Multiplication and Division Y3

MATHS KNOWLEDGE ORGANISER
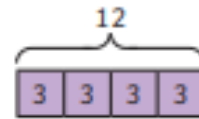
ESSENTIAL VOCABULARY

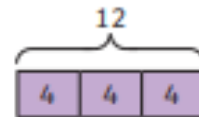| Term	Definition
Times tables	Another term for multiplication table
Sharing	Used to help explain division. When a quantity is shared equally you are calculating how much each person gets.
grouping	Dividing things into equal groups or sets.
Equal groups	Groups with the same number of objects.
Multiply by	Adding a number with respect to another number repeatedly. For example, if we are multiplying 2 by 3, that means 3 is added to itself two times, 3 + 3 = 6.
Divide by	Breaking a number up into equal parts and finding out how many equal parts can be made.
Array	An arrangement of objects, pictures or numbers in rows and columns.
Fact families	A group of maths facts or equations that use the same numbers.
Regrouping	Making groups of tens. Rearranging numbers into groups by place value makes it easier to carry out operations.

Sharing and grouping

$12 \div 4 = 3$

12 counters are shared equally between 4 children.

12 → | 3 | 3 | 3 | 3 |

12 counters are grouped into packs of 4.

12 → | 4 | 4 | 4 |

Multiples of 2, 4 and 8

2	4	6	8	10	12	14	16	18	20	22	24
4	8	12	16	20	24	28	32	36	40	44	48
8	16	24	32	40	48	56	64	72	80	88	96

Doubling the 2 times table is equal to the 4 times table. Doubling the 4 times table is equal to the 8 times table.

Multiplication and division facts (3x, 4x and 8x table)

3 x Tables

$1 \times 3 = 3$	$3 \div 3 = 1$
$2 \times 3 = 6$	$6 \div 3 = 2$
$3 \times 3 = 9$	$9 \div 3 = 3$
$4 \times 3 = 12$	$12 \div 3 = 4$
$5 \times 3 = 15$	$15 \div 3 = 5$
$6 \times 3 = 18$	$18 \div 3 = 6$
$7 \times 3 = 21$	$21 \div 3 = 7$
$8 \times 3 = 24$	$24 \div 3 = 8$
$9 \times 3 = 27$	$27 \div 3 = 9$
$10 \times 3 = 30$	$30 \div 3 = 10$
$11 \times 3 = 33$	$33 \div 3 = 11$
$12 \times 3 = 36$	$36 \div 3 = 12$

4 x Tables

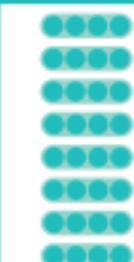|	
$1 \times 4 = 4$	$4 \div 4 = 1$
$2 \times 4 = 8$	$8 \div 4 = 2$
$3 \times 4 = 12$	$12 \div 4 = 3$
$4 \times 4 = 16$	$16 \div 4 = 4$
$5 \times 4 = 20$	$20 \div 4 = 5$
$6 \times 4 = 24$	$24 \div 4 = 6$
$7 \times 4 = 28$	$28 \div 4 = 7$
$8 \times 4 = 32$	$32 \div 4 = 8$
$9 \times 4 = 36$	$36 \div 4 = 9$
$10 \times 4 = 40$	$40 \div 4 = 10$
$11 \times 4 = 44$	$44 \div 4 = 11$
$12 \times 4 = 48$	$48 \div 4 = 12$

8 x Tables

$1 \times 8 = 8$	$8 \div 8 = 1$
$2 \times 8 = 16$	$16 \div 8 = 2$
$3 \times 8 = 24$	$24 \div 8 = 3$
$4 \times 8 = 32$	$32 \div 8 = 4$
$5 \times 8 = 40$	$40 \div 8 = 5$
$6 \times 8 = 48$	$48 \div 8 = 6$
$7 \times 8 = 56$	$56 \div 8 = 7$
$8 \times 8 = 64$	$64 \div 8 = 8$
$9 \times 8 = 72$	$72 \div 8 = 9$
$10 \times 8 = 80$	$80 \div 8 = 10$
$11 \times 8 = 88$	$88 \div 8 = 11$
$12 \times 8 = 96$	$96 \div 8 = 12$

Fact Families

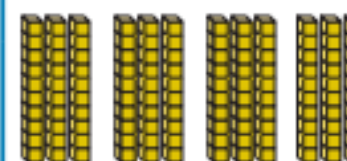| $4 \times 8 = 32$	$8 \times 4 = 32$	$5 \times 3 = 15$	$3 \times 5 = 15$
$32 \div 8 = 4$	$32 \div 4 = 8$	$15 \div 3 = 5$	$15 \div 5 = 3$

Related Calculations

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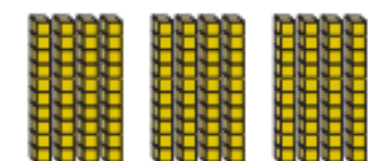
$4 \times 3 = 12$

$30 \times 4 = 120$

$40 \times 3 = 120$

LINKS TO PREVIOUS LEARNING

- Builds on 3LS16 and 3L17 which the facts for 3 and 4 multiplication tables were explored in a variety of contexts and rehearsed.
- Links between 2, 4 and 8 multiplication tables to help pupils use as a mental strategy to find unknown facts.

Stem Sentences

_____ groups of _____ multiplied by _____ is equal to _____ groups of _____ multiplied by _____.

___ x ___ x _____ = ___

___ x ___ x _____ = ___

'As a family we live, love, learn and celebrate with Jesus.'

Key Themes

- Doubling and halving
- Halving two-digit numbers
- 3x, 4x, and 8x tables
- Associative law
- Distributive law up to 10 x 10
- Distributive law for 2-digit numbers