



# Maths Knowledge Organiser- Multiplication and division- Year 3

## Key Vocabulary

times tables

sharing

grouping

equal groups

multiple

multiply by

divide by

array

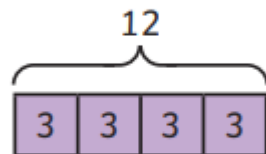
fact families

regrouping

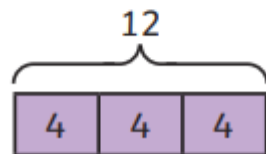
## Sharing and Grouping

$$12 \div 4 = 3$$

12 counters are shared equally between 4 children.



12 counters are grouped into packs of 4.



## Related Calculations

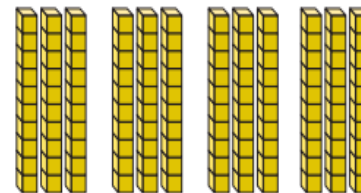
$$3 \times 4 = 12$$



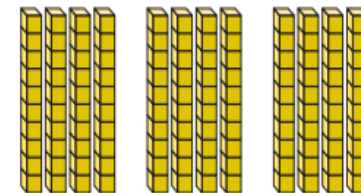
$$4 \times 3 = 12$$



$$30 \times 4 = 120$$



$$40 \times 3 = 120$$



## 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

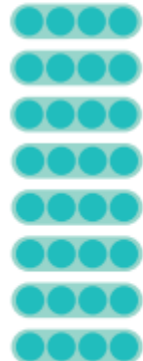
8 16 24 32 40 48 56 64 72 80 88 96

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

## Fact Families

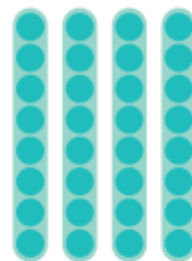
$$4 \times 8 = 32$$

$$32 \div 8 = 4$$



$$8 \times 4 = 32$$

$$32 \div 4 = 8$$



$$5 \times 3 = 15$$

$$15 \div 3 = 5$$



$$3 \times 5 = 15$$

$$15 \div 5 = 3$$



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## Multiplication and Division Facts (3, 4 and 8 multiplication tables)

### 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

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

### Multiplication Methods - No Regrouping

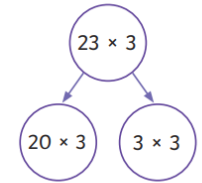
$$23 \times 3 = 69$$

Tens	Ones

$$20 \times 3 = 60$$

$$3 \times 3 = 9$$

$$23 \times 3 = 69$$



### Multiplication Methods - With Regrouping

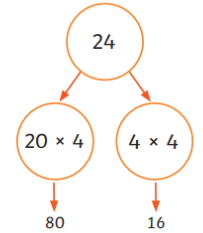
$$24 \times 4 = 96$$

Tens	Ones

$$20 \times 4 = 80$$

$$4 \times 4 = 16$$

$$24 \times 4 = 96$$



### Division Methods - No Exchange

Tens	Ones

$$84 \div 4 = 21$$

