How we teach multiplication at school:

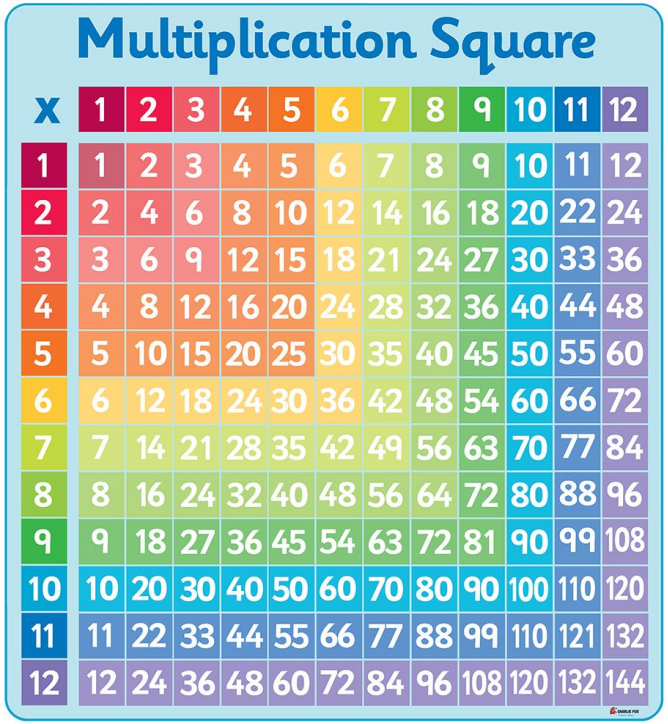
Today's anchor: 4 groups of 3 make 12.

Objects show equal groups.
Arrays organise the groups.
A bar model shows parts and a total.
A calculation records the relationship.

White Rose MATHS

Number Sense Maths

TIMES TABLES ROCK STARS

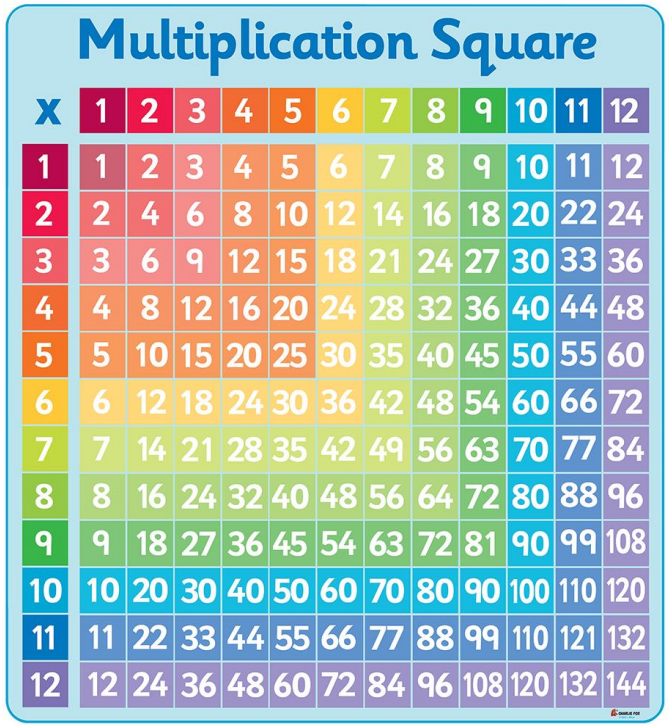


x	1	2	3	4	5	6	7	8	9	10	11	12
1	1	2	3	4	5	6	7	8	9	10	11	12
2	2	4	6	8	10	12	14	16	18	20	22	24
3	3	6	9	12	15	18	21	24	27	30	33	36
4	4	8	12	16	20	24	28	32	36	40	44	48
5	5	10	15	20	25	30	35	40	45	50	55	60
6	6	12	18	24	30	36	42	48	54	60	66	72
7	7	14	21	28	35	42	49	56	63	70	77	84
8	8	16	24	32	40	48	56	64	72	80	88	96
9	9	18	27	36	45	54	63	72	81	90	99	108
10	10	20	30	40	50	60	70	80	90	100	110	120
11	11	22	33	44	55	66	77	88	99	110	121	132
12	12	24	36	48	60	72	84	96	108	120	132	144

How the learning fits together

White Rose teaching: explore multiplication and division with models.
Number Sense: connect visual structures with spoken facts and retrieval. (15 minutes daily)
TTRS: practise recalling multiplication and division facts at speed.

