

Reasoning and Problem Solving

Step 7: Multiply and Divide by 6

National Curriculum Objectives:

Mathematics Year 4: (4C6a) [Recall multiplication and division facts for multiplication tables up to \$12 \times 12\$](#)

Differentiation:

Questions 1, 4 and 7 (Reasoning)

Developing Identify a mistake when multiplying by 6 up to 12×6 . All questions have pictorial support.

Expected Identify a mistake when multiplying by 6 up to 12×6 with scaffolding or pictorial support where needed.

Greater Depth Identify a mistake when multiplying by 6 up to 12×6 with no scaffolding or pictorial support.

Questions 2, 5 and 8 (Problem Solving)

Developing Identify a mistake when dividing by 6 up to $72 \div 6$. All questions have pictorial support.

Expected Identify a mistake when dividing by 6 up to $72 \div 6$ with scaffolding or pictorial support where needed.

Greater Depth Identify a mistake when dividing by 6 up to $72 \div 6$ with no scaffolding or pictorial support.

Questions 3, 6 and 9 (Problem Solving)

Developing Use the number cards to complete a bar model representing multiplying and dividing by 6 up to 12×6 . Scaffolding provided for up to 3 number cards.

Expected Use the number cards to create multiplication and division calculations up to 12×6 with five number cards and choice of symbols.

Greater Depth Use the number cards to create multiplication and division calculations up to 12×6 with seven number cards and symbols, not all of which can be used.

More [Year 4 Multiplication and Division](#) resources.

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

Multiply and Divide by 6

1a. Sam rolls a dice 6 times and it lands on 6 every time.



He says,



I got 30 altogether.

Do you agree with Sam? Explain your answer.



R

Multiply and Divide by 6

1b. Ava rolls a dice 5 times and it lands on 6 every time.



She says,



I got 32 altogether.

Do you agree with Ava? Explain your answer.



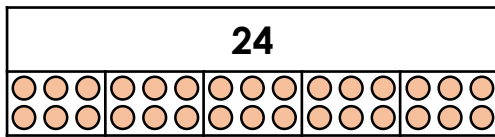
R

2a. Asha is trying to solve the calculation below.

$$24 \div 6$$



I think the answer is 5.



What has Asha done wrong?



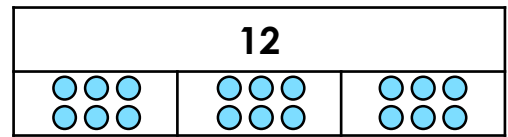
R

2b. Rex is trying to solve the calculation below.

$$12 \div 6$$



I think the answer is 3.

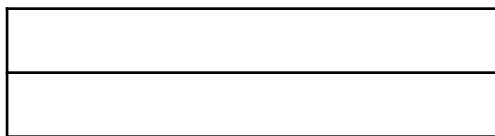
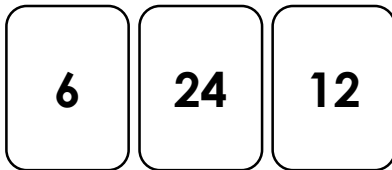


What has Rex done wrong?



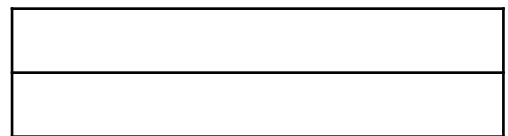
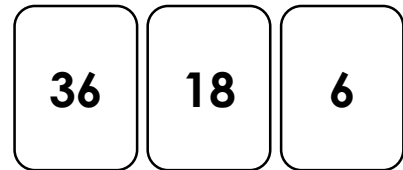
R

3a. Use any of the cards below to complete the bar model. You can use each card more than once.



PS

3b. Use any of the cards below to complete the bar model. You can use each card more than once.



PS

Multiply and Divide by 6

4a. Ruby rolls a dice 3 times and it lands on 6 every time.



She says,



I got 24 altogether.

Do you agree with Ruby? Explain your answer.



R

Multiply and Divide by 6

4b. Ben rolls a dice 7 times and it lands on 6 every time.



He says,



I got 40 altogether.

Do you agree with Ben? Explain your answer.



R

5a. Max is trying to solve the calculation below.

$$42 \div 6$$



I think the answer is 6.

42					
6	6	6	6	6	6

What has Max done wrong? Draw a bar model to show your answer.



R

5b. Katie is trying to solve the calculation below.

$$18 \div 6$$



I think the answer is 5.

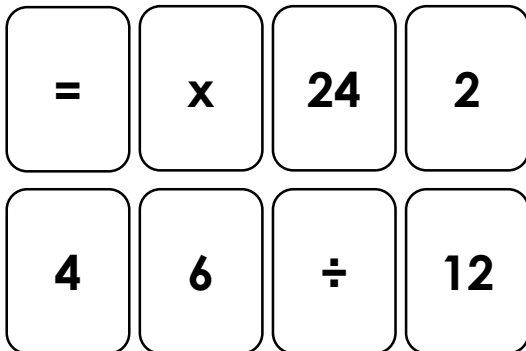
18					
5	5	5	5	5	5

What has Katie done wrong? Draw a bar model to show your answer.



