

Year 3 and Year 4 Multiplication and Division, Unit 1 (34814)

Additional teacher instructions for practice sheets

These notes indicate which practice sheets are most appropriate for which groups.

Day 1 Y3 Multiplication grid Sheet 1

Working towards ARE

Day 1 Y3 Multiplication grid Sheet 2

Working at ARE / Greater Depth

Day 1 Y4 Multiplication and division facts Sheet 3

Working towards ARE / Working at ARE

Working towards ARE fill in the yellow squares.

Working at ARE fill in both yellow and grey squares.

Day 1 Y4 Multiplication and division facts Sheet 4

Greater Depth

Day 2 Y3 Finding factors Sheet 1

Working towards ARE / Working at ARE / Greater Depth

Working towards ARE complete Section A drawing arrays to help.

Working at ARE complete Section A and then try three questions from Section B.

Greater Depth start at Section B and complete the Challenge.

Day 2 Y4 Using factors Sheet 2

Working towards ARE / Working at ARE / Greater Depth

Day 3 Y3 Multiplying three numbers together Sheet 1

Working towards ARE / Working at ARE / Greater Depth

Day 3 Y4 Multiplying three numbers together Sheet 2

Working towards ARE / Working at ARE / Greater Depth

Multiplication grid

Sheet 1

Complete the multiplication grid.

<i>x</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>8</i>	<i>9</i>	<i>10</i>
<i>1</i>						<i>6</i>	<i>7</i>		<i>9</i>	
<i>2</i>						<i>12</i>	<i>14</i>		<i>18</i>	
<i>3</i>						<i>18</i>	<i>21</i>		<i>27</i>	
<i>4</i>						<i>24</i>	<i>28</i>		<i>36</i>	
<i>5</i>						<i>30</i>	<i>35</i>		<i>45</i>	
<i>6</i>						<i>36</i>	<i>42</i>		<i>54</i>	
<i>7</i>						<i>42</i>	<i>49</i>		<i>63</i>	
<i>8</i>						<i>48</i>	<i>56</i>		<i>72</i>	
<i>9</i>						<i>54</i>	<i>63</i>		<i>81</i>	
<i>10</i>						<i>60</i>	<i>70</i>		<i>90</i>	

Multiplication grid

Sheet 2

Fill in the multiplication grid.

<i>x</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>8</i>	<i>9</i>	<i>10</i>
<i>1</i>										
<i>2</i>										
<i>3</i>										
<i>4</i>										
<i>5</i>										
<i>6</i>										
<i>7</i>										
<i>8</i>										
<i>9</i>										
<i>10</i>										

Multiplication and division facts

Sheet 3

Complete the multiplication grid:

1	2	3	4	5	6	7	8	9	10	11	12
2	4	6	8	10	12	14	16		20	22	24
3		9	12	15		21	24	27	30	33	36
4	8			20	24	28	32	36	40	44	48
5	10	15		25	30	35	40	45	50	55	
6	12	18	24	30	36	42	48	54	60		
7	14	21	28	35	42	49		63	70	77	
8	16	24	32	40		56			80	88	96
9	18			45	54	63	72	81		99	108
10	20	30	40	50	60	70	80	90	100		120
11	22	33		55	66	77	88		110		132
12	24		48	60	72	84	96	108	120		

Challenge

Use the grid to complete these division facts:

$$\square \div 5 = 8$$

$$42 \div \square = 7$$

$$11 = \square \div 12$$

$$36 \div \square = 4$$

$$9 = \square \div 12$$

$$110 \div 11 = \square$$

Multiplication and division facts

Sheet 4

Complete the multiplication grid:

1	2	3	4	5	6	7	8	9	10	11	12
2	4	6	8	10	12	14	16				
3				15					30	33	
4	8			20					40		
5	10	15		25	30	35	40	45	50	55	
6								54			
7				35					70		
8	16										
9											
10	20	30	40	50	60	70	80	90			
11											
12	24										

Challenge

Use the grid to complete these division facts:

$$\square \div 5 = 8$$

$$42 \div \square = 7$$

$$11 = \square \div 12$$

$$36 \div \square = 4$$

$$9 = \square \div 12$$

$$110 \div 11 = \square$$

Finding factors

Sheet 1

- A. Find all of the factors of these numbers.
Predict which will have most/least factors.