Year group	Main focus
Year 1	Counting in 2s, 5s and 10s
Year 2	2, 5 and 10 times tables
Year 3	3, 4 and 8 times tables
Year 4	All multiplication facts up to 12 × 12
Years 5 and 6	Rapid recall and application to more complex maths: decimals, fractions, multiples of 10



At home: understand the fact, rehearse it, then revisit it.

Parent and Carer guide

How should TTRS be used?

Little and often is key

Around three minutes, four or five times a week, works well. This is a guide rather than a strict rule, so if your child plays for a little longer now and then, that's fine. The important thing is to find a routine that works for them.

Every game mode helps children build their times tables knowledge, so there is no single "right" way to play. Children love the variety of ways to learn, so encourage them to explore!

Getting started - Single player games

If a child is brand new to TTRS, we recommend starting in Jamming and Garage, as these games are best for kicking off their journey to becoming a times tables Rock Star!

Jamming

A great place to begin.

- Choose which times tables and operations (multiplication, division or both) to practise.
- No timer.
- Focus is on getting each answer right and building confidence with the facts.

Start small. On the Jamming home screen, children can choose one or two times tables they already feel fairly sure of, using multiplication only. Confidence grows quickest from success!

Garage

A great place to progress.

- Questions are fully personalised to each child's current level of knowledge.
- As children play, their heatmap gradually changes from red to green.
- The greener the heatmap, the more "fluent" (a combo of accuracy and speed) they are on each question.

Garage games have a timer which helps the game know which facts are secure, and which need more practice. Some children take time to feel confident answering quickly. If your child finds the timer distracting at first, just tap it, to hide it.

What is Times Tables Rock Stars? Parents and Carers Guide

Did you know?

Answering accurately and quickly is a useful skill that takes practice to develop:

A lot of maths that your child learns at school will require multiplication and division to solve or understand. So remembering times tables off by heart helps them give more attention to harder maths problems. While they're still learning the tables, a healthy approach for most children is to aim for a personal high score once a week.

Mistakes are part of the process:

Everyone gets answers wrong while they're learning and that's totally normal. On TTRS, every answer (right or wrong) will help the system to choose which facts to practise next. So encourage children to have a go and celebrate their effort as well as their knowledge. You could say:

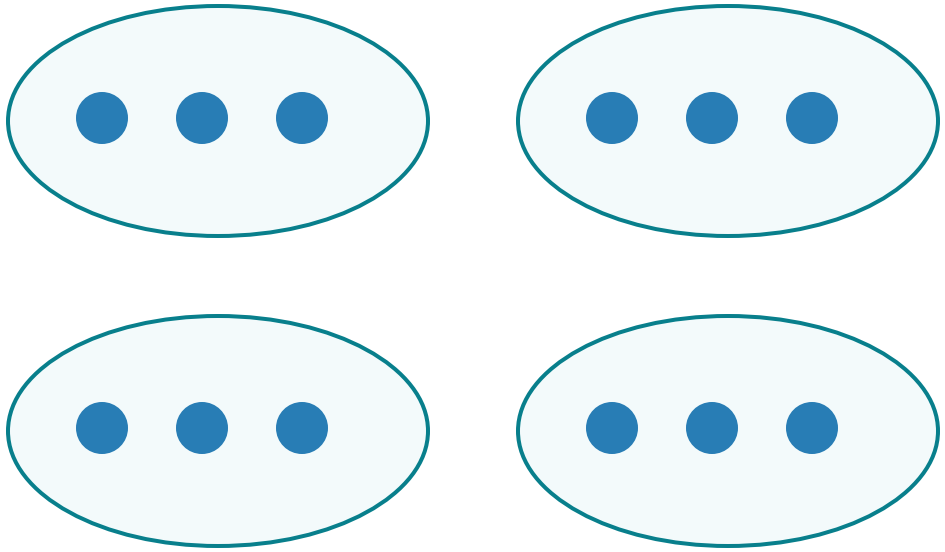
"Getting it wrong is how your brain learns it."

"Look how many you know now that you didn't before!"

Division is essential to learning multiplication:

Practising multiplication and division at the same time supports the recall of both and is the most successful approach. If your child is finding division confusing at first, try starting with the Jamming game mode in multiplication-only mode. Alternatively, please speak to their teacher about starting with the 10s only and for advice on how to help at home.

