

# Mathematics Non-Negotiables

## Year 6

Non-negotiables are the minimum expectations that all pupils must attain by the end of year.

These prompt sheets have been designed to assist teachers with planning/assessment and as an ideal support tool for parent's evenings/progress meetings etc.

The content identifies basics to ensure children make rapid progress and access learning in other areas, as well as securing success in terms of preparing children for the next stages in their learning.

Written with age appropriate expectations in mind, they:

- focus on the basics; making a difference to progress for all children
- support teachers in recognising key areas to promote progress
- are based on the average pupil in the cohort, supporting the need for differentiation.

Non-negotiables are in no way intended to cover the entirety of the curriculum – they are an on-going reminder of key objectives for the year group. They are the basics in order to embed and support meaningful learning.

Content:

Mathematics Non-negotiables End of Year Expectations for Year 6 followed by an activity booklet containing example questions.

More [Mathematics](#) resources.

Did you like this resource? Don't forget to review it [here](#).

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Mathematics Non-Negotiables – Year 6 – Teaching Information

## Mathematics Non-Negotiables End of Year Expectations for Year 6

- Use negative numbers in context and calculate intervals across zero
- Compare and order numbers up to 10,000,000
- Identify common factors, common multiples and prime numbers
- Round any whole number to a required degree of accuracy
- Identify the value of each digit to 3 decimal places
- Use knowledge of order of operations to carry out calculations involving four operations
- Multiply: 4-digit by 2-digit
- Divide: 4-digit by 2-digit
- Add and subtract fractions with different denominators and mixed numbers
- Multiply simple pairs of proper fractions, writing the answer in the simplest form.
- Divide proper fractions by whole numbers
- Calculate % of whole number

## Year 6

- Use negative numbers in context and calculate intervals across zero

The temperature at 12 midday is  $16^{\circ}\text{C}$ . By 11pm the temperature drops to  $-31^{\circ}\text{C}$ . By how much does the temperature fall?

Billy and Jo have  $\pounds 564.32$  in their bank account. They pay for a holiday which includes:

- Aeroplane tickets at  $\pounds 243.21$
- Hotel accommodation at  $\pounds 428.17$
- What will their account balance be after paying for the holiday?

Put these temperatures in order from coolest to warmest:

$1^{\circ}\text{C}$ ,  $-3^{\circ}\text{C}$ ,  $-8^{\circ}\text{C}$ ,  $-31^{\circ}\text{C}$ ,  $12^{\circ}\text{C}$ ,  $-11^{\circ}\text{C}$ ,  $35^{\circ}\text{C}$ ,  $0^{\circ}\text{C}$

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- Compare and order numbers up to 10,000,000

Order the numbers from smallest to largest.

99,054,703

687,211

99,871,642

73,988,453

8,785,614

8,784,614

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- Identify common factors, common multiples and prime numbers

What are the common factors for 18 and 24?	
What is the lowest common multiple for 8 and 12?	

## Year 6

Highlight all the 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

- Round any whole number to a required degree of accuracy

	Nearest ten	Nearest hundred	Nearest thousand	Nearest ten-thousand	Nearest hundred-thousand	Nearest million
9,875,411						
30,105						
47,032,565						
4,423,423						
239,300,010						

- Identify the value of each digit to 3 decimal places  
Write the value of the underlined digit of each number.

3.987 →

61.081 →

0.613 →

66.615 →

0.045 →

98.908 →

## Year 6

- Use knowledge of order of operations to carry out calculations involving four operations

Use the order of operations (BODMAS) to work out the following:

$$35 - 7 \times (6 + 8) = \boxed{\phantom{0000}}$$

$$7 \times (3 + 5) + 6 = \boxed{\phantom{0000}}$$

$$(2 + 9) \times (10 - 5) = \boxed{\phantom{0000}}$$

$$42 - 7 \times (6 + 8) = \boxed{\phantom{0000}}$$

- Multiply: 4-digit by 2-digit

Complete the column method multiplication questions

$$3,977 \times 17 =$$


$$8,103 \times 64 =$$


$$2,674 \times 93 =$$


$$6,633 \times 28 =$$


- Divide: 4-digit by 2-digit

Complete the questions

$$4,992 \div 32 =$$


$$5,304 \div 78 =$$


$$6,992 \div 19 =$$


$$6,730 \div 5 =$$


- Add and subtract fractions with different denominators and mixed numbers

$$\frac{7}{8} + \frac{5}{6} = \boxed{\phantom{00}}$$

$$\frac{4}{5} - \frac{3}{4} = \boxed{\phantom{00}}$$

$$1 \frac{1}{3} + \frac{1}{2} = \boxed{\phantom{00}}$$

$$5 \frac{1}{3} - \frac{2}{5} = \boxed{\phantom{00}}$$

## Year 6

- Multiply simple pairs of proper fractions, writing the answer in the simplest form.

