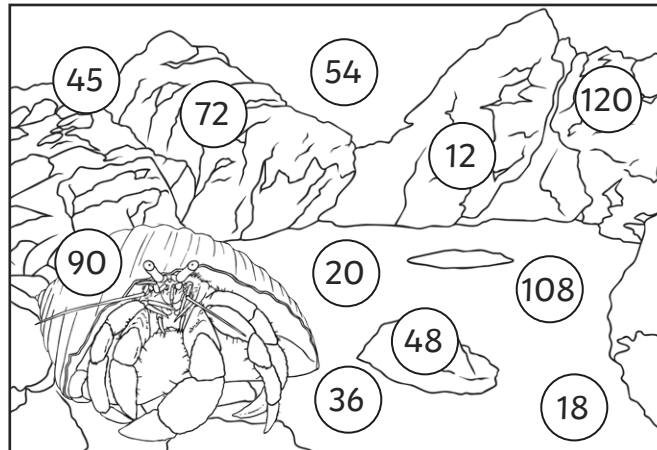


# Common Multiples

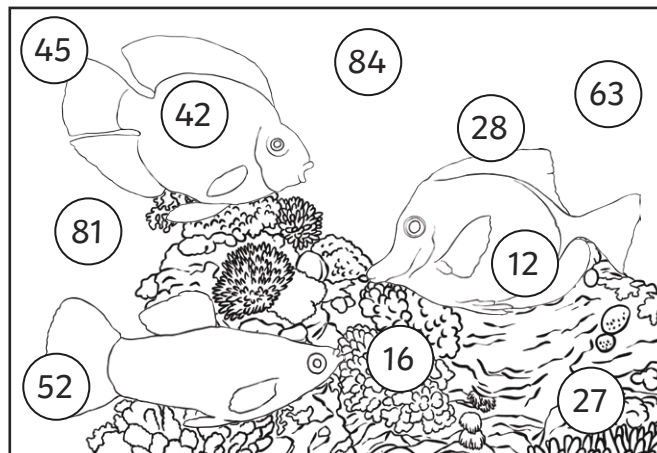
I can identify common multiples.



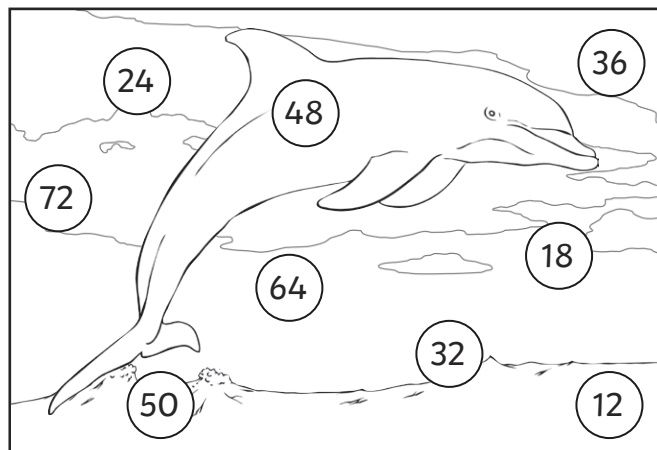
- 1) Colour the common multiples of four and nine.



- 2) Colour the common multiples of two, three and seven.



- 3) Colour the multiples of six, eight and 12.



- 4) The marine biologists have been studying newly discovered species of fish. Each type of fish is found in a certain group size. The scientists are investigating similarities of group size, including the lowest common group number (lowest common multiple).

groups of 12	
groups of seven	

- a) The lowest common group number is \_\_\_\_\_ .

groups of eight	
groups of 14	

- b) The lowest common group number is \_\_\_\_\_ .

