Early Number Fun
Grade R programme
Session 2
17th May 2016

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Group feedback on: Session 1 assessments

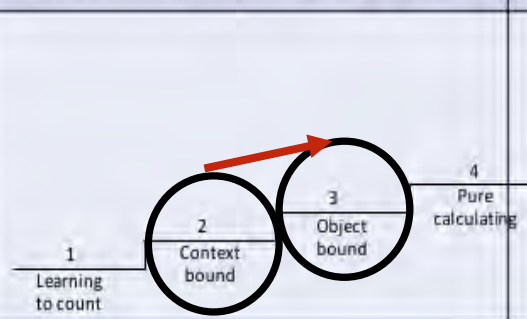
- In groups of 3-4 and with teachers from other schools discuss the questions on the handout
- Select a scribe to jot down main ideas and points of discussion

Reflection on: implementation of session 1 Activities

- In groups of 3-4 and with teachers from other schools discuss the questions on the handout
- Select a scribe to jot down main ideas and points of discussion

Dialogical reading using number story books

CONTEXT-BOUND– BUT extending to OBJECT-BOUND counting

		Grade R	Gr R → 1	Gr 1 & 2	Gr 3 & 4	Gr 4 →
Cranfield et al.		Emergent numeracy *Number sequences to 10*	Learning to count and calculate *+ & - to 10/ number sequences to 20*	Calculate by structuring *+ & - to 20/ number sequences to 20*	Formal calculating	*Counting and calculating up to 100* *+ & - to 100/ number sequences to 100*
Wright et al. (LFIN)	EAS	0, 1, 2	3, 4	5		
	Structuring nos. 1 - 20	1, 2, 3				
	CPV				3	3
Buys & Treffers		**Stages 1 to 4** Context bound – up to 4 objects Object bound – up to 10 objects Via symbolisation – unseen items/fingers	**Stages 5 & 6** Count all Count on Count up to Count down	**Stages 7 & 8** Stringing & splitting Doubles/halves Combining with 5 & 10 Partitions of 5 & 10		**Stages 9 & 10** 2-digit + and -
Buuys, Treffers Visual progression						
Representations		Tallies, finger patterns, dot patterns	Models of... Line, group, combination, part-part-whole			

Number story activities: Key numeracy skills

- Context bound counting and calculating
  (1-5 in the first 2 stories 1-10 in the 3rd)
- Object bound counting and calculating
  (1-5 in the first 2 stories 1-10 in the 3rd)
- Numeral recognition
  (numerals 1-5 in the first 2 stories 1-10 in the 3rd)
- Compare quantities and develop language of more/ less/ many/ none
- Develop comparative language for size – big and small; more and less
- Recognition of words like ‘more’ ‘less’ ‘big’ ‘small’
- Develop a patterned sense of bonds to 5
  (i.e. 5-0; 4-1; 3-2; 2-3; 1-4; 0-5 and bonds to 10 - 3rd story)
- Use written tallies and/or numbers to represent the patterned story of how the ‘number of …’ changes in each place in each stage of the story (extension for learners ready for this aspect)

Number stories – key literacy skills

- Love of stories and Love of reading
- Listening and prediction skills
- Comprehension skills
- Develop comparative language for size: big and small; more and less
- Common word recognition: ‘more’ ‘less’ ‘big’ ‘small’
- Imagination and own story telling
- Logic, structuring and organisation of ideas

Method

- Focus on pictures, numerals and words and speak the key words and number names as the story unfolds
- Act out with facial expressions emotions and feelings communicated in the story
- Have a conversation with the reader
- Predict what might happen next
- Tell their own stories using story-boards and puppets
- Tell their own stories using their fingers to represent the number of monkeys/frogs/children in different trees/lily pads/places etc.
- Do imitative reading where they ‘read’ the story to others in the class

Piloting and demonstration

- Method was piloted with 3 learners in an after care centre
- Piloting with a small group of learners first can help to adapt you method and needs to the Gr R learners in your class
- Today we have 2 learner volunteers to share with you a demonstration of using the books
- Of course each situation will be different according to your learners input but we hope the demonstration illuminates some aspects of the method

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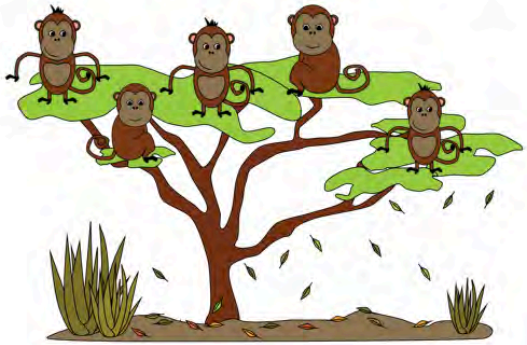
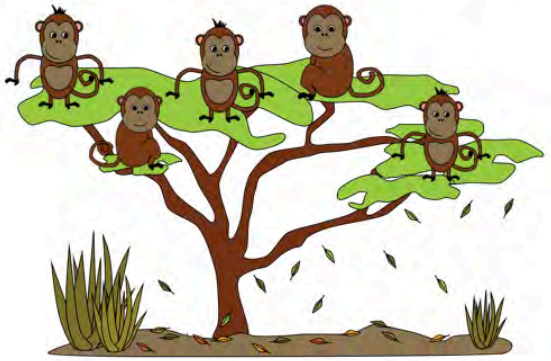