1. 24

2. 25

3. 12

4. 16

5. 30

6. 28

- B. Find the common factors of each pair of numbers:

1. 20 and 30

2. 16 and 24

3. 15 and 25

4. 12 and 36

5. 20 and 40

Challenge

1. Find the common factors of 16, 24 and 36.
2. The common 1-digit factors of two 2-digit numbers are 1, 2, 3 and 7. What could the two numbers be?

Using factors

Sheet 2

1. Write all the pairs of factors of 12.
Choose a pair to help you to calculate 12×31 .
2. Write all the pairs of factors of 16.
Choose a pair to help you to calculate 16×25 .
3. Write all the pairs of factors of 30.
Choose a pair to help you to calculate 30×42 .
4. Write all the pairs of factors of 18.
Choose a pair to help you to calculate 18×31 .
5. Use factor pairs to quickly find 6×123 .

Challenge 1

Choose 3 of the questions and for each one show how you can use a second pair of factors to find and check the answer.

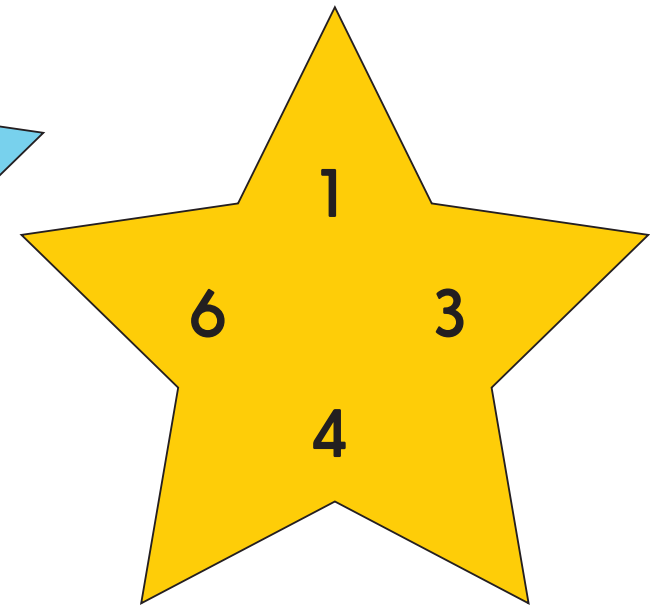
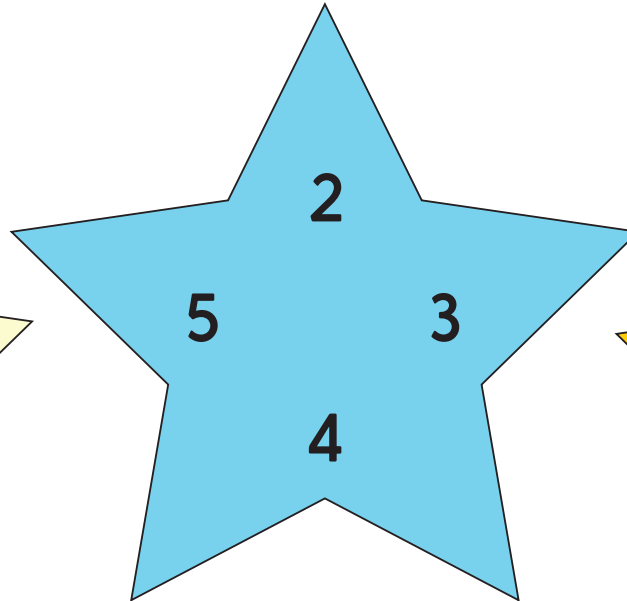
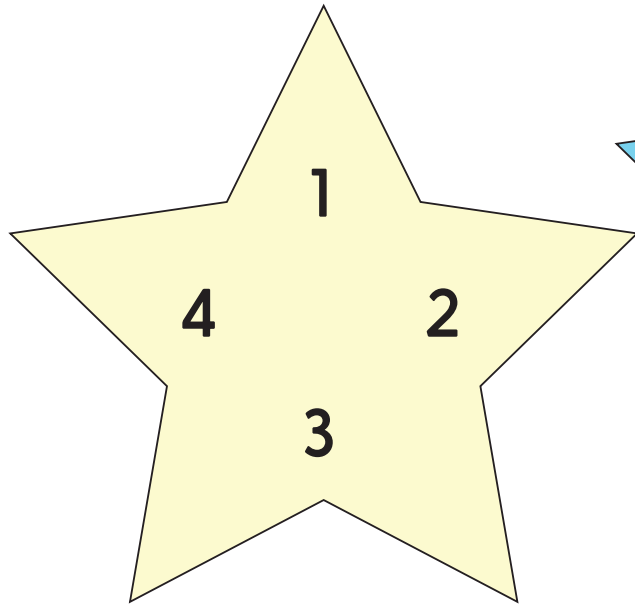
Challenge 2