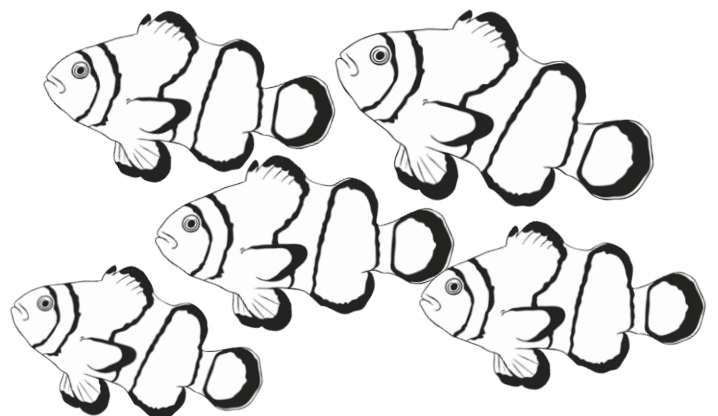
groups of six	
groups of nine	
groups of 12	

- c) The lowest common group number is \_\_\_\_\_ .

groups of two	
groups of seven	
groups of eight	

- d) The lowest common group number is \_\_\_\_\_ .
- e) The marine biologists have lost some data. They know that the lowest common multiple of two numbers is 36. If one number is 12, what might the other number be?

\_\_\_\_\_



# Common Multiples Answers

Question	Answer
1.	Colour the common multiples of four and nine.
	<b>36, 72, 108</b>
2.	Colour the common multiples of two, three and seven.
	<b>42, 84</b>
3.	Colour the multiples of six, eight and 12.
	<b>24, 48, 72</b>
4.	The marine biologists have been studying newly discovered species of fish. Each type of fish is found in a certain group size. The scientists are investigating similarities of group size, including the lowest common group number (lowest common multiple).
a	The lowest common group number is <b>84</b> .
b	The lowest common group number is <b>56</b> .
c	The lowest common group number is <b>36</b> .
d	The lowest common group number is <b>56</b> .
e	The lowest common group number is <b>36</b> .
f	The marine biologists have lost some data. They know that the lowest common multiple of two numbers is 36. If one number is 12, what might the other number be? <b>9</b>

# Extra Challenge

I can identify common multiples.



- 1) The lowest common multiple of two numbers is 90. If one number is 15, what is the other number?  
\_\_\_\_\_
- 2) What is the lowest common multiple of 15 and 10 (\_\_\_\_) multiplied by the lowest common multiple of 6 and 20 (\_\_\_\_)?  
\_\_\_\_\_
- 3) What is the lowest common multiple of 18 and 12 divided by their highest common factor?  
\_\_\_\_\_
- 4) The lowest common multiple of three numbers is 36. If one number is 2, what could the other numbers be?  
\_\_\_\_\_
- 5) What is the lowest common multiple of 9 and 13 multiplied by the lowest common multiple of 3 and 9?  
\_\_\_\_\_
- 6) What is the lowest common multiple of 14 and 16 divided by their highest common factor?  
\_\_\_\_\_



# Extra Challenge Answers

Question	Answer
1.	The lowest common multiple of two numbers is 90. If one number is 15, what is the other number?
	<b>18</b>
2.	What is the lowest common multiple of 15 and 10 ( <b>30</b> ) multiplied by the lowest common multiple of 6 and 20 ( <b>60</b> )?
	<b>1800</b>
3.	What is the lowest common multiple of 18 and 12 divided by their highest common factor?
	<b><math>(36/6) = 6</math></b>
4.	The lowest common multiple of three numbers is 36. If one number is 2, what could the other numbers be?
	<b>9 and 4, other answers possible.</b>
5.	What is the lowest common multiple of 9 and 13 multiplied by the lowest common multiple of 3 and 9?
	<b><math>(117 \times 9) = 1053</math></b>
6.	What is the lowest common multiple of 14 and 16 divided by their highest common factor?
	<b><math>(56 \times 2) = 112</math></b>



- 1)
- a) The common multiple is 12.
  - b) Children might suggest 24, 36, 48, 60 or any other common multiple of 4 and 6.
  - c) 24, 36, 48, 60, 72, 84, 96

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

Key:

multiples of 4
multiples of 6
multiples of 4 and 6

- 2)
- a)   
15, 30, 45
  - b)   
30, 60, 90
  - c)   
21, 42, 63
  - d)   
10, 20, 30
  - e)   
28, 56, 84
  - f)   
40, 80, 120

Children may also give other common multiples, formed by finding the product of the two numbers and then finding multiples of this product.