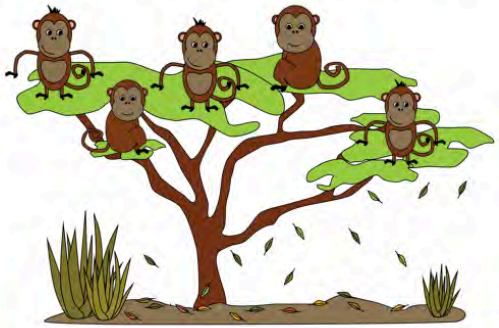
isiXhosa

Apies in die boom: 'n Vroë gesyferdheid pret boek



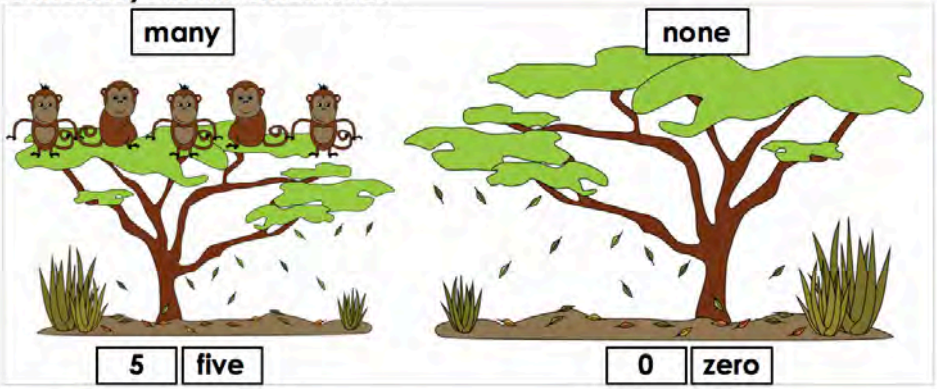
Afrikaans

Monkeys in the tree: An early numeracy fun book



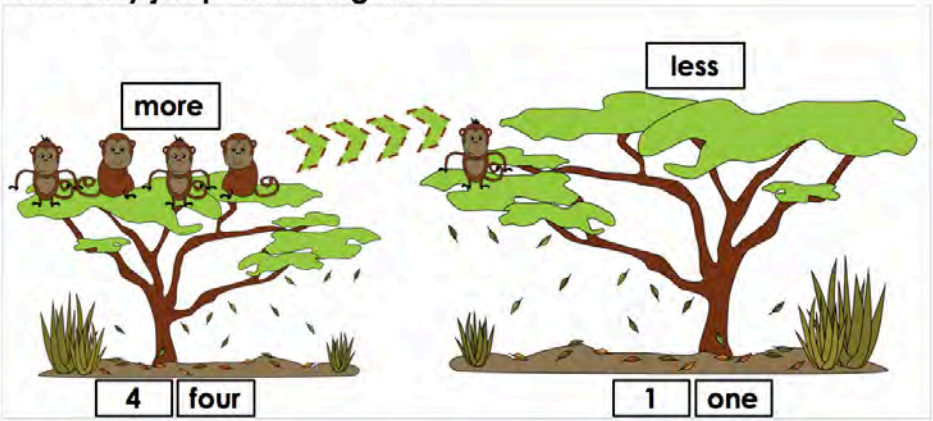
English

5 monkeys in the small tree.



Minky Monkey moans.
There are too <u>many</u> monkeys in this small tree.
There are <u>no</u> monkeys in the big tree.

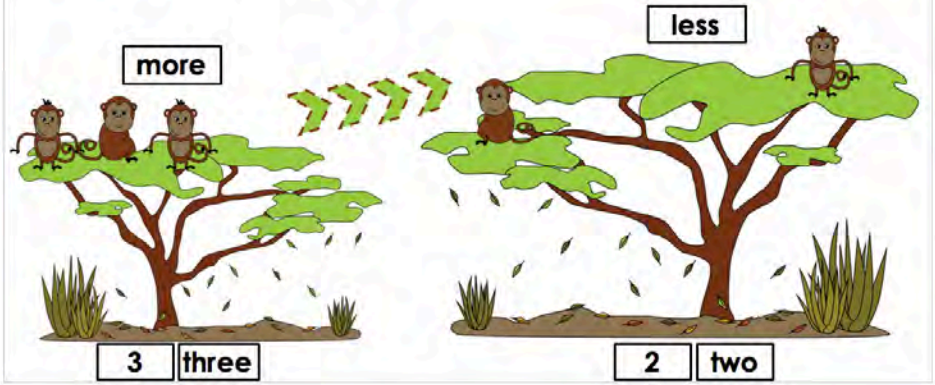
1 monkey jumps to the big tree.



Minky Monkey moans.
There are still <u>more</u> monkeys in this small tree
and <u>less</u> in the big tree.
What do you think will happen next?

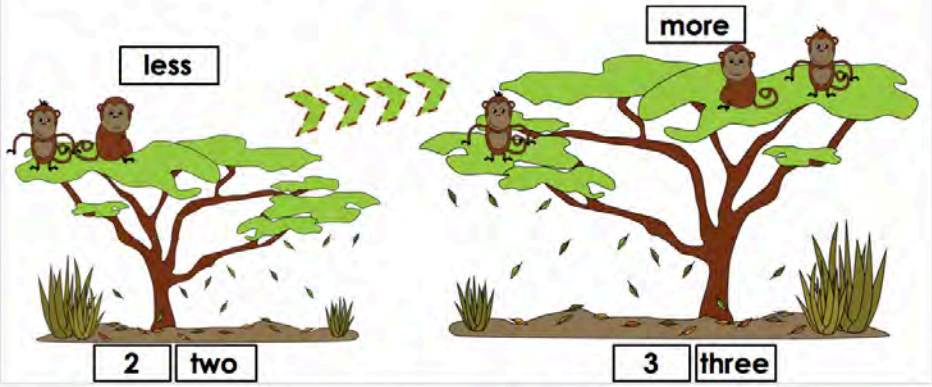
Extension question:
How many less monkeys in the big tree?

1 monkey jumps to the big tree.



