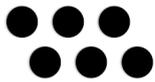




## DOING MATHS MENTALLY: MULTIPLE WAYS OF SEEING PROBLEMS

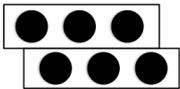
### DID YOU KNOW?

Recognising the number of objects in a collection without consciously counting them is known as subitising.



How many dots are there?  
How can you prove it?

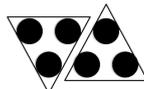
### HOW DID YOU PROVE IT?



As 3 on top plus 3 on bottom (or 2 groups of 3)?



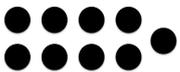
As three groups of two?



As 1 triangle of 3 plus another triangle of 3 (2 groups of 3)?

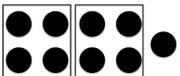
### OR DID YOU DO IT ANOTHER WAY?

### LET'S TRY ANOTHER ONE

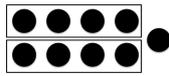


How many dots are there? How do you see them? Try to explain how you saw them. Think of at least 2 **different** ways of proving how many there are.

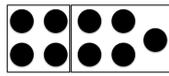
### HOW DID YOU SEE IT?



As 2 groups of 4, plus 1? Or double 4 plus 1?



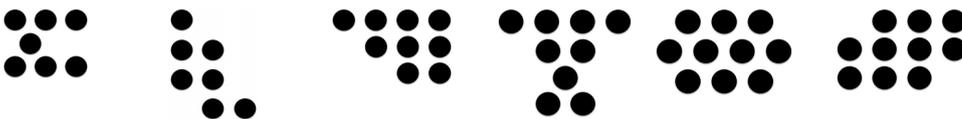
As 2 groups of 4, plus 1? Or double 4 plus 1?



As group of 4 plus a group of 5?

### OR DID YOU DO IT ANOTHER WAY?

**NOW TRY THESE DIFFERENT SETS:** How many dots are there? How do you see them? Explain how you saw them. Think of at least 2 **different** ways of proving how many there are.



### MAKE IT COUNT

Welcome! This week we start the new theme of developing strategies for working mentally.

Sherry Parrish (a US maths educator and professional development specialist) believes that when children approach problems without paper and pencil, they are encouraged to rely on what they know and understand about the numbers and how the numbers are related. The ideas for this series originated from her 2010 book called "Number Talks: Helping Children Build Mental Math and Computation Strategies" and we have developed and adapted them in our maths clubs over the last few years.

This week we look at how carefully selected problems can produce multiple ways of seeing things. This acts as a lead in for using different strategies for solving numerical problems over the next weeks.

Brought to you by the SA Numeracy Chair Project which is hosted by Rhodes University & is jointly funded by the FirstRand Foundation with the RMB fund, the Anglo American Chairman's Fund & the DST and administered by the NRF.



### PRACTICING SUBITISING (See definition at the top of the page)

Playing cards, dice and dominoes all have dot patterns or arrangements that children can learn to recognise. Play games with these items as often as you can. Here are a few games to get you started.

See previous Ukufunda features for more ideas or visit our webpage to download these: <http://www.ru.ac.za/sanc/numeracyresources/grocottssupplement/>

### WHICH IS MISSING? (DOMINO GAME)

- Take 2 dominoes.
- Say the total number of dots on both. For example, on these 2 dominoes the total is 18 ( $10 + 8 = 18$ )
- Show your child one of the dominoes, for example: (show 10)
- Ask "how many dots must be on the other domino?" ( $18$  less  $10$  is  $8$ )
- Let your child take a turn to ask you a question.



Source: <http://housefulofchaos.com/6-simple-domino-games-to-teach-math-skills/>

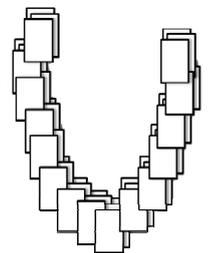
### NEXT WEEK:

We look at the **Making Tens** strategy.

### HORSE SHOE (CARD GAME)

You need 1 pack of cards. Work with a partner. All picture cards = 10, Ace = 1

- Spread all the cards out in a horseshoe shape, **face down**
  - Take turns to turn over one random card and lay it in the middle of the shape
  - As a new card is laid down find pairs / sets of cards that add to 10
  - Take the cards that add to 10 from the middle of the shape
  - Next person takes a turn
- VARIATIONS:** Add to 20, 30 etc.



### PRACTICING DOUBLES (DICE GAME)

Play with a friend

- Throw a single dice, then double the value and add 1. e.g. throw a 6. Double 6 is 12 then add 1 = 13.
- The winner is the person with the highest number. Play again.

### VARIATIONS:

Subtract 1 from the number and then double it e.g. throw a 5. Subtract 1 is 4, double 4 is 8  
Make up your own variations

