ACTIVITIES IN NUMERACY

TEACHER'S GUIDE

FOR KINDERGARTEN

2

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DEDICATION

This book is dedicated to my children Marian, Richard, Theresa and Edward

PREFACE

The Teacher's Guide for Activities in Numeracy for Kindergarten 1 has been designed to provide explanation on how the Strand and Sub-strand of various Activities under all 7 Themes can be conveniently handled by the teacher/parent.

The Guide provide a step by step proceedure for each Activity under its Strand, Substrand and indicators/Objectives.

The Workbook – Activities In Numeracy has carefully selected Practical activities based on the 7 themes of the Ghana Education Service Standards-Based Curriculum for Kindergarten of September 2019. (All About me, My Family, Values and Beliefs, My Local Community, My Nation Ghana, All Around us and My Global Community).

The activities in the workbook are graded to match the growing needs in Numeracy Activtities for the Kindergarten one child. The procedures in teaching Numeracy Activities use the integrated approach and as such connects all learning areas of language, creative art and Our World and Our People to make the learning holistic.

It is expected that the teacher/parent will carefully and patiently go through each Strand and Sub-strand playfully with a lot of fun as suggested by the Teacher Guide to make the learning enjoyable to the child; while taking cognisance of the competencies expected to be developed by the child.

CONTENTS

CONTENTS

Sub Strand: Whole Numbers: Counting and Representation and Cardinality

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ACTIVITIES 1, 2, 3 – K2.1.1.1.7 (Pages 1 - 3)

Content Standard: (K.1.1.1.1)
Demonstrate the understanding that all learners are wonderful and have unique body features that make them different from other people and other God's creation in the environment.

Core Competencies:
Personal Development; Leadership; Communication and Collaboration; Critical Thinking and Innovation.

Introduction:
Recognition of numbers supports the development of other number skills such as counting. Teaching counting at the kindergarten level improves the child's readiness for other numeracy concepts that will be taught in the future such as addition and subtraction.

Indicators/Objectives: (K.1.1.1.7)
Create sets of human parts that are similar and represent them with numbers up to 9

Key Words:

hand	eyes	legs	nose	mouth	arm
1	2	3	4	5	

Math is an important part of learning for all children in the early years and receiving good grounding in maths is an essential life skill. As well as numeracy, it helps skills such as problem solving, understanding and using shapes and measurement and developing their own spacial awareness.

Materials/Resources
Countable objects such as shells, sticks, pebbles and balls. Sorting boxes or bowls, counting boxes. Number cards – parts of the human body:
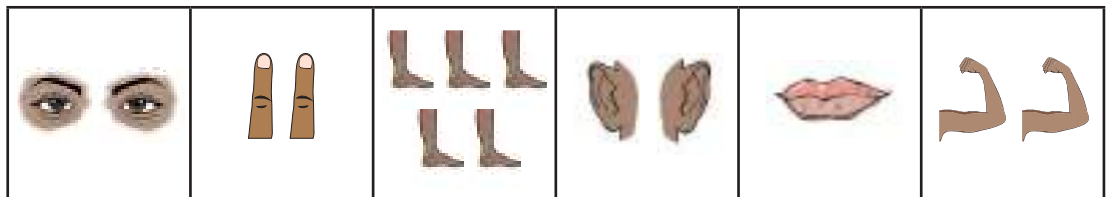
Dot cards ● ●   work sheet – a sheet of paper or cloth.

Procedure/Methods
Have learners form a circle outside the classroom.
Learners sing with actions.
"My head, my shoulders, my knees, my toes, 3x
They all belong to Me."

• Play the game "show me your hands
                 Show me your legs.

When the body part is mentioned, learners perform an action with the body part or touch it/ them.
e.g. Show me your hands – learners shoot out their hands.
     Show me your eyes – learners point/touch their eyes.
     Show me your ears – learners hold their ears.
     Show me your feet – learners bend to touch their legs.

As they perform the action, point or touch the body parts they say, e.g. "These are my hands. These are my ears, etc.

Have learners sit down
Sing: count me the mangoes again and again
1 2 3 4 5 6 7 8 9 10

Learners tap the table as they sing.
Through the song, they say the numbers in order.

Sit learners in groups of 5.
• Put a variety of countable objects in sorting boxes or bowls. (5 different objects in a bowl/box)
     Example: bottle tops; shells, pebbles, sticks, palm kernel.
• Mention a part of the body.
     Learners touch/point at it/them
• Have learners count them. Example: hands – counting from left to right
     They count 1, 2
     Fingers: 1 2 3 4 5
     Nose: 1

- Have learners now pick out countable objects as they count the points.
- Learners count hands – 2.

They then count the same number of objects onto their table (each child in front of her on her worksheet.
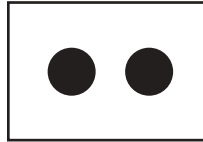
- Other members of the group compare what they have counted.
- Each child says: Example – I have 2 hands.
- Picture cards of the different parts are distributed to the groups.
- In turns (among the group), a learner picks a card and show it to the one next to him/her. He/she mentions the body part.
- Count and say how many it is or they are.
- The next learner (3rd in the group) picks the correct dot cards and puts it against the body part.
- The 4th learner picks the correct number card and places it under the dot card.
- The 5th learner leads the group to count the body parts, dots and points and say the number (on the number cards)
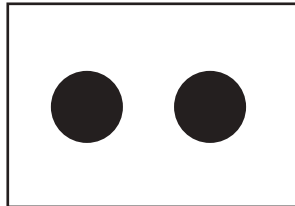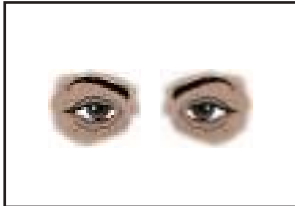
Assessment
1. How many ears do we have? **2**
2. How many will 2 eyes and 2 legs be? **4**
3. How many will (one) 1 hand, 2 ears and 2 legs be? 5

WORKBOOK
Activities In Numeracy for KG 2
Activitie 1, 2, 3 – K2. 1.1.1.7
- Read and explain the instruction of each activity to the learners.
- Learners work independently.
- Support learners who need individual attention.

Sub Strand: Relationship between Numbers up to 20.

ACTIVITIES 4, 7 AND 10 – K2.1.2.1.7 (Pages 4, 7 and 10)

EQUAL TO (=)

Content Strand: K2.1.2.1
Demonstrate the knowledge of appropriate names of the parts of the internal body that we cannot see and their functions.

Core Competencies: Creativity and Innovation; Critical Thinking and Problem Solving

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Introduction:
One important part of teaching young children about math is helping them to learn the concept of more than/greater than; fewer than/less than; same as/equal to. These concepts are key to beginning to understand addition and subtraction. In comparing different quantities to find which group is greater than or less than, or whether the two groups are the same – same as/equal to, it is easier to pair or do a one-to-one correspondence to find out. In class, learners share crayons, pencils, food. Learners experience the more, less than or equal to situations.
When all learners are present and get their share of what is shared.
When some learners are absent and there are leftovers.

Example (1): 4 toffees and two girls

4 is greater than 2
$4 > 2$

Example (2): 2 eyes and 5 heads
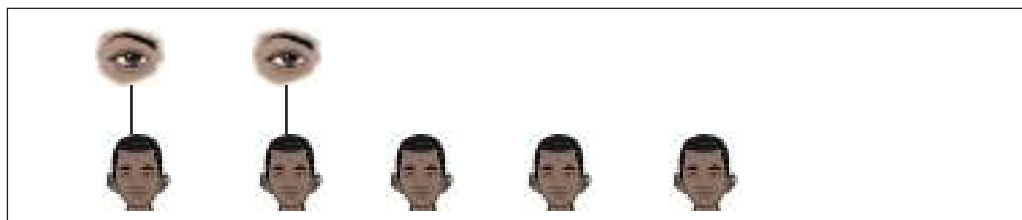
2 is fewer or less than 5
$2 < 5$

Example (3): 4 arms and 4 legs
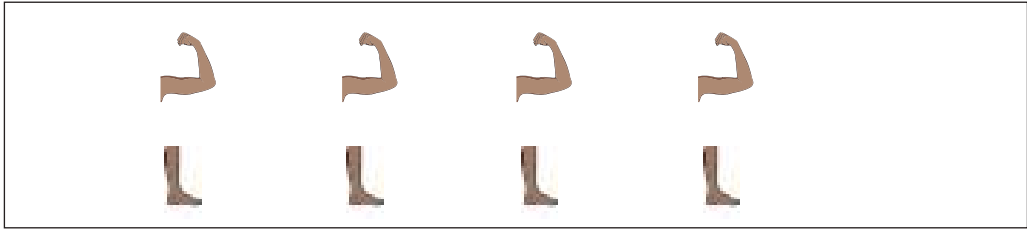
4 arms and 4 legs are same in number
4 is equal to 4
$4 = 4$

Indicators/Objectives: K2.1.2.1.7
Compare objects and numerals between 1 to 20

Resources/ and Materials
Copy Page 8 - 9 (Activities in Math KG 1 Teacher's Guide)

Materials

Use
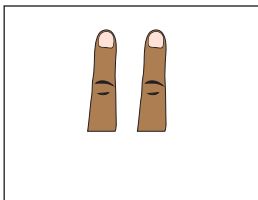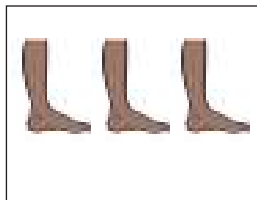
2 Fingers,   3 Heads,   4 Legs,   6 Hands
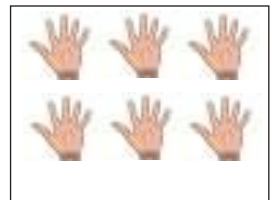
Greedy Crocodile
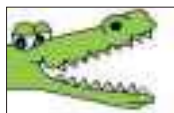
Procedure/Methods
1. Have learners form a circle, hold hands and sing:
   The more we are together
   Together, Together
   The more we are together
   the happier we shall be
   Andy your friend is my friend
   Andy my friend is your friend
   The more we are to together
   the happier we shall be.

2. Put 5 cups into a bowl.
    Call 7 learners to pick the cups.
    Two leanrers did not have any cups
    Ask: Why did Ama and Badu not get any of the cups?
    The cups are not enough. The learnes are too many
3. Introduce the greedy crocodile to help teach the more that '>' and fewer than '<' sign.
    Fati and Ali are friends to the crocodile. They go to the river side to give it
    chicken. The crocodile opens it's mouth very wide when any of the children has
    a lot of chicken and turns it's back to the person with fewer chicken.

more chicken   fewer chicken

4. We simply draw '>' to show more things and '<' to show fewer or less things like the
    greedy crocodile does.
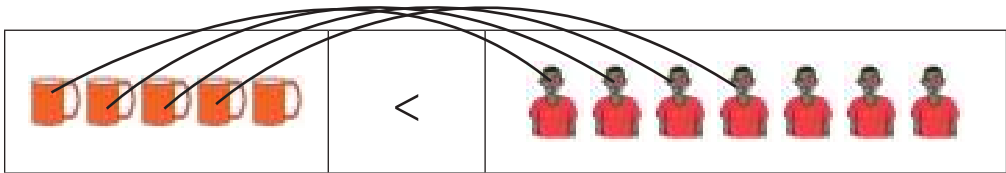
The cups are fewer/less than the children.
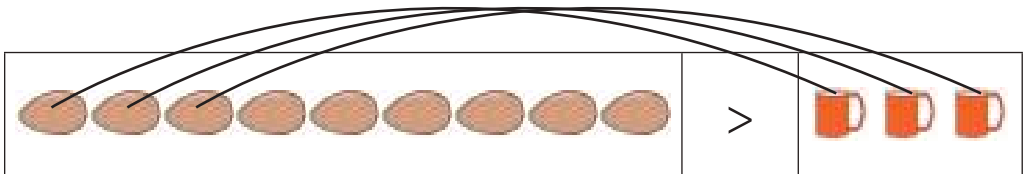
The eggs are more than the cups

When 2 groups of things are the same, we use the '=' sign
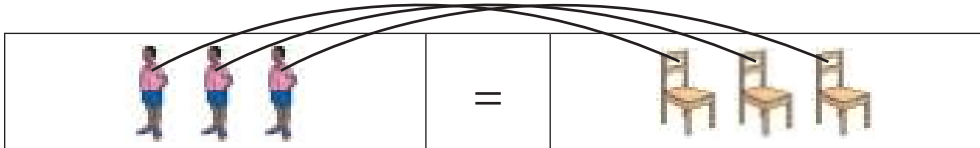
•   Have learners compare and talk about cards of body parts.
•   Have individuals (2 learners) pick only 2 picture cards (body parts), count and
    pick their corresponding number cards.

Example (1): 4 legs and 4 hands

4   =   4
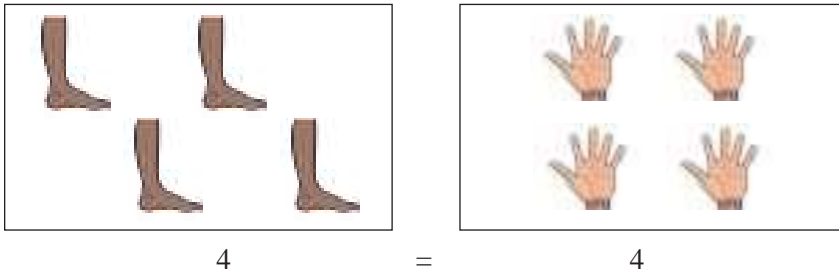
The number of legs and the number of hands are the same

•   Have the rest of the learners count the parts on each card. Each number is written on the board.
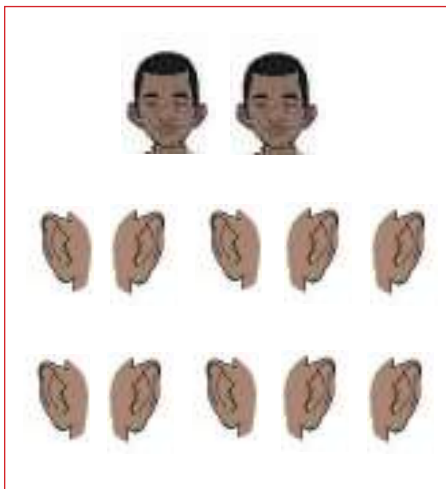
12   12
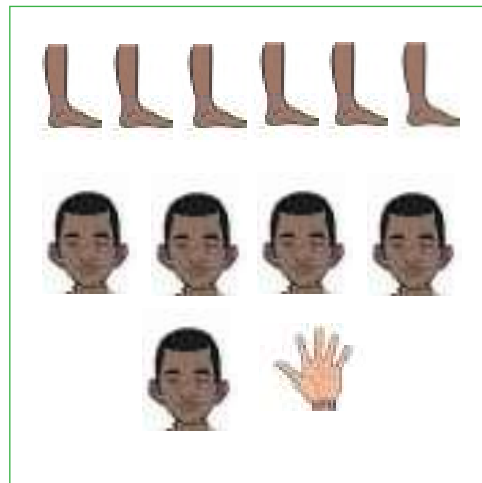
•   How many pictures do we have on the card with the red boarder?   12

•   How many pictures do we have on the card with the green boarder?   12

•   Each card has 12 pictures. What do we say of the number of objects on both cards?
Ans: The quantities are the same.
12 objects and 12 objects are the same.
12 = 12

WORKBOOK
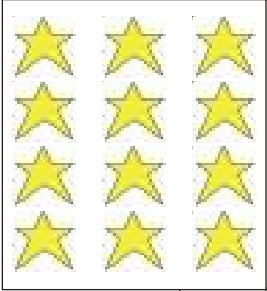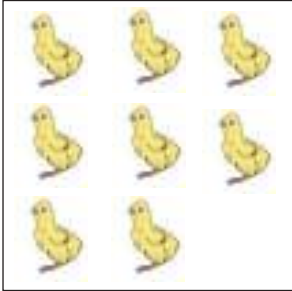
Activities In Numeracy for KG 2
Activities 4, 7 and 10 – K2.1.2.1.7

- Read and explain the instructions to the learner.
- Do the first activity with learners.
- Let learners work independently.
- Support learners who need individual attention.