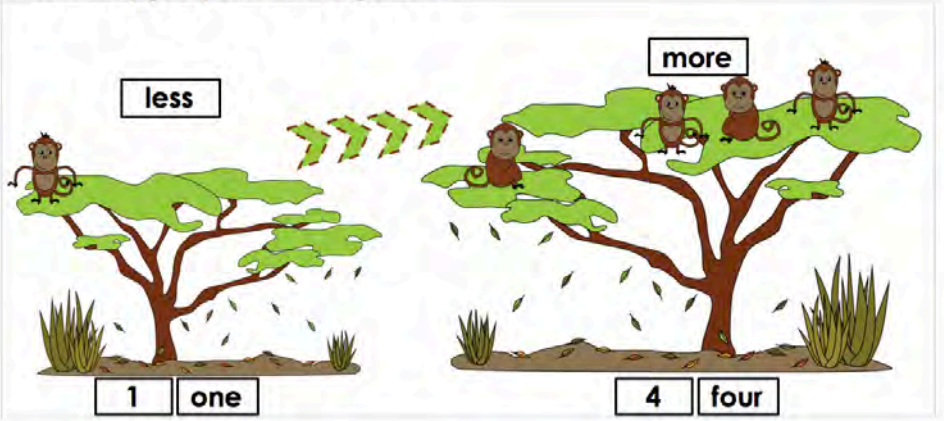
Minky Monkey still moans.
There are still <u>many</u> monkeys in the small tree
and <u>less</u> in the big tree.
Is Minky right? What do you think will happen next?

1 monkey jumps to the big tree.



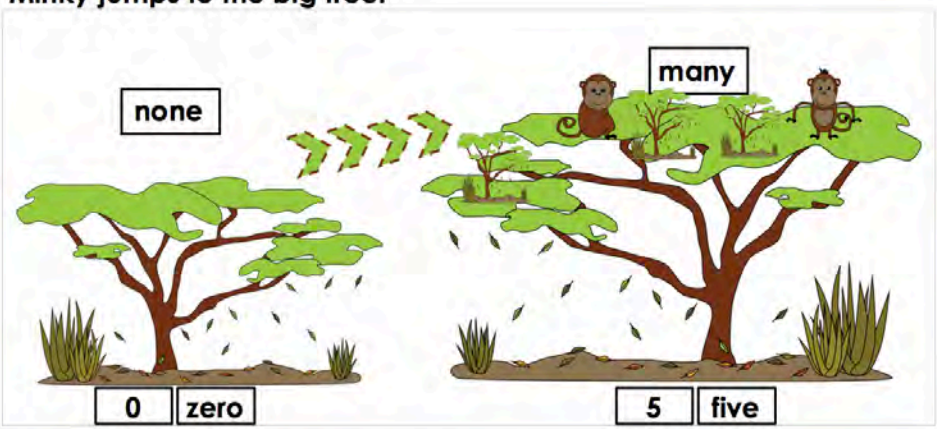
Minky Monkey still moans. There are 2 of us in this small tree.
There are <u>less</u> monkeys here than in the big tree there.
Is Minky right? What do you think will happen next?

1 monkey jumps to the big tree.



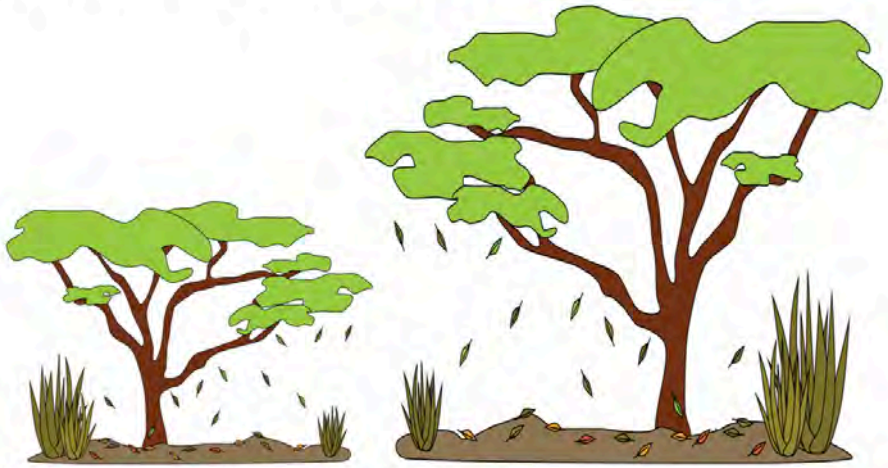
Minky Monkey moans. I am all alone. I am lonely.
There are <u>many</u> monkeys having fun in the big tree.
What do you think will happen next?

Minky jumps to the big tree.



5 monkeys having fun in the big tree.
Minky says "thanks for being my friend".

Tell your own story about monkeys and trees



Use numbers and these words in your story:

