

# Fair Shares

You need  counters or cubes  a classmate

## Activity

Princess Pansy has made a colossal batch of spinach biscuits. Her biscuits are always delicious, so all the folk of the kingdom flock to the banquet hall to try them.

At the first table, there are 4 guests.  
20 biscuits are put on the table.



By royal decree, all the people at the feast get equal shares.

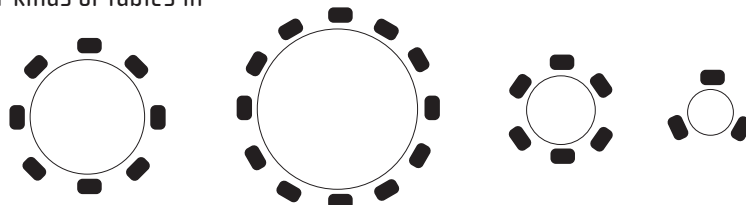
Manuel and Grace, the royal servants, are struggling to work out how many biscuits they should put on each table.



Well,  $20 \div 4 = 5$  for each person at the first table, so all the other people at the banquet need to get 5 biscuits, too.

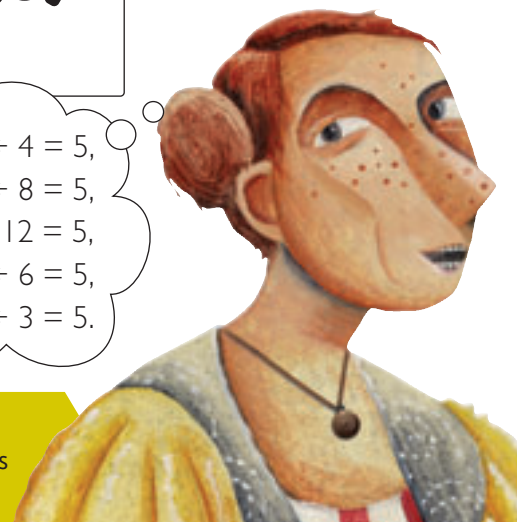
That's right, but there aren't 4 seats at every table. How can we work this out?

Here are the other kinds of tables in the banquet hall:



1. Grace thinks of the problems as division. What patterns can you find in these equations?

$20 \div 4 = 5$ ,  
so  $\square \div 8 = 5$ ,  
so  $\square \div 12 = 5$ ,  
so  $\square \div 6 = 5$ ,  
so  $\square \div 3 = 5$ .



2. Happy with her last feast, Princess Pansy decides to make the biscuit-tasting a weekly event. The next week, she makes parsnip biscuits. Again, Manuel and Grace need to decide how many biscuits to put at each table.

The Princess wants 72 biscuits at this table.



There are 18 seats. How many will each person get?



$72 \div 18 = \square$  will have the same answer as  $36 \div 9 = \square$ .

Ah, you're using halving!

- Write some other division equations that Grace could use to get the same answer as  $72 \div 18 = \square$ .
- How do you know these equations will have the same answer?

3. A week later, Princess Pansy makes avocado biscuits. They are always very popular.



At this table for 24 people, you need to put 168 biscuits.

Hmm ... The other tables seat 12, 6, 4, and 3 people.

How many biscuits should Grace and Manuel put at each table?

- Use Grace's strategies to work out how many biscuits each person in these problems will get:
  - 36 people and 396 biscuits
  - 28 people and 224 biscuits
  - 27 people and 243 biscuits.
- Make up some biscuit problems for a classmate to solve.