Example, Activity 10

8   12   8

Sub Strand: Relationship between Numbers -10 to 20

ACTIVITIES 5, 6, 7, 8 AND 9 – K2. 1.2.1.7

MORE THAN (>), FEWER/LESS THAN (<), SAME AS/EQUAL TO (=)

Content Standard: Ref: K2.1.2.1

Core Competencies: Ref: K.2.1.2.1.7

Introduction: Refer: K.2.1.2.1.7

Indicators/objectives: Ref: K.2.1.2.1.7

Key words: Refer K.2.1.2.1.7

Material/Resources: Refer K.2.1.2.1.7

Procedure
1. Have learners sit in a circle and sing 'I have one head' and 1, 2, 3, 4, 5, We are counting Mangoes, 6, 7, 8, 9, 10, eating merrily.
2. Put 10 combs and 5 brushes in the middle of the circle.
3. Have a learner arrange the comb in a row.
4. Invite another child to pair (put a brush against each comb) the combs and the brushes.
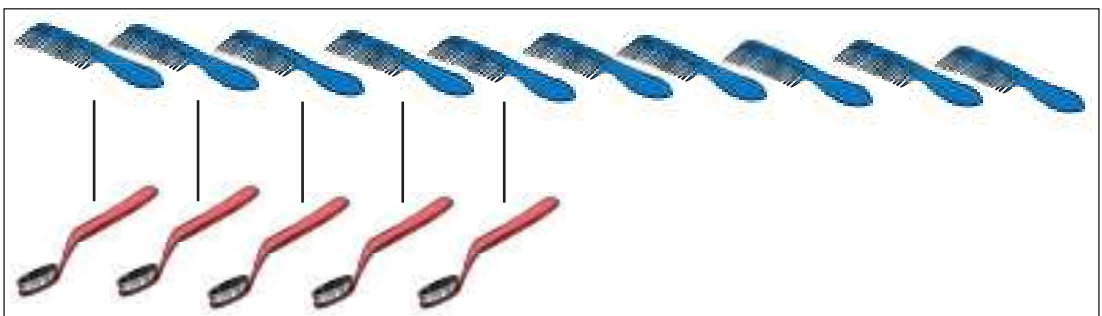
- Ask: Have all combs got brushes?
  Ans: No
  Why?
  Ans: The combs are more than the brushes. The brushes are not enough. They are fewer.
5. Have a learner draw each group of objects separately and match by one-to-one correspondence and compare the quantities.
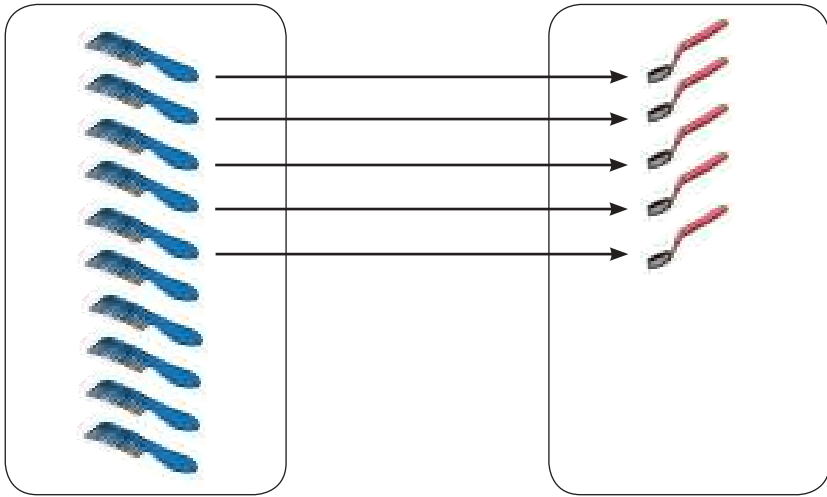
The combs are more than the brushes.

6. Have another learner draw the two groups of objects again, count and write the number underneath.
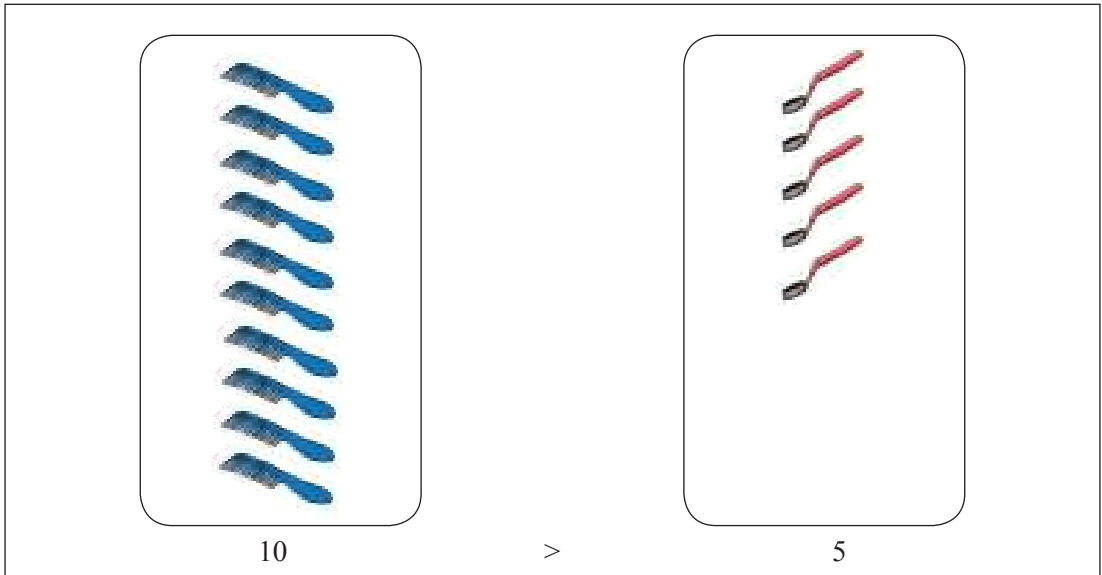
| 6 | 5 |

• Have the child position the "greedy crocodile" to indicate that the combs are more than the brushes.
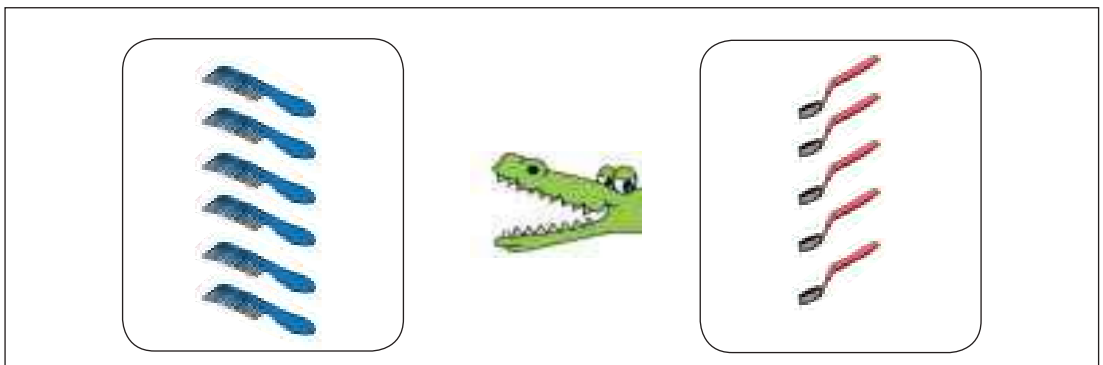
Introduce the more than (greater than) sign with the opened mouth of the crocodile towards the greater number of objects. ">".

Note: The back of the mouth of the crocodile points to the fewer/less of objects '<'.
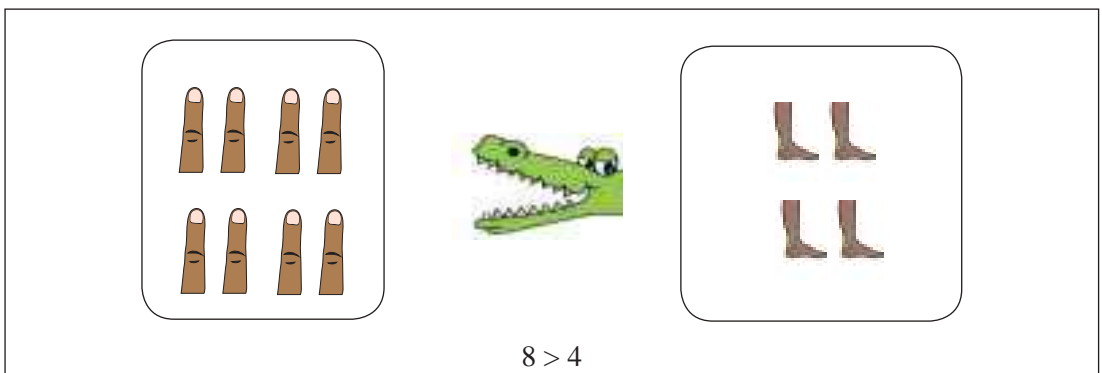
| 10 | > | 5 |

The combs are more than the brushes. The number of combs is greater than the number of brushes.

• Using other sets of objects, follow the above practical activities to consolidate the concept 'more/greater than' and the appropriate sign '>'.

Assessment
• Have each learner collect countable objects and demonstrate "more than".
• Have two learners in turns pick any two picture cards (parts of the body) and compare show 'more than' using the 'greedy' crocodile.

8 > 4

The fingers are more than the legs.

Workbook Activities:
Activities In Numeracy for KG 2
Activities 5, 6, 8, 9 – K2.1.2.1.7

- Read and explain the instructions to the learner.
- Learners work independently.
- Support learners who need individual assistance.

Example: Count the objects in each box. Write the number and colour the box that has more objects.

Compare: '>' '<' or '='

The cups are more than the mugs. $12 > 6$

Example: Draw 10 more than 2 eyes
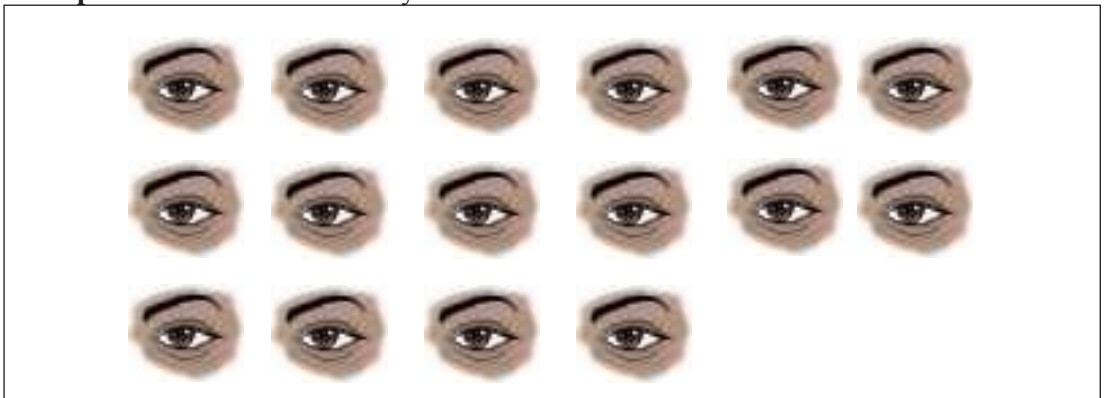
Answer: learner may draw 12, 13, 14, 15, 16, 17, 18, 19 or 20 eyes.

Example

Draw fewer than 5 girls.

The learner may draw 4, 3, 2, 1 girls.

Sub Strand: Relationship between numbers 1 – 20

ACTIVITIES 12 – K2.1.3.1.7 / 15 – K2. 1.2.1.6 (Pages 12, 15)

GREATER/MORE THAN '>' FEWER/LESS THAN '<' EQUAL TO '='

Content standard:
K2. 1.2.1.6 – Demonstrate the knowledge of appropriate names of the parts of the internal body that we cannot see and their functions.
K2. 1.3.1.7 – Demonstrate understanding of personal hygiene and care of the human body.

Core Competencies: Problem Solving, Communication and Collaboration; Personal Development and Leadership

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Introduction
In the child's day to day activities, he/she handles things. She/he describes things he/she cannot easily pick as <u>heavy</u>. He/she thus can talk about his/her own child size bucket/pail and the parents' home big bucket. He/she compares the weight when both contain water.
He/she describes the bigger bucket of water as heavier than her small pail.
The child talks about which chair is heavier. The child compares her toothbrush and that of his/her parents. He/she describes his/hers as small; the parents' toothbrush as big.
His/her identification of small and big sized items help him/her pick his/her own clothing and other items.

Indicators/Objectives
Compare objects and numerals between 1 – 20.

Materials/Resources
Big bucket and small bucket, bell, paper, brush, nail clipper, toothbrush, hair brush; 1.5 litre bottle of water; 100 ml bottle of water.