Equal groups

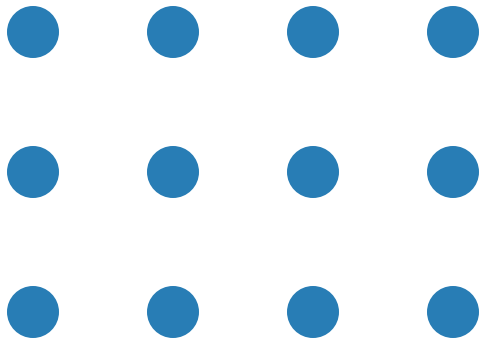


4 equal groups
3 counters in each group
12 counters altogether

4 × 3 = 12

Arrays: rows and columns

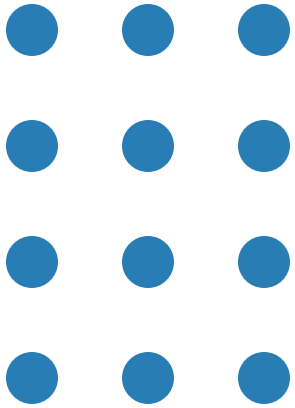
An array of 12



3 rows of 4 counters
4 columns of 3 counters

3 × 4 = 12
4 × 3 = 12

A rotated array, the same total



4 rows of 3

$4 \times 3 = 12$
$3 \times 4 = 12$

Swapping the factors keeps the product the same.

Repeated addition

Four equal groups



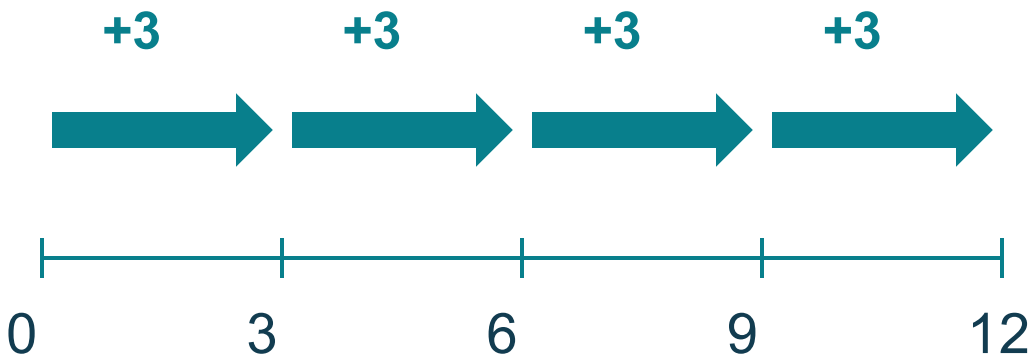
3 **3** **3** **3**

4 equal groups of 3

3 + 3 + 3 + 3 = 12

4 × 3 = 12

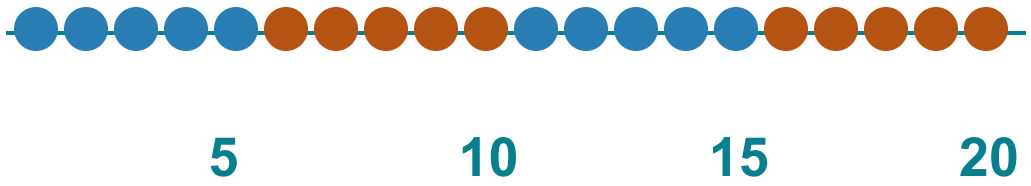
Equal jumps on a number line



4 jumps of 3 reach 12.

Each jump represents one group.
The landing number gives the running total.

A bead string: groups within a total

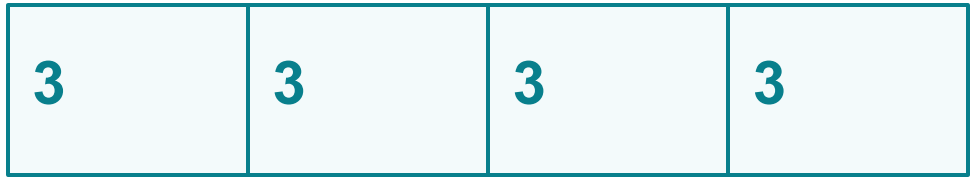


The colours change every 5 beads.
4 groups of 5 make 20.

4 × 5 = 20

Bar models: equal parts

Total: 12



The whole is 12.
There are 4 equal parts.
Each part is worth 3.
12 divided by 4 (equal parts) = 3

4 × 3 = 12

WHY ARE TIMES TABLES USEFUL?