1. Kristina says '1005 must be a multiple of 15 because it is a multiple of 5 and a multiple of 3.' Do you agree?
2. If you do decide that 1005 is a multiple of 15, use factor pairs and inverse operations to say how many 15s it is.

Multiplying three numbers together

Sheet 1

Choose one number from each of the 3 stars.
Choose an efficient order to multiply them together.
Repeat as many times as you can.



Challenge

Find the missing numbers:

$$\square \times 2 \times 5 = 40$$

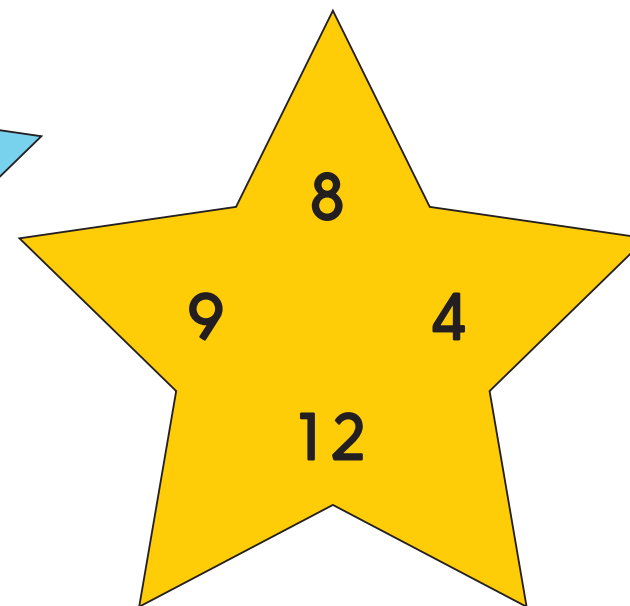
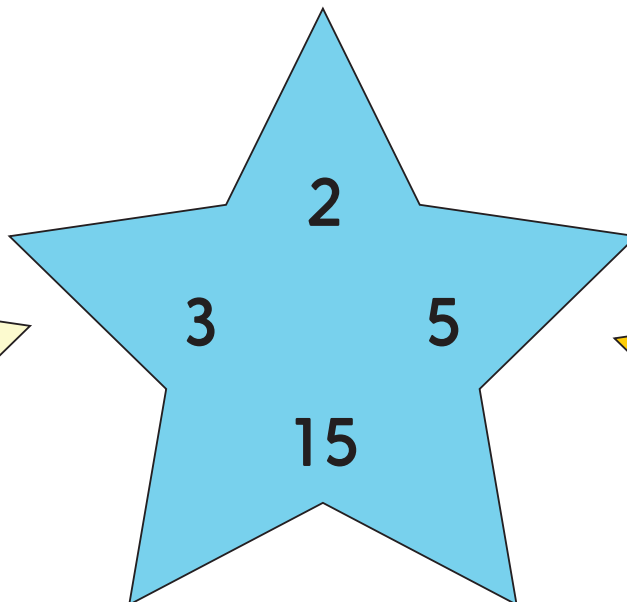
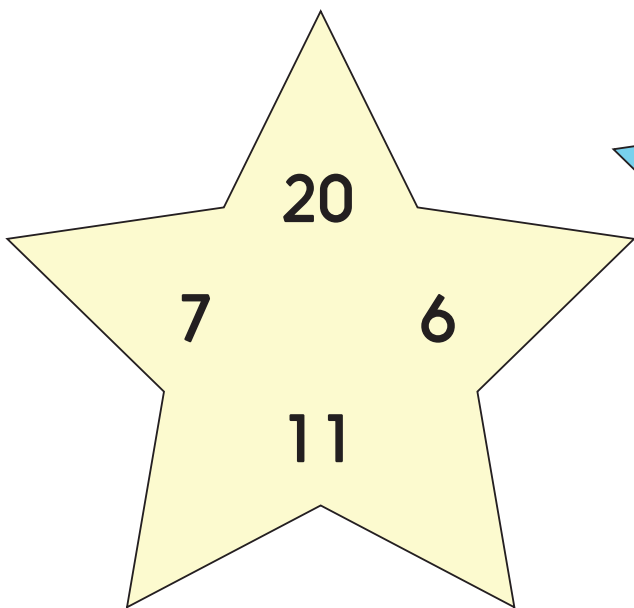
$$4 \times \square \times 3 = 36$$

