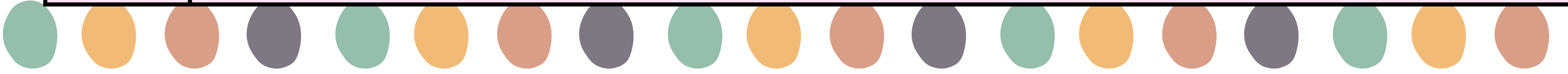


Y4- Overview

	Autumn 1			Autumn 2		Spring 1		Spring 2		Summer 1		Summer 2	
Unit	1	2	3		4	5	6	7	8	9	10	11	12

- Number and place value
- Number facts
- Addition and subtraction
- Multiplication and division
- Fractions
- Geometry
- Other

	7 times table: odd and even patterns, square numbers and tests of divisibility (2 weeks)
Ready to progress	4NF-1 Recall multiplication and division facts up to 12×12, and recognize products in multiplication tables as multiples of the corresponding number
NCETM documents	WHOLE DOCUMENT https://www.ncetm.org.uk/media/3rfbznaa/ncetm_spine2_segment09_y3pdf/#page=5
Small steps	- To represent counting in sevens as the 7 times table. - To explain the relationship between adjacent multiples of seven. - To use known facts from the 2, 5 and 6 times tables to solve problems involving the 7 times table. - To use knowledge of the 7 times table to solve problems. - To identify patterns of odd and even numbers in the times tables. - To use patterns of odd and even numbers in the times tables to solve problems. - To represent a square number. - To identify and use square numbers to solve problems. - To use divisibility rules for the 3, 4, 6 and 8 times tables to solve problems. - To use divisibility rules for the 2, 3, 4, 5, 6, 8 and 10 times tables to solve problems.
Links	<u>Classroom Slides</u> https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Fwww.ncetm.org.uk%2Fmedia%2Fwzhd%0dh%2Fcp-year-4-unit-5-7-times-table-and-patterns.pptx&wdOrigin=BROWSELINK <u>Oak</u> - https://www.thenationalacademy/teachers/programmes/maths-primary-ks2/units/7-times-table-odd-and-even-patterns-square-numbers-and-tests-of-divisibility/lessons?sid-f26a40=cILVz9EWpW&sm=0&src=3 <u>Whiterose</u>- https://assets.whiteroseeducation.com/new-schemes/Y4%20Autumn%20Block%204%20SOL%20Multiplication%20and%20division%20A.pdf
Reasoning	Missing Numbers 72 = □ × □ Which of these factor pairs includes 7? Can any be linked to square numbers? Making Links Eggs are bought in boxes of 7. You need 140 eggs. How many boxes will you need? Use your knowledge of the 7 times table to solve the problem. Use a Fact If 63 ÷ 9 = 7, what is: 126 ÷ 9 = ? 252 ÷ 7 = ? How can your knowledge of the 7 times table help here? Making Links How can you use factor pairs or known facts to solve: 13 × 7 Could you use doubling (2×), halving, or 6 × 13 + 13 to support your thinking? Prove It What goes in the missing box? 7 × 8 = □ + 28 Prove your answer using known facts or the inverse. How Close Can You Get? ___ × 7 Using the digits 3, 4, and 6, how close can you get to 4500? What is the largest and smallest product? Which of your numbers are odd or even? Are they square numbers? Always, Sometimes, Never? Is it always, sometimes or never true that a multiple of 7 is odd? Is it always, sometimes or never true that a square number is even? Use the Inverse Check these calculations using the inverse: 23 × 7 = 161 182 ÷ 7 = 26 Use known facts and the 7 times table to support your reasoning. Size of an Answer Will the answer be greater or less than 300? 29 × 7 = 43 × 7 = 35 × 7 = 7 × 44 = Estimate each one. What patterns do you notice in the answers?



Problem solving

CLICK HERE

Glossary

- Multiple - A multiple is the result of multiplying a number by another whole number.
- Skip count - Counting in steps of equal size. For example, skip counting in twos means to count in equal steps of two.
- Adjacent - Adjacent means next to each other. An adjacent multiple is a multiple next to another. It could be before or after.
- Partition - Partitioning is the act of splitting an object or value down into smaller parts.
- Distributive law - The distributive law says that multiplying a number by a group of numbers added together is the same as doing each multiplication separately.
- Array - An array is the layout of items (such as objects, numbers, etc) arranged in rows and/or columns
- Odd - An odd number is any whole number that cannot be divided exactly by 2 The ones digit is 1, 3, 5, 7 or 9
- Even - Any whole number that can be divided exactly by 2 is an even number. The ones digit is 0, 2, 4, 6 or 8
- Divisible - Divisibility is a number's ability to be exactly divided by another number, leaving no remainder.
- Divisibility rules - Divisibility rules let you test if one number is divisible by another, without having to do too much calculation.

