three?

- **To** answer random division questions on this table e.g. how many threes in twelve? What is eighteen divided by three?

To show a deeper understanding

- **To** use and apply their times table knowledge. This is where children can make links in their learning and extend/challenge themselves further

e.g. problem solving - if a child knows that 6 x 3 = 18 they will be able to work out that 6 x 30 = 180 or 60 x 3 = 180 almost instantly.

How to support your child

Quick recall of multiplication tables really benefits from constant repetition

1. The Traditional Methods: .

Recite the times tables - This can be done any time and in any place - walking to school, in the car, at bedtime - simply say the times table together.

Write it out - Again simple, but it can be very effective. Simply write out the times table you are working on over and over again until your child knows it.

Quick-fire questions - Ask your child mixed calculations from the times table they are learning.

Get into the habit of practising times tables with your child whenever the opportunity presents itself, but only do it in short bursts (when you're stuck in a traffic jam, say, or washing their hair in the bath).

Other Ways

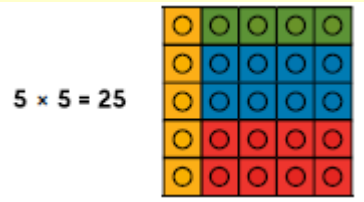
Some children like to learn by rote; for others it doesn't work at all. To support their learning, work out what will make times tables stick in your child's mind, whether that's singing them, putting them into practice with puzzles, playing games with them or writing them out.

Sing Your Times Tables – auditory approach

Music and jingles really aid our memory and can help us learn a variety of things, including times tables. Lots can be found online. Another option is to write your own song.

Use Building Bricks – visual and physical approach

Bringing a favourite toy into learning makes any activity fun. Ask your child to make an array that shows a times table question. For example



A great variation of this is to make arrays using sweets (see if you can divide them equally between people, to help learn division facts)!

Dance Mat

This is a fun activity if your child likes moving around. On sheets of paper, write out some answers to the multiplications you want your child to practise, for example the 3 x table. Place them in a circle on the floor and ask your child to stand in the middle. Say a question for example 3 x 3 and your child has to tap the answer with their foot. Try to get faster at this so it becomes a dance.

Splat!

A similar concept to the previous game but this involves placing all the number cards on a table and asking your child times table questions such as 5 x 3. Your child has to splat the right answer. This can be done by hand or by using an object like a fly swat. To make this game more competitive, play it with 2 players. The first to splat the correct answer is the winner.

Times Tables Tennis

You need a pair of rackets or bats and two players. Each person takes a racket and you begin to say a times table as you hit a ball (real or imaginary) to each other. Keep counting until somebody gets it wrong.

Computer Games

Does your child love playing on a tablet or laptop? There are now a range of online games and apps you can play to help learn times tables....TimesTable Rockstars, White Rose Maths 1 minute app

Times Tables Flowers

If your child likes art this is a fun thing to create, to reinforce facts.

Growth Mindset

- A belief that effort creates success
- A belief that skill and ability can be increased over time
- View mistakes as an opportunity to develop
- Are resilient – and don't give up easily
- Think about *how* they learn not just what
- A belief that natural talent is just a starting point and does not determine who has more or less potential to achieve. Everybody can achieve in maths.

What does it mean to master something?

- I know how to do it
- It becomes automatic and I don't need to think about it- for example driving a car
- I'm really good at doing it – painting a room, or a picture
- I can show someone else how to do it.
- I can make links and apply my understanding to solve unfamiliar problems