- 1) Levi is incorrect. If the pair of numbers do not share a common factor (other than 1), such as 4 and 7, then their lowest common multiple is their product, as in this example (28). However, if the pair of numbers do share a common factor, such as 4 and 6 (which have a common factor of 2), then their lowest common multiple is not their product. In this case, their lowest common multiple is 12 and their product is 24.



- 2)
- a) 12, 24 and 36  
Accept any pair of numbers from 2, 3, 4, 6 or 12.
  - b) 15, 30 and 45  
Accept any pair of numbers from 3, 5 or 15.
  - c) 21, 42 and 63  
Accept any pair of numbers from 3, 7 or 21.
  - d) 10, 20 and 30  
Accept any pair of numbers from 2, 5 or 10.
  - e) 18, 27 and 36  
3 and 9
  - f) 36, 72 and 108  
Accept any pair of numbers from 2, 3, 4, 6, 9, 12, 18 or 36.

- 1) Common multiples of 3 and 5 are 15, 30, 45 and 60. The two gauges will both beep at these times. Therefore, they will both beep at the same time four times in an hour.
- 2) Common multiples of 12 and 18 are 36, 72, 108, 144, 180, 216, 252, 288, 324 and 360. 360 is equivalent to 6 hours, which is how long the diving sessions last for. Therefore, the reports will come in at the same time 10 times between 7 a.m. and 1 p.m.



These common multiples need converting to times in order to work out when the reports will come in at the same time.

- 7:36 a.m.
- 8:48 a.m.
- 10:00 a.m.
- 11:12 a.m.
- 12:24 p.m.
- 8:12 a.m.
- 9:24 a.m.
- 10:36 a.m.
- 11:48 a.m.
- 1:00 p.m.

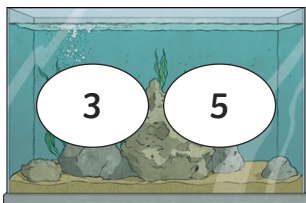


1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

- 1)
- Use one colour to shade in the first five multiples of 4 and a different colour to shade in the first five multiples of 6. What common multiple(s) do they have?
  - Before shading in any other multiples, can you use the lowest common multiple to work out another three common multiples of 4 and 6?
  - Now shade in all the multiples of 4 and all the multiples of 6 on the 100 square. List all the remaining common multiples of 4 and 6.

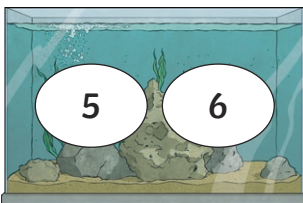
2) Give three common multiples for each pair of numbers.

a)



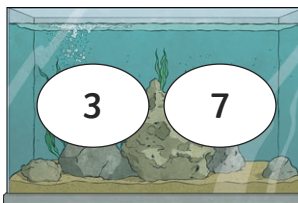
\_\_\_\_\_

b)



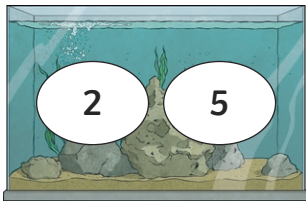
\_\_\_\_\_

c)



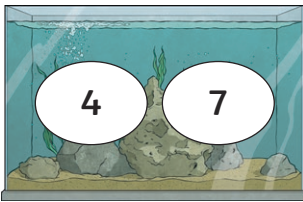
\_\_\_\_\_

d)



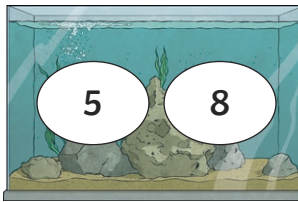
\_\_\_\_\_

e)



\_\_\_\_\_

f)



\_\_\_\_\_

1) Is Levi correct? Explain your reasoning and use examples to prove it.

The lowest common multiple of two numbers is always the product of those two numbers.



