

# Dilton Marsh's

## Times Tables Progression



### Introduction

The National Curriculum expectation for Primary Schools across the UK is that, by the end of Year 4, pupils are capable of recalling all 12 times tables up to 12x12.

With this in mind, this resource was created to provide an outline of progression to ensure that all pupils are capable of this by Year 4.

This resource also provides a list of online resources as well as teaching methods and techniques for each year group.

## National Curriculum Expectations.

The table below shows how multiplication and division are covered in our Power Maths curriculum.

Multiplication and Division	
Year 1	Count in multiples of 2, 5 and 10.
Year 2	Count in steps of 2, 3, 5 from 0. Recall multiplication & division facts for 2, 5, 10. recognising odd and even numbers.
Year 3	Count from 0 in multiples of 4, 8, 50 and 100. Recall and use multiplication & division facts for 3, 4, and 8 multiplication tables.
Year 4	Count in multiples of 6, 7, 9, 25 and 1000 Recall and use multiplication & division facts for multiplication tables up to 12x12.
Year 5	Multiply and divide numbers mentally drawing upon known facts
Year 6	Perform mental calculations, including with mixed operations and large numbers

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## Why are times tables so important?

Ofsted, the schools' watchdog, highlights the importance of learning times tables. "Pupils should be able to recite their times tables up to 12 x 12 by the age of nine."

Primary schools that fail to teach times table by heart are condemning children to a lifetime struggling with numbers, inspectors have warned.

A study published by Ofsted, says pupils without instant recall of multiplication tables struggle at Maths.

Nick Gibb, the school's minster said "It is vital that all children can grasp and master arithmetic while they are still at primary school. If we fail children at this stage, the risk is they will never catch up. It is important that pupils are fluent in calculation and have learnt the multiplication tables by heart before they leave primary school".

## Confidence at our fingertips.

All research shows that times table fluency not only increases confidence in mathematics but also enables children to access learning and future learning with more ease.

Times table knowledge is linked to so much of the curriculum that alongside the teaching and conceptual understanding, speed of recall is essential for them to become confident mathematicians. E.G in Year 6, without fluency of multiplication and division facts children will struggle with the following: multiplication (short, long, reasoning), division (short, long, reasoning), ration, proportion, fractions (equivalent, simplifying, finding quantities), factors, multiples and equations to name just a few!



In order for our pupils to receive rigorous and progressive teaching of times tables we subscribed to Times Table Rock Stars (TTRS). This enables each child to have a bespoke experience when learning their multiplication facts as the computer system automatically trains each child according to their specific times table needs. As well as the teacher being able to set times tables to focus on.

### What is Times Table Rock Stars (TTRS) and why are we using it?

- In either paper form or online (browser or app), Times Tables Rock Stars is a carefully sequenced programme of daily times tables practice. It starts with the 2s, 5s and 10s and work up in a cyclical process.
- Children will be tested on all know facts, including division and must be confident and successful before moving onto to other times tables.
- The system continually reviews know facts, so they are not forgotten.
- It can be used as both worksheets and online testing in what is known as a gig!
- The children work their way up through to Rock Star status – can they become a rock legend? This is when they effectively answer all questions accurately at a rate of one question per second!
- It gives schools access to worksheets and online games so that they can be either set up by the teacher or automatically programmed via the computer to be bespoke for each child's times table needs.
- It gives children the opportunity to practice their times tables in a fun and engaging way.
- It enables staff to track progress easily and highlight any areas for further work/interventions.

Below you will see how we incorporate TTRS and the Times Tables booklets into our timetable to ensure consistent practice and application of these skills.

	Frequency	Baseline	Testing
Year 1	Teaching within fluency and lessons	n/a	n/a
Year 2	Teaching within fluency	Start of Spring 1 term, paper baseline assessment	At the end of each term to monitor and review progress
Year 3	Practise daily using Times Tables booklets and homework	Start of September term to establish baseline	Termly Sound check to monitor and review progress to plan interventions.
Year 4	Practise daily using Times Tables booklets and homework		
Year 5	Practise daily using TTRS paper and homework		
Year 6	Practise 3 times a week using TTRS paper and homework		

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## TTRS Games.

### Jamming

The only timer-free game, Jamming gives players the choice over the tables they practise and whether to include multiplication, division or both. It's perfect for building up confidence on the tables of your choice, at your own pace.