Stem sentences

_____ is a factor.
_____ is a factor.
The product of _____ and _____ is _____.
_____ is the product of _____ and _____.

When zero is a factor, the product is zero.

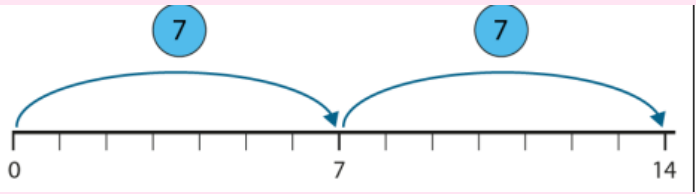
odd factor x odd factor= odd product - If both factors are odd, the product is odd.
even factor x odd factor = even product
odd factor x even factor = even product
If one factor is odd and the other factor is even, the product is even
If one of the factors is even, the product is even.

even factor x even factor = even product.

When both factors have the same value, the product is called a square- number.
Square numbers can be represented by square-shaped arrays.

We can write this as _____ times _____ is equal to _____.
Both factors are the same, so we can also write this as _____ squared is equal to _____.

Representations



2 x 7 = 14 7 x 2 = 14



2 x 7 = 7 x 2 =

0 x 7 = 0	7 x 0 = 0
1 x 7 = 7	7 x 1 = 7
2 x 7 = 14	7 x 2 = 14
3 x 7 = 21	7 x 3 = 21
4 x 7 = 28	7 x 4 = 28
5 x 7 = 35	7 x 5 = 35
6 x 7 = 42	7 x 6 = 42

Base ten number boards:		
	1 x 7 = 7	7 x 1 = 7
odd	odd	odd
	2 x 7 = 14	7 x 2 = 14
even	odd	even
	3 x 7 = 21	7 x 3 = 21
odd	odd	odd
	4 x 7 = 28	7 x 4 = 28
even	odd	even

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2 x 2 = 4	3 x 3 = 9

Tens frames filled twos-wise – examples:

2 x 5 = 10 5 x 2 = 10
even odd even odd even even

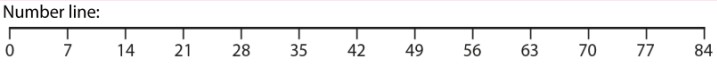
2 x 9 = 18 9 x 2 = 18
even odd even odd even even

Writing the squared symbol using squared paper:

7² = 49

Working practically – 4 x 4 example:

4 x 4 = 16
4² = 16



Gattegno chart:

1000	2000	3000	4000	5000	6000	7000	8000	9000
100	200	300	400	500	600	700	800	900
10	20	30	40	50	60	70	80	90
1	2	3	4	5	6	7	8	9

Missing number/symbol problems:

• 'Fill in the missing numbers.'

10 x 7 = 9 x 7 + 6 x 7 = x 7 + 7
10 x 7 - = 9 x 7 6 x 7 - 7 = x 7

• 'Fill in the missing symbols (<, > or =).'

9 x 7 8 x 7
9 x 8 x 7 + 7
9 x 9 x 7 + 7
9 x 7 10 x 7 - 7

4 x 4 = 16

• 'Both of the factors are the same, so the product is a square number.'

• 'This can be represented by a square-shaped array.'

x	0	1	2	3	4	5	6	7	8	9	10	11	12
0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	1	2	3	4	5	6	7	8	9	10	11	12
2	0	2	4	6	8	10	12	14	16	18	20	22	24
3	0	3	6	9	12	15	18	21	24	27	30	33	36
4	0	4	8	12	16	20	24	28	32	36	40	44	48
5	0	5	10	15	20	25	30	35	40	45	50	55	60
6	0	6	12	18	24	30	36	42	48	54	60	66	72
7	0	7	14	21	28	35	42	49	56	63	70	77	84
8	0	8	16	24	32	40	48	56	64	72	80	88	96
9	0	9	18	27	36	45	54	63	72	81	90	99	108
10	0	10	20	30	40	50	60	70	80	90	100	110	120
11	0	11	22	33	44	55	66	77	88	99	110		
12	0	12	24	36	48	60	72	84	96	108	120		