

## Our Vision

At Brookside Academy, we are passionate about delivering high quality, effective and challenging teaching. We want our children to **LOVE** maths and **SUCCEED** within the maths curriculum. Therefore we felt it important to introduce a way to teach times tables that would give children the freedom and fluency in maths without being a burden to learn.

## Progression of Times Tables

### Order of skip counting before learning times tables facts.

Year 1	2	5	10								
Year 2	2	5	10	3							
Year 3	2	5	10	3	6	4	8				
Year 4	2	5	10	3	6	4	8	7	9	11	12

### Order of times table facts taught

Year 2	Year 3	Year 3	Year 3	Year 4	Year 4	Year 4	Year 4	Year 4	Year 4	Year 4
X2	X3	X4	X5	X6	X7	X8	X9	X10	X 11	X 12
2X2									2x11	2x12
3X2	3X3								3x11	3x12
4X2	4X3	4X4							4x11	4x12
5X2	5X3	5X4	5X5						5x11	5x12
6X2	6X3	6X4	6X5	6X6					6x11	6x12
7X2	7X3	7X4	7X5	7X6	7X7				7x11	7x12
8X2	8X3	8X4	8X5	8X6	8X7	8X8			8x11	8x12
9X2	9X3	9X4	9X5	9X6	9X7	9X8	9X9		9x11	9x12
								10x10		
								11x10	11x11	
								12x10	12x11	12X12
8 facts	7 facts	6 facts	5 facts	4 facts	3 facts	2 facts	1 fact	3 facts	10 facts	9 facts

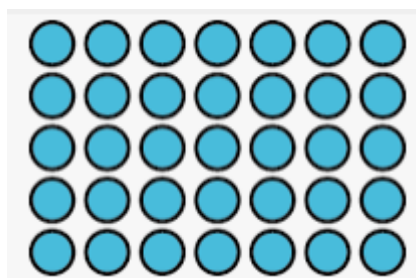
## Timeline for Learning

By the end of Key stage 1, children should have an understanding of multiplication as repeated addition.

e.g.  $7 \times 5 = 35$

7 groups of 5 = 35

$5 + 5 + 5 + 5 + 5 + 5 + 5 = 35$



7 fives are 35

- Year 2 Summer Term – maths challenge is introduced  
Children become fluent in x2 (learn 8 facts)
- Year 3 – revise Year 2 content  
Children become fluent in x3, x4, x5 (learn 18 facts)
- Year 4 – Revise Year 3 content  
Children become fluent in x6, x7, x8, x9 (learn 10 facts)  
X10, X 11, x12 (Learn 21 facts)

### **Maths Challenge**

- For every new times table taught, each child will have a booklet which has the new facts being learnt on the front.
- The new facts will be displayed in the classroom.
- The children will have 2 minutes to complete 40 questions daily. Results may be low at first but they will make small improvements daily.
- The children will be encouraged to use the displayed facts to answer the questions. The children will begin to memorise the new facts learnt.
- Although questions will be varied and have division and mixed times tables, the marking is crucial as it is a teaching and learning point. Referring to the sound bite (see below), regardless of the question type, the marking will be consistent with the original sound bite learnt.  
e.g.

6 X 5 = \_\_\_\_ six fives are 30, then children repeat six fives are 30

6 X 6 = \_\_\_\_ six sixes are 36, then children repeat six sixes are 36

18 / 3 = \_\_\_\_ \_\_\_\_\_ threes are 18, then children repeat 6 threes are 18

4 X 6 = \_\_\_\_ six fours are 24, then children repeat six fours are 24

6 X 2 = \_\_\_\_ six twos 12, then children repeat six two are 12

### **How We Introduce a New Times Table**

It is important to:

- Highlight what the children already know as known facts (KF). Through the knowledge of commutative law they can really see even at this stage how much they already know.
- Write up the associated division facts alongside the times table facts so that the children can see the clear relationship between multiplication and division.
- Learn a fact at a time – a new one each day.
- Introduce times tables alongside another activity, for example using Jill Mansergh's method of tables on a number stick or Times Tables Rockstars.