### Gig

Gigs give pupils and their teachers a way to check overall performance each month. It's a good idea for pupils to play a Gig early in their TTRS journey so that you have a **baseline**. Once played, it becomes unavailable until the 1st of the next month.

### Garage

The Garage is the best place for mastering individual tables as it's highly rewarding (10 coins per correct answer) and very carefully personalises the questions for each player in every game. Teachers can turn certain tables off if required but it's rarely recommended.

### Studio

The Studio is the place to go to set a Studio Speed and get a Rock Status. The Studio Speed is the average of their most recent 10 Studio games (so until they've played 10 times there will be no Studio Speed).

### Soundcheck

When pupils play Soundcheck, they are asked 25 questions, each with a 6-second time limit. The questions are multiplication only and evenly weighted in terms of difficulty each time they play - exactly the same as the UK government's 'Multiplication Tables Check'.

## How many table facts are there to learn?

If we look at a multiplication table up to  $12 \times 12$  we see there are 144 facts and that can be really overwhelming for children.

Do we really need to learn them all? We can focus these down to essentials.

These 36 facts are the **essential** facts we want children to recall.

2 times tables	3 times tables	4 times tables	5 times tables	6 times tables	7 times tables	8 times tables	9 times tables
$2 \times 2 = 4$							
$3 \times 2 = 6$	$3 \times 3 = 9$						
$4 \times 2 = 8$	$4 \times 3 = 12$	$4 \times 4 = 16$					
$5 \times 2 = 10$	$5 \times 3 = 15$	$5 \times 4 = 20$	$5 \times 5 = 25$				
$6 \times 2 = 12$	$6 \times 3 = 18$	$6 \times 4 = 24$	$6 \times 5 = 30$	$6 \times 6 = 36$			
$7 \times 2 = 14$	$7 \times 3 = 21$	$7 \times 4 = 28$	$7 \times 5 = 35$	$7 \times 6 = 42$	$7 \times 7 = 49$		
$8 \times 2 = 16$	$8 \times 3 = 24$	$8 \times 4 = 32$	$8 \times 5 = 40$	$8 \times 6 = 48$	$8 \times 7 = 56$	$8 \times 8 = 64$	
$9 \times 2 = 18$	$9 \times 3 = 27$	$9 \times 4 = 36$	$9 \times 5 = 45$	$9 \times 6 = 54$	$9 \times 7 = 63$	$9 \times 8 = 72$	$9 \times 9 = 81$





## Year 1

<b>Autumn 1 and 2</b>	Count in 2's up to 24, linking with even numbers and supporting doubles.  Count in multiples of 10 in order up to 120.
<b>Spring 1 and 2</b>	Focus on counting in multiples of 5 up to 60, linking with knowledge of counting in 10s.  Continue to develop fluency of counting in 2's and 10's.
<b>Summer 1</b>	Count in multiples of 10, 2 and 5 in order with growing fluency.
<b>Summer 2</b>	Count in multiples of 10, 2 and 5 in order fluently.

### Potential Teaching Methodologies:

- Count pairs of objects
- Count straws bundled in tens
- Sing counting songs
- Hundred square
- Number lines
- Pictorial representations on display



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## Year 2

<b>Autumn 1</b>	Consolidate counting in steps of 2, 5 and 10 in order from 0 up to 12x.
<b>Autumn 2</b>	Count in steps of 2, 5 and 10 from 0 up to 12x fluently. Including recognising odd and even numbers.
<b>Spring 1</b>	Recall multiples of 10 up to 12x10 in any order with growing fluency.  <b>Introduce the use of TT Rockstars</b>
<b>Spring 2</b>	Recall multiples of 2 up to 12x2 in any order with growing fluency.
<b>Summer 1</b>	Recall multiples of 5 up to 12x5 in any order with growing fluency.
<b>Summer 2</b>	Recall multiples of 2, 5 and 10 up to 12x2 in any order with growing fluency.