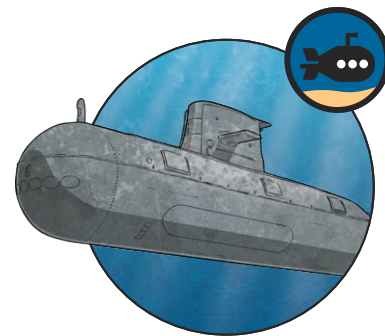
2) For each set of common multiples below, find a pair of numbers for which they could be the common multiples.

- |                        |                        |                         |
|------------------------|------------------------|-------------------------|
| a) 12, 24 and 36 _____ | c) 21, 42 and 63 _____ | e) 18, 27 and 36 _____  |
| b) 15, 30 and 45 _____ | d) 10, 20 and 30 _____ | f) 36, 72 and 108 _____ |

- 1) In Rose's submarine, the pressure gauge beeps every 3 minutes and the depth gauge beeps every 5 minutes. How many times in an hour will the two gauges beep at the same time? Provide examples to back up your answer.

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- 2) Rose leads a team of two divers who send reports back to her monitor throughout the day, from 7 a.m. to 1 p.m. Caspar sends his reports back every 12 minutes. Ingrid sends her reports back every 18 minutes. How many times a day will their reports come into the monitor at exactly the same time? Explain your reasoning using examples.

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Can you work out all the times that the reports will come in at the same time?

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1)

a) Use one colour to shade in the first five multiples of 4 and a different colour to shade in the first five multiples of 6. What common multiple(s) do they have?



b) Before shading in any other multiples, can you use the lowest common multiple to work out another three common multiples of 4 and 6?

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

c) Now shade in all the multiples of 4 and all the multiples of 6 on the 100 square. List all the remaining common multiples of 4 and 6.

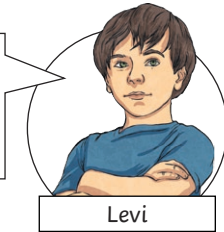
2) Give three common multiples for each pair of numbers.

a) b) c)

d) e) f)

1) Is Levi correct? Explain your reasoning and use examples to prove it.

The lowest common multiple of two numbers is always the product of those two numbers.



2) For each set of common multiples below, find a pair of numbers for which they could be the common multiples.

- a) 12, 24 and 36    c) 21, 42 and 63    e) 18, 27 and 36  
 b) 15, 30 and 45    d) 10, 20 and 30    f) 36, 72 and 108

1) In Rose's submarine, the pressure gauge beeps every 3 minutes and the depth gauge beeps every 5 minutes. How many times in an hour will the two gauges beep at the same time? Provide examples to back up your answer.



2) Rose leads a team of two divers who send reports back to her monitor throughout the day, from 7 a.m. to 1 p.m. Caspar sends his reports back every 12 minutes. Ingrid sends her reports back every 18 minutes. How many times a day will their reports come into the monitor at exactly the same time? Explain your reasoning using examples.

Can you work out all the times that the reports will come in at the same time?

1)

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b) Before shading in any other multiples, can you use the lowest common multiple to work out another three common multiples of 4 and 6?

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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

c) Now shade in all the multiples of 4 and all the multiples of 6 on the 100 square. List all the remaining common multiples of 4 and 6.

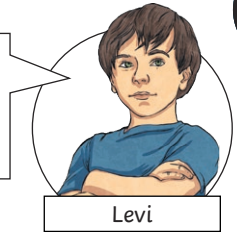
2) Give three common multiples for each pair of numbers.

a) b) c)

d) e) f)

1) Is Levi correct? Explain your reasoning and use examples to prove it.

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Can you work out all the times that the reports will come in at the same time?

# Marine Multiples

I can identify common multiples.



Take turns to roll the two dice. Shade in any common multiples of the two generated numbers, e.g. If you rolled a 2 and a 3, you could shade 6, 12, 18 etc... in your chosen colour. If your partner has already shaded in a common multiple, you cannot have that number. The player with the most squares shaded in their colour at the end of the game wins!

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