### **The Key Principles**

- 1) Learn each number sentence as a memorised phrase by repeating the sound bite out loud.
- 2) Learn each fact one way round only  
 $4 \times 6 =$  becomes six fours are twenty four.  
 We always state the larger number first. The children very quickly become attuned to this and it helps the learning process.
- 3) Learn one new fact at a time. We look at  $6 \times 6 = 36$  one day. Then  $7 \times 6 = 42$  the following day.
- 4) Don't think. We want them to become known facts. Leave the answers on display.
- 5) The 6 times table booklet will contain x2, x3, x4, x5, x6 facts but will be weighted with additional six times table facts.

### Maths Challenge Booklets

- 1) The children complete the Maths Challenge Booklets. There are 40 questions to complete in 2 minutes.
- 2) The children MUST run through the questions in order, vertically down the page, not skipping any facts.
- 3) Then the children mark their own booklets so that they can fill in any gaps if necessary.
- 4) The full times table fact is read out. We always say the largest number first so that they are learning one sound bite for each fact. For example:

$6 \times 5 = \underline{\quad}$  You say: *six fives are thirty*, then children repeat: *six fives are thirty*

$6 \times 6 = \underline{\quad}$  You say: *six sixes are thirty six*, then children repeat: *six sixes are thirty six*

$18 \div 3 = \underline{\quad}$  You say: *\_\_\_\_\_ threes are eighteen*, then children repeat: *six threes are eighteen*

$4 \times 6 = \underline{\quad}$  You say: *six fours are twenty four*, then children repeat: *six fours are twenty four*

$6 \times 2 = \underline{\quad}$  You say: *six twos are twelve*, then children repeat: *six twos are twelve*

- 5) Once marked, the children then share their results with the class and identify a number fact they need to learn.

### Additional Support: The Envelope System

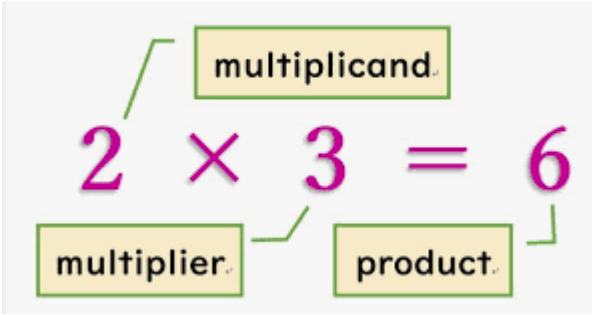
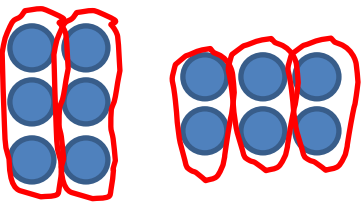
It is really important to:

- Identify those children who are 'stuck' and unpick the barrier. What is the one fact they will learn that day?
- Give Individual 1-1 intervention for those children who are struggling to remember the number facts
- Provide guidance provided to parents as how they can support the individual's learning
- Start by conferencing the child to identify the number facts they can recall (known facts – green) and unknown facts (red). They then pick two **different** unknown facts and use them as a bookmark to self-test before reading.

### Step to success

Even before learning the times tables facts, it is really important that children are comfortable experimenting with numbers. There are a range of different strategies that can be used to teach times tables which are detailed below.

