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 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°C. By 11pm the temperature drops to –31°C. By how much does the temperature fall?									
Billy and Jo have £564.32 in their bank account. They pay for a holiday which includes: • Aeroplane tickets at £243.21 • Hotel accommodation at £428.17 • What will their account balance be after paying for the holiday?									
Put these temperatures in order from coolest to warmest: 1°C, -3°C, -8°C, -31°C, 12°C, -11°C, 35°C, 0°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

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?

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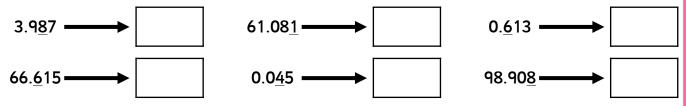


Highl	Highlight all the prime numbers											
1	2	3	4	5	6	7	8	9	10			
11	12	13	14	15	16	17	18	19	20			
21	22	23	24	25	26	27	28	29	30			
31	32	33	34	35	36	37	38	39	40			
41	42	43	44	45	46	47	48	49	50			
51	52	53	54	55	56	57	58	59	60			
61	62	63	64	65	66	67	68	69	70			
71	72	73	74	75	76	77	78	79	80			
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 of the underlined digit of each number.





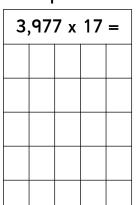
• Use knowledge of order of operations to carry out calculations involving four operations

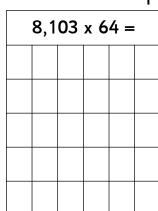
Use the order of operations (BODMAS) to work out the following:

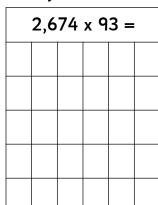
$$(2 + 9) \times (10 - 5) =$$

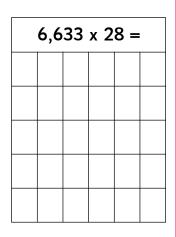
$$42 - 7 \times (6 + 8) =$$

• Multiply: 4-digit by 2-digit Complete the column method multiplication questions

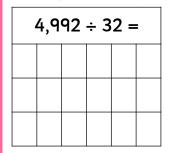


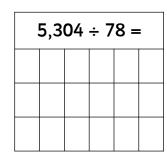


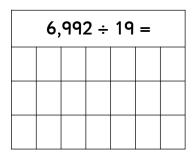


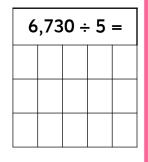


• Divide: 4-digit by 2-digit Complete the questions









Add and subtract fractions with different denominators and mixed numbers

$$\frac{7}{8} + \frac{5}{6} =$$

$$\frac{4}{5} - \frac{3}{4} =$$

$$1 \frac{1}{3} + \frac{1}{2} =$$

$$5 \frac{1}{3} - \frac{2}{5} =$$

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

			_	answer	form
1	v	4	_		
4	^	7			

$$\frac{3}{4} \times \frac{1}{3} = \boxed{ - }$$

answer

$$\frac{5}{6}$$
 x $\frac{3}{8}$ = ______

$$\frac{2}{5}$$
 x $\frac{5}{9}$ = $\frac{}{}$

• Divide proper fractions by whole numbers

$$\frac{1}{2}$$
 ÷ 6 = $\boxed{}$

• Calculate % of whole number

Use negative numbers in context and calculate intervals across zero

The temperature at 12 midday is 16° C. By 11pm the temperature drops to -31° C. By how much does the temperature fall?

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

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

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−£107.06
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Put these temperatures in order from coolest to warmest: 1°C, -3°C, -8°C, -31°C, 12°C, -11°C, 35°C, 0°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

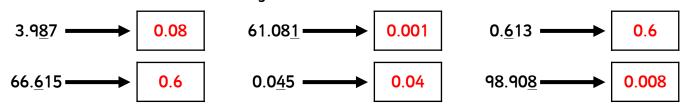


Highl	Highlight all the prime numbers											
1	2	3	4	5	6	7	8	9	10			
11	12	13	14	15	16	17	18	19	20			
21	22	23	24	25	26	27	28	29	30			
31	32	33	34	35	36	37	38	39	40			
41	42	43	44	45	46	47	48	49	50			
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61	62	63	64	65	66	67	68	69	70			
71	72	73	74	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 of the underlined digit of each number.



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

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

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

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

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

Multiply: 4-digit by 2-digit
 Complete the column method multiplication questions

3,977 x 17 =								
	3 9 7 7							
X	6	5	1_4	7				
2	7	8	3	9				
3,	91	7,	7	0				
6	7	6	0	9				

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

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

6,633 x 28 =									
	6 6 3 3								
	x 5 2 2 8								
	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

Add and subtract fractions with different denominators and mixed numbers

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

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

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

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

				answer	form
1_	x	4	=	4	1
4		7		28	7

$$\frac{5}{6}$$
 x $\frac{3}{8}$ = $\frac{15}{48}$ $\frac{3}{16}$

$$\frac{3}{4} \times \frac{1}{3} = \frac{\frac{3}{12}}{\frac{12}{4}}$$

$$\frac{2}{5} \quad x \quad \frac{5}{9} \quad = \boxed{\begin{array}{c|c} 10 \\ \hline 45 \end{array}} \qquad \frac{2}{9}$$

• Divide proper fractions by whole numbers

$$\frac{5}{8} \div 4 = \boxed{\frac{5}{32}}$$

$$\frac{1}{2} \div 6 = \boxed{\frac{1}{12}}$$

$$\frac{7}{9} \div 3 = \boxed{\frac{7}{27}}$$

$$\frac{3}{4} \div 8 = \boxed{\frac{3}{32}}$$

• Calculate % of whole number