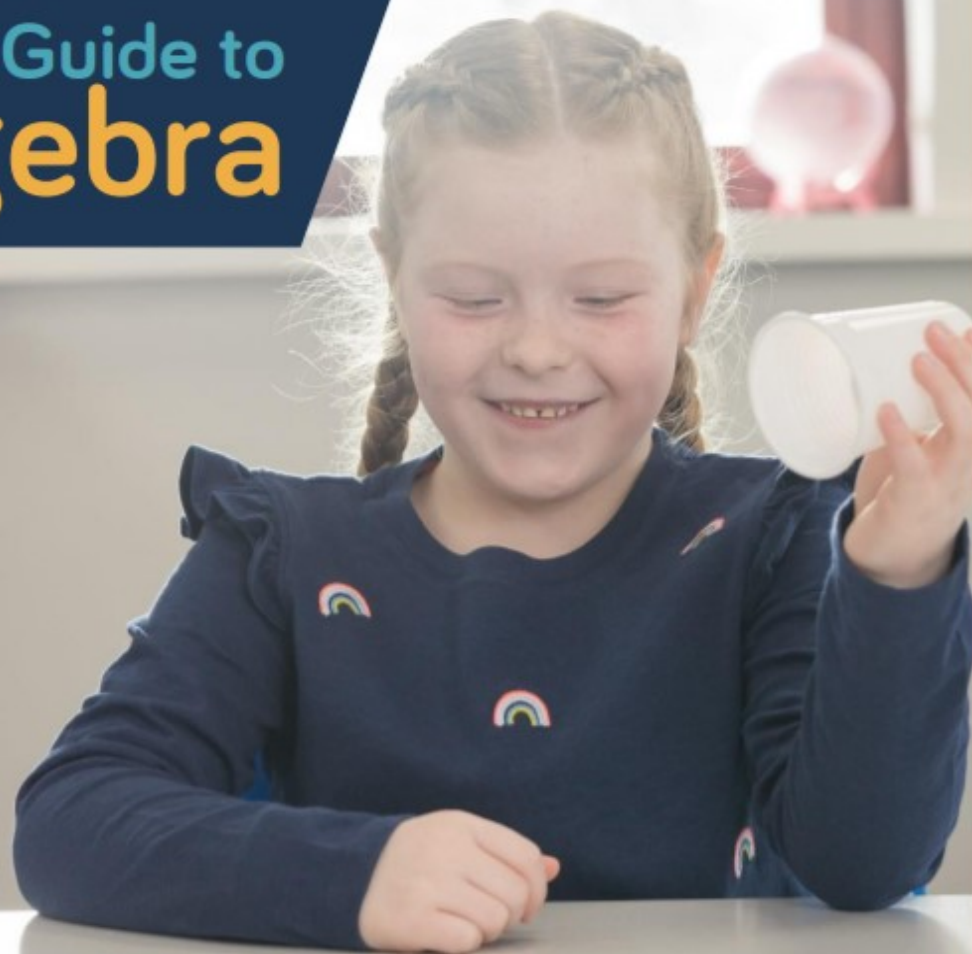


A Guide to Algebra



Maths Equipment

In this guide we use cups and counters to solve basic equations. As always it is important to link the hands on equipment with the actual maths. We recommend using a mini whiteboard so that children can experiment, make mistakes, rub things out and start again!

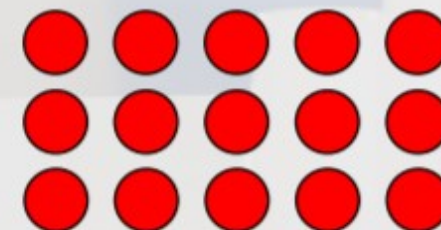
If you don't have the same cups and counters as us you could use:

- Dried pasta
- Lego pieces
- Pebbles/stones
- Coffee cups/mugs

Cups



Counters



This is a supporting document for episode 6 in our mini-series 'Maths with Michael' which has been produced in collaboration with TV presenter, teacher and parent Michael Underwood.