Procedure/Method
1. Have learners sit in a semi-circle outside the classroom.
2. Place a very low table in front of them.
3. Have the items listed under materials on the table.
4. Have learners identify the objects and say their names in turns.
5. Put the 1.5 litre bottle of water and the 100 ml bottle of water.
6. Invite a learner to pick the 1.5 litre bottle of water (child picks with an effort)
7. Why is he/she not able to pick the water easily?
    Ans: It is heavy (It is too big)

    Ask the same child to pick up the 100 ml bottle of water
8. He/she picks it up very quickly (with no effort)

9. Ask: why has he/she picked the bottle (100 ml) so quickly and easily?
    Ans: It is not <u>heavy</u>; it is small.
    Compare: The big bottle is heavier than the small bottle.
10. Have learners take time to pick sets of objects (2 objects) and compare.
    Example: Powder and toothbrush – The powder is heavier than the toothbrush
    Hairbrush and toothbrush – the hair brush is heavier than the toothbrush.
11. Have learners work on activity A in the workbook K2.1.2.1.6 'A'

Have learners pick and compare the size of two objects and talk about them using
expressions – big or small (bigger and smaller)
A big bucket and a small bucket.
A big bottle and a small bottle.

Assessment:
1. Which of the following is bigger?
    Teacher's table and your chair (learner)?
2. We say the teacher's table is bigger than my chair.

3. Which is heavier, the hair brush or the tooth brush.
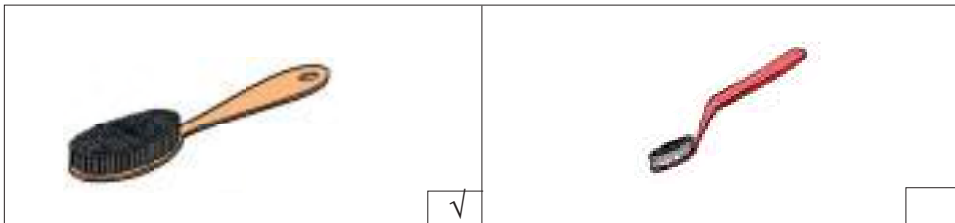
WORKBOOK
Activities In Numeracy for KG 2
Activities 12 – K2.1.3.1.7 and 15 – K2. 1.2.1.6
-   Read and explain the instructions to the learners
-   The learner does the exercises independently
-   Give support to a learner who needs assistance.

Sub Strand: Relationship Between Numbers 1 to 20

ACTIVITIY 13 AND 14 – K2.1.2.1.6 (Pages 13 - 14)

GREATER/MORE THAN '>' FEWER/LESS THAN '<' EQUAL TO '='

Content standard: Refer Activity 12

Core Competencies: Refer Activity 12

Introduction: Refer to Activity 12 (K2. 1.2.1.7)

Indicators/Objectives: Refer to Activity 12

Resources/Materials:
Countable objects – spoons, combs, brushes

Greedy crocodile
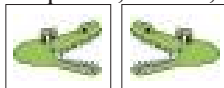
Sets of Objects on cards
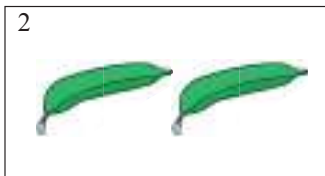
Procedure/Methods: Refer to Activity 4 – K2. 1.2.1.7

Assessment
Count, write and compare: '>', '<', '='
   1.   4 combs and 5 brushes

4 < 5

WORKBOOK

Activities In Numeracy for KG 2
Activities 13, 14 – K2. 1.2.1.6

- Read and explain the instructions to learners.
- Learners work independently.
- Support learners who need individual attention.

Sub Strand: Measurement

Activities 16 and 17 – K2.1.4.1.7

MASS; WEIGHT

Content Standard: Demonstrate understanding of how to keep the body healthy through eating good food and taking our childhood vaccinations.

Core Competencies
Communication and Collaboration, Personal Leadership and Development, Digital Literacy and Personal Development.

Introduction: Refer to Activity 15 – K2.1.2.16

Indicators/Objectives: Compare sizes and weight of different food items that we can eat to keep us healthy.

Materials/Resources:
1. 5 litre bottle filled with sand; 500 ml bottle of water; a medium-sized watermelon, orange, clay or play dough, cabbage, okro, yam, pawpaw, garden egg, kontomire leaf, 1 finger of plantain and one banana.

Procedure/ Methods
1. Put a low table in front of the class. Learners sing a known song.
2. Have learners sit in their chairs in a semi-circle (facing the low table)
3. From the collection of items, pick and show the items to the class. Have individuals identify and mention the name.
4. Assist learners to collect and arrange the items horizontally.

Cabbage	1.5 litre	kontomire	500 ml water	pawpaw	okro	yam

5. Invite individual learners to lift up the 1.5 litre bottle with sand and the cabbage in turns- (the bottle, then the cabbage).

Have all learners do the same.
6. Discuss their experiences with them.
    • Ask: Why were you not able to lift the big bottle easily?
      It is <u>heavy</u> (could be expressed in the child's local language)
      "The bottle is too big"
    • Why were you able to pick the cabbage so easily?
      Ans: It is not heavy; "It is small".
    • We can compare the weight of the big bottle and the cabbage.
    • We can say the bottle of sand is heavier than the cabbage.
    • We can describe the cabbage as light when we compare it to the bottle of sand.
7. Have learners compare sets of items and say which item is heavier.
    Example: yam and a finger of plantain.
                1.5 litre bottle of sand and the 500 ml bottle of water.
                Watermelon and orange
                Garden egg and banana
8. Also talk about the sizes of objects.
    Example:

The watermelon is bigger than the orange.
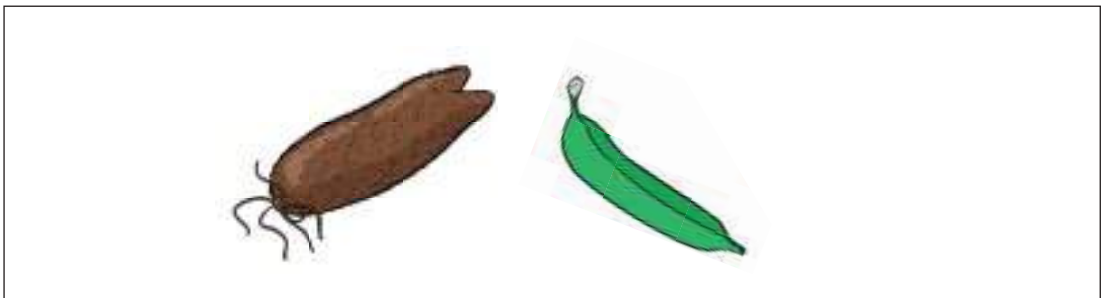
The yam is bigger than the plantain.

In another lesson.
Learners use clay or play dough to model items.
- Heavy and light items; big and small items.
- Talk about the two items.

The watermelon is <u>heavier</u> than the orange.
- The watermelon is <u>big</u>. It is bigger than the orange. The orange is not <u>as heavy</u>. It is light.
- The orange is small. It is smaller than the watermelon.

Have learners talk about their work with their friends; then in turns with the whole class. They use the vocabularies – heavy, heavier than light, lighter than big, bigger than small, smaller than.

Assessment
Have individual learners choose any 2 items from the arrangement on the table and weigh them arbitrarily and describe them as for example:
- The orange is smaller than the cabbage.
- The bottle of sand is heavier than the bottle of water.
- Talk about the food items in the collection. Count and say how many. Fill in the blank spaces with the pictures of the correct food items.
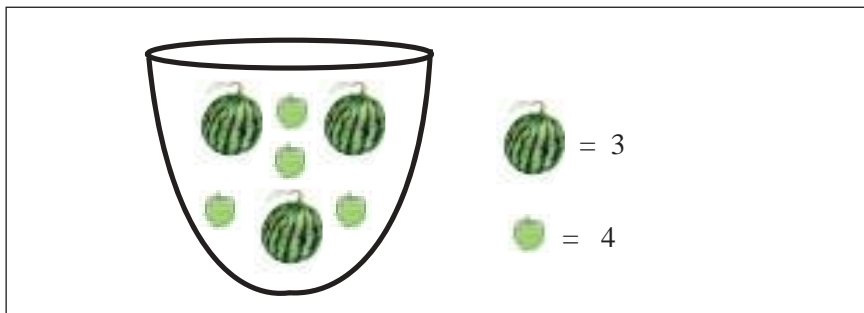
The watermelon is bigger than the apple.

WORKBOOK

Activities in Numeracy for KG 2
Activities 16 and 17 – K2.1.4.1.7

- Read and explain the instructions to learners.
- Learners do exercise independently.
- Assist learners who need support.

Sub Strand: Lines and shapes.

ACTIVITIES 18, 19, 20, 21 AND 22 – K2. 1.5.1.6 (Pages 18 - 22)

CLASSIFICATION

Content Standard: K2.1.5.1
Demonstrate understanding of the environment and how to keep it safe.

Core Competencies: Personal Development and Leadership, Creativity and Innovation;
Critical Thinking and Problem Solving

Introduction
Everything around the child comes in different shapes and colours, size and various lengths
etc. The trees, flowers, boxes, colours used in painting buildings, cars, learners' clothes,
shoes, bags, vegetables and fruits. Teaching children about shapes and colours and sizes is a
great way to give them some vocabulary for describing the world around them. As children
learn to identify colours and shapes, they can sort and classify objects around them based on
these and other attributes like kind and use.

The child observes that the green house is different from the pink one and the fresh green
leaf is different from the dry brown one.
Learning about shapes and colours opens the way of verbal communication, sorting and
classifying.

Indicators/Objectives: K2.1.5.1.6
Classifying objects according to their shapes and colours.

Materials/Resources
Real/concrete objects such as cups, balls, sheets of assorted coloured papers, vegetables,
flowers of various colours and shapes, plastic spoons, bowls, empty packets of various
shapes and colours varied quantities 6 to 20.
Sorting boxes or bowls and empty cans, toilet roll tubes.

Procedure/Method
Practical Activities A
A. Colour
Sing: How green you are 8x
1. Put a collection of items – cups (red, green, 6 of each colour; assorted papers – red,
   blue, pink, yellow (6 of each colour), plastic spoons and bowls (pink, green and
   blue) into a sorting boxes; one for the entire collection and one for each group of five
   learners.

2. Have learners sit in a circle around the sorting box.
3. Pick a red cup and show to learners.
4. Say – This is a red cup. Can you find anything else that is red?
5. In turns, learners pick other red items and put in an empty box.
6. Pick another object of different 9 colour, example, green and in turns have learners pick other green objects and put in another box.
   Describe the items by colour.
   A pink spoon, an orange cup, a red cup.
7. Have learners sit in groups of 5. Give each group a box with a collection of items (of different colours)
8. One person from each group picks an object (one colour)
9. Members of the group sort out items of that colour into a bowl or a box.

Use the process to teach at least 2 colours at a time.
Red spoon, red paper, red flower, red bowl - red
Green cup, green spoon, green box, green leaf, okro (green) - green
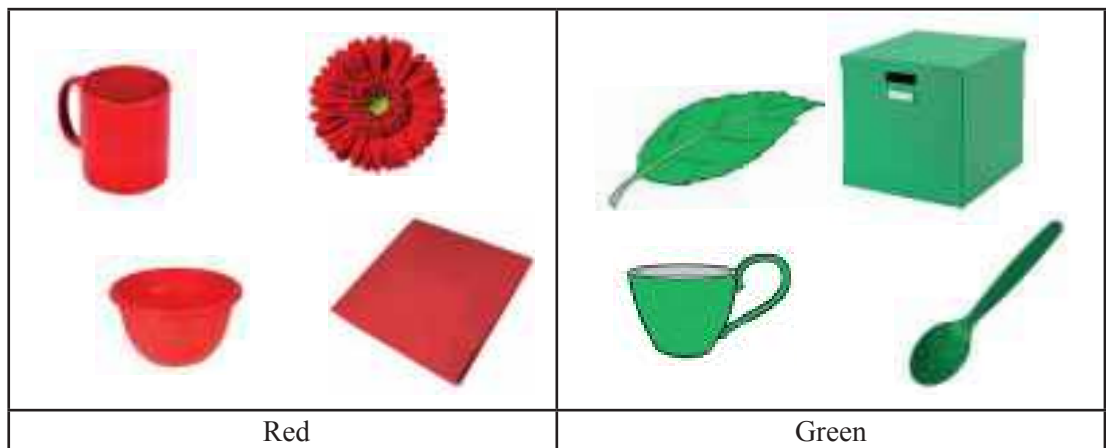
| Red | Green |

Practical Activities B
Shape
1. Sit learners in a circle.
2. Sing: Yellow and green, violet and red ……
3. Put a collection of different shapes of objects in a sorting box.
   - cups, balls, bowls, boxes – cuboids, cubes, chalk boxes, fruit drink packets, toilet roll tubes, milk cans and cans that roll.
   - set up a household learning centre stocked with disinfectants, soaps, fruit drinks, cups, soaps, toilet rolls, insecticides.
4. Pick an item of a particular shape, example, toilet roll tube. Talk about it – It rolls when it lies on the side. It can stand without falling.

5. In turns, have learners sort (pick out from the collection) other objects with the same shape.
6. Invite a learner to pick an empty packet (cuboid) and show to the whole group.

    He/she invites other learners to pick other packets of the same shape.
    The various items are sorted into boxes. Objects of the same shape into one box.

Practical Activities C.

1. Learners visit the home centre. (Household Learning Centre)
2. Learners identify and talk about the items. They classify as dangerous (harmful) and non-dangerous (harmless) soap, disinfectants – dettol, camel, insecticide (mosquito spray). Those that are harmful (dangerous) can harm us when they enter our eyes or mouth.

Those that are not dangerous (harmless) are those we can eat or will not harm us when they enter our mouth – fruit drink, toilet rolls, cups.

Assessment

Give each learner a collection of items and have him/her sort/classify according to a given attribute.

Colour	Shape	Dangerous and Non-Dangerous Items.

Workbook:

Activities in Numeracy for KG 2
Activities 17, 18, 19, 20 – K2.1.5.1.6 (Page 21

•   Read and explain instructions to the learner. Learners do exercises independently.
•   Support learners who need individual assistance.

Sub Strand: Relationship between numbers

ACTIVITIES 23 TO 27 – K2.1.6.1.6 (Pages 23 - 27)

MORE THAN '>', LESS OR FEWER THAN '<' AND SAME AS OR EQUAL TO '='

Content Standard: K2. 1.6.1.6
Demonstrate understanding of how to identify strangers and be safe.

Competencies: Personal Development and Leadership; Creativity and Innovation; Critical Thinking and Problem Solving.

