



Who's right?

Purpose

You can help your child to use physical materials to represent multiplication equations.

What you need

- A collection of shells (or leaves).
- Pencil and paper
- Written multiplication and division equations. (PDF)

What to do

Play this game with your child.

Cut the sheet of multiplication equations into separate pieces each with an equation on it. Mix them up, share them evenly (14 each) and turn them face down in front of you.

Each take 25 shells and place them in a pile in front of you.

Each of you arrange your shells into rows of equal amounts to make an array that represents a multiplication equation with a total (product) that is no more than 25.

For example:



$$2 \times 5 = 10$$

2 rows/groups of 5 = 10



$$4 \times 3 = 12$$

4 rows/groups of 3 = 12



$$5 \times 4 = 20$$

5 rows/groups of 4 = 20

Each of you choose and turn over any five of the face down equations. If you turn over an equation that matches your shell array, you must explain why it matches. Keep this equation face up and return the other equations to the upside down pile.

Both players now make another array and the process is repeated.

The winner is the first person to have 5 equations face up.

Questions and further challenges

Consider this. One person has made:



This represents $4 \times 3 = 12$ because 4 groups, or rows of three, is 12 shells altogether.

What if this card is turned over?

$$3 \times 4 = 12$$

Discuss that you can look at this arrangement (array) from the side and see $3 \times 4 = 12$



(This is called the commutative property of multiplication but your child is not expected to know this.)

Decide whether you are happy to accept both equations $4 \times 3 = 12$ and $3 \times 4 = 12$ and *discuss why*.

As you play the game, add a further challenge. If a player has an array and an equation that match, they are required to also write a division problem that the shell arrangement also shows.

For example:



$$4 \times 3 = 12$$



This person would record $12 \div 4 = 3$ and explain “When I divide 12 shells into 4 equal groups, there are three in each group.”

What to expect your child to do

- Correctly read multiplication equations.
- Understand and be able to represent a multiplication equation with materials.
- Write a division equation to correctly represent an array of shells.

He Kupu Māori:

multiplication	whakarea
Equals	ōrite
division	whakawehe