

## Fancy fraction answers

*Children find non-unit fractions of multiples and look for patterns.*

## Skills practised:

- Finding non-unit fractions of amounts
- Listing multiples

**Conjecture:** *There is a pattern in the answers when finding a fraction of each number in a times table.*

### What to do:

*Children work in pairs. Year 3 will need lots of cubes.*

#### Year 3

1. Split a piece of paper into thirds, that is three equal sections.
2. Share three cubes between the three sections. How many are in two sections? So  $\frac{2}{3}$  of 3 is 2.
3. Now share 6 cubes between the three sections, and find  $\frac{2}{3}$  of 6.
4. Next work out the following:  $\frac{2}{3}$  of 9     $\frac{2}{3}$  of 12     $\frac{2}{3}$  of 15  
Can you predict the next answer? Carry on until  $\frac{2}{3}$  of 36 so that you have found  $\frac{2}{3}$  of all the numbers in the 3 times table. Keep a record of your answers.  
What do you notice about them?
5. Now divide a new piece of paper into quarters. Share four cubes between the four sections. How many are in three sections? So  $\frac{3}{4}$  of 4 is 3.
6. Now share 8 cubes between the four sections, and find  $\frac{3}{4}$  of 8.
7. Next work out  $\frac{3}{4}$  of 12,  $\frac{3}{4}$  of 16,  $\frac{3}{4}$  of 20 and each number in the 4 times table up until you can predict the next answer each time. Now test out your prediction up to  $\frac{3}{4}$  of 48!  
What do you notice about the sequence of numbers that you get?

Be ready to share your findings with Year 4.

#### Year 4

1. Work out the following:  $\frac{2}{3}$  of 6     $\frac{2}{3}$  of 12     $\frac{2}{3}$  of 18  
Can you predict the next answer? Carry on until  $\frac{2}{3}$  of 72 so that you have found  $\frac{2}{3}$  of all the numbers in the 6 times table. Keep a record of your answers.
2. Now work out  $\frac{2}{3}$  of 9,  $\frac{2}{3}$  of 18,  $\frac{2}{3}$  of 27 and each number in the 9 times table up until you can predict the next answer each time.
3. Now work out  $\frac{2}{3}$  of 12,  $\frac{2}{3}$  of 24 and each number in the 12 times table up until you can predict the next answer each time.
4. Next work out  $\frac{2}{3}$  of 15, 30, 45... BUT before you do, look at your answers to questions 1, 2 and 3 on finding  $\frac{2}{3}$  of numbers in the 6, 9 and 12 times tables.  
Can you predict what the answers for the 15 times table might be?  
Now test out your prediction!

What do you think the answers to  $\frac{2}{3}$  of numbers in the 18 times table would look like? Why? You could try a different fraction, e.g.  $\frac{3}{5}$  of numbers in the 10 times table, the 15, then 20 times table and see if you get a pattern. Or choose your own non-unit fraction. The times table must be a multiple of the denominator.

Be ready to share your findings with Year 3.

**Year 3 and 4:** Ask Year 3 and Year 4 children to share their findings. Is there a relationship between the denominator and the sequence of numbers they generated?

### Aims:

- To look for patterns, make and test predictions
- To consolidate understanding of the relationship between fractions, division and multiplication

### Minimum number of calculations expected

24

## Fancy fraction answers

1. Split a piece of paper into thirds, that is three equal sections.
2. Share three cubes between the three sections. How many are in two sections? So  $\frac{2}{3}$  of 3 is 2.
3. Now share 6 cubes between the three sections, and find  $\frac{2}{3}$  of 6.
4. Next work out the following:  
 $\frac{2}{3}$  of 9     $\frac{2}{3}$  of 12     $\frac{2}{3}$  of 15

$\frac{2}{3}$  of 3 is 2

$\frac{2}{3}$  of 6 is 4

$\frac{2}{3}$  of 9 is 6

Can you predict the next answer?  
Carry on until  $\frac{2}{3}$  of 36 so that you have found  $\frac{2}{3}$  of all the numbers in the 3 times table. Keep a record of your answers. What do you notice about them?

5. Now divide a new piece of paper into quarters. Share four cubes between the four sections. How many are in three sections? So  $\frac{3}{4}$  of 4 is 3.
6. Now share 8 cubes between the four sections, and find  $\frac{3}{4}$  of 8.
7. Next work out  $\frac{3}{4}$  of 12,  $\frac{3}{4}$  of 16,  $\frac{3}{4}$  of 20 and each number in the 4 times table up until you can predict the next answer each time. Now test out your prediction up to  $\frac{3}{4}$  of 48! What do you notice about the sequence of numbers that you get?

Be ready to share your findings with Year 4.

## Fancy fraction answers

1. Work out the following:

$$\frac{2}{3} \text{ of } 6 \quad \frac{2}{3} \text{ of } 12 \quad \frac{2}{3} \text{ of } 18$$

Can you predict the next answer?

Carry on until  $\frac{2}{3}$  of 72 so that you have found  $\frac{2}{3}$  of all the numbers in the 6 times table. Keep a record of your answers.

2. Now work out  $\frac{2}{3}$  of 9,  $\frac{2}{3}$  of 18,  $\frac{2}{3}$  of 27 and each number in the 9 times table up until you can predict the next answer each time.

3. Now work out  $\frac{2}{3}$  of 12,  $\frac{2}{3}$  of 24 and each number in the 12 times table up until you can predict the next answer each time.

4. Next work out  $\frac{2}{3}$  of 15, 30, 45...  
BUT before you do, look at your answers to questions 1, 2 and 3 on finding  $\frac{2}{3}$  of numbers in the 6, 9 and 12 times tables.  
Can you predict what the answers for the 15 times table might be?  
Now test out your prediction!

What do you think the answers to  $\frac{2}{3}$  of numbers in the 18 times table would look like? Why? You could try a different fraction, e.g.  $\frac{3}{5}$  of numbers in the 10 times table, the 15, then 20 times table and see if you get a pattern. Or choose your own non-unit fraction. The times table must be a multiple of the denominator.

Be sure to share your findings with Year 3.

$\frac{2}{3}$	of 6 = 4
$\frac{2}{3}$	of 12 = 8
$\frac{2}{3}$	of 18 =