many | none | more | less | big | small | jumps

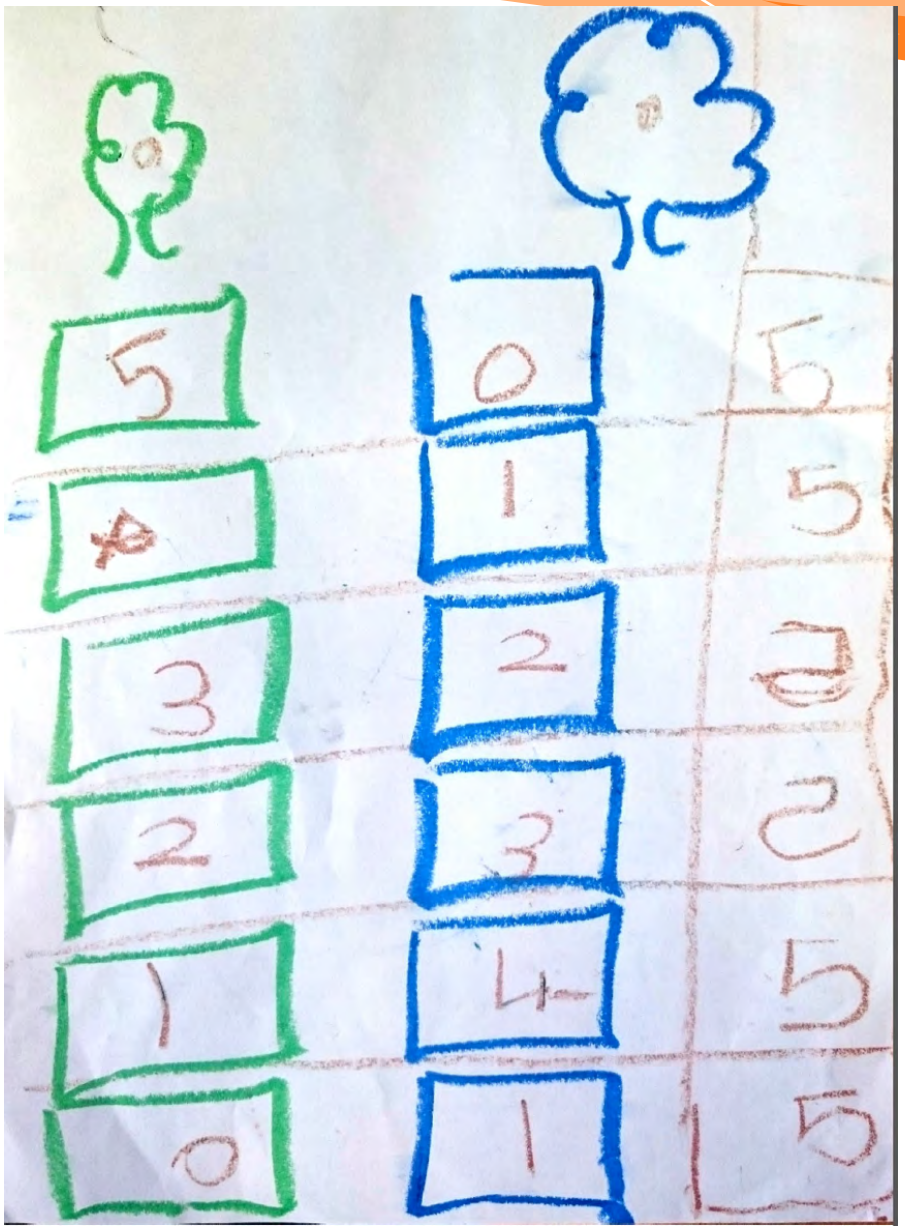
less	more
many	none
big	small

zimbalwa	ongeza
ninzi	azikho
khulu	ncinci

minder	meer
baie	geen
groot	klein

Available from:
http://www.ru.ac.za/sanc/teacherdevelopment/earlynumberfungrader2016-2017

Example extension activity

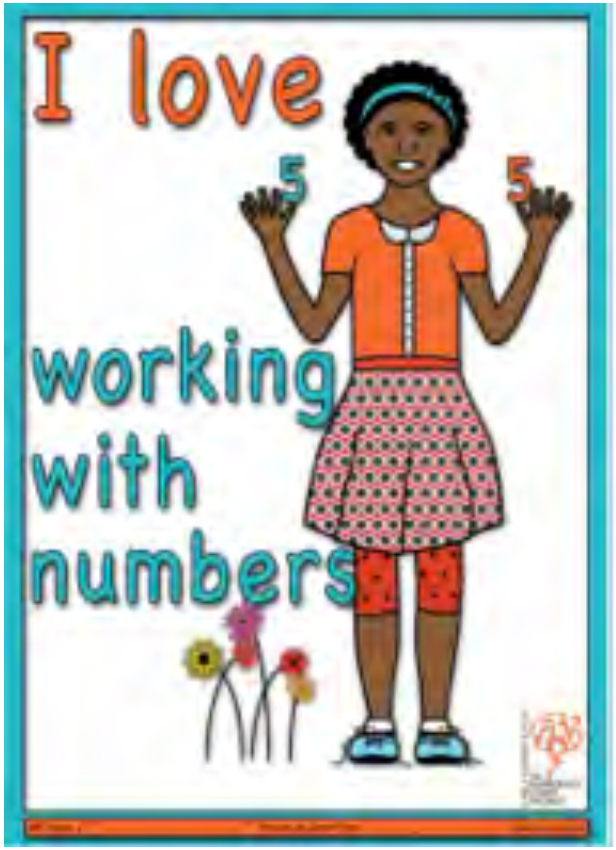


Reflection and possible adaptations

- Based on what you saw in the reading demonstration discuss the following:
- What numeracy skills were being developed?
- What other skills were being developed?
- What would you do differently with your learners? Explain.