	answer		simplest form
$\frac{1}{4}$	x	$\frac{4}{7}$	=
—		—	

	answer		simplest form
$\frac{3}{4}$	x	$\frac{1}{3}$	=
—		—	

$\frac{5}{6}$	x	$\frac{3}{8}$	=
—		—	

$\frac{2}{5}$	x	$\frac{5}{9}$	=
—		—	

- Divide proper fractions by whole numbers

$\frac{5}{8}$	÷	4	=	—
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$\frac{7}{9}$	÷	3	=	—
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$\frac{1}{2}$	÷	6	=	—
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$\frac{3}{4}$	÷	8	=	—
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- Calculate % of whole number

75% of 64 =	
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90% of 9,650 =	
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12% of 12 =	
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60% of 1,200 =	
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## Year 6

- Use negative numbers in context and calculate intervals across zero

The temperature at 12 midday is  $16^{\circ}\text{C}$ . By 11pm the temperature drops to  $-31^{\circ}\text{C}$ . By how much does the temperature fall?

$-47^{\circ}\text{C}$

Billy and Jo have  $\pounds 564.32$  in their bank account. They pay for a holiday which includes:

- Aeroplane tickets at  $\pounds 243.21$
- Hotel accommodation at  $\pounds 428.17$
- What will their account balance be after paying for the holiday?

$-\pounds 107.06$

Put these temperatures in order from coolest to warmest:

$1^{\circ}\text{C}$ ,  $-3^{\circ}\text{C}$ ,  $-8^{\circ}\text{C}$ ,  $-31^{\circ}\text{C}$ ,  $12^{\circ}\text{C}$ ,  $-11^{\circ}\text{C}$ ,  $35^{\circ}\text{C}$ ,  $0^{\circ}\text{C}$

$-31^{\circ}\text{C}$

$-11^{\circ}\text{C}$

$-8^{\circ}\text{C}$

$-3^{\circ}\text{C}$

$0^{\circ}\text{C}$

$1^{\circ}\text{C}$

$12^{\circ}\text{C}$

$35^{\circ}\text{C}$

- Compare and order numbers up to 10,000,000

Order the numbers from smallest to largest.

99,054,703

687,211

99,871,642

73,988,453

8,785,614

8,784,614

687,211

8,784,614

8,785,614

73,988,453

99,054,703

99,871,642

- Identify common factors, common multiples and prime numbers

What are the common factors for 18 and 24?

1, 2, 3 and 6

What is the lowest common multiple for 8 and 12?

24

## Year 6

Highlight all the 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

- Round any whole number to a required degree of accuracy

	Nearest ten	Nearest hundred	Nearest thousand	Nearest ten-thousand	Nearest hundred-thousand	Nearest million
9,875,411	9,875,410	9,875,400	9,875,000	9,880,000	9,900,000	10,000,000
30,105	30,110	30,100	30,000	30,000	0	0
47,032,565	47,032,570	47,032,600	47,033,000	47,030,000	47,000,000	47,000,000
4,423,423	4,423,420	4,423,400	4,423,000	4,420,000	4,400,000	4,000,000
239,300,010	239,300,010	239,300,000	239,300,000	239,300,000	239,300,000	239,000,000

- Identify the value of each digit to 3 decimal places  
Write the value of the underlined digit of each number.

3. <u>9</u> 87 → <span style="border: 1px solid black; padding: 2px;">0.08</span>	61.0 <u>8</u> 1 → <span style="border: 1px solid black; padding: 2px;">0.001</span>	0. <u>6</u> 13 → <span style="border: 1px solid black; padding: 2px;">0.6</span>
66. <u>6</u> 15 → <span style="border: 1px solid black; padding: 2px;">0.6</span>	0.0 <u>4</u> 5 → <span style="border: 1px solid black; padding: 2px;">0.04</span>	98.9 <u>0</u> 8 → <span style="border: 1px solid black; padding: 2px;">0.008</span>



## Year 6

- Use knowledge of order of operations to carry out calculations involving four operations

Use the order of operations (BODMAS) to work out the following:

$$35 - 7 \times (6 + 8) = \boxed{-63}$$

$$7 \times (3 + 5) + 6 = \boxed{62}$$

$$(2 + 9) \times (10 - 5) = \boxed{55}$$

$$42 - 7 \times (6 + 8) = \boxed{-56}$$

- Multiply: 4-digit by 2-digit

Complete the column method multiplication questions

3,977 x 17 =					
	3	9	7	7	
x			1	7	
	6	5	4		
2	7	8	3	9	
3	9	7	7	0	
6	7	6	0	9	

8,103 x 64 =					
	8	1	0	3	
x			6	4	
		1			
3	2	4	1	2	
4	8	6	1	8	0
5	1	8	5	9	2

2,674 x 93 =					
	2	6	7	4	
x			9	3	
	6	6	2	3	2
8	0	2	2	0	
2	4	0	6	6	0
2	4	8	6	8	2

