

Reasoning and Problem Solving

Step 1: 11 and 12 Times Table

National Curriculum Objectives:

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

Mathematics Year 4: (4C7) [Multiply two-digit and three-digit numbers by a one-digit number using formal written layout](#)

Mathematics Year 4: (4C8) [Solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit, integer scaling problems and harder correspondence problems such as \$n\$ objects are connected to \$m\$ objects](#)

Differentiation:

Questions 1, 4 and 7 (Problem Solving)

Developing Use knowledge of the 11 and 12 times tables, up to $12x$, to write related number sentences from a given pictorial representation. Identical mathematical symbols are grouped together.

Expected Use knowledge of the 11 and 12 times tables, up to $12x$, to write related number sentences from a given pictorial representation. Identical mathematical symbols are grouped together.

Greater Depth Use knowledge of the 11 and 12 times tables, up to $12x$, to write related number sentences. No pictorial support. Mathematical symbols are not grouped together.

Questions 2, 5 and 8 (Problem Solving)

Developing Use knowledge of the 11 and 12 times tables, up to $12x$, to calculate the required quantity of a specific ingredient from a given recipe. Includes pictorial support.

Expected Use knowledge of the 11 and 12 times tables, up to $12x$, to calculate the required quantity of two specific ingredients from a given recipe.

Greater Depth Use knowledge of the 11 and 12 times tables, up to $12x$, to calculate the required quantity of each ingredient from a given recipe. Includes two-step calculations.

Questions 3, 6 and 9 (Reasoning)

Developing Explain whether a given answer is correct using knowledge of the 11 and 12 times tables, up to $12x$. Pictorial support included.

Expected Explain whether a given answer is correct using knowledge of the 11 and 12 times tables, up to $12x$.

Greater Depth Explain whether a given answer is correct using knowledge of the 11 and 12 times tables, up to $12x$. Includes some unconventional partitioning.

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

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

11 and 12 Times Table

11 and 12 Times Table

1a. Using facts from the 12 times table, write related number sentences for the diagram shown below.

$\square \times \square = \square$
 $\square \times \square = \square$
 $\square \div \square = \square$
 $\square \div \square = \square$



PS

1b. Using facts from the 11 times table, write related number sentences for the diagram shown below.

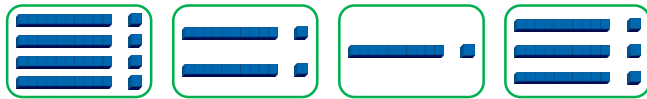
$\square \times \square = \square$
 $\square \times \square = \square$
 $\square \div \square = \square$
 $\square \div \square = \square$



PS

2a. Kristian is making dinner for 11 guests. His roast chicken recipe is shown below.

To serve <u>one</u> person, I need:
4 chicken thighs
2 tbsp of honey
1 tbsp of chopped parsley
1 tbsp of olive oil
3 oranges



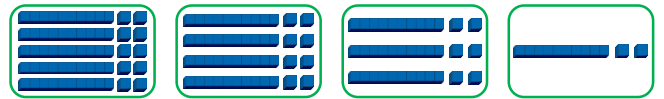
Using Base 10, work out how many chicken thighs he would need to buy.



PS

2b. Tamara is making dinner for 12 guests. Her lamb recipe is shown below.

To serve <u>one</u> person, I need:
5 tbsp of olive oil
4 garlic cloves
3 lamb steaks
4 large tomatoes
1 aubergine



Using Base 10, work out how many lamb steaks she would need to buy.



PS

3a. Yasmin is using Base 10 to work out the multiplication 7×12 .



The answer is 86, as it's the same as 7×10 add 7×2 .

Is Yasmin correct?
Explain your answer.



R

3b. Gregory is using Base 10 to work out the multiplication 9×11 .



The answer is 99, as it's the same as 9×10 add 9×1 .

Is Gregory correct?
Explain your answer.



R

11 and 12 Times Table

11 and 12 Times Table

4a. Write related number sentences to describe six equal groups of the place value counters shown below.

10	1	10	<input type="text"/> x <input type="text"/> = <input type="text"/>
1	1	10	<input type="text"/> x <input type="text"/> = <input type="text"/>
1	10	10	<input type="text"/> ÷ <input type="text"/> = <input type="text"/>
10	1	1	<input type="text"/> ÷ <input type="text"/> = <input type="text"/>



PS

4b. Write related number sentences to describe seven equal groups of the place value counters shown below.

10	1	10	<input type="text"/> x <input type="text"/> = <input type="text"/>
1	10	10	<input type="text"/> x <input type="text"/> = <input type="text"/>
10	1	10	<input type="text"/> ÷ <input type="text"/> = <input type="text"/>
10	1	10	<input type="text"/> ÷ <input type="text"/> = <input type="text"/>



PS

5a. Enid is hosting a dinner party. Part of her paella recipe is shown below.

To serve <u>one</u> person, I need:
6 tbsp of olive oil
4 onions, finely chopped
9 large tiger prawns
5 ripe tomatoes
3 cloves of garlic
1 lemon

How many tiger prawns and onions, will she need for 11 guests?



PS

5b. Bruce is hosting a dinner party. Part of his chilli recipe is shown below.

To serve <u>one</u> person, I need:
3 onions, finely chopped
12 green olives
1 bay leaf
5 red peppers
2 tbsp of olive oil
5 tsp of oregano

How many red peppers and olives will he need for 12 guests?



