

Teaching of Multiplication Tables:

Progression in Multiplication Tables:

EYFS	Y1	Y2	Y3	Y4	Y5	Y6
Principles of Multiplication	Count in 2s, 5s, 10s	$\times 2$, $\times 5$, $\times 10$	$\times 3$, $\times 4$, $\times 8$, $\times 6$, $\times 11$	$\times 6$, $\times 11$, $\times 7$, $\times 9$, $\times 12$, All (Retrieval)	All (Assessment)	All (Assessment)

This is progressively mapped out on long-term Mathematics plan. Ensure previous year group is secure.

A Model for Multiplication Table Automaticity:

A three-step progressive model. Mastery of each step is vital before progressing to the next step supporting the CPA (concrete, pictorial, abstract) approach.

- 1.) Step 1 - Learn the nature of multiplication and create some facts.
- 2.) Step 2 - Develop strategies to derive new facts from those you have already created.
- 3.) Step 3 - Practise deriving new facts until you have reached automaticity (under 6 seconds). Use of QLA here is vital.

Step 1: Nature of Multiplication:

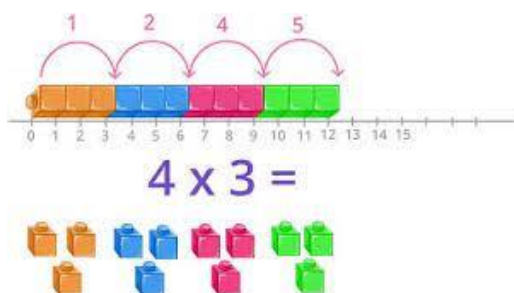
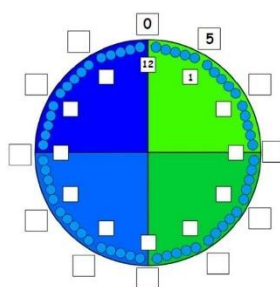
- Unitizing (counting and quantity principle) - https://www.youtube.com/watch?v=nuQIs_JSJAO
- Understanding equal and unequal groups and then combining equal groups.
- Understanding the early relationship between repeated addition and the multiplication sign (building to division and use of the inverse). Vocabulary development is vital.
- Use of manipulatives, drawing on tables, sharing, grouping is vital here for all year groups.

Step 2: Making Connections (Modelling):

- Allow children to make the connections between known facts and other facts. Make links to existing knowledge of multiplication tables including doubling, halving, repeated addition, the inverse, etc.
- This must be modelled by the teacher - do not let children 'discover' this by themselves.
- Use of a 100 square here is powerful to make the connection - don't underestimate the power of this.
- A further example is to use a metre stick as a number line or play a clock game - use of Post It notes, mini whiteboards here is powerful.
- Avoid 'cheat' methods - 6 second fluency is the long-term aim.
- Also use examples in your 'Times Table Ninja Book' and 'TTRS.'

Examples of Resources:

I can use my 5 times table to work out minutes on a clock



3 times table on a grid with rows of 12

1	2	3	4	5	6	7	8	9	10	11	12
13	14	15	16	17	18	19	20	21	22	23	24
25	26	27	28	29	30	31	32	33	34	35	36
37	38	39	40	41	42	43	44	45	46	47	48
49	50	51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70	71	72
73	74	75	76	77	78	79	80	81	82	83	84
85	86	87	88	89	90	91	92	93	94	95	96
97	98	99	100	101	102	103	104	105	106	107	108
109	110	111	112	113	114	115	116	117	118	119	120

Developing reasoning

What could it be? What couldn't it be? Explain your thinking.

Any multiple of 4 has to be even. It could definitely NOT be 35!

It can't be 29 as we are not counting in ones.

How many different ways?

