Multiple

Double   Groups of

Some ideas for teaching multiplication tables

Multiplication   Product

Halve

Sets of

Factor

Multiply   Array

The ideas in this booklet have been put together by the Cumbria Numeracy Team to help teachers to widen their bank of ideas for teaching multiplication tables.

We have tried to include ideas which link to a range of learning styles.

We hope that you and your children find them useful.

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Use a counting stick as a visual prompt

- Count in steps of the multiplication table
  0, 5, 10 etc   Count backwards twice for every once you count forwards
  Ask questions such as:
  If 25 is here (pointing to the middle). Where will 35 be? Will it be nearer to 25 or 50? How do you know?

- Use the stick for reciting multiplication facts.
  Ask questions such as 'If you know that 10 x 5 is 50, can you work out what 8 x 5 will be?

- Move randomly along the stick asking children for the multiplication fact and product.

- Extend the counting in 5s to counting in 50s, 500s or 0.5s. Can the children see a pattern? Show the pattern on the board and discuss.

- Extend beyond the counting stick to encourage visualisation. If 10 x 5 = 50 (point to the end of the stick) where will 12 x 5, 15 x 5 be?

- Point to mark on the counting stick and express it as, for example, 6 x 5 = 30.
  Ask the children to give an inverse operation.
  e.g. 30 ÷ 6 = 5   30 ÷ 5 = 6

Use a Multiplication Table

	1	2	3	4	5	6	7	8	9	10
1	1	2	3	4	5	6	7	8	9	10
2	2	4	6	8	10	12	14	16	18	20
3	3	6	9	12	15	18	21	24	27	30
4	4	8	12	16	20	24	28	32	36	40
5	5	10	15	20	25	30	35	40	45	50
6	6	12	18	24	30	36	42	48	54	60
7	7	14	21	28	35	42	49	56	63	70
8	8	16	24	32	40	48	56	64	72	80
9	9	18	27	36	45	54	63	72	81	90
10	10	20	30	40	50	60	70	80	90	100

- Use a multiplication table and a piece of L-shaped card to help children find the correct answer. For example 6 x 4 = 24.

- Encourage children to colour in the facts they already know on a multiplication square. It makes the task of learning the others seem less daunting.

Limiting the task

One of the drawbacks of a traditional multiplication square is the number of facts it contains.
Encourage children to concentrate on the facts that they find difficult. There are various ways of doing this:

- Each child in the class is given (or chooses) a 'difficult' fact. This becomes 'their fact'. The teacher uses this to help the class remember it. For example if the answer to 8x6 is needed the teacher might say 'Who's fact is that?' or, as children start to remember 'That's Jack's fact.......'
- Children who need extra help at a particular multiplication table are given cards with the question on the front and the product on the back.

8 x 6		42

An adult goes through the pile with the child. If the child gets the correct answer, the card goes on one pile. If the answer is incorrect it goes onto another pile. The child takes the incorrect pile to learn.
Next time go through the correct pile and some of the incorrect. Each time the child gets an incorrect one right put a tick by the product.

42 ✓

The ticks moves the card to the correct pile

42 ✓✓✓

Some visual approaches

- Set the constant function on a calculator and count up and back in steps of 3. Ask questions such as 'Who can stop at the number nearest to 22?'

- Use dot patterns to show groups being put together:

- Use arrays.

- Display posters of key facts.

- It helps some children to write out the tables facts they are trying to learn.

- Use a 100 square. Where do the answers to the 4 times table come on a 1 – 100 square? Is the pattern different on a 0 – 99 square? What about on a 1 – 25 square?

- Use bead strings to illustrate the build up of a multiplication table.

Some auditory approaches

- Use times tables tapes or videos.

- Chanting does help some children, don't discount it. It is useful as one of a range of strategies. Chant as lists of multiples 0, 5, 10, 15....... and as whole number sentences 1x5=5, 2x5=10........

- Structured chanting using a blank grid can help children to appreciate the links between multiplication tables:

	1	2	3	4	5	6	7	8	9	10
X2										
X4										
X8										

- Ask the children to chant with you as you point to the blank boxes to build up the 2 times table. Go backwards as well as forwards. Once the pattern starts to be established move down to the 4x row. Do the children start to see links? Talk about doubling.

- Make up a rap.

- Say a 'difficult' fact in a funny voice – low, high, squeaky, a whisper.

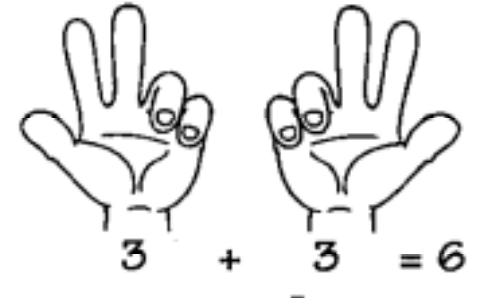- Add interest by asking children to shout, whisper, croak answers.

- Make up rhymes for difficult facts. For example 'Nine fives are forty five snakes alive'.

- Have a fact of the day or week. Point it out to the children at the start of the day and refer to it throughout.