$\sqrt{3}$

Aa

$\frac{1}{2}$

$5x$

$1+1=2$

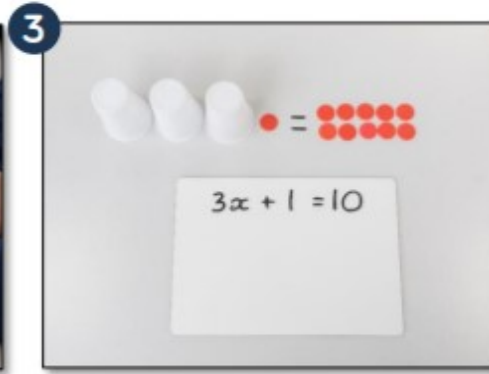
White
Rose
Maths



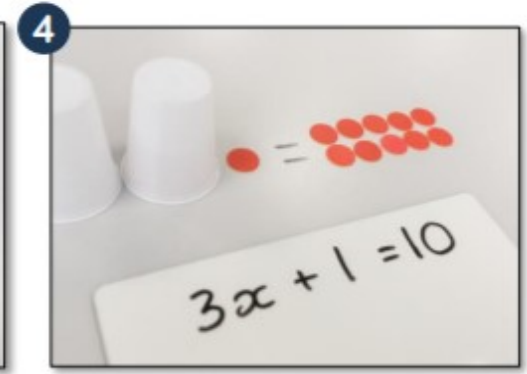
Using cups and counters to solve equations can make it really fun and exciting for children. The aim is to work out how many counters are under one cup.



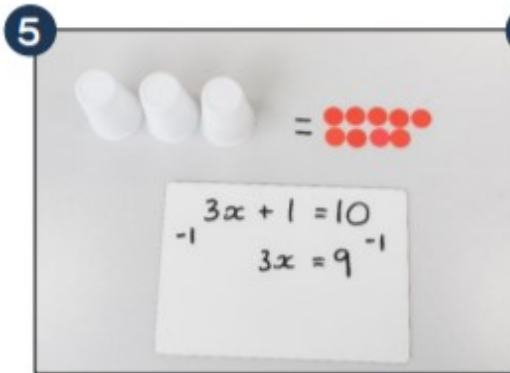
First set up the equation for your child to solve. On the left you need 3 cups with 3 counters under each cup and 1 extra counter. On the right you need 10 counters.



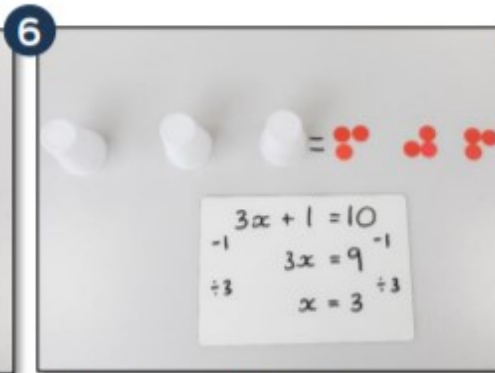
Ask, "What equation is represented?" That's right, each cup represents x so the equation represented is $3x + 1 = 10$ and you want to work out the number of counters under each cup.



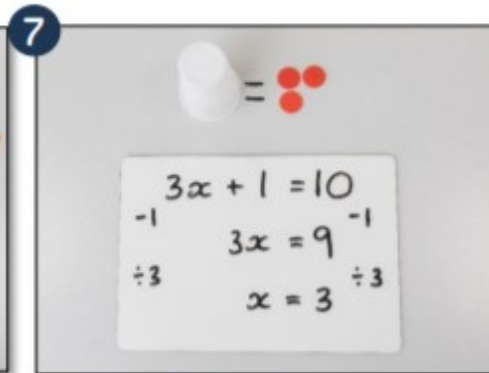
Ask, "What could we do to both sides of the equation to keep it balanced?"



That's right, we can subtract 1 counter from each side of the equation. Show this using algebra and by physically removing the counters.



Ask, "What could we do to next that would leave one cup on it's own?" That's right we could divide by 3.



Show dividing by 3 using algebra and by physically removing the cups and counters. Ask your child how the equation now matches the cups and counters.



Now it's time for the big reveal! There should be 3 counters underneath the cup as you have worked out that $x = 3$

Now Try These

$$2x + 1 = 9$$

$$4x + 3 = 7$$

$$2 + 3x = 8$$

Remember to write down all the steps in your calculation too.

Printouts - Counters