Introduction: Refer to K.2.1.5.1.6

Indicators/Objectives: K2.1.6.1.6
Sort out objects by their length, colour and shapes and compare their numbers, using words such as more than, less than and equal to.

Materials/Resources
Rope (long 1½ feet and short 8 inches) bottle tops (red and blue) and strings for threading.
Two sticks (long - one metre and short - one feet) (long red and short green)
Cut out shapes in various colours.

Procedure/Methods
1. Have learners sit in a semi circle (on their chairs)
   and sing: *How green you are 3x*
                   How green.
                   How green you are 3x
                   How green
2. Pick 2 stick - long (red) and short (green)
   Hold out the red stick.
   Ask: What is this? it is stick
            What colour is it? It is red
3. Say: This is a green stick. The red stick is long. Show to green stick
4. Learners say: This is green stick. Hold the green stick against the red stick from the same point and ask - Is the green stick also long?
   Response: No, it is short
5. Have each learner pick a rope (long and short). Have the individuals go round to find ropes as long/short as theirs.
   One person from each group speaks for the group
   a) Our ropes are long.

    b) Our ropes are short

6. Have learners sit in pars. One person collect red bottle tops (20) and the other collect blue bottle tops (8). Each person takes a string.
7. Learners thread a long row (red) and a short row (blue)
8. The two talk about their lengths. A long row of bottle tops and a short row of bottle tops.

Practical Activities B

Shapes and Colours

1. Put cut-out shapes of varied colours and qauntities into a box
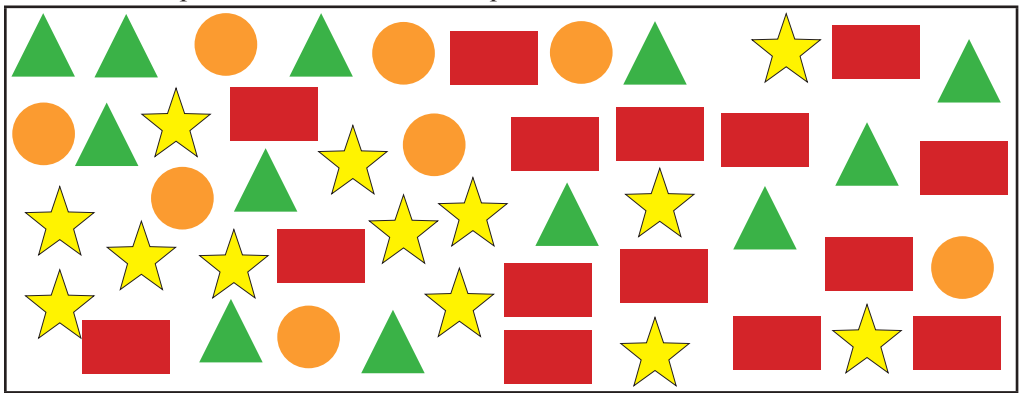
Each group of 6 learners gets a box of shapes.

2. With a song have learners go round the box of the collection of cut-shapes. They pick one at a time until all the cards (shapes) are finished in the box.
3. Put out 4 smaller boxes. Tag each one with a shape (all the different shapes)
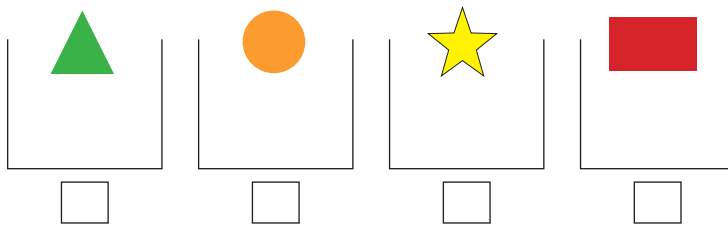
4. Learners go round the small boxes of drop in their cut out shapes (into the appropriate boxes)
5. A learner is invited to count the triangles ( ). As he/she picks and drops on a table, he/she counts with the rest of the class.
   Other individuals count all othe shapes, the number is written under the box

| 12 | 8 | 13 | 15 |
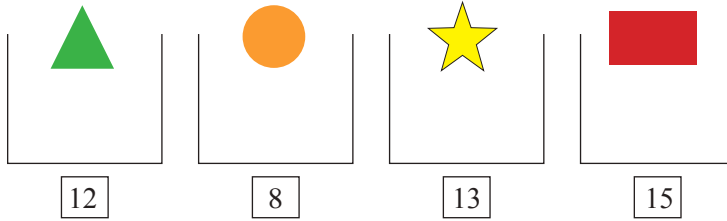
6. Compare the groups of shapes and describe as more than, fewer or less than or equal to. Learners talk about the exercises.

The ▲ and the ▮

| 12 | | 15 |

The ☆ and the ●

| 13 | | 8 |
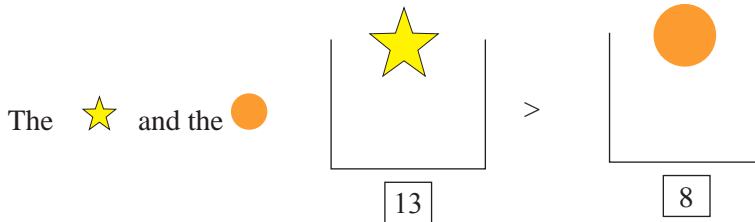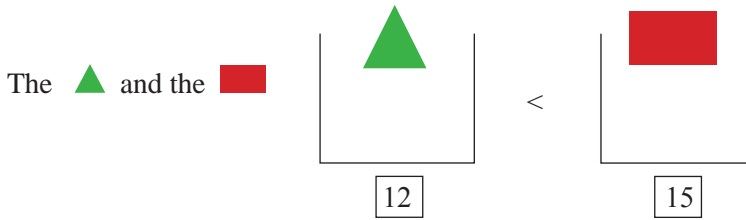
Assessment

1. Count and colour the group with fewer objects.
   Compare the groups – '>', '<' or '='.
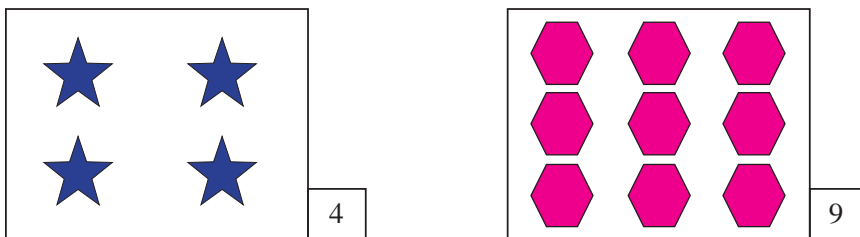
The ★ are fewer than ⬡

4 < 9

2. Sort and count ropes: by length, colour.
   Compare: more than '>', less than '<' or equal to '='

6	5

>
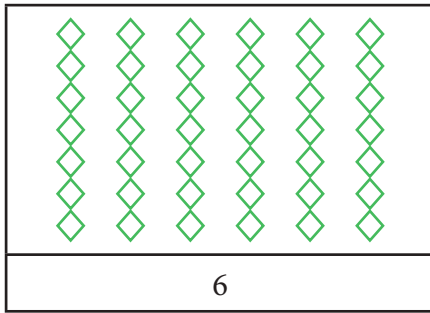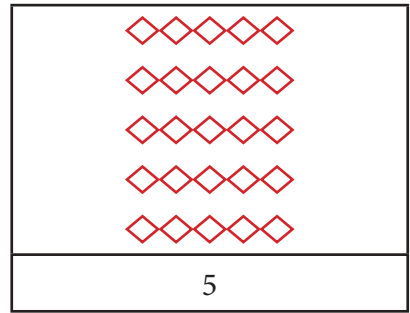
WORKBOOK:

Activities In Numeracy for KG 2
Activities K.2.1.6.1.6 Pages 23, 24, 25, 26 and 27

- Read and explain instructions to learners.
- Work out the first exercise with learners.
- Learners work independently.
- Support learners who need individual attention.

Sub Strand: Whole Numbers: Operations Addition

ACTIVITIES 28, 29, 30, 31, 32 AND 33 – K2. 2.1.1.6 (Pages 28 -33)

FINDING HOW MANY

Content Standard: K2.2.1.1.6
Demonstrate understanding of the right, roles and responsibilities of family members.

Core Competencies: Communication and Collaboration;
Cultural Identity and Global Citizenship; Personal Development
and Leadership; Creativity and Innovation; Critical Thinking.

Introduction
Basic addition is a step on from counting and usually picked up easily by learners. The ability to add up is important in all aspects of life; at home, school in the shop, etc. As children count, they are already adding on. They count their biscuits, fingers, friends, playthings.

Addition helps children to master the relationship between numbers and understand how quantities relate to one another. Addition is the simplest way of manipulating numbers. The basics of addition – how to add, sum or bring together two or more numbers to make a new number – to give children a frame work for mastering math in later school years.

Materials and Resources
Countable objects – bottle tops, empty packets, cups, bowls, picture cards

Number cards 1 – 20

| 1 | 2 | 3 | 4 | 5 | 12 | 15 |
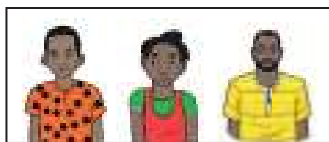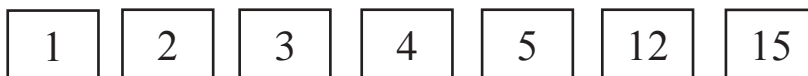
Procedure/Methods
1. Have learners form a circle.
2. Learners sing with actions
   1, 2, 3, 4, 5, Once I caught a fish alive
   6, 7, 8, 9, 10 then I let it go again.

Why did you let it go?
Because it bit my finger so. Which finger did it bite?

The little finger on the right
1, 2, 3, 4, 5, 6, 7, 8, 9,10

3. Put out 3 bowls: two(2) containing sets of objects, with the third one empty.
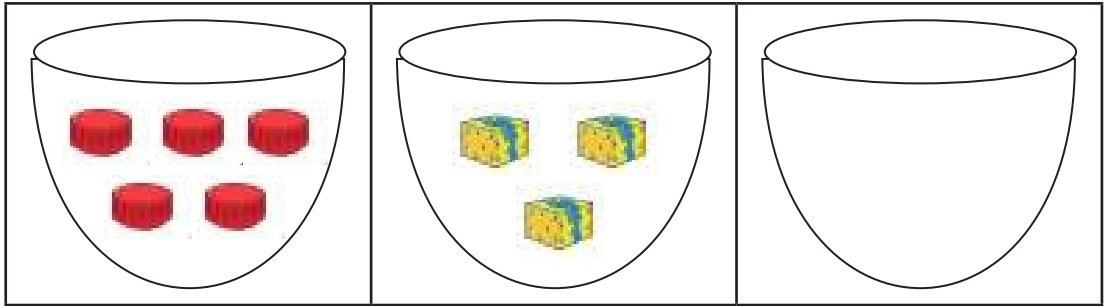
4. Have one learner count the content of the first bowl.
   Another learner count the content of the second bowl.
5. We would like to know how many items we have altogether.
   Ask: What can we do? Put all the items in the 2 bowls together and count.
6. A third learner pours the items in the first bowl into the second bowl.
7. Learner counts all the items one after the other into the third bowl.
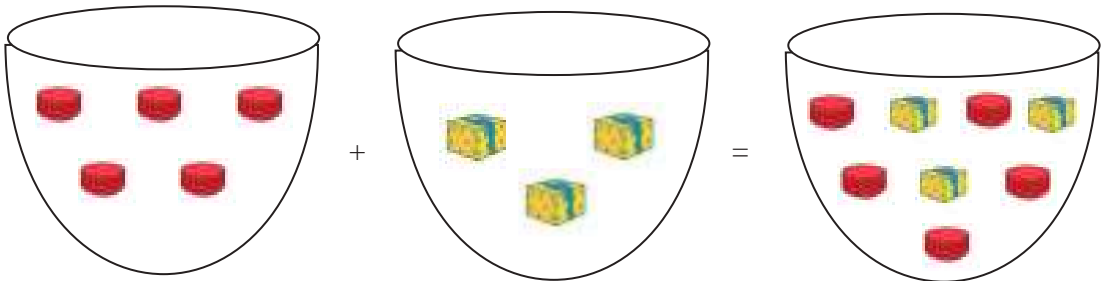
8. Have a learner match the bowls and the content with number cards.

| 5 | + | 3 | = | 8 |
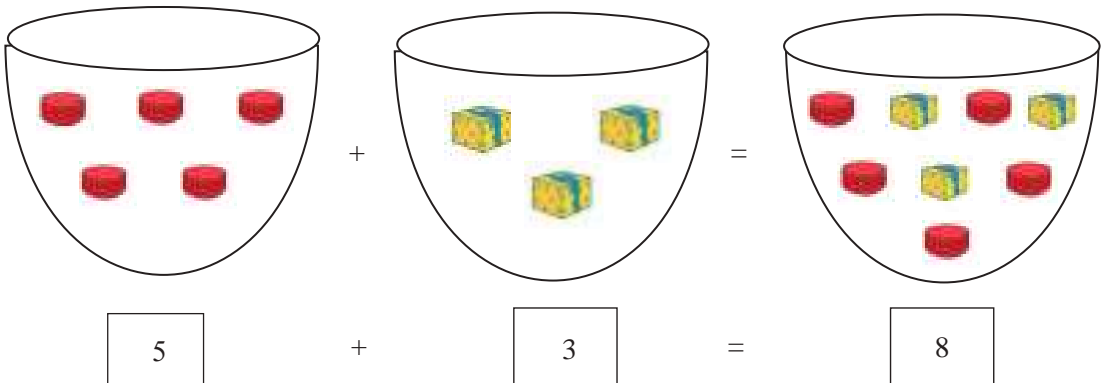
9. To see how many items all together, we add. Tell learners that the final number name describes the entire quantity of items.