Creative activity – Making finger puppets

Next mindset poster for your classrooms

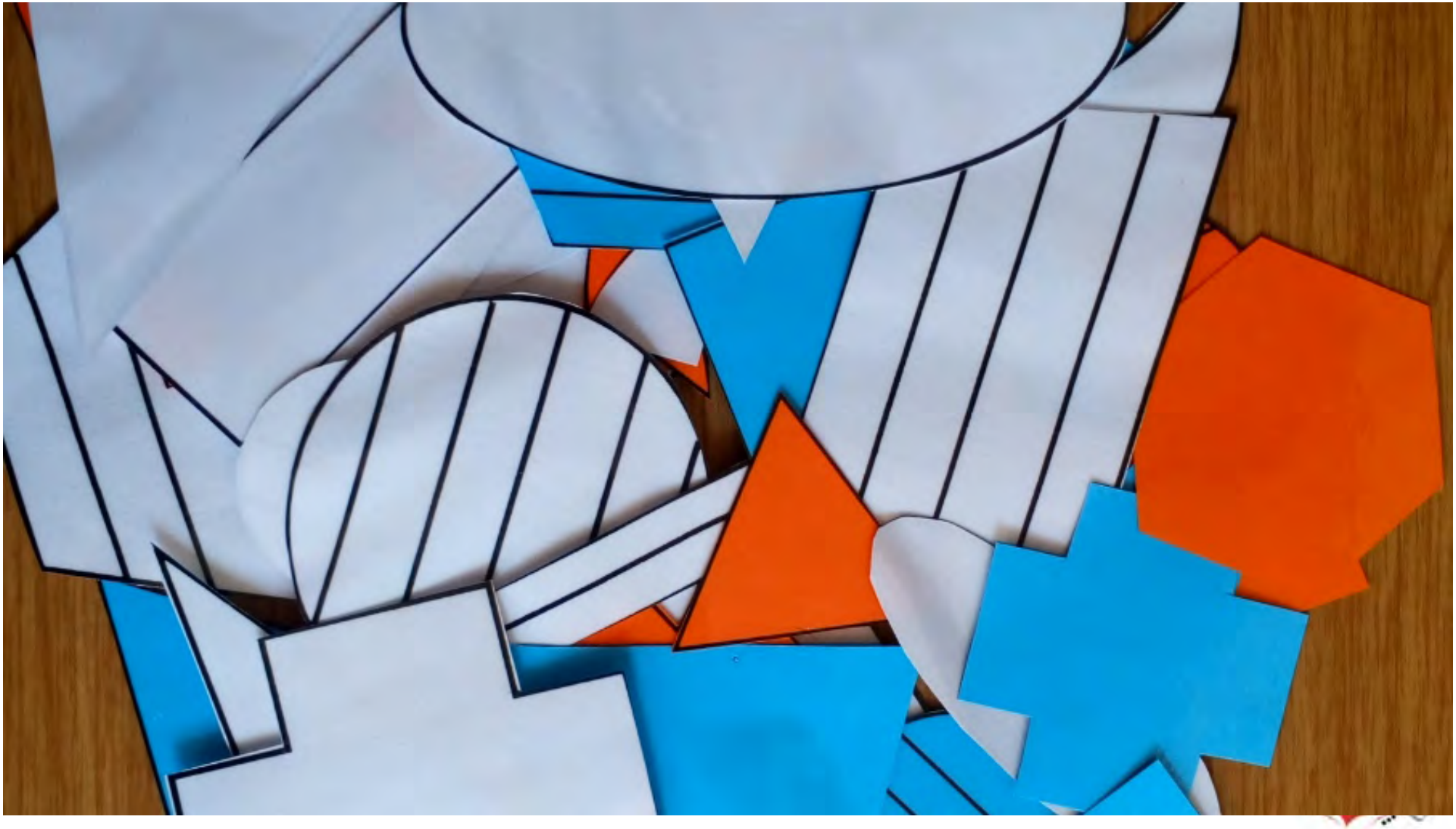


Love of learning – love of numbers

- Developing confidence in working with numbers will help learners develop a love of numbers BUT
- Grappling with numbers, making mistakes and thinking about those mistakes is important for developing love for learning about numbers and sustaining this love even when the number ranges get much bigger and more challenging.
- Discuss these ideas with your learners when you put up the poster – we love working with numbers not because its always easy but because its interesting and helps our brain to grow (previous poster).

SA NUMERACY CHAIR PROJECT

Cognitive control
Focus on SHIFTING ATTENTION



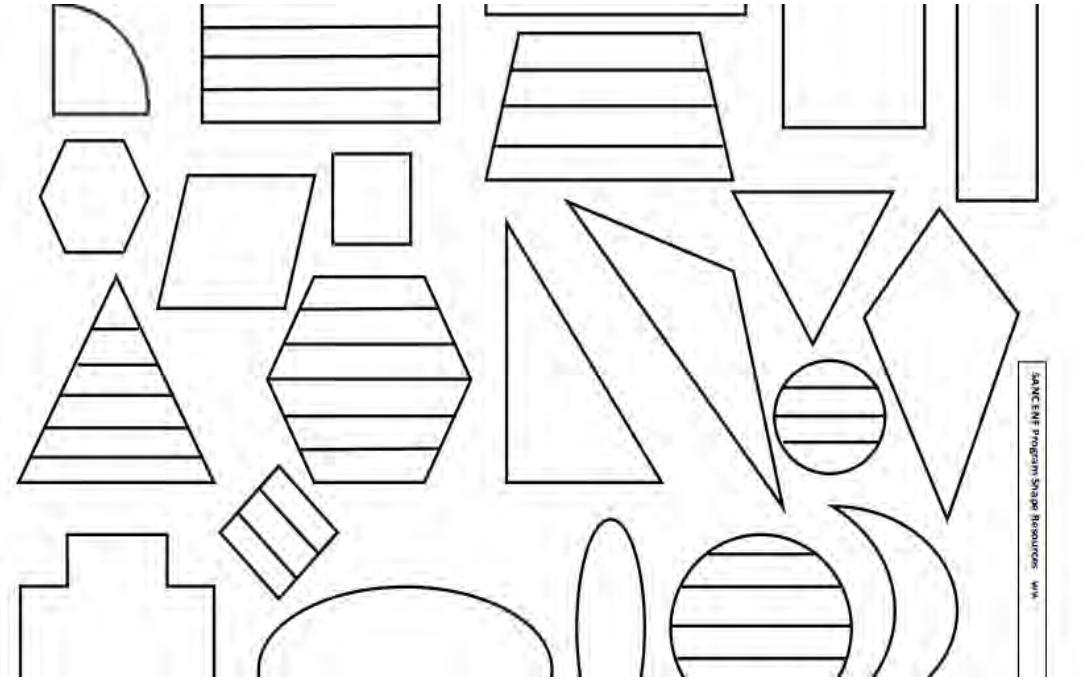
Free Play / Inquiry Phase

- to develop and support geometric reasoning, learners should be given many different opportunities to play freely with materials, e.g. the shape cards in your resource kit.
- By playing with shape-related materials, children develop their **physical knowledge**. Guided not by the teacher, but by their own imagination - through touching, looking at, and building with shapes and objects - learners develop understanding of the **properties** of the materials provided.
- Visualisation skills also develop through free-play and exploration of materials, as learners:
  - recognise the shapes and objects
  - sort them into group with similar properties or attributes, and can see the differences and similarities between the shapes or objects