6,633 x 28 =					
	6	6	3	3	
x			2	8	
	1	5	2		
5	3	0	6	4	
1	3	2	6	6	0
1	8	5	7	2	4

- Divide: 4-digit by 2-digit

Complete the questions

4,992 ÷ 32 =					
			1	5	6
3	2	4	9	9	2

5,304 ÷ 78 =					
				6	8
7	8	5	3	0	4

6,992 ÷ 19 =					
			3	6	$\frac{6}{19}$
1	9	6	9	9	8

6,730 ÷ 5 =					
	1	3	4	6	
5	6	7	3	0	

- Add and subtract fractions with different denominators and mixed numbers

$$\frac{7}{8} + \frac{5}{6} = \boxed{1 \frac{34}{48}}$$

$$\frac{4}{5} - \frac{3}{4} = \boxed{\frac{1}{20}}$$

$$1 \frac{1}{3} + \frac{1}{2} = \boxed{1 \frac{5}{6}}$$

$$5 \frac{1}{3} - \frac{2}{5} = \boxed{4 \frac{14}{15}}$$

## Year 6

- Multiply simple pairs of proper fractions, writing the answer in the simplest form.

		answer		simplest form		
$\frac{1}{4}$	x	$\frac{4}{7}$	=	<table border="1" style="display: inline-table; border-collapse: collapse; text-align: center;"> <tr> <td style="padding: 5px;"><math>\frac{4}{28}</math></td> <td style="padding: 5px;"><math>\frac{1}{7}</math></td> </tr> </table>	$\frac{4}{28}$	$\frac{1}{7}$
$\frac{4}{28}$	$\frac{1}{7}$					

		answer		simplest form		
$\frac{3}{4}$	x	$\frac{1}{3}$	=	<table border="1" style="display: inline-table; border-collapse: collapse; text-align: center;"> <tr> <td style="padding: 5px;"><math>\frac{3}{12}</math></td> <td style="padding: 5px;"><math>\frac{1}{4}</math></td> </tr> </table>	$\frac{3}{12}$	$\frac{1}{4}$
$\frac{3}{12}$	$\frac{1}{4}$					

$\frac{5}{6}$	x	$\frac{3}{8}$	=	<table border="1" style="display: inline-table; border-collapse: collapse; text-align: center;"> <tr> <td style="padding: 5px;"><math>\frac{15}{48}</math></td> <td style="padding: 5px;"><math>\frac{3}{16}</math></td> </tr> </table>	$\frac{15}{48}$	$\frac{3}{16}$
$\frac{15}{48}$	$\frac{3}{16}$					

$\frac{2}{5}$	x	$\frac{5}{9}$	=	<table border="1" style="display: inline-table; border-collapse: collapse; text-align: center;"> <tr> <td style="padding: 5px;"><math>\frac{10}{45}</math></td> <td style="padding: 5px;"><math>\frac{2}{9}</math></td> </tr> </table>	$\frac{10}{45}$	$\frac{2}{9}$
$\frac{10}{45}$	$\frac{2}{9}$					

- Divide proper fractions by whole numbers

$\frac{5}{8}$	÷	4	=	<table style="margin: auto;"> <tr><td style="text-align: center;">5</td></tr> <tr><td style="text-align: center;">—</td></tr> <tr><td style="text-align: center;">32</td></tr> </table>	5	—	32
5							
—							
32							

$\frac{7}{9}$	÷	3	=	<table style="margin: auto;"> <tr><td style="text-align: center;">7</td></tr> <tr><td style="text-align: center;">—</td></tr> <tr><td style="text-align: center;">27</td></tr> </table>	7	—	27
7							
—							
27							

$\frac{1}{2}$	÷	6	=	<table style="margin: auto;"> <tr><td style="text-align: center;">1</td></tr> <tr><td style="text-align: center;">—</td></tr> <tr><td style="text-align: center;">12</td></tr> </table>	1	—	12
1							
—							
12							

$\frac{3}{4}$	÷	8	=	<table style="margin: auto;"> <tr><td style="text-align: center;">3</td></tr> <tr><td style="text-align: center;">—</td></tr> <tr><td style="text-align: center;">32</td></tr> </table>	3	—	32
3							
—							
32							

- Calculate % of whole number

75% of 64 =	48
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90% of 9,650 =	8685
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12% of 12 =	1.44
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60% of 1,200 =	720
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