    The plus (+) sign means addition; putting the two groups together.
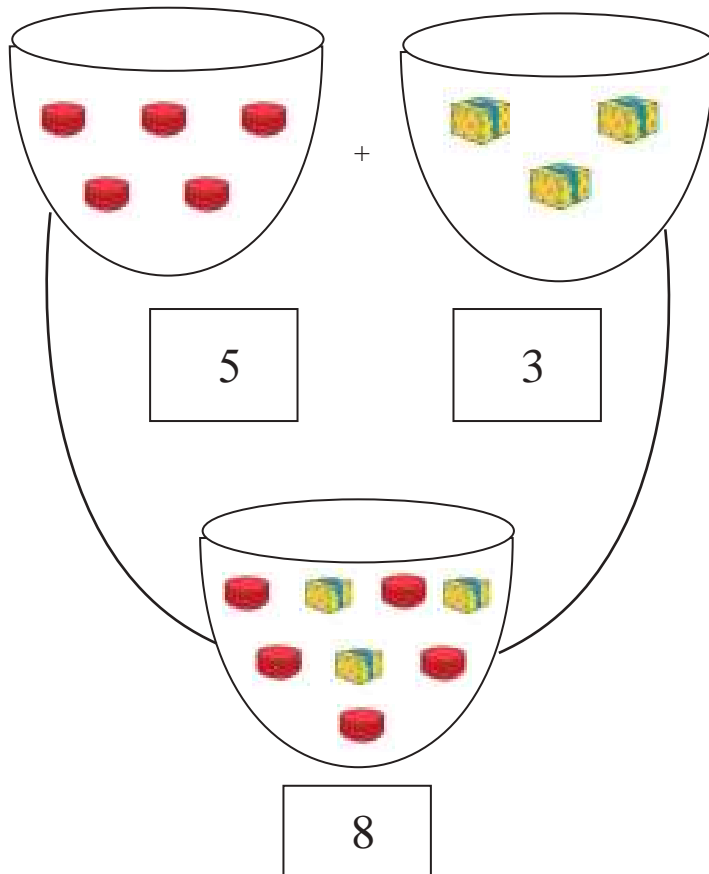
10. In turns, have two learners pick two picture cards.
    Example:

    A learner represent each person with a bottle top.
    A learner places the bottle top underneath the picture card.

11. Have another learner put all the bottle tops together and count.

10
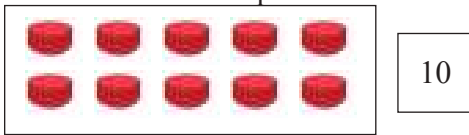
12. In pairs, have learners collect 2 sets of items, put together, count and find out how many in all.
13. Have a group of 8 learners stand at one part of the room.
    A group of 6 learners also stand at another part.
14. Say: To find out how may learners there are altogether, we will bring them together and count.

8

6

14
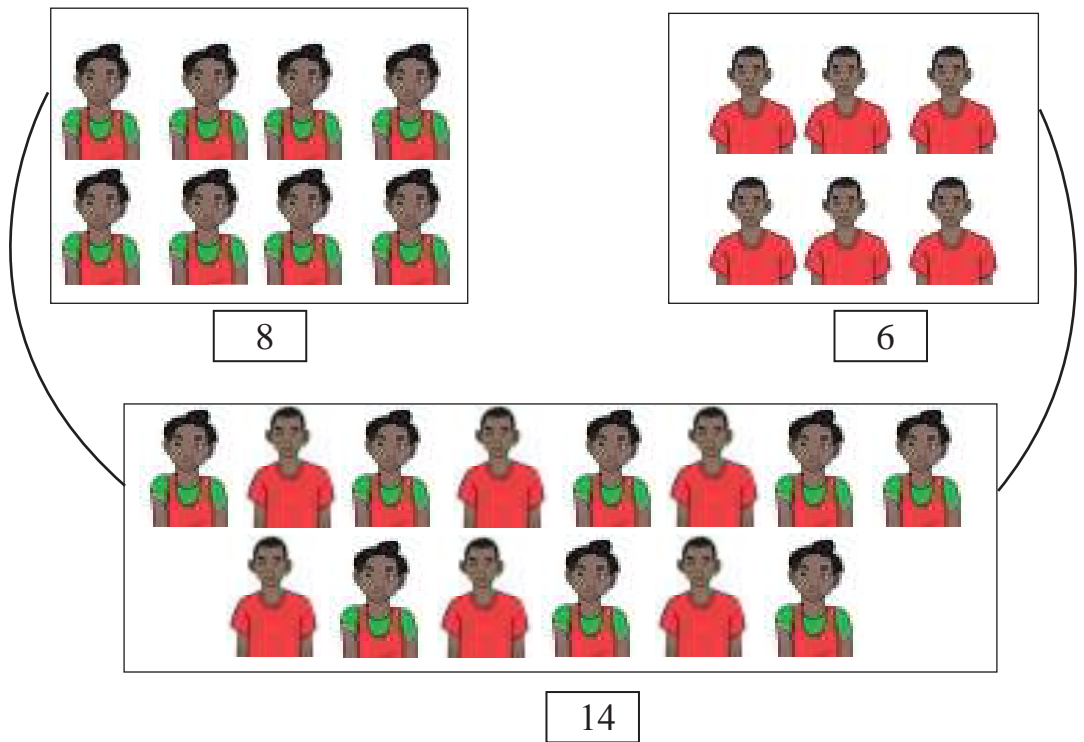
Assessment
Have learners use countable objects to solve the following (Represent the numbers with the countable objects)

| $5 + 3 = 8$ | $10 + 2 = 12$ | $3 + 9 = 10$ |

There are 3 brothers and 5 sisters in a family. How many children are there all together? = 8

WORKBOOK

Activities in Numeracy KG 2
Activities 28, 29, 30, 31, 32 and 33 (Pages 28, 29, 30, 31, 32 and 33)

- Read and explain instructions to learners.
- Work out one example with learners.
- Put the 2 groups of objects together (add). Say how many they are all together.

| 5 | + | 1 | = | 6 |

- Add $3 + 5 = 8$

Sub Strand: Measurement

ACTIVITIES 34, 35 – K2. 2.2.1.7 (Pages 34, 35)

LENGTH: NON STANDARD

Content Standard: K2.2.2.1
Demonstrate understanding of the origin and history of our families and the languages spoken.

Core Competencies
Critical Thinking and Problem Solving

Introduction
Length measures how long an object is. It is the distance from one end of an object to the other. Example, from one end of a table to the other.

This could be measured by the use of tape measure and ruler (Standardized). They measure in inches, feet, centimetre and metres. We could also use non-standardized measurement like our body parts – hand span cubit, foot span or pace, ropes, sticks and strips of paper.

In the learner's daily experiences, he/she handles things of varied lengths (long or short pencils).

They also walk from one place to the other. Places that take a longer or shorter time to walk to.

Indicators/Objectives: K2.2.2.1.7
Comparing length and distance from their school to their homes and home town using non-standard and standardized measures.

Materials/Resources
Ropes of varied lengths (red, blue, orange)
Cut out strips of papers, foot rulers
Sticks of varied lengths (black, yellow, white)

Procedures/Methods
1. Take learners out of the classroom.
2. Have them form queues. One on the long stretch of the verenda and one on the short stretch.
Mark those on the longer side with red ribbons or papers.
Ask: Which queue has more people?

The longer side of the veranda – side at the learners with red ribbons.
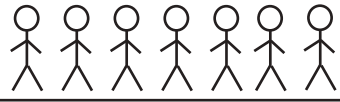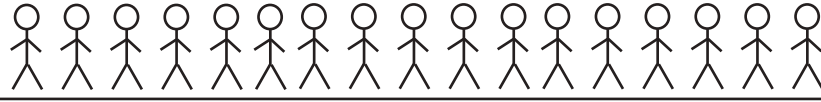
3. In turns, use foot span to measure the long side of the veranda.
   The different learners count as they measure and say how many foot spans there are.
4. Have individual learners use hand span, pace, ropes, strips of paper or sticks to measure the following areas.
   - Along the length of the board.
   - Short side of learners tables
   - Sides of learners chairs.
   - From the swing to the slide
   - From one classroom door to the other.

Learners count and write the number of foot span, hand span, paces, ropes or strips of papers they have used.
Example: 20 foot spans, 15 paces, 12 ropes, etc.

Assessment
1. Draw lines of different colours in and out of the classroom spaces. (longer and shorter lines)
   • Have learners stand in two files.
   • They sing: Round and round the village 3x
     As we have done before"
   • In pairs, they march to choose a line (stand at one end). They decide what to measure with – pace, stick, rope, foot span, …
   • One learner estimates the number of paces, ropes or the measure of their choice will be before they measure.
   • They count the number of measure they have used and write on a piece of paper.
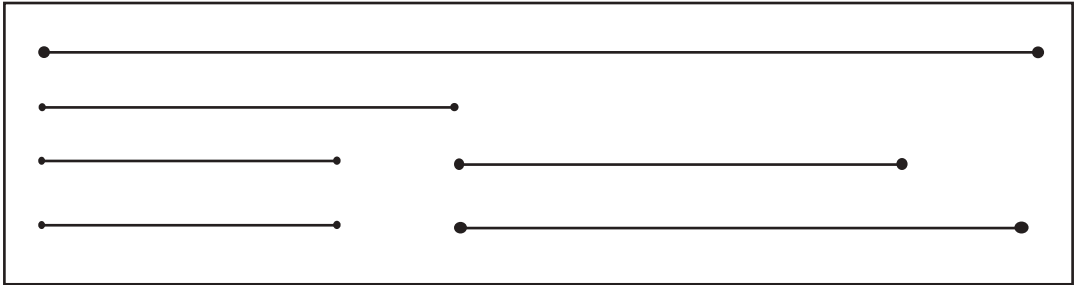
Two groups exchange places (lines) and also measure.
The two groups compare their lines and describe them as:
Example, The green line is longer than the red one.

Workbook Activities
Activities In Numeracy for KG 2
Activities 34 and 35 – K2.2.2.1.7 (Pages 34 and 35)
- Read and explain the instructions to learners. Have learners work independently.
- Give support to learners who need individual attention.
- Learners cut/tear a strip of paper of the same length of rope (on the exercises).
- Learners use the strip to mark out the number that will cover the distance shown.
- Learners draw, count and write.

Sub Strand: Whole Numbers Operations

ACTIVITIES 36, 37 AND 38 – K2.2.3.1.7

SUBTRACTION – MONEY

Content Standard: K2.2.3.1.7
Demonstrate understanding of festival and family celebrations.

Core Competencies
Problem Solving and Critical Thinking.

Introduction
Subtraction means to take something away; to remove something from a group.
Learners daily experience the concept of subtraction when they open a pack of biscuits and begin to eat; when they give away a play-thing from a collection.
Addition and subtraction are opposites. While addition adds on, subtraction takes away.

Indicators/Objectives
Prepare a shopping list, use money to shop for ingredients for the festival special meal.

Materials/Resources
Countable objects – cups, balls, vegetables – tomatoes, garden eggs, carrots, bottle tops, bowls.

Number frame
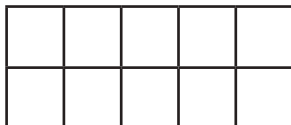
Procedure/Method
1. Have 5 learners form a queue.
    Rest of learners sing while the 5 perform the action.
    " Five little ducks went swimming one day over the hills and far away.
    Mother duck said quack, quack, quack
    And only 4 little ducks came back.
    Continue the song with 3, 2, 1 and finally no little duck.
    No little ducks went swimming one day, over the hills and far away.
    Mother duck said, ……
    And no little duck came back home.

    *As the song goes on, the ducks (learners in the queue) go off the file until there is none left.
    Each time one (1) duck goes away

2. Have each learner put out 5 bottle tops to represent the ducks on his/her table (in a row)
3. Have learners sing again.
   When 5 little ducks went swimming one day (the line) is sang, the class halts and count their bottle tops.
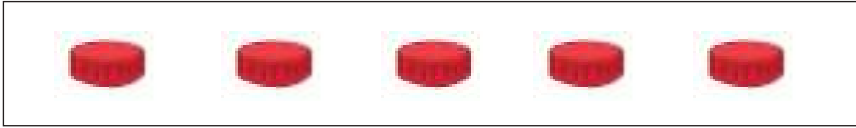
4. Mother duck said quack, quack, quack and only 4 little ducks came back.
   Q: Why are there 4 ducks now? One (1) didn't return.

Ducks (5)

Q: How do we show that one is off the group?
   Ans: We take it away (cancel it on the board)

Ducks (4)

$$5 - 1 = 4$$
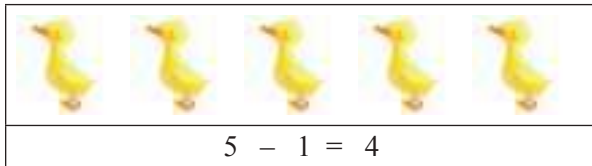
5. Have a learner count 10 tomatoes into a bowl.
   • Have a second learner take 3 of the tomatoes out for preparing her meal.
   • Have the rest of the learners count the remaining tomatoes onto the table.

10 tomatoes - 3 tomatoes = 7 tomatoes

| 10 | − | 3 | = | 7 |
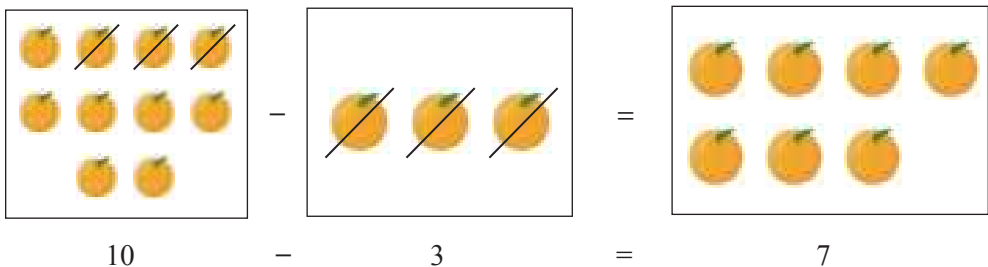
6. Let individual learners work out sums on their own.
   $5 - 3 = 7$
• Learners do the activity in pairs.

• One learner picks 5 balls, bottle tops or vegetables onto her table.

   He/she gives away 3 to her partner. He/she now counts the number of items left in the bowl.

 – =

5   –   3   =   2
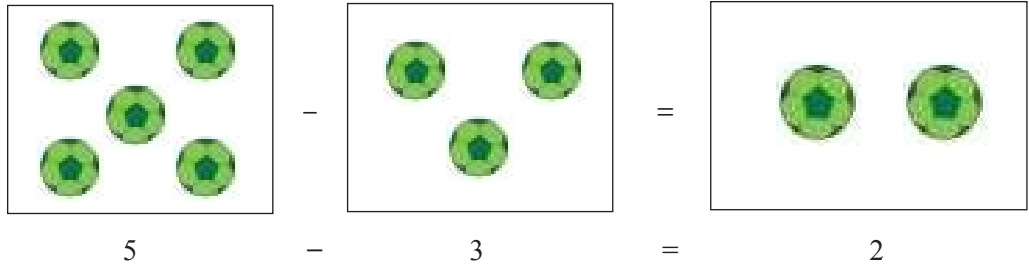
Have learners change roles and practise with other quantities.