$$4 \times 4 \times \square = 32$$

Multiplying three numbers together

Sheet 2

Choose one number from each of the 3 stars.
Choose an efficient order to multiply them together.
Repeat as many times as you can.



Challenge

Find the missing numbers:

$$\square \times 7 \times 6 = 420$$

$$8 \times 11 \times \square = 440$$

$$3 \times \square \times 5 = 135$$

Multiplication and division

Answers

Day 1 Y3 Multiplication grid Sheet 1

x	1	2	3	4	5	6	7	8	9	10
1	1	2	3	4	5	6	7	8	9	10
2	2	4	6	8	10	12	14	16	18	20
3	3	6	9	12	15	18	21	24	27	30
4	4	8	12	16	20	24	28	32	36	40
5	5	10	15	20	25	30	35	40	45	50
6	6	12	18	24	30	36	42	48	54	60
7	7	14	21	28	35	42	49	56	63	70
8	8	16	24	32	40	48	56	64	72	80
9	9	18	27	36	45	54	63	72	81	90
10	10	20	30	40	50	60	70	80	90	100

Day 1 Y3 Multiplication grid Sheet 2

x	1	2	3	4	5	6	7	8	9	10
1	1	2	3	4	5	6	7	8	9	10
2	2	4	6	8	10	12	14	16	18	20
3	3	6	9	12	15	18	21	24	27	30
4	4	8	12	16	20	24	28	32	36	40
5	5	10	15	20	25	30	35	40	45	50
6	6	12	18	24	30	36	42	48	54	60
7	7	14	21	28	35	42	49	56	63	70
8	8	16	24	32	40	48	56	64	72	80
9	9	18	27	36	45	54	63	72	81	90
10	10	20	30	40	50	60	70	80	90	100

Multiplication and division

Answers

Day 1 Y4 Multiplication and division facts Sheet 3

1	2	3	4	5	6	7	8	9	10	11	12
2	4	6	8	10	12	14	16	18	20	22	24
3	6	9	12	15	18	21	24	27	30	33	36
4	8	12	16	20	24	28	32	36	40	44	48
5	10	15	20	25	30	35	40	45	50	55	60
6	12	18	24	30	36	42	48	54	60	66	72
7	14	21	28	35	42	49	56	63	70	77	84
8	16	24	32	40	48	56	64	72	80	88	96
9	18	27	36	45	54	63	72	81	90	99	108
10	20	30	40	50	60	70	80	90	100	110	120
11	22	33	44	55	66	77	88	99	110	121	132
12	24	36	48	60	72	84	96	108	120	132	144

Challenge

$$40 \div 5 = 8$$

$$42 \div 6 = 7$$

$$11 = 132 \div 12$$

$$36 \div 9 = 4$$

$$9 = 108 \div 12$$

$$110 \div 11 = 10$$

Day 1 Y4 Multiplication and division facts Sheet 4

1	2	3	4	5	6	7	8	9	10	11	12
2	4	6	8	10	12	14	16	18	20	22	24
3	6	9	12	15	18	21	24	27	30	33	36
4	8	12	16	20	24	28	32	36	40	44	48
5	10	15	20	25	30	35	40	45	50	55	60
6	12	18	24	30	36	42	48	54	60	66	72
7	14	21	28	35	42	49	56	63	70	77	84
8	16	24	32	40	48	56	64	72	80	88	96
9	18	27	36	45	54	63	72	81	90	99	108
10	20	30	40	50	60	70	80	90	100	110	120
11	22	33	44	55	66	77	88	99	110	121	132
12	24	36	48	60	72	84	96	108	120	132	144