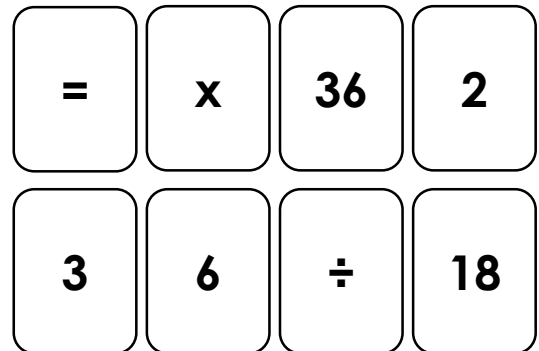
R

6a. Use the cards below to create as many calculations as you can.



PS

6b. Use the cards below to create as many calculations as you can.



PS

Multiply and Divide by 6

7a. Lucy rolls a dice 8 times and it lands on 6 every time.

She says,



I got 46 altogether.

Do you agree with Lucy? Explain your answer.



R

Multiply and Divide by 6

7b. Jake rolls a dice 4 times and it lands on 6 every time.

He says,



I got 26 altogether.

Do you agree with Jake? Explain your answer.



R

8a. William is trying to solve the calculation below.

$$54 \div 6$$



I think the answer is 8.

What has William done wrong? Draw a visual representation to show your answer.



R

8b. Laura is trying to solve the calculation below.

$$6 \div 6$$



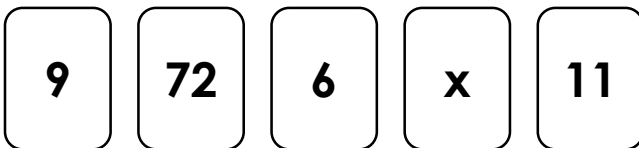
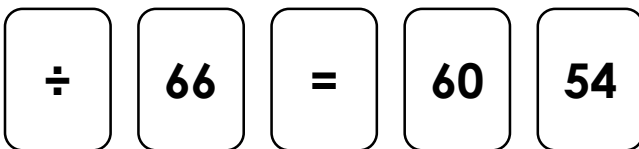
I think the answer is 0.

What has Laura done wrong? Draw a visual representation to show your answer.



R

9a. Use the cards below to create as many calculations as you can.

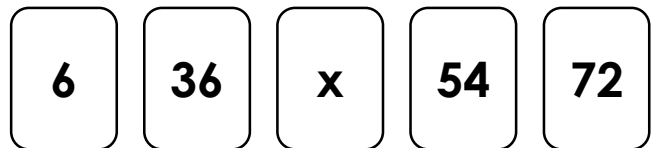
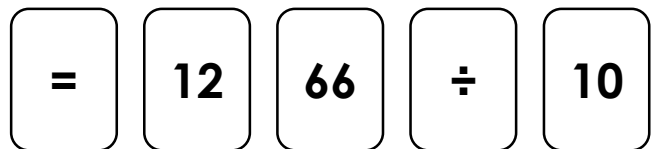


Identify the cards that cannot be used.



PS

9b. Use the cards below to create as many calculations as you can.



Identify the cards that cannot be used.



PS

Reasoning and Problem Solving Multiply and Divide by 6

Developing

- 1a. Sam is incorrect because $6 \times 6 = 36$.
2a. Asha has got the wrong answer because $24 \div 6 = 4$. She has drawn a bar model for $30 \div 5 = 6$
3a. Various answers, for example:

12	
6	6

Expected

- 4a. Ruby is incorrect because $3 \times 6 = 18$.
5a. Max has got the wrong answer because $42 \div 6 = 7$. He has drawn his bar model incorrectly.

42					
7	7	7	7	7	7

- 6a. Various answers, for example:
 $24 \div 6 = 4$, $2 \times 6 = 12$

Greater Depth

- 7a. Lucy is incorrect because $8 \times 6 = 48$.
8a. William has got the wrong answer because $54 \div 6 = 9$. Various visual representations, for example:

54					
9	9	9	9	9	9

- 9a. Various answers, for example:
 $11 \times 6 = 66$, $54 \div 6 = 9$. Cards that cannot be used: 60, 72

Reasoning and Problem Solving Multiply and Divide by 6

Developing

- 1b. Ava is incorrect because $5 \times 6 = 30$.
2b. Rex has got the wrong answer because $12 \div 6 = 2$. She has drawn a bar model for $18 \div 3 = 6$
3b. Various answers, for example:

36					
6	6	6	6	6	6

Expected

- 4b. Ben is incorrect because $7 \times 6 = 42$.
5b. Katie has got the wrong answer because $18 \div 6 = 3$. She has drawn his bar model incorrectly.

18					
3	3	3	3	3	3

- 6b. Various answers, for example:
 $36 \div 6 = 6$, $3 \times 6 = 18$

Greater Depth

- 7b. Jake is incorrect because $4 \times 6 = 24$.
8b. Laura has got the wrong answer because $6 \div 6 = 1$. Various visual representations, for example:

6					
1	1	1	1	1	1

- 9b. Various answers, for example:
 $12 \times 6 = 72$, $36 \div 6 = 6$. Cards that cannot be used: 10, 54, 66