### Potential Teaching Methodologies:

- Counting objects in groups of 2, 5 & 10
- Skip counting
- Sing counting songs
- Hundred square
- Number lines
- Array with concrete resources
- Pictorial representations on display

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## Year 3

<b>Autumn 1</b>	<p>Use of TT Rockstars in class and at home (5 minutes).</p> <p>Use LA Multiplication booklets that follow a progressive programme – throughout the school year.</p> <p>Recall multiples of 2 up to <math>12 \times 2</math> in any order, including missing numbers and related division facts with growing fluency.</p>
<b>Autumn 2</b>	<p>Introduce multiples of 2 up to <math>12 \times 2</math> in any order, including missing numbers and related division facts with growing fluency.</p>
<b>Spring 1</b>	<p>Introduce multiples of 5 up to <math>12 \times 5</math> in any order, including missing numbers and related division facts with growing fluency.</p>
<b>Spring 2</b>	<p>Introduce multiples of 3 up to <math>12 \times 3</math> in any order, including missing numbers and related division facts with growing fluency.</p>
<b>Summer 1</b>	<p>Use of TT Rockstars in class and at home (10 minutes).</p> <p>Introduce multiples of 10 up to <math>12 \times 10</math> in any order, including missing numbers and related division facts with growing fluency.</p>
<b>Summer 2</b>	<p>Recall 2, 5 and 3 times tables up to <math>12 \times</math> in any order, including missing numbers and related division facts fluently.</p>

### Teaching Methodologies:

- Rote learning.
- Whole class teaching.
- Current times tables to be displayed in class. Identify already know facts and new facts.
- Breaking down the times tables into manageable chunks.
- Understanding the importance of commutative law and relationship with division facts.
- Little and often – once a day.

$6 \times 1 = 6$	$6 \div 6 = 1$
$6 \times 2 = 12$	$12 \div 6 = 2$
$6 \times 3 = 18$	$18 \div 6 = 3$
$6 \times 4 = 24$	$24 \div 6 = 4$
$6 \times 5 = 30$	$30 \div 6 = 5$
$6 \times 6 = 36$	$36 \div 6 = 6$
$7 \times 6 = 42$	$42 \div 6 = 7$
$8 \times 6 = 48$	$48 \div 6 = 8$
$9 \times 6 = 54$	$54 \div 6 = 9$
$10 \times 6 = 60$	$60 \div 6 = 10$
$11 \times 6 = 66$	$66 \div 6 = 11$
$12 \times 6 = 72$	$72 \div 6 = 12$

## Year 4

<b>Autumn 1</b>	<p>Use of TT Rockstars in class and at home (15 minutes).</p> <p>Use LA Multiplication booklets that follow a progressive programme – throughout the school year.</p> <p>Review year 3.</p> <p>Introduce multiples of 4 up to <math>12 \times 4</math> in any order, including missing numbers and related division facts with growing fluency.</p> <p>Introduce multiples of 6 up to <math>12 \times 6</math> in any order, including missing numbers and related division facts with growing fluency.</p>
<b>Autumn 2</b>	Introduce multiples of 8 up to $12 \times 8$ in any order, including missing numbers and related division facts with growing fluency
<b>Spring 1</b>	<p>Use of TT Rockstars in class and at home (20 minutes).</p> <p>Introduce multiples of 7 up to <math>12 \times 7</math> in any order, including missing numbers and related division facts with growing fluency.</p> <p>Introduce multiples of 9 up to <math>12 \times 9</math> in any order, including missing numbers and related division facts with growing fluency.</p> <p>Introduce multiples of 11 up to <math>12 \times 11</math> in any order, including missing numbers and related division facts with growing fluency.</p>
<b>Spring 2</b>	Introduce multiples of 12 up to $12 \times 12$ in any order, including missing numbers and related division facts with growing fluency
<b>Summer 1</b>	<p>Continue to practise all tables with whole class and use interventions where needed.</p> <p>Use opportunities to practise using the 'try it out' tool using a known device.</p>
<b>Summer 2</b>	Multiplication Tables Check continue to practise all times tables. Use MTC results to identify gaps and interventions.

### Teaching Methodologies:

- Rote learning.
- Whole class teaching.
- Current times tables to be displayed in class.  
Identify already know facts and new facts.
- Breaking down the times tables into manageable chunks.
- Understanding the importance of commutative law and relationship with division facts.
- Little and often – twice a day.