Challenge

$$40 \div 5 = 8$$

$$42 \div 6 = 7$$

$$11 = 132 \div 12$$

$$36 \div 9 = 4$$

$$9 = 108 \div 12$$

$$110 \div 11 = 10$$

Multiplication and division

Answers

Day 2 Y3 Finding factors Sheet 1

A

1. 24: 1, 2, 3, 4, 6, 8, 12, 24
2. 25: 1, 5, 25
3. 12: 1, 2, 3, 4, 6, 12
4. 16: 1, 2, 4, 8, 16
5. 30: 1, 2, 3, 5, 6, 10, 15, 30
6. 28: 1, 2, 4, 7, 14, 28

B

1. 20 and 30: 1, 2, 5, 10
2. 16 and 24: 1, 2, 4, 8
3. 15 and 25: 1, 5
4. 12 and 36: 1, 2, 3, 4, 6, 12
5. 20 and 40: 1, 2, 4, 5, 10, 20

Challenge

1. Common factors of 16, 24 and 36: 1, 2 and 4
2. The two numbers can only be 42 and 84 - the even (2 is a factor) multiples of 21 (3 and 7 are factors).

Day 2 Y4 Using factors Sheet 2

1. 1 and 12, 2 and 6, 3 and 4
 12×31
 $3 \times 31 = 93, 4 \times 93 = 372$
2. 1 and 16, 2 and 8, 4 and 4
 16×25
 $4 \times 25 = 100, 100 \times 4 = 400$
3. 1 and 30, 2 and 15, 3 and 10, 5 and 6
 30×42
 $3 \times 42 = 126, 126 \times 10 = 1260$
4. 1 and 18, 2 and 9, 3 and 6
 18×31
 $6 \times 31 = 186, 186 \times 3 = 558$
or $31 \times 3 \times 3 \times 2 = 93 \times 3 \times 2 = 279 \times 2 = 558$
5. $123 \times 6 = 123 \times 3 \times 2$
 $= 369 \times 2 = (370 \times 2) - 2$
 $= 740 - 2 = 738$

Challenge 1

1. 12×31 $2 \times 31 = 62, 6 \times 62 = 372$
2. 16×25 $2 \times 25 = 50, 8 \times 50 = 400$
3. 30×42 $2 \times 42 = 84, 15 \times 84 = 1260$ or $3 \times 42 = 126, 10 \times 126 = 1260$
4. 18×31 $2 \times 31 = 62, 9 \times 62 = 558$
5. 6×123 $3 \times 123 = 369, 2 \times 369 = 738$

Multiplication and division

Answers

Day 2 Y4 Using factors Sheet 2 continued

Challenge 2

1. Yes, multiples of 3 which are also multiples of 5 are all multiples of 15, e.g. 15, 30, 45, but not 12, 18 (multiples of 3) or 10, 25 (multiples of 5).
2. $1005 \div 15$ is the same as $1005 \div 5 \div 3$.
 $1005 \div 5 = 201$; $201 \div 3 = 67$, so, $1005 \div 15 = 67$

Day 3 Y3 Multiplying three numbers together Sheet 1

Answers could include:

2, 3, 4	$2 \times 3 = 6$	$6 \times 4 = 24$
3, 5, 1	$3 \times 5 = 15$	$15 \times 1 = 15$
4, 2, 3	$4 \times 2 = 8$	$8 \times 3 = 24$
1, 4, 6	$1 \times 4 = 4$	$4 \times 6 = 24$

Challenge

$4 \times 2 \times 5 = 40$ $4 \times 3 \times 3 = 36$ $4 \times 4 \times 2 = 32$

Day 3 Y4 Multiplying three numbers together Sheet 2

Answers could include:

20, 2, 8	$20 \times 2 = 40$	$40 \times 8 = 320$	
7, 3, 9	$7 \times 3 = 21$	$21 \times 9 = 189$	$(21 \times 10) - 21$
6, 15, 9	$6 \times 15 = 90$	$90 \times 9 = 810$	
11, 5, 12	$5 \times 11 = 55$	$55 \times 12 = 660$	$(55 \times 10) + (55 \times 2)$

Challenge

$10 \times 7 \times 6 = 420$ $8 \times 11 \times 5 = 440$ $3 \times 9 \times 5 = 135$