PS

6a. Charlie is working out the multiplication 8×11 .



I know the answer is 88, because it's the same as 8×10 add 8×1 .

Is Charlie correct?
Explain your answer.



R

6b. Elisha is working out the multiplication 9×12 .



I know the answer is 118, because it's the same as 9×10 add 9×2 .

Is Elisha correct?
Explain your answer.



R

11 and 12 Times Table

11 and 12 Times Table

7a. Write related number sentences below using facts from the 11 times table.

A. \div =

B. \times =

C. \div =

D. \times =



PS

7b. Write related number sentences below using facts from the 12 times table.

A. \div =

B. \times =

C. \div =

D. \times =



PS

8a. Philippa is hosting a dinner party. Part of her roast duck recipe, which serves 11 people, is shown below.

44 small carrots
11 clementines
22 limes
99 Chinese pancakes
66cm piece of ginger

An extra guest has been invited at short notice. How much of each ingredient will she need in total, to serve all 12 guests?



PS

8b. Ciaran is hosting a dinner party. Part of his oxtail stew recipe, which serves 12 people, is shown below.

24kg of oxtail
72 slices of streaky bacon
36 garlic cloves
48 strips of dried orange peel
12 red chillies

One of his guests has cancelled. How much of each ingredient will he need in total, to serve just 11 guests?



PS

9a. Ethan is working out the multiplication 12×9 .



The answer is 110, as
 $5 \times 9 = 45$ and $7 \times 9 = 65$.
 $45 + 65 = 110$

Is Ethan correct?
 Explain your answer.



R

9b. Lizzie is working out the multiplication 11×12 .



The answer is 144, as
 $3 \times 12 = 36$ and $4 \times 12 = 48$
 and $5 \times 12 = 60$.
 $36 + 48 + 60 = 144$

Is Lizzie correct?
 Explain your answer.



R

Reasoning and Problem Solving 11 and 12 Times Table

Developing

- 1a. $3 \times 12 = 36$; $12 \times 3 = 36$; $36 \div 3 = 12$;
 $36 \div 12 = 3$
2a. Kristian would need to buy 44 chicken thighs because $4 \times 11 = 44$.
3a. Yasmin is incorrect because $7 \times 10 = 70$ and $7 \times 2 = 14$. $70 + 14 = 84$, not 86.

Expected

- 4a. $6 \times 11 = 66$; $11 \times 6 = 66$; $66 \div 6 = 11$;
 $66 \div 11 = 6$
5a. Enid would need 99 tiger prawns (9×11) and 44 onions (4×11) to serve 11 guests.
6a. Charlie is correct because $8 \times 10 = 80$ and $8 \times 1 = 8$. $80 + 8 = 88$.

Greater Depth

- 7a. Various answers, for example:
 $99 \div 11 = 9$; $9 \times 11 = 99$; $99 \div 9 = 11$;
 $11 \times 9 = 99$
8a. For 12 guests Philippa would need:
48 small carrots ($44 \div 11 = 4$; $4 \times 12 = 48$),
12 clementines ($11 \div 11 = 1$; $1 \times 12 = 12$),
24 limes ($22 \div 11 = 2$; $2 \times 12 = 24$),
108 Chinese pancakes ($99 \div 11 = 9$; $9 \times 12 = 108$) and 72cm piece of ginger ($66\text{cm} \div 11 = 6$; $6 \times 12 = 72\text{cm}$)
9a. Ethan is incorrect because $7 \times 9 = 63$, not 65. $45 + 63 = 108$ so $12 \times 9 = 108$.

Reasoning and Problem Solving 11 and 12 Times Table

Developing

- 1b. $4 \times 11 = 44$; $11 \times 4 = 44$; $44 \div 4 = 11$;
 $44 \div 11 = 4$
2b. Tamara would need to buy 36 lamb steaks because $3 \times 12 = 36$.
3b. Gregory is correct because $9 \times 10 = 90$ and $9 \times 1 = 9$. $90 + 9 = 99$.

Expected

- 4b. $7 \times 12 = 84$; $12 \times 7 = 84$; $84 \div 7 = 12$;
 $84 \div 12 = 7$
5b. Bruce would need 60 red peppers (5×12) and 144 green olives (12×12) to serve 12 guests.
6b. Elisha is incorrect because $9 \times 10 = 90$ and $9 \times 2 = 18$, $90 + 18 = 108$, not 118.

Greater Depth

- 7b. Various answers, for example:
 $108 \div 9 = 12$; $12 \times 9 = 108$; $108 \div 12 = 9$;
 $9 \times 12 = 108$
8b. For 1 guests Ciaran would need:
22kg of oxtail ($24\text{kg} \div 12 = 2$; $2 \times 11 = 22$),
66 slices of bacon ($72 \div 12 = 6$; $6 \times 11 = 66$),
33 garlic cloves ($36 \div 12 = 3$; $3 \times 11 = 33$),
44 pieces of orange peel ($48 \div 12 = 4$; $4 \times 11 = 44$) and 11 red chillies ($12 \div 12 = 1$;
 $1 \times 11 = 11$)
9b. Lizzie is incorrect because she has partitioned 12×12 instead of 11×12 . ($3 + 4 + 5 = 12$, not 11). The correct answer would be 132.