TIMES TABLES ROCK STARS

NUMBER AND CALCULATION

WRITTEN MULTIPLICATION

$$\begin{array}{r} 758 \\ \times\ \ 8 \\ \hline 6064 \\ \hline 46 \end{array}$$

WRITTEN DIVISION

$$\begin{array}{r} 109 \\ 6\overline{)654} \\ 5 \end{array}$$

MENTAL MULTIPLICATION AND DIVISION

Using the facts you know to quickly work out answers in your head.

USING KNOWN FACTS TO FIND OTHERS WITH PLACE VALUE

$4 \times 6 = 24$
$40 \times 6 = 240$
$40 \times 60 = 2400$
$0.4 \times 6 = 2.4$
$0.4 \times 0.6 = 0.24$

WORD PROBLEMS

Sam can fit 12 tins of soup in each box, he has 11 boxes. How many tins of soup will he need to fill the boxes?

$12 \times 11 = 132$

ALGEBRA

$4x = 24 \qquad x = 6$
$7x = 42 \qquad x = 6$
$9x = 81 \qquad x = 9$

RATIO

In a school playground, the ratio of boys to girls is 2:3. If there are 18 girls, how many boys are there?

PROPERTIES OF NUMBER

FINDING FACTORS

Factors of 12

$1 \times 12,\ 2 \times 6,\ 3 \times 4$

FACTORS

FINDING MULTIPLES

Multiples of 12

12, 24, 36, 48, 60, 72 .....

FINDING COMMON FACTORS

Factors of 12 $1 \times 12,\ 2 \times 6,\ 3 \times 4$

Factors of 18 $1 \times 18,\ 2 \times 9,\ 3 \times 6$

FINDING COMMON MULTIPLES

Multiples of 3

3, 6, 9, 12, 15, 18, 21, 24, 27, ...

Multiples of 4

4, 8, 12, 16, 20, 24...

FINDING PRIME AND COMPOSITE NUMBERS

Prime numbers have only 2 factors

$\overset{7}{1 \times 7} \quad \overset{3}{1 \times 3} \quad \overset{5}{1 \times 5}$

Composite numbers have more than 2 factors

$\overset{6}{1 \times 6,\ 2 \times 3} \quad \overset{8}{1 \times 8,\ 2 \times 4}$

SQUARE AND CUBE NUMBERS

$2 \times 2 = 4$ ← Square

$3 \times 3 \times 3 = 27$ ← Cube

SHAPE

CALCULATING AREA: $6cm \times 3cm = 18cm^2$

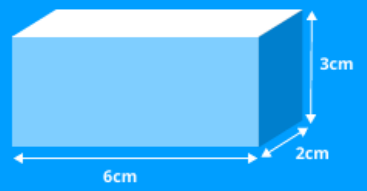


FINDING THE PERIMETER OF REGULAR POLYGONS



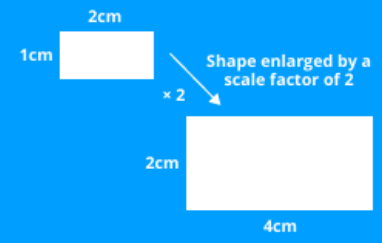
6 × 5cm = 30cm

CALCULATING VOLUME



$6cm \times 2cm \times 3cm = 36cm^3$

SCALING SHAPES



FRACTIONS

SIMPLIFYING FRACTIONS

$\frac{2}{6} \longrightarrow \frac{1}{3}$

ADDING/SUBTRACTING FRACTIONS

$\frac{1}{3} + \frac{3}{6} = \frac{2}{6} + \frac{3}{6} = \frac{5}{6}$ (× 2, × 2)

MULTIPLYING/DIVIDING FRACTIONS

$\frac{1}{2} \times \frac{2}{4} = \frac{1 \times 2}{2 \times 4} = \frac{2}{8} = \frac{1}{4}$

FINDING FRACTIONS OF WHOLE NUMBERS

$\frac{1}{6}$ OF $24 = 4$

ORDERING FRACTIONS

Put these fractions in order, largest first

$\frac{1}{2}\ \frac{6}{8}\ \frac{2}{5} \longrightarrow \frac{6}{8}\ \frac{1}{2}\ \frac{2}{5}$

CONVERTING BETWEEN MIXED NUMBERS AND IMPROPER FRACTIONS

$2\frac{1}{2} = \frac{5}{2}$

AND MANY MORE!

Useful links

TTRS play: play.ttrockstars.com
TTRS parents: ttrockstars.com/parents
Number Sense: numbersensemaths.com/ttf
White Rose: whiteroseeducation.com/parent-pupil-resources

Your child's teacher can share the current facts and models.