

Year 6 Four Operations Knowledge Organiser.

Four Operations	Knowledge Organiser																																																		
Key Vocabulary	Add and Subtract Whole Numbers																																																		
Add	<p style="text-align: center;">Column Method</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; text-align: center;"> <table border="1" style="border-collapse: collapse; text-align: center;"> <tr><td></td><td>4</td><td>5</td><td>8</td><td>6</td><td>4</td></tr> <tr><td>+</td><td>2</td><td>3</td><td>4</td><td>9</td><td>7</td></tr> <tr><td></td><td>6</td><td>9</td><td>3</td><td>6</td><td>1</td></tr> <tr><td></td><td></td><td>1</td><td>1</td><td>1</td><td></td></tr> </table> <p>Starting with the ones, add each column in turn. Regroup tens, hundreds, thousands, ten thousands as required.</p> </td> <td style="width: 50%; text-align: center;"> <table border="1" style="border-collapse: collapse; text-align: center;"> <tr><td></td><td>3</td><td>5</td><td>6¹³</td><td>4¹³</td><td>1¹²</td></tr> <tr><td>-</td><td></td><td>3</td><td>4</td><td>7</td><td>6</td></tr> <tr><td></td><td>3</td><td>2</td><td>2</td><td>6</td><td>6</td></tr> </table> <p>Starting with the ones, subtract each column in turn. Exchange tens, hundreds, thousands and/or ten thousands as required.</p> </td> </tr> </table>			<table border="1" style="border-collapse: collapse; text-align: center;"> <tr><td></td><td>4</td><td>5</td><td>8</td><td>6</td><td>4</td></tr> <tr><td>+</td><td>2</td><td>3</td><td>4</td><td>9</td><td>7</td></tr> <tr><td></td><td>6</td><td>9</td><td>3</td><td>6</td><td>1</td></tr> <tr><td></td><td></td><td>1</td><td>1</td><td>1</td><td></td></tr> </table> <p>Starting with the ones, add each column in turn. Regroup tens, hundreds, thousands, ten thousands as required.</p>		4	5	8	6	4	+	2	3	4	9	7		6	9	3	6	1			1	1	1		<table border="1" style="border-collapse: collapse; text-align: center;"> <tr><td></td><td>3</td><td>5</td><td>6¹³</td><td>4¹³</td><td>1¹²</td></tr> <tr><td>-</td><td></td><td>3</td><td>4</td><td>7</td><td>6</td></tr> <tr><td></td><td>3</td><td>2</td><td>2</td><td>6</td><td>6</td></tr> </table> <p>Starting with the ones, subtract each column in turn. Exchange tens, hundreds, thousands and/or ten thousands as required.</p>		3	5	6 ¹³	4 ¹³	1 ¹²	-		3	4	7	6		3	2	2	6	6				
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Four Operations

Short Division

Start from the left.

		4	4	0	5	$5 \div 12 = 0 \text{ r}5$
12	5	⁵ 2	⁴ 8	6	⁶ 0	$52 \div 12 = 4 \text{ r}4$
						$48 \div 12 = 4$
						$6 \div 12 = 0 \text{ r}6$

Long Division

		1	2	0	r	3
14	1	6	8	3		
	1	4	0	0		
		2	8	3		
		2	8	0		
				3		



Common Factors

Factors of 48

1	2	3	4	6	8	12	16	24	48
---	---	---	---	---	---	----	----	----	----

Factors of 30

1	2	3	5	6	10	15	30
---	---	---	---	---	----	----	----

Common factors: 1, 2, 3, 6

Primes

A prime number has only 1 and itself as factors: 2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37, 41, 43

A composite number has factors other than 1 and itself.

Mental Calculations and Estimation

Order of calculations:

$$50 \times 34 \times 2 = 50 \times 2 \times 34 = 100 \times 34 = 3400$$

$$\text{Money: } \pounds 8.99 + \pounds 3.49 = \pounds 12.48$$

Use $\pounds 9 + \pounds 3.50 = \pounds 12.50$ and subtract 2p

Estimate on a number line



Subdivide line to estimate: 17

Knowledge Organiser

Common Multiples

Multiples of 3

3	...	18	21	24	...	39	42
---	-----	----	----	----	-----	----	----

Multiples of 7

7	14	21	28	35	42
---	----	----	----	----	----

Common multiples: 21, 42...

Squares and Cubes

Square numbers result from a number being multiplied by itself (e.g. $5 \times 5 = 25$):

1, 4, 9, 16, 25, 36, 49, 64, 81, 100

Cube numbers result from a number being multiplied by itself twice ($2 \times 2 \times 2 = 8$):

1, 8, 27, 64, 125

Reason from Known Facts

$$90 \div 10 = 9 \quad \text{so } 90 \div 20 = 4.5 \text{ and } 90 \div 5 = 18$$

$$16 \times 9 = 144 \quad \text{so } 1.6 \times 9 = 14.4$$

$$4352 \div 17 = 256$$

$$\text{so } 256 \times 18 = 4352 + 256 = 4608$$

$$3786 + 2850 = 6636$$

$$\text{so } 4786 + 2850 = 7636$$

$$\text{and } 2786 + 3850 = 6636$$

$$\text{and } 8636 - 3786 = 4850$$