Assessment

1. Distribute number frames to pairs of learners. Write sums on the board.

   Example

   | 10 – 6 = 4 | | 7 – 2 = 5 | | 9 – 4 = 5 |

2. Learners use the number frame and bottle tops to work out the sums.

   Number frame

   The first number of bottle tops are arranged on the frame.
   What is to be taken away are moved off the frame.
   What is left are counted.
   10 – 4 = 6

   Number Frame

   10 – 4 = 6

3. Revise addition sums with learners.

WORKBOOK

Activities in Numeracy for KG 2
Activities 36, 37, 38 – K2.2.3.17 (Pages 36, 37, 38)

- Read and explain the instructions to learners.
- Learners work independently.
- Support individual learners who need assistance.

Sub Strand: Measurement: Length

ACTIVITIES 40, 41, 42 – K2. 2.4.1.6

COMPARING HEIGHT: TALL AND SHORT

Content Standard: 2.2.4.1
Demonstrate understanding of the rules and regulations for learners and teachers at school.

Core Competencies: Communication and Collaboration; Personal Development and Leadership; Creativity and Innovation; Critical Thinking and Problem Solving.

Introduction
Learners experience and talk about various forms of measurements in their day to day activities. For instance, in comparing their heights, they talk about who is tall and who is short .

In comparing their pencils and crayons they will talk about longer and shorter. While length tells how long or short things are, height tells how tall or short people, animals and some objects are. Height measure people/things that stand – people, trees, buildings, tables can be described as tall or short. We can compare and talk about a tall giraffe and a short rat; A tall and a short person.

Tall   short   Tall   Short
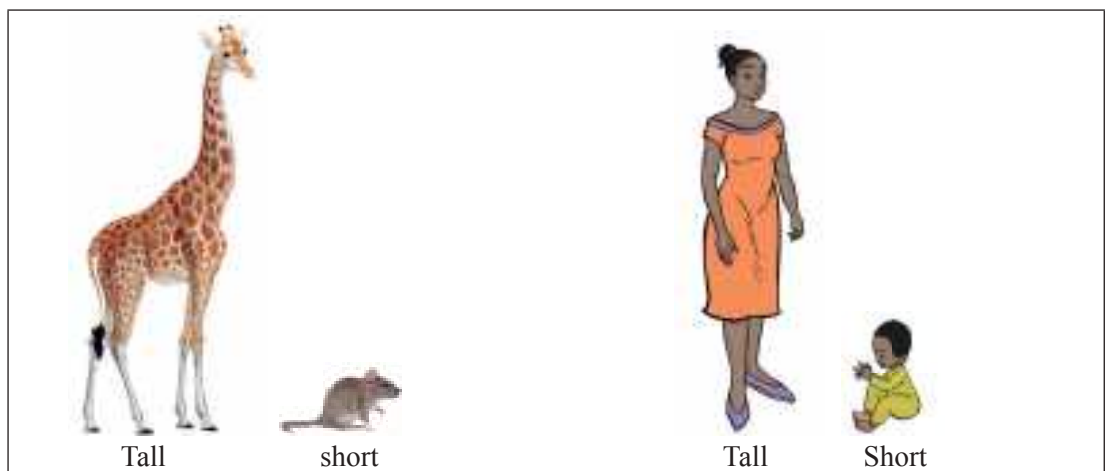
Indicators/Objectives:
Comparing length of items and height of learners in the school using non-standard and standardized measure.

Materials/Resources
- Ropes of varied lengths *(red, blue, orange)
- Sticks of varied lengths (in black, white, yellow), threaded beads (paper or plastic).
- Standardized measures – foot ruler; metre stick, tape measure, manila cards, roll tubes, play dough, glue.

Procedure/Method
1. a. Have learners sit in a semi circle form.
     Place 2 sticks (long and short) along each other on a table. (long stick-black, short stick yellow). The sticks should be placed on the same starting point.

   b. Learners observe and talk about the sticks. – The black stick is long and the yellow one is short.
      - We can also say the black stick is longer than the yellow stick.
      - – The yellow stick is shorter than the black stick.
   c. In turns have learners compare ropes, threaded beads and talk about them – Which one is long and which one is short.
2. Learners and teacher form a circle outside the classroom. They sing while moving round in the circle.
   Ringa a ringa a roses
   A pocket full of poses
   Ati shao, Ati shao
   We all fall down

3. Call a learner to stand by you.
   Ask the rest of the learners to look at the two of you. – Indicate with your hand that they should look at your height.
4. Ask: Look at Ama and I, What do you notice about us?
   Answers: You are bigger than Ama.
   Ama is small
   You are <u>tall</u>, Ama is <u>short</u>.

Some learners may use long and short for the description.
People are described as tall or short. Things that stand upright are described as tall and short.

Practical Activity A
1. Call two learners to the front of the class – one tall and the other short
2. Let them stand close to each other and compare their heights.

3. Ask: Look at Ken and Allan. Which of them is tall? Which of them is short?

Ans: Allan is tall. Allan is taller than Ken. Ken is short. Ken is shorter than Allan.

4. Put learners in groups of 3.
    •   In pairs, learners compare their heights. The 3rd learner says who is tall and who is short.
    •   First they stand close to each other.
•   A learner stands against the wall. Another person uses chalk to mark his/her height by drawing a line at the top of his/her head.
•   Learners can compare and talk about their heights.

•   All learners take turns to compare their heights with another child.

They describe with the vocabularies – tall, taller than
- As tall as
- Short, shorter than
- As short as

Practical Activity B

1. Learners work as individuals, then in pairs.
2. Learners join 'toilet roll/other tubes to create towers. A tall and a short tower.

   They use roll manila cards and fix themwith glue to make a tall and a short towers. In pairs, learners compare their towers and describe them as tall or short.

Practical Activity C

In groups of 4 or 5, learners use clay, play dough or papier mache to build poles or make trees or build houses.
Learners compare and describe their works. They use the appropriate expressions to describe them – taller than/shorter than.

Practical Activity D

Walk around the school compound with learners. Have learners compare the height of buildings, trees, walls, doors, plants and say which ones are tall and which ones are short.
Examples: The mango tree is tall.
          The rose plant is short.

Q: What do we say when we compare the rose plant and the mango tree?
Ans: The mango tree is taller than the rose plant. The rose plant is shorter than the mango tree.

Assessment

Q: Draw two towers. Colour the taller one red. Do not colour the shorter tower.

WORKBOOK

Activities in Numeracy for KG2

Activities 40, 41, 42 – K2. 2.4.1.6 (Pages 40, 41, 42)

*Do each exercise after the corresponding Practical Activities.

- Read and explain the instructions to learners.
- Do the first exercise of each page with learners.
- Learners do the exercises independently. One page at a time.
- Give individual attention to learners who need support.

Sub Strand: Relationship Between Numbers

ACTIVITIES 43, 44, 45, 46, 47 AND 48 – K2.3.1.1.6, ACTIVITIES 49, 50, 51, 52 AND 53 – K2.3.1.1.6 (Pages 44 - 53)

COMPOSE AND DECOMPOSE UP TO 10

Content Standard:
K2.3.1.1.6: Demonstrate understanding of their personal values in relation to their likes and dislikes.
K2.3.2.1.6 – Demostrate understanding of the virtues, good manners and behaviour patterns of our community values and why.

Core Competencies: Creativity and Innovation; Critical Thinking and Problem Solving

Introduction
When learners can count groups of objects, addition and subtraction are made easier.
They compose when they count a group of objects together– counting a group of 10 objects.
For example,
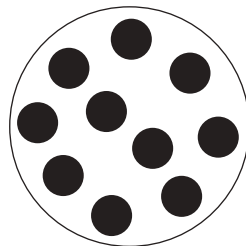
10

They decompose when the group is broken apart into smaller groups that add up to the number of the original/main group.

Example: 10 is 5 and 5; 10 is 1 and 9; 10 is 4 and 6, etc.
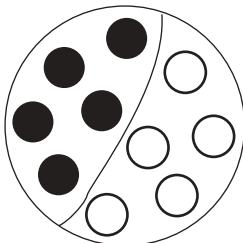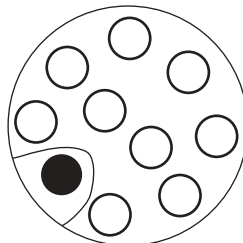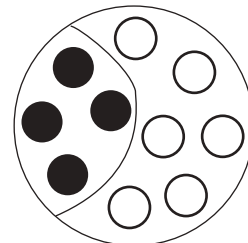
5 + 5 = 10   1 + 9 = 10   4 + 6 = 10

Decomposing (breaking apart) numbers helps learners with addition, subtraction, multiplication and division later on.

Indicators/Objectives:
Compose and decompose numbers up to 10 using concrete materials.
K2.3.1.1.6 – Compose and decompose numbers up to 15 using concrete materials.

Materials/Resources
Countable objects: bottle tops (two colours e.g. red and blue)

Number cards   0 1 2 3 4 5 6 7 8 9 10

Statement card ….. + …… = 10

Dots – two colours, Example, yellow and black
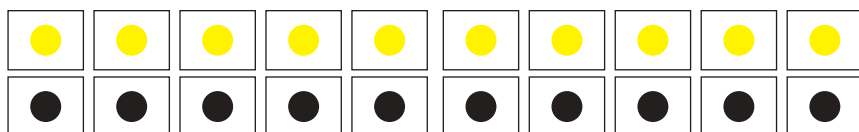
The ten number frames
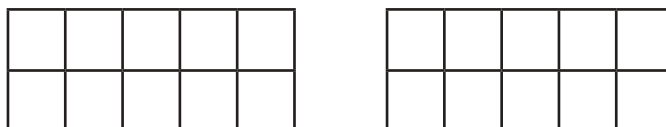
Procedure/Methods
1. Sit learners in a semicircle on their chairs (their tables in front of them)
2. Sit behind a table where all learners can see what happens on it.
3. Put a Ten Number Frame on the table.

Count the spaces with the learners.
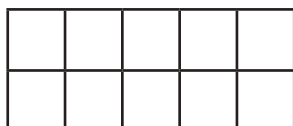
4. Put out the number cards
    0 to 10
5. Write a statement ……. + …… = 10
   *The ten number frame is going to help us figure what numbers will make 10.
     ……+ 10

6. Ask a learner to choose a number from 0 – 10
7. Have another learner pick that number card and put in the first space – 7 + …… = 10
8. Have another learner put 7 bottle tops (one colour) on the spaces on the frame.
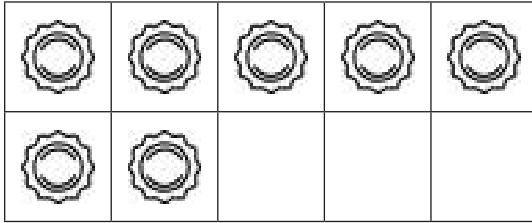
9. Count the bottle tops placed on the frame.
   Ask: How many more do we need to get 10?
   Ans: Count the empty boxes on the frame.
   Ask: How many? 3
10. Have another learner place 3 blue bottle tops on the empty boxes. All count as the blue tops are placed on the boxes.

    The number is used to complete the statement.
    7 + 3 = 10

    7 red tops and 3 blue tops on the number frame
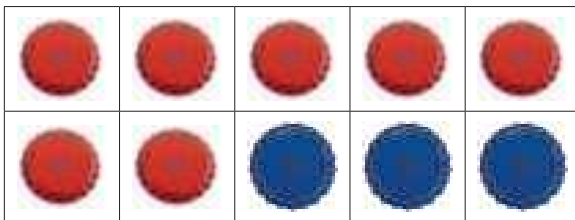
11. Have learners now sit in groups of 4. Give each group a Ten Number Frame, number cards and bottle tops (2 colours). Other groups use dots (2 colours)

    Question: What numbers will make up 10?
    1 + 9 = 10   2 + 8 = 10
    5 + 5 = 10   4 + 6 = 10

12. The groups follow the process steps 3 to 10 to compose 10 (come up with 2 numbers that make up 10)

B. 5 Number Frame
   What numbers will make up 5?
   (How can we break up 5)
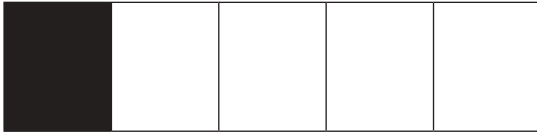
Examples:
The first shaded box is 1
How many boxes are (empty) not shaded? - 4
1 + 4 = 5

Follow the process with learners to find out other ways of decomposing 5 use the 5 Number Frame

$$1 + 4 = 5$$
$$2 + 3 = 5$$
$$3 + 2 = 5$$
$$4 + 1 = 5$$
$$5 + 0 = 5$$

Count the boxes in the row = 5   Count the shaded boxes = 1
Count the empty boxes = 4

$$5 = 1 + 4$$
$$1 + 4 = 5$$

*When there is nothing left (empty box) to be counted, it is represented with 0.
Zero 0 means nothing.

Assessment
Write the sentences for the number 8 on the frame.
Eight Number Frame.

1									8 = 1 + 7
2									8 = 2 + 6
3									8 = 3 + 5
4									8 = 4 + 4
5									8 = 5 + 3
6									8 = 6 + 2
7									8 = 7 + 1
8									8 = 8 + 0

Write the number bond

| 8 | 8 | 8 |

1   7   4   4   3   5

$1 + 7 = 8$ $4 + 4 = 8$ $3 + 5 = 8$
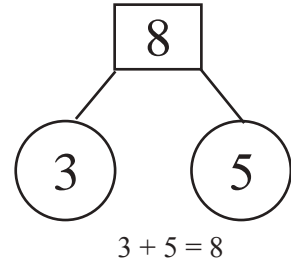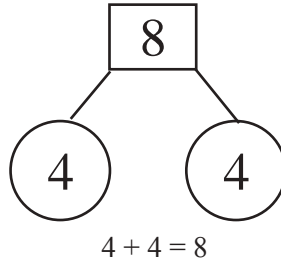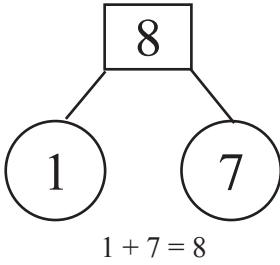
WORKBOOK

Activities in Numeracy for Kindergarten 2
Activities 43 to 48 – K2,3,1,1,6 (Pages 43 – 48)
Activities 49 to 53 – K2.3.2.6 (Pages 49 – 53)

- Read and explain the instructions of each activity to learners.
- Learners do exercises independently.
- Give attention to individuals who need support.