Focused Play

- During ‘focused play’, sometimes referred to as ‘teacher-directed activities’; learners use the same materials as ‘free-play’.
- BUT rather than leaving the learners to create their own shapes and objects, the teacher guides the activity -by setting challenges
- This develops - **Logico mathematical (conceptual) knowledge**
- These games are examples of ‘challenges’ to pose to learners

Shape sorting



Games

1. Sort the shapes - Instructions

Location:	**Resources required:**	**Skills:**
Inside In small groups / pairs / individual work	Shape cards	Development of attention switching, memory, shape recognition, geometric vocabulary

Have the children sort their shapes according to one of the following:

- Colour
- Size
- Patterns
- Shape
- Number of sides
- Curved or sharp.

- Ask learners to now sort the shapes another way.
- Discuss the different ways the learners sorted the shapes.
- Encourage using vocabulary such as: curved, straight, edge, corner, round, long, short, sides, sharp, pointy.
- Also direct learners' attention to which group of shapes has **more** or **less** each time.
- Use the more and less word cards from the story to mark which groups has more or less.

2. On and Under – Instructions

Location:	**Resources required:**	**Skills:**
Inside or Outside In small groups or whole class	Shape cards	Development of shape recognition, spatial reasoning, directional vocabulary, listening skills

- Give each learner three shape cards.
- Ask them to name (if possible) and describe their shape to you and their friends
- Now have learners follow **spatial** directions such as:
    - Put your shape on, behind, in front of, under, next to
    - Your body/head/foot, the chair, the table, your friend etc.

3. SNAP! – Game Instructions

Location:	**Resources required:**	Development of attention switching, memory, shape recognition, inhibition, visual processing (fast reactions)
Inside In small groups / pairs / individual work	Shape cards	

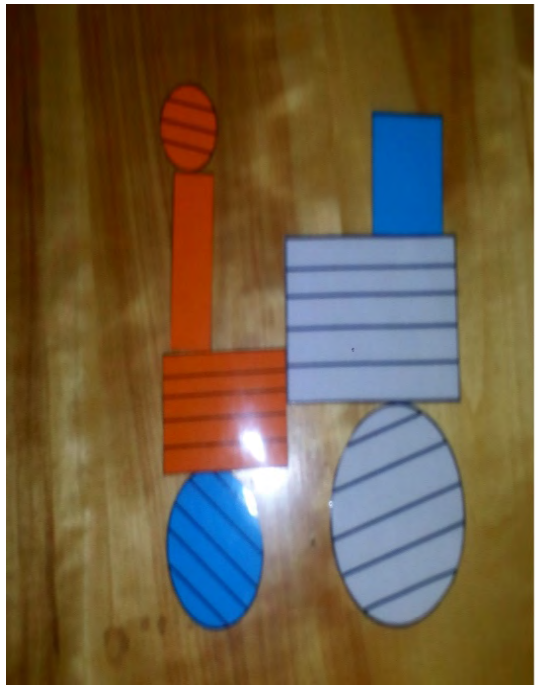
- Use shape cards to play SNAP!
- Children divide shapes up equally. They take turns putting a shape in the middle of the table
- When two shapes match (they can decide what must match – the number of sides/colour/size/shape etc.), the first child to put their hands over the cards and say 'Snap!'
- This child must take the cards in the pile
- The game ends when one child runs out of cards to play.

