Alexandra Park Junior School

Year: 5 Unit of Learning: Multiplication and Division Knowledge organiser

What have I previously learned?

- Recall multiplication and division facts for multiplication tables up to 12 × 12
- Recognise and use factor pairs and commutativity in mental calculations.
- Multiply two-digit and three-digit numbers by a one-digit number
- Solve problems involving multiplying and adding

Vocabulary - Goldilocks words

Word	Definition
Altogether	Number less than zero.
Difference	A way of splitting numbers into smaller parts to make them easier to work with.
Estimate	The single numbers used to represent values in math.
Complex	A range of numbers between two given numbers and includes all of the real numbers between those two numbers.
Inverse operation	Set of numbers that follow a pattern or rule.
Minus	Goes from one term to the next by always adding (or subtracting) the same value.

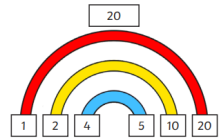
Useful links

https://vimeo.com/729928026
https://vimeo.com/729929058
https://vimeo.com/729929837
https://vimeo.com/729930429
https://vimeo.com/729930941
https://vimeo.com/729931289

Prompts to help me in my learning

Factors

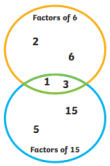
A factor is a number that divides into another number exactly, without leaving a remainder.



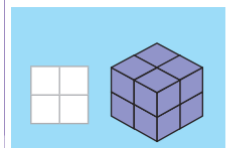
The factors of 20 are 1, 2, 4, 5, 10 and 20.

The factor pairs are:
1 and 20
2 and 10
4 and 5

A common factor is a factor of 2 or more numbers.

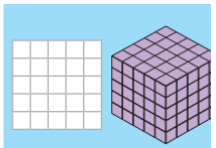


Squared and Cubed Numbers



$2^2 = 4$
$2 \times 2 = 4$

$2^3 = 8$
$2 \times 2 \times 2 = 8$



$5^2 = 25$
$5 \times 5 = 25$

$5^3 = 125$
$5 \times 5 \times 5 = 1$

Prime Numbers

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	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Short Multiplication

2543 × 7 = 17 801

	2	5	4	3
×				7
1	7	8	0	1
1	3	3	(2)	

Remember to move any regrouped digits into the next column. After the next multiplication, add the regrouped number to the answer.

Long Multiplication

2543 × 67 = 170 381

		2	5	4	3
	×			6	7
	1 1	7 3	8 3	0 2	1
1 1	5 3	2 2	5 1	8	0
1	7	0	3	8	1
	1	1			

Before multiplying by the number in the tens column, remember to use zero as a placeholder because the 6 in 67 is 6 tens (60).

Short Division

		3	8
4	1	1 5	3 2

15 ÷ 4 = 3 remainder 3

Remember to regroup any remainders and move them into the next column.

		4	5	5	r	3
5	2	2	2 7	2 8		

28 ÷ 5 = 5 remainder 3

If your calculation has a remainder, remember to record it in the answer using the letter r.

Division

136 ÷ 4 = 34

		3	4	
4	1	3	6	
-	1	2	0	→ 30 × 4
		1	6	
	-	1	6	→ 4 × 4
			0	