



Springfield Junior School

The Singapore Bar

January 2018

3 stages of learning

Concrete

This is the physical stage of learning that all children must experience to gain a conceptual understanding of new areas of learning. In Year 1 that may mean that when they are learning to add they are using cubes to create groups and then count the total. In Year 6 when learning how to find a fraction of an amount they may use counters to help their initial understanding.

Pictorial

The pictorial stage - a student has sufficiently understood the hands on experiences performed and can now relate them to representations, such as a diagram or picture of the problem. In the case of a division exercise this could be the action of circling objects. This is often where the Singapore Bar is used.

Abstract

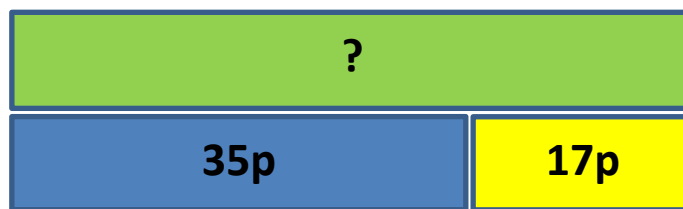
The symbolic stage - a student is now capable of representing problems by using mathematical notation, for example: $12 \div 2 = 6$ This is the ultimate mode, for it "is clearly the most mysterious of the three."

Examples of the Singapore Bar

Addition and Subtraction

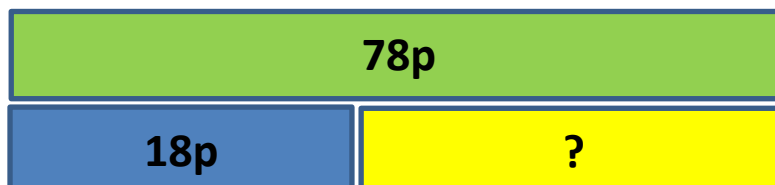
Sarah had 35p in her money box. She was given another 17p by her dad. How much does she have now?

Calculation = $35 + 17 =$



Peter had 78p, he bought a pen for 18p. How much does he have left?

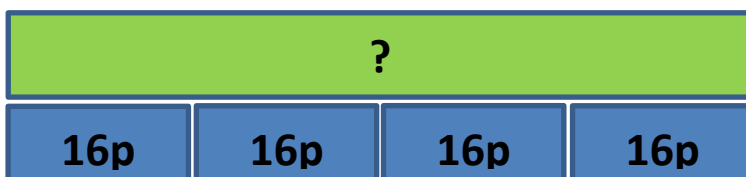
Calculation = $78 - 18 =$



Multiplication and Division

Each pen costs 16p, I buy 4 pens. How much do I spend?

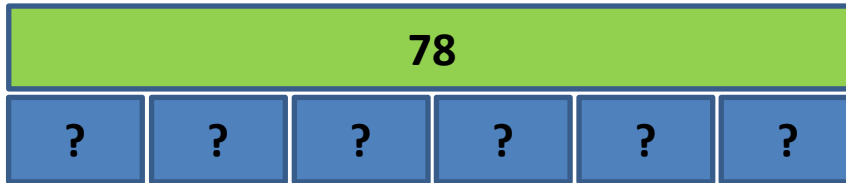
16×4 or $4 \times 16 =$



4	4	4	4
4	4	4	4
4	4	4	4
4	4	4	4

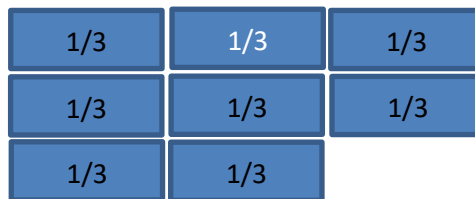
I have got 78 Jaffa cakes to share with 6 friends, how many Jaffa cakes do they get each?

Calculation = $78 \div 6 =$



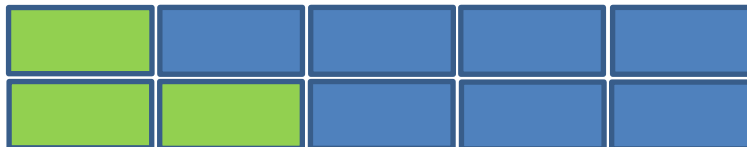
Fractions

Convert $\frac{8}{3}$ to a mixed fraction.



= $2 \frac{2}{3}$

Calculation $\frac{1}{5} + \frac{2}{5} =$



$\frac{3}{5}$

Ratio

Peter and Jenny share £20 in the ratio 2:3. How much money does each person get?

Calculation = $20 \div 5 =$



Top tips for trying the Singapore model method with your children:

Count things with objects

Try counting familiar things together like the number of people in the room, childrens' ages, or goals in football matches, using concrete objects like counters, buttons or small stones, lining them up one by one. If nothing's to hand use fingers.

Get some interlocking cubes

Interlocking cubes are great and can be bought for a few pounds, or your child's nursery or school may be able to lend you some. Try carrying round a few to count things when you're out and about. They are also good for children to play with to keep them occupied.

Use cut-out pictures

Draw pictures on paper and cut them out to use as counters with your children. Or print out our handy [Singapore model cut-out pictures](#) and use them at home with your children, to count people, ages, goals, coins or fruit.

Do basic arithmetic with objects

You can talk about most basic arithmetic using concrete objects, adding objects to the line, taking them away. 'Multiply' literally means 'many layers' and you can show times tables by layering rows one on top of the other. Egg boxes are great for multiplication.

Draw pictures

Give children pens and paper to draw things they count, lined up in a row. Encourage them to draw boxes around the pictures. The fact they have drawn the pictures gives them a sense of ownership and means they'll probably be more confident in talking about them.

Don't rush to use figures

Hold off from using number symbols until your child is really confident with concrete and pictorial representations and can make the link. So they will always have a ready way of picturing what the symbol means as a fall-back.

Start with figures 1 to 9

When you do start using symbols to label drawn boxes, stick to 1 to 9 at first to build confidence, so one figure relates to one quantity. The leap from the figure 9 to the figure 10 involves concepts of place value and zero which can take time to understand.

Brush up your own maths to help your children

Most of us feel a bit rusty with maths, especially the new methods used in schools these days. Why not be a learning role model to your children by joining a local maths class for adults?

Go slowly to build confidence

It takes time for children to get really confident with the basics. The Singapore curriculum actually covers less than the UK national curriculum in the first few years, instead taking more time to build confidence in the basics. But this pays off in spades later on.

TOP TIP: Be positive

Above all be positive. Enjoy playing with and counting objects together, celebrate effort and praise often. Real learning involves making lots of mistakes. Try to see mistakes as positive things that highlight deeper misunderstandings. Why did I think that? Children have years of maths lessons ahead of them and every ounce of self-confidence helps them to succeed. Boosting children's understanding with objects and pictures is key.