Sub Strand: Non-Numerical Patterns and Relationship

ACTIVITIES 54 – K2. 3.3.1.6, ACTIVITIES 55, 56, 57, 58, 59, – K2. 3.4.1.6 (Pages 54 - 59)

REPETITION OF NUMBERS.

Content Standard:
K2. 3.3.1.6 – Demonstrate understanding of the values and virtues we need to exhibit as Ghanaian learners.
K2. 3.4.1.6 – Demonstrate understanding of relating well with people of different beliefs.

Core Competencies:
Personal Development, Leardership Communication and Collaboration; Critical Thinking.

Introduction
Patterns are formed when a set of shapes, number or colours are repeated over and over. Patterns are found everywhere, in our clothes, necklaces, cookies, butterflies, skins of animals, flowers, trees. …

Patterns are fundamental sequences and logical ways in which things occur. Patterns help the child to understand the world around him/her – days of the week, textures on clothes, routines – (home and school); designs on buildings, shapes of leaves (e.g. mango/pawpaw leaves); windows and doors, shapes and colours of food packets, etc.

Indicators/Objectives: K2.3.3.1.6
Recognize and describe some simple repeating non-numerical patterns (up to a repetition of 3, 1, 2 pattern)

Material/Resources
Number cards –Multiple numbers – ten of each number up to 20
> Number cards

| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

- Plastic bottle tops – different colours
- Large plastic beads and rope for threading (Beads in 3 colours)
- Cut-out – plane shapes △ ◇ ▭ ▢ ◯

Procedure/Methods
1. Have learners form a circle outside. Sing and play the game –
   Round and round the village (3x)
   As we have done before
   Go in and choose your partner (3x)

> *As we have done before*
> *Take her round the village (3x)*
> *As we have done before.*

2. All learners take turns in the game of "running round, moving in and out, choosing a partner and running round again".
3. **Question:** What did you do when you were singing the song?
   Answer: Run round the circle; moved in and out the circle; choose a partner; run round with the partner.

   You did the same actions over and over again. When the song was being sang, so the pattern is running round the circle; moving in and out the circle, choosing a partner.
4. Show threaded beads to learners

   Talk about the pattern with learners.
   Q: What colours of beads do you see?
   What is the arrangement?
   red, blue, yellow ....
5. Call out 9 learners – 6 girls and 3 boys.
   Have them stand
   Girl girl boy girl girl boy girl   girl ……
6. Lets look at the arrangement of people standing –
   All learners: girl girl boy, girl girl boy, girl girl …..
   Question: Who comes next?
   Answer: boy
7. Have learners continue the pattern with 3 sets of people.

B
1. Have learners sit in a semi-circle. Put the number cards (in a box) in front of the group.
2. Paste the following number cards on the board (Put masking tape or cello tape behind the card to make it stick). Have learners continue the pattern
   2 3 1 2 3 ….. ….. …… …….

Pair Learners.
Give each group a collection of assorted coloured beads and cut out shapes and bottle tops.

Have learners agree on a pattern and use
   1. bottle tops – 3 colours (green, blue and red)
   2. Cut out shapes – △ ◯ ▭
   3. beads – orange, green, yellow.

Example
1. bottle tops

2. cut out shapes

3. beads
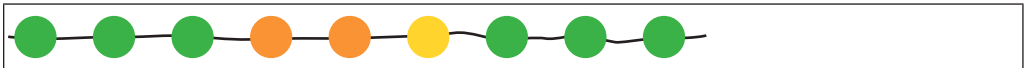
Assessment

Continue the pattern

1.

| 3 4 5 3 4 5 3 4 5 .... |
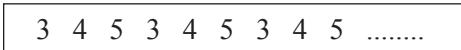
- Which numeral comes first in the pattern? <u>3</u>
- Which numeral comes after 3 in the pattern above? <u>4</u>

2.

| 2 3 4 2 3 4 |
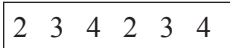
- Which numeral comes between 2 and 4?   <u>3</u>
- Use 4 bottle tops, 8 beads, to create a pattern. Talk about your pattern.

3. String assorted colours of beads to create a pattern. Talk about your pattern.

Workbook Activities:

Activities in Numeracy KG 2
1. Activity 54 – K2.3.3.1.6 (Page 54)
2. Activities 55, 56, 57, 58, 59 – K.2.3.4.1.6 (Pages 55, 56, 57, 58, 59)
Note: After the lesson on each indicators/objectives, do the
corresponding exercises in the Activity in Numeracy – KG 2 as stated above.

- Read and explain the instructions of each Activity to learners.
- Go through the first exercise with the child. Give support to learners who need individual attention.

Sub Strand: Non-Numerical Pattern and Relations

ACTIVITIES 60, 61 – K2. 4.1.1.7, ACTIVITIES 62 AND 63 – K2. 4.2.1.6 (Pages 60 - 63)

SHAPES, COLOUR AND SIZE

Content Standards:
K2. 4.1.1.7 – Demonstrate understanding of the special places in our local communities.
K2. 4.2.1.6 – Demonstrate understanding of knowing the important people/occupation in our community.

Core Competencies: Personal Development, Leadership Communication and Collaboration; Critical Thinking.

Introduction: Refer to Activities 55 to 59 – K2. 3.4.1.6

Indicator/Objectives:
K2. 4.1.1.7 – Create simple patterns with more than one shape, colour, size.
K2. 4.2.1.6 – Create simple patterns with more than one shape, colour, size, sounds or movement.

Materials/Resources
Plastics bottle tops – different colours
Large plastic beads and rope for threading (beads in 3 to 4 colours).
Empty packets – Big ones and small ones
Cut out shapes △ ◯ ▭ ▢ ◇ (20 of each shape)

Procedure/Methods
1. Learners sit in a semi-circle facing a low table.
   They sing: " How green you are" 4x
                       How green you are 4x
   Learners can sing with other colours – red, blue etc.
2. Revise practical Activities under Activities 55 to 59 – K2. 3.4.1.6 with learners.
3. Have learners pick the bottle tops. (red and green)
   • We are going to form patterns with the bottle tops – we will have a red and green pattern.
   • In turns, have learners place the bottle tops on the table to form the pattern.

4. Have learners do another formation. 2 green tops, 2 red tops

5. Have learners sit in groups of 6. Give them (3 colours) bottle tops – 5 to each child. Have learners create their own patterns and talk about it.
6. Show the empty packets. A big one and a small one. Have learners identify them – A big packet and a small packet. Form a pattern with them.

7. Have each learners pick 4 small empty packets and 4 big packets.
   Have them sit in groups of 3 and use the empty packets to form a pattern of their own.
8. Have each group talk about their work.

Assessment
Give each child 5 each of the shapes under Resources.
Form a pattern with 3 of the shapes.

Example:

WORKBOOK
Activities In Numeracy for KG 2
Activities 60 and 81 – K2. 4.1.1.7
Activities 62 and 63 – K2. 4.2.1.6
- Read and explain the instructions of each activity to learners.
- Have learners work independently.
- Give support to learners who need individual attention.

Sub Strand: Measurement: length.

ACTIVITIES 64, 65, 66, 67 AND 68, 69, 70, 71, 72 – K2. 4.3.1.8 (Pages 64 -72)

LONGER THAN, SHORTER THAN, HEAVIER THAN AND LIGHTER THAN.

Content Standard: K2.4.3.1
Demonstrate understanding and knowledge of the special leaders in our community.

Core Competencies
Personal Development and Creativity, Creativity and Innovation; Critical Thinking and Problem Solving.

Introduction
Learners experience and talk about various forms of measurements in their day to day activities. For instance, in comparing their height, they talk about who is tall and who is short.

In comparing their pencils and crayons, they will talk about longer and shorter to describe their pencils and crayons.

They also talk about the weight of objects when they lift things – They will have difficulty in lifting the teachers chair because it is heavy – heavier than theirs.

While Length tells how long or short things are, height tells how tall or short people, animals and some objects are. Height measures people and things that stand – people, trees, buildings, tables can be described as tall or short.
We can compare and talk about a tall giraffe and a short rat; A tall and a short person.

Indicators/Objectives: K2.4.3.1.6
Compare objects based on length and weight of various items and objects.

Material/Resources: Ropes of varied lengths; a metre and a foot, rulers, Adult size chair; Children's plastic chair, a 1.5litre bottle of sand; A 1.5 litre bottle (empty)

Procedure/Methods
  1.   Learners stand round the classroom.
They act out the following
- jump high - hrizim
- Stretch your hands high.
- Hold your waist and bend to the right, then to the left. Now fowards, up and backwards.

- Stand straight and throw a blow into the air.
- Shake your hands.
- Sit down
2. Learnes sit in a semi-circle form.
3. A cellotape is used to fix the the long rope (red) and the short rope (blue) on the board.
   A metre ruler is shown. Teacher says: This ruler is long.
   She picks the foot ruler and holds it agains the metre ruler (from the same point and asks – is the foot ruler also long?
   Response: No, it is short.
4. Learners use the apppropriate expressions to describe the rope on the board.
   - The red rope is long. The blue rope is short.
5. Have individuals come up, pick any 2 ropes and compare the length and say which one is long and which one is short.

Practical Activities B
1. Compare objects and talk about heavy and light; heavier than and lighter than.
   - Invite individuals to come up and try to lift the teachers chair.
   - He could not. Why is it difficult to lift teacher's chair?
   - It is heavy.
2. Have the same learner lift his/her chair. – He/she does it easily.
   Why did he/she lift his/her chair so easily?
   - It is not heavy. We say it is light.
3. When we compare the 2 chairs we can say: The teachers chair is <u>heavier than</u> the child's chair.
   - We can also say the child's chair is <u>lighter than</u> the teacher's chair.
   - The bottle of sand and the empty bottle
   - Half piece of cement block and a pebble.
     The cement block is heavier than the pebble.
     The pebble is lighter than the cement block.
   - The empty bottle is lighter than the bottle of sand.
   - The bottle of sand is heavier than the empty bottle.

Assessment
In pairs, learners compare the following and describe as longer than, shorter than.
Q1. skipping rope and shoe lace
Ans: The skipping rope is longer than the shoe lace.
Ans: The shoe lace is shorter than the skipping rope.

Q2. A foot ruler and a meter stick
Ans: The foot ruler is shorter than the metre stick.
Ans: The meter stick is longer than the foot ruler

Compare and describe as: heavier than; lighter than

Q3. A milo tin filled with wet sand and an empty milk tin.
Ans: The milo tin filled with wet sand is heavier than the empty milk tin.
Ans: The empty milk tin is lighter than the milo tin with wet sand.

WORKBOOK
Activities In Numeracy for KG2.
Activities 64, 65, 66, 67, 68, 69, 70, 71, 72 – K2.4.3.1.6 (Pages 64 – 72)
- Read and explain the instructions to the learner.
- Do one exercise with the learners. The Learners do the rest of the activities independently.
- Give individual attention to learners who need support.

Sub Strand: Whole Numbers: Counting And Representation And Cardinality

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ACTIVITIES 73, 74, 75, 76, 77, 78, 79 – K2.5.1.1.7 (Pages 73 - 79)

CURRENCIES: COINS

Content Standard: K2.5.1.1.7
Demonstrate understanding of history and celebrations of Ghana.

Core competencies:
Communication and Collaboration, Personal Development and Creativity, Creativity and
Innovation; Critical Thinking and Problem Solving.

Introduction:
Every country uses a currency in buying and selling. Ghana uses cedis and pesewas. The
pesewas are coins.

One cedi and two cedis are both in coins and notes. There are also ₵5, ₵10, ₵20 and ₵50
(cedi) notes. Latest are the ₵100 and ₵200 cedi notes.

Learners and their parents use money when they buy:
Example: drinks and biscuits for learners.
  • Money is also used in shops and markets.
  • Money is given in exchange of goods.
  • Workers salaries are also paid with money.

Indicators/Objectives: K2.5.1.1.7
Identify Ghanaian coins and money by name and use it to buy and sell in the classroom store.

Materials/Resources
Classroom store stocked with fruit drinks packets, toffees in shiny wrappers, empty cans –
milk, cocoa drink, plastic water bottles, powder containers, pomade containers – cans and
plastics, brushes, combs, cups, plates and bowls.

  • Play money made from large buttons with pictures of coins pasted on both sides.

Example:

Real coins

The pictures of the coins are made by rubbing crayon over plain paper with the coin underneath. This is cut out and pasted on the buttons.

• Circular cards of the sizes of the actual coins can be cut out, and pictures of the front and back of the coins pasted on them.
  A4 sheets, crayons

Procedure/Methods
Practical Activities A
1. Have learners sit in a circle. Teacher as part of it.
   Spread out coins in the middle of the circle.
   Learners sing:
   Hot cross buns 2x
   One a penny, two a penny
   Hot cross buns
   If you have no daughters, give them to your sons
   One a penny, two a penny
   Hot cross buns
   Penny can be changed to pesewa in the song.
2. Learners look at the money.
   Ask: What do you think we will do with the money we see?
   1. Use it to buy biscuits, dress, or pay for something.
   2. Have learners identify the coins.

   Learners pick and say how much it is.
   1p (one pesewa), 5p (five pesewas), 10p (ten pesewas)

3. Have learners sit in groups of 5.
   Give members of the group one coin each
   1p, 5p, 10p, 20p, 50p, ₵1, ₵2

4. Have learners do rubbing activity to capture a face of each coin and write the amount underneath.
   • Rubbing – Place the coin under the A4 sheet and rub the surface (of the coin underneath the paper) with crayon for the face of the coin to show on the A4 sheet.

| 1p | 5p | 10p | 20p |

Put price tags on the items in the classroom store.

Example:

Milk	biscuit	milo
20p	10p	50p

5. Learners role play buying and selling. One learner sits behind the things to play the role of the storekeeper.

    In turns, learners pick the play money to buy from the store.
    (Learner) **Customer:** Please, how much is a packet of sugar?
    Store keeper: It is 15p please.
    Customer: May I have one packet please?
            (He/she hands a 20 p coin to the store keeper)
    Store keeper: Please take your change. (5p is handed over to the customer).
            20p – 15p = 5p
    Customer: Thank you.

- Have all learners play either customer or store keeper.
- Encourage storekeeper and customer to speak aloud enough for the rest of the class to hear them.
  When two/three items are bought, let the whole class calculate the amount by putting the coins together.
  1p + 1p + 5p = 7p

- Learners may use bottle tops or pebbles to aid the counting.
  1 bottle top for 1p
  5 bottle top for 5p

Practical Activity B
1. Put a collection of coins into a bowl/box. E.g. 10p, 5p, 20p
2. Give each group of 4 learners a bowl of coins
3. Learners sort the coins and count. They say how many of each coin.