1. Linguistics	<p>When teaching times tables the language is incredibly important. It needs to be consistent across the whole school.</p> <p>_____ groups of _____ = _____</p>
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	<p>When saying the times tables, always say the multiplicand (the number being multiplied) first, then the multiplier (the number you are multiplying by) and finally the product.</p> <p>e.g. This is how you would record the three times table 2 groups of 3 are 6</p> 
2. Counting	<p>Always display the multiplication square or 100 square to support the children. Count in the multiples of the chosen time's table. Loudly say the multiple and whisper the numbers in between. E.g. 0 1 2 3 4. Move on to just say the multiples in order forwards and backwards.</p> <p><a href="https://www.youtube.com/watch?v=yXdHGBfoqfw">https://www.youtube.com/watch?v=yXdHGBfoqfw</a></p>
3. Step Counting	Teacher says the multiple (2) the children say the next multiple (4).
4. Chanting	<p>Chant the times tables in order using the short sound bite of: 10 fours are 40 8 fives are 40 This ensures the correct vocabulary is used and the children can see the relationship between different times tables.</p>
5. Arrays	<p>Introduce the concept of arrays. Show the link between an array and a multiplication link. Show how the orientation of the array can be manipulated.</p>  <p><math>2 \times 3 = 6</math>      <math>3 \times 2 = 6</math> (2 groups of 3)   (3 groups of 2)</p> <p>Make links to square numbers. If the array makes a square, it is a square number.</p>
6. Key Facts	<p>The quick facts that children should know:</p> <div style="text-align: right;"> <p>Factor   Product</p> <p>↓   ↓   ↓</p> </div> <p>Doubles (knowing it is times by 2) Double the factor is double the product. ( <math>1 \times 8 = 8</math> double is <math>2 \times 8 = 16</math> ) Knowing <math>0 \times ? = 0</math> <math>5 \times</math> (facts) <math>10 \times</math> (facts) Square numbers (link to arrays) Cubed numbers (KS2)</p>
7. Commutativity	Knowing the factors can be multiplied in any order and still make the same product.

8. Missing Number	<p>Give children missing number questions. E.g. 2, 4, __, 8 __, 10</p> <p>Additionally give the children missing number questions</p> <p>E.g</p> $1 \times 2 = 2$ then move onto $1 \times \_ = 2$ $2 \times 2 = \_$ $\_ \times 2 = 4$
9. Inverse	<p>Link back to arrays.</p> <p>If you know <math>4 \times 5 = 20</math> you know <math>20 \div 5 = 4</math> and <math>20 \div 4 = 5</math></p>

Additional Learning – Sideways Stretch	
1. Related Facts	<p>If I know.... Then I know....</p> <p>E.g. If I know <math>2 \times 5</math>. Then I know <math>20 \times 5</math>, <math>200 \times 5</math>, <math>2 \times 50</math>, <math>20 \times 50</math> etc.</p> <p>If I know <math>10 \times 6</math> and <math>7 \times 6</math>. Then I know <math>17 \times 6</math>.</p>
2. If the factor is 10 x bigger, then the product is 10 x bigger	<p>Could complete as an investigation for children to find links between their knowledge.</p> $3 \times 4 = 12$ $30 \times 4 = 120$ $3 \times 40 = 120$
3. If the factor is 10 x smaller, then the product is 10 x smaller	<p>Could complete as an investigation for children to find links between their knowledge.</p> $40 \times 5 = 200$ $4 \times 5 = 20$
4. Doubling factors	<p>If one product is half and the other is double then the products stays the same.</p> <p>e.g. <math>2 \times 5 = 10</math> <math>4 \times 6 = 24</math>  <math>1 \times 10 = 10</math> <math>2 \times 12 = 24</math></p>
5. Halving factors	<p>If one fact is half, the product is half.</p> <p>e.g. <math>4 \times 6 = 24</math>  <math>2 \times 6 = 12</math>  <math>4 \times 3 = 12</math></p>
6. Introduce decimals	<p>If I know...</p> $2 \times 6 = 12$ $1 \times 6 = 6$ $0 \times 6 = 0$ $0.5 \times 6 = 3$ (link to $\frac{1}{2}$ of 6) $1.5 \times 6 = 9$ ( $1 \times 6$ and $0.5 \times 6$ )