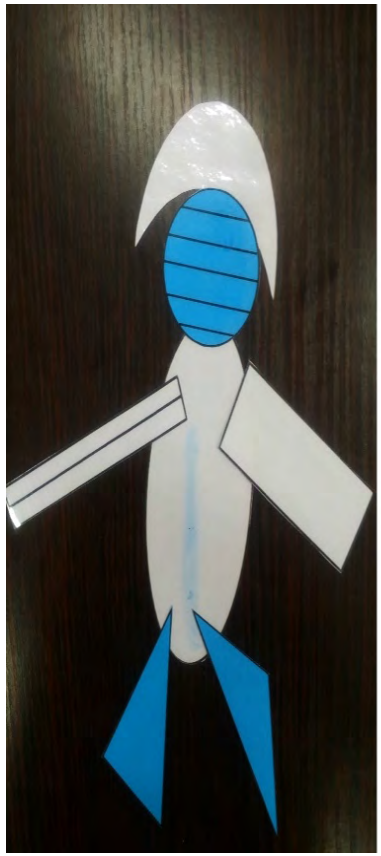
4. Make pictures - Instructions

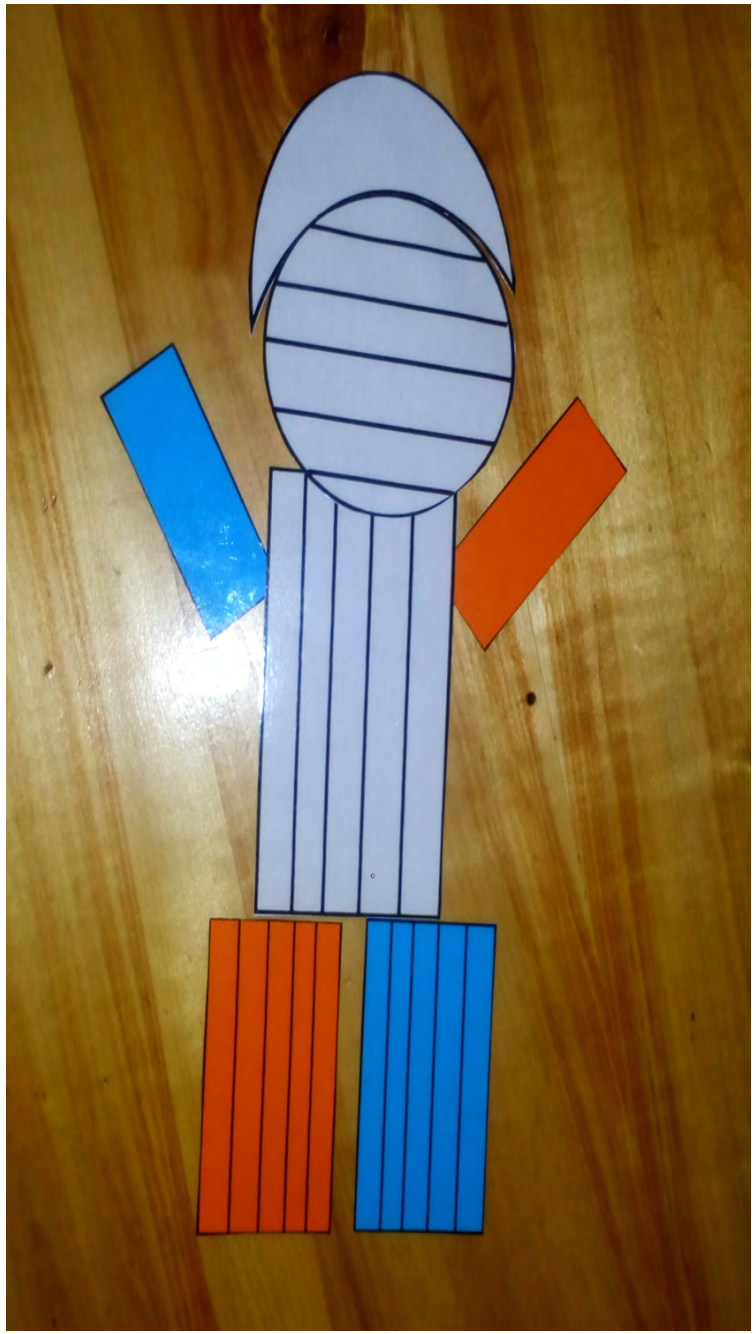
Location:	**Resources required:**	**Skills:**
Inside In small groups / pairs / individual work	Shape cards	Development of creativity, shape recognition, fine motor development

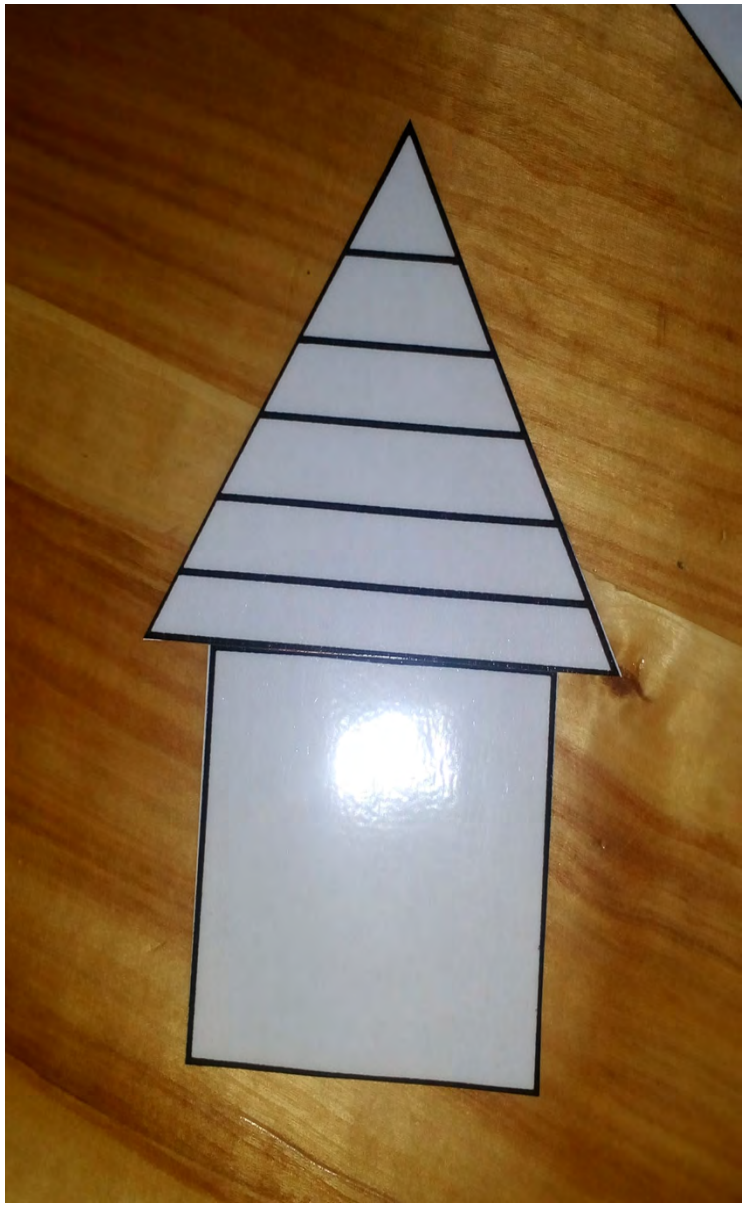
In groups, or individually, encourage children to build new pictures or shapes out of existing shapes. These can be something real or made-up. If working individually, children can then draw a picture of their shape creation, give their picture to friend (you can keep all the pictures to use again later) and have their friend use the shapes to build the picture.