28 ÷ 4 = 7
35 ÷ 4 = 8.75
40 ÷ 4 = 10

4 × 4 = 16 so 4 × 8 = double 16
5 × 4 = 20 so 5 × 8 = double 20

66	42	18	36
72	30	60	46
48	12	6	24

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

Step 3: Automaticity:

- Once children are secure in that multiplication table, then develop their automaticity using relevant assessments. This could be from the 'Times Table Ninja book' and also Times Table Rockstars.
- Do not reach for automaticity until stage two and three are secure.
- A positive wish for speed without putting children under pressure here is vital – accuracy is pivotal.
- Use of questions to develop their automaticity here with a focus on one multiplication table at a time. As the year progresses, retrieval of previously taught tables should be utilised.
- TTRS should be used to enhance this but should not be the central strategy in this lesson time.
- 'Daily 10' is fantastic to use for a two-minute practise only at the automaticity stage. (<https://www.topmarks.co.uk/maths-games/daily10>).
- Automaticity should be encouraged both at school and at home (using home learning).

Method of Delivery:

- On the Maths Long-Term plan, the multiplication table for each half-term is stated (with only one per half-term). These must be taught and learnt by the end of the half-term. Also consider the theory of long-term memory retrieval and how to support children retaining their knowledge.
- Each Friday, we will have a fluency development session for one hour. The first 20 minutes of the session should be dedicated to the development of multiplication tables across all year groups.
- Follow the above three step model, progressing to step 3 only when appropriate. Only one stage per week and move onto the next stage when the majority of children have a secure understanding.
- If a child is struggling, use additional adult support to overlearn the concepts and support them.
- Mastery in steps 1 and 2 are vital before progression to step 3.
- Maths No Problem also has some discrete lessons to teach multiplication tables. Teach these when this appears on the long-term plan, but these lessons alone are not enough to ensure accurate knowledge of all multiplication facts.

Monitoring and Evidencing:

- Only step 3 needs to be evidenced formally. Following this process will be evidenced by children's fluency and confidence in recalling multiplication tables.
- Drop ins will take place regularly on a Friday to see the learning taking place.

Use of Times Table Rockstars (Building up to the MTC).

- Make TTRS a high priority in all aspects of your classroom - in your class, have a focus 'Multiplication Table' of the week.

- Track Progress (Use The Stats area of TTRS to identify students who might need some extra support with learning their times tables. Go to Stats > click on a Class > Fluency > scroll down to 'Pupil Average per Table')
- At home (Send home a weekly TTRS worksheet. Use of MTC hub on TTRS to support staff <https://intercom.help/times-tables-rock-stars/en/articles/5667933-preparing-for-the-mtc>. TTRS should be used little and often to build confidence with 20 minutes a week. Setting sessions homework is also a good way to increase the amount of time children spend playing TTRS. It can also help raise the profile of times tables with parents and carers. Sessions also make it easy to see which children have been practising at home, meaning it is easier to see who might need additional support).



Home Learning:

- Support children to learn these facts at home every single week.
- TTRS must be appropriately used as per the guidance above - encourage children to use this appropriately.
- Additional multiplication tables quizzes, resources from your Ninja Book. Make this a weekly occurrence. Little and often is the key to success!

Assessment:

- At the three assessment points each year, Year 4 to complete a mock MTC assessment that is uploaded to AskEddi: <https://mathsframe.co.uk/en/resources/resource/477/Multiplication-Tables-Check>.
- Y3/Y4/Y5 to send home regular questions to practise.

$0 \times \square = \square$
 $1 \times \square = \square$
 $10 \times \square = \square$
 $5 \times \square = \square$

$2 \times \square = \square$
 $4 \times \square = \square$
 $8 \times \square = \square$
 $6 \times \square = \square$

$3 \times \square = \square$
 $9 \times \square = \square$
 $7 \times \square = \square$

Complete the x2 and x10 on the number line. Use this to help with your 11 and 12 times table:

$11 \times \square = \square$
 $12 \times \square = \square$

Fill in the times table you are learning in the first box.

Use the facts you know to help learn the facts you don't know.

Which facts are useful?