- Think of rhymes for each multiple of the multiplication table. For example two-shoe, four-door. The teacher then says 'Two times two is?' and the children reply 'Four-door'.
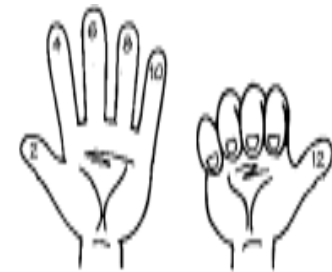
Some kinaesthetic approaches

- Put actions to difficult facts. Children can clap, stamp or jump on the difficult fact.

- Play 'Knock, Knock'. The children work in pairs. Both knock their fists twice on the floor. One child puts out the same number of fingers as the multiplication table being practised. The other child puts out any number of fingers. The winner is the first to say the answer (Make sure the children take it in turns to be the constant number as they have an advantage!)
This can be played with both children choosing random numbers.

- Teach children who need the support to use Cuisenaire rods to build up multiplication tables. Encourage them to move to being able to visualise the rods.

- Use towers of multi-link and group them to build up the multiplication table.

- Link multiplication to division through grouping. Give children 24 multi-link cubes. Can they group them into 4s? How many groups are there? Model the vocabulary and the equation if appropriate.
'Six groups of four is twenty four – 6x4=24'.
Lay the towers down as a rectangle and show how 4x6 links to what they have found.

- Use finger patterns.

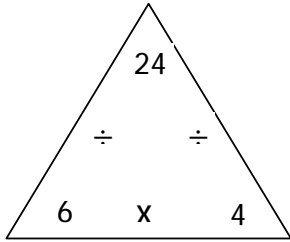Doubles using fingers

3 + 3 = 6

Counting in fives or twos

Nine times-table
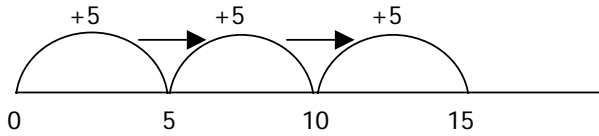For **three** times, fold down the **third** finger.

3 X 9 = 2 7

Use fact families

- Encourage children to learn multiplication and division facts in groups e.g. 6x4=24, 4x6=24, 24÷6=4, 24÷4=6.
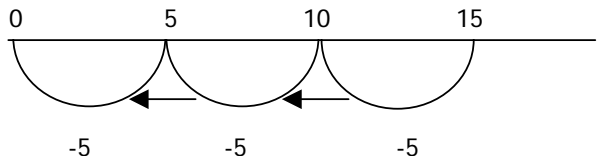- Tri-corner cards are useful as a visual image.

Fact families can be recorded in this way.

Use a number line to multiply 2 numbers such as 5x3.

Then work back from 15 in jumps of 5. How many jumps are there?

- Encourage children to use known facts e.g. I know 5 X 7 = 35, therefore
  7 x 7 = 35 + 14
  or 35 + 7 + 7
  = 49

Support for children with specific needs

A traditional multiplication square is a useful prompt for some children, but can be confusing for children with specific educational needs such as dyslexia or dyscalculia.

Variations which may prove useful are:

4	8	12
16	20	24
28	32	36

Each multiplication table is written on a card as above. The centre box is shaded a different colour. The child is encouraged to build up a visual picture of where each product is shown.

For example 3x4 is in the top right hand corner, 8x4 is directly below the central box.

When the child comes to learn a different times table the same pattern will apply.

- Use different sized laminated grids, the number at the end of each grid is a multiple of the times table being learnt and is a different colour, eg:

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

- Encourage children to build up their knowledge of tests for divisibility.

A number is divisible by:

2 if the last digit is even.
3 if the sum of the digits is divisible by 3.
5 if the last digit is 0 or 5.
9 if the sum of the digits is 9.

- Set an investigative activity to encourage this. For example, which multiplication table is this?

A X F = GJ	3 X 6 = 18
E X F = DH	9 X 6 = 54
C X F = GC	2 X 6 = 12
D X F = AB	5 X 6 = 30
J X F = HJ	8 X 6 = 48
G X F = F	1 X 6 = 6
GB X F = FB	10 X 6 = 60
F X F = AF	6 X 6 = 36
H X F = CH	4 X 6 = 24
K X F = HC	7 X 6 = 42

Ideas for testing multiplication facts

- Follow me/loop cards
- Target boards
- Prepared cards

3	2
4	7
9	8
5	1
6	10

The children put a piece of tracing paper over the card and write the answers on the tracing paper.

Fox example, if Jo is practising her 5 times table she would write 15 and 10 on the top line, Sue might be practising her 7 times table and so would write 21 and 14.

Each child has a blank 3X3, 4X4 or 5X5 grid. They fill the spaces on their grid with numbers of their choice between 45 and 80.
The teacher calls out multiplication questions such as 7 multiplied by 9, the produce of 8 and 6, 7 squared etc. If the child has the answer they cross it out or cover with a counter. The winner is the first with 3 in a row.
Discussions of the numbers left can develop understanding of prime numbers and numbers with several factors. This should help children to make more sensible choices next time they play the game.