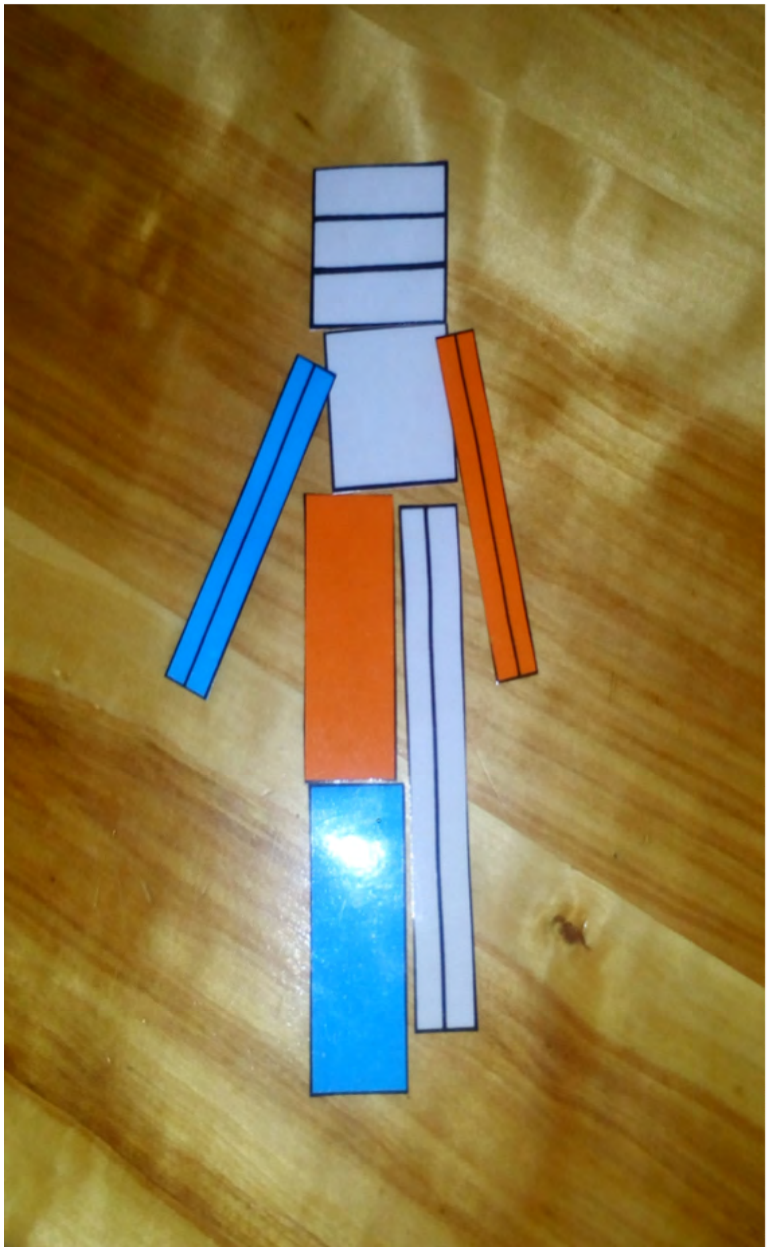
Examples











5. Show me the shape – Game Instructions

Location:	**Resources required:**	Development of listening skills, geometric vocabulary, reasoning abilities
Inside or outside In small groups / pairs / individual work	Shape cards	

- Teacher says she is thinking of a shape, for example:
  "It has three sides. Two sides are longer than the other one", then says "Show me the shape!"
- Learners find and hold up the matching shape from the collection, and name it (if possible).
- Name the shape
- Each learner in a smaller group can have a turn to describe the shape.

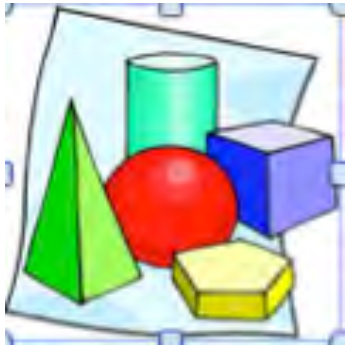
6. Memory Game - Instructions

Location:	**Resources required:**	Development of working memory, shape recognition
Inside In small groups or pairs	Shape cards	

- Lay four shapes out in a row.
- Talk about, describe and name each of the shapes in the row.
- Now ask the learners to close their eyes.
- Take one shape away. Ask the learners which one is missing.
- As they get more confident, add more shapes in the row.
- Pairs of learners can play this game too.

Do these activities with 3-D objects

- All of the above activities can be done with differently shaped 3-D objects that learners can bring from their environment.
- e.g. toilet rolls, match/milk/tissue boxes, cans, dice, balls and so on



"Both free- and focused play contribute to children developing intuitive understandings of how shapes and objects are the same and/or different. They begin to realise that properties such as the lengths of the sides/edges, the angle-size of vertices and nature of surfaces all define the shape or object with which they are working."

(Numeracy Handbook for Foundation Phase Teachers, (2013), p. 114)

Implementing ideas

- In the next session as always we will reflect on your implementation of these activities in your class
- Take photos of your learners using resources in class
- Jot down your reflections and bring them to the next session

Next month: 20th June

- Next month's session – Monday 20th June
- Internationally acclaimed mathematics educator Robyn Jorgensen (NICLE teachers to join from 3pm)

- Travel well and we are really excited to be partnering with you all!