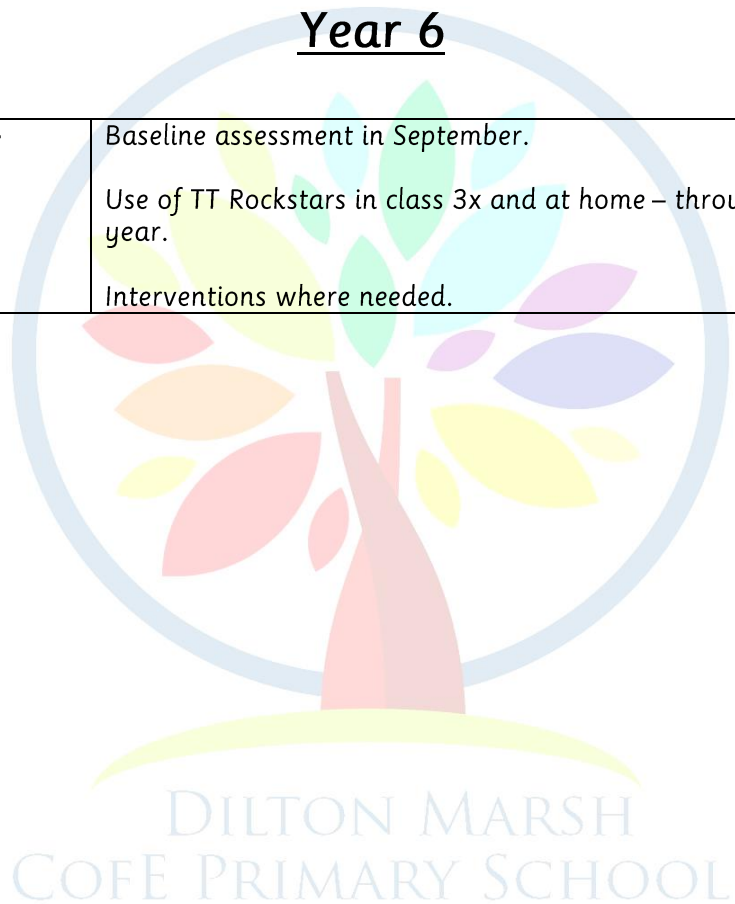
$6 \times 1 = 6$	$6 \div 6 = 1$
$6 \times 2 = 12$	$12 \div 6 = 2$
$6 \times 3 = 18$	$18 \div 6 = 3$
$6 \times 4 = 24$	$24 \div 6 = 4$
$6 \times 5 = 30$	$30 \div 6 = 5$
$6 \times 6 = 36$	$36 \div 6 = 6$
$7 \times 6 = 42$	$42 \div 6 = 7$
$8 \times 6 = 48$	$48 \div 6 = 8$
$9 \times 6 = 54$	$54 \div 6 = 9$
$10 \times 6 = 60$	$60 \div 6 = 10$
$11 \times 6 = 66$	$66 \div 6 = 11$
$12 \times 6 = 72$	$72 \div 6 = 12$

## Year 5

<b>All year</b>	Baseline assessment in September.  Use of TT Rockstars in class 3x and at home – throughout the school year.  Interventions where needed.
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## Year 6

<b>All year</b>	Baseline assessment in September.  Use of TT Rockstars in class 3x and at home – throughout the school year.  Interventions where needed.
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## Online Resources

Online Resource	URL	Suitable for Year 1	Suitable for Year 2	Suitable for Year 3	Suitable for Year 4	Suitable for Year 5
Numbergym's Table Trainer	<a href="https://bit.ly/Number_Gym_Trainer">bit.ly/ Number_ Gym_Trainer</a>	✓	✓	✓	✓	✓
TES Elements	<a href="https://bit.ly/TESElements">bit.ly/ TESElements</a>	✓	✓	✓	✓	✓
Sumdog	<a href="https://bit.ly/Sum_Dog">bit.ly/Sum_ Dog</a>		✓	✓	✓	✓
Manga High	<a href="https://bit.ly/Manga_High">bit.ly/ Manga_High</a>		✓	✓	✓	✓
Mathletics	<a href="https://bit.ly/Mathletics_">bit.ly/ Mathletics_</a>		✓	✓	✓	✓
Matific	<a href="https://bit.ly/Matific_">bit.ly/ Matific_</a>		✓	✓	✓	✓
Maths Frame	<a href="https://bit.ly/Maths_Frame_">bit.ly/Maths_ Frame_</a>		✓	✓	✓	✓
Hit the Button	<a href="https://bit.ly/Hit_The_Button">bit.ly/Hit_ The_Button</a>		✓	✓	✓	✓
Maths Splat App	<a href="https://bit.ly/Maths_Splat_App">bit.ly/Maths_ Splat_App</a>		✓	✓	✓	✓
Maths Sumo App	<a href="https://bit.ly/Maths_Sumo_App">bit.ly/Maths_ Sumo_App</a>		✓	✓	✓	✓
Times Tables Rockstars	<a href="https://bit.ly/Times_Tables_Rockstars_">bit.ly/Times_ Tables_ Rockstars_</a>		✓	✓	✓	✓

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