Bowl of coins

1. How many 1p?   4
2. How many 10p?   5
3. How many 20p?   4
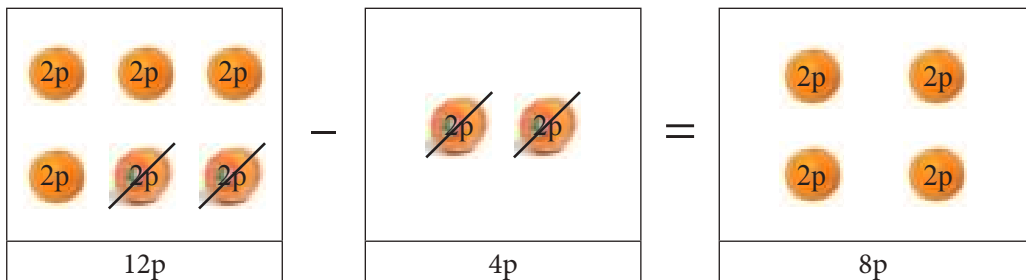4. How many 5p?   6

Practical Activities C
Put price tags on the items in the classroom store.

Example:

Milk	biscuit	milo
20p	10p	50p

Practical Activity D
1. Adjoa bought 6 oranges at 2p each. 2 were rotten so she did not pay for them.
   - How many oranges did she pay for?
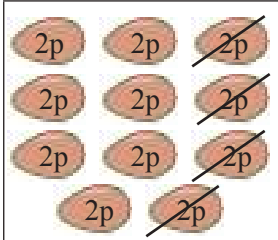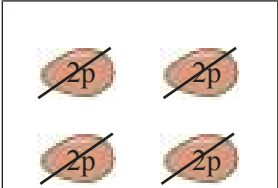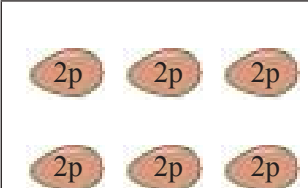   - How much were they?

$$12p \ - \ 4p = 8p$$

Assessment
- Add 5 cakes you bought at the shop. One (1) cake cost 2p

2p	2p	2p	2p	2p

- Mansa bought 10 eggs from the shop at 2p each. 4 eggs got broken. How many eggs will she have left?

  What will be the cost of the remaining eggs?

$$20p - 8p = 12p$$

Note:
Represent the cost (each pesewa) with bottle tops to make the exercise easier. Example, 2p will be 2 bottle tops.

WORKBOOK
Activities in Numeracy KG 2
Do the exercises in the workbook after the corresponding Practical Activities.
Activitties 73 and 74 – K2.5.1.1.7 after Practical Activity A
Activitties75 after Practical Activity B
Activitties 76, 77 after Practical Activity C
Activitties78, 79 after Practical Activity D
- Support learners who need individual attention.

A

Sub Strand: Positions

ACTIVITY 80, 81, 82, 83 – K2. 6.1.1.7   (Pages 80 - 83)

POSITION OF OBJECTS IN SPACE

Content Standard: K2.6.1.1.7
Demonstrate understanding of why some things are referred to as living and non-living things.

Core Competencies: Communication and Collaboration, Personal Development and Leardership, Critical Thinking and Problem Solving.

Introduction
In the child's daily activities/day to day life, he/she is in one position or the other, such as sitting or standing <u>in front</u> of another child or play-thing, sitting behind a table, asking to have a toy which is <u>on top of</u> or under a table.

Culturally, the child is taught to use the right hand in accepting things, shaking hands and also pointing at people and things. It therefore becomes necessary to teach the child the correct vocabulary for describing positions of people and objects.

Indicators/ Objectives
Tell the position and motion of objects in space. Using words such as below, to the right, behind, etc.

Materials/Resources
Classroom objects: table, chair, bell, ball, doll, plate, spoon, etc.
Position tags:

| 1st | | 2nd | | 3rd | | on | | below |

Procedure/Methods

Practical Activities A
Teach the rhyme: Where am I now?
Where am I now?
- Hey, hey! I am standing <u>under</u> the tree.
- Oh! Yeah! Now I'm <u>on top</u> of the tree.

Where am I? Where am I?
- I'm hiding <u>inside</u> the big blue box.

- Hey! Hey! I am standing on <u>top</u> of the log.
- The log is under me.
- Oh yeah! Now I am <u>in front</u> of the table.

Where am I? Where am I now?
- I am standing <u>behind</u> the box.
- Oh yeah! I can change my positions.
- In, out, over, under, on top of and many more.

Create situations to teach the various positions.

Teach positions of children in a queue: 1st, 2nd, 3rd
- Have learners sit in a semi-circle (learners sit on their chairs)
- Have 3 learners stand in front of the class in a queue.
- Identify the first child as 1st, next, 2nd and then 3rd.
- Learners repeat the positions as teacher touches the learners in the queue.
- Each child is given her correct tag.
- In turns, the learners with the tags say
  "I am 1st; I am 2nd; I am 3rd"
- Seated learners now mention names of the children in the queue and describe their positions
  – Example: Aba – is first , Kofi is 2nd and Judy is 3rd

- Create a similar situation to teach 1st to the 5th position

Ama	Mansa	Tonia	Abu	Aku

1st	2nd	3rd	4th	5th

Practical Activities B
Use the situation of the children in the queue to teach the other positions.
Between: Mansa is standing <u>between</u> Aba and Tonia.
Behind: Abu is standing <u>behind</u> Tonia.
In front of: Aba is standing <u>in front</u> of Mansa.

- Use the positions of other children to create more situations for teaching between, <u>behind</u> and <u>in front of</u>, <u>beside</u>, <u>under</u>.

- Arrange some of the objects under Materials/Resources to teach various positions: behind, between, on top of, under.
  Table   chair   bell   doll   ball   empty box

- Teach learners to identify their <u>right</u> and <u>left</u> hands. Using the arrangement, guide learners to identify;
  a. Objects to the left of the bell.
  b. Objects to the right of the bell.

Choose other objects for learners to identify things on the left and right.
c. Learners use children in a queue for the same exercise.

Practical Activity C
Teaching: <u>in</u>, <u>on</u>, <u>on top of</u>; <u>beside</u>
Create situations to teach the positions.
- Put a ball in the box.
  Ask: Where is the box? <u>The ball is in the box</u>.
- Put the bell on the table.
  Ask: Where is the bell? <u>The bell is on the table</u>.
- Put the box on top of the classroom cupboard.
  Ask: Where is the box? The box is <u>on top of</u> the cupboard.
- Have a learner stand beside the table.
  Say: Kafui is standing beside the table.
- Have learners organise other objects and talk about their positions.

Assessment
Put out the materials.
Mention a position and have learners demonstrate it by arranging objects to show and talk about it.

Example: Teacher says: Show the 3rd position of an object.
The learner arranges objects or use other learners to demonstrate the position.

1st	2nd	3rd	4th

- Show the positions
  - In; on; under and the <u>left</u> of another object such as - bell, spoon, table, cup

in	on	under	The cup is on the left side of the ball

WORKBOOK
Activities In Numeracy for KG 2
Do exercises after Practical Activities
Activities 80 – K2.6.1.1.7 after Practical Activities A
Activities 81, 82 and 83 after Practical Activities B and C.

Sub Strand: Measurement

ACTIVITIES 84, 85, 86 AND 87 – K2. 6.2.1.7, ACTIVITY 90 – K2.6.3.1.7 (Pages 84 - 87, and 90)

SIZE: BIG AND SMALL

Content Standard
Demonstrate understanding of the importance of domestic and wild animals.

Core Competencies
Critical Thinking and Problem Solving, Communication and Collaboration, Personal Development and Leardership.

Introduction
The child daily encounters situations in which he/she distinguishes /compares objects – play things, food, clothes, pets, etc. and distinguish between sizes and height. He/she will need to use the correct expressions to describe the various objects.

A child sees the difference between the size of his/her clothes and that of his/her parents or elder siblings; the teacher's table and a child size table. A child can say that his/her mum's dresses are <u>bigger than</u> hers. Her table is <u>smaller than</u> the teacher's table.

Height: The child learns to use correct expressions to describe a mango tree and a (flower) rose plant. The mango tree is <u>taller than</u> the flower plant or the flower plant is shorter than the mango tree.

Indicators/Objectives
Compare the size and height of different animals using phrases – bigger than and smaller than.

Materials/Resources
Big and small balls. Clothes – big and small
1.5 litre bottle and a 33ml bottle; teacher's table and child's table
Pictures of sets of animals – Giraffe and dog; dog and cockroach

Procedure/Method
Practical Activities A
- Show 2 balls – a big one (red) and a small one (blue)
- Show 2 apples – a big one and a small one

Watermelon and mango
- Ask the child to talk about the objects
  Big ball; small ball
  Big apple (green); small apple (red)
- Have the learner use comparative words to describe the objects.
  The red ball is bigger than the blue one.
  The green apple is bigger than the red one.
  The blue ball is smaller than the red ball.
  The red apple is smaller than the green apple.
- Have learners compare and talk about other objects: pawpaw and mango, cooking pot and plate.

Practical Activities B
Show pictures of sets of animals/ objects

The giraffe is taller than the dog.	The door is taller than the table.	The elephant is taller than the goat.

- Have learners pick and talk about the sets of pictures.
- Teach learners the correct expressions for describing the objects. Fix the correct card under the picture.

The giraffe is taller than the dog.

The dog is shorter than the giraffe.

- Have learners pick and talk about other sets of pictures using appropriate expressions. Taller than; shorter than.

Assessment
- Have learners mould big and small objects. (ball, pots ....)
- Have them talk about the objects using comparative language <u>bigger</u> and <u>smaller</u> appropriately.
- Have learners (in pairs) use cardboards and glue to build towers/pillars. Tall and short towers.

Method: Roll pieces of cardboards to build the towers or pillars.
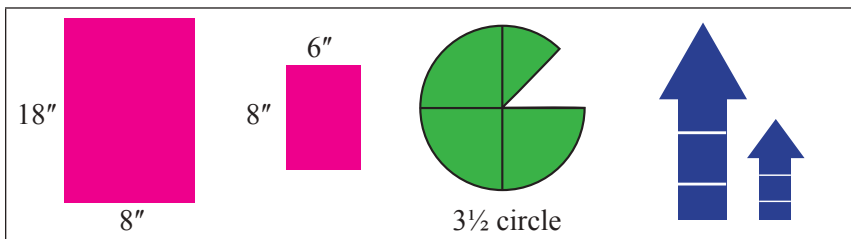
WORKBOOK
Activities in Numercay for KG 2
Activities 84, 85, 86, 87 and 90 after Practical Activities A
Activities 88 and 89 after Practical Activities B
- Read and explain the instructions to the learner.
- Do exercises after Practical Activities.
- Give support to learners who need individual assistance.

Sub Strand: Data (Collection, Presentation, Analysis and Interpretation)

ACTIVITIES 91, 92, 93, 94, – K2. 6.6.1.7/ 95, 96 A (Pages 91 - 96)

CLASSIFICATION

Content Strand:
K2.6.4.1.7: Demonstrate understanding of presence and importance of air
Demonstrate understanding of the knowledge that of parts of plants are important sources of
food and medicine for other living things.

K2.6.6.1.7: – Demonstrate understanding of how plants grow and they prepare their food
K2.6.9.1.7: Demonstrate understanding of positive and negative effects of weather
conditions.

Core Competencies
Personal Development and Leadership, Communication and Collaboration, Creativity and
Innovation, Problem Solving and Critical Thinking.

Introduction
The child's early activities involve sorting – identification and discrimination. The child
chooses his/her favourite play-things from a collection or among a group (of play things);
picking own shoes or socks from among others.

The choices could be by type, colours, shape or size (attributes)
A child who has developed strong sorting skills finds it easier to classify items by multiple
attributes – such as colour and size; make matches (figure out some items) and identify sets
of objects, recognize and create patterns and compare sets for differences and similarities.
In Numeracy activities, the child is asked to classify objects according to given attributes.
They can count and compare classified items and go on to draw/build graphs from them. All
these are interesting activities when made playful and practical for learners.

Indicators/Objectives
K2.6.4.1.7: Classify objects in the environment according to those that have weight and
heavy and those without weight and are less heavy. Count the number of objects in each
category up to 20.

K2.6.5.1.7: Classify different food items into the parts of the plant from which we get it.

K2.6.6.1.7: Classify different types of food items according to categories and count the
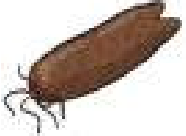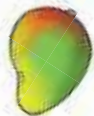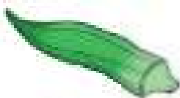number of objects in each category up to 20.

K2.6.9.1.7: Collect and handle data on learner's preference of weather conditions.

Materials/Resources
Collection of classroom items: bell, packets of crayons, pen, pencil, teacher's notebook and learner's exercise book; a piece of broken cement block; 1.5 litre water bottle.

Picture of cards of food items/ real food items
Collect in varied quantities up to 20

Yam	cassava	groundnuts	mango	orange
kontomire	sugar cane	Pepper	tomatoes	apple
okro	bean	watermelon		

Cut-out shapes in different colours – 10 to 15 each (Different quantities for each shape)
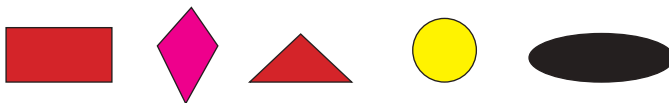
Procedure/Methods

Practical Activityies A
1. Have learners sit in a semi-circle.
2. Put the following items in front of them.
   Bell, football, teacher's note book, a sheet of paper; 1.5 litre bottle of water and an empty 1.5 litre bottle.
3. Put forward the 1.5 litre bottle of water and the empty 1.5 litre bottle.
4. In turns, have learners lift the bottles up (bottle with water and empty bottle)
   Ask: Which bottle was easier to pick?

The empty bottle
The bottle that could be picked easily is described as light.
Which bottle did you have some difficulty in picking up?

The bottle with water.
The bottle that was not too easy to pick up is described as heavy.
When we compare 2 things, the one which is easier to lift up/pick is described as light.
The one which is not easy to lift up/pick is described as heavy.

5. Have learners compare and say which object is <u>heavy</u> or <u>light</u>.
    • Teacher's notebook and paper.
    • Bell and pencil
    • A piece of broken cement block and a packet of crayon

Practical Activities B
a. Have learners stand in one large group
    • Ask them to be in 2 groups. Girls on one side and boys on another side.
    • Ask: Aku (a girl) why are you not in Kojo's (boy) group?
       Aku: I am a girl. They are all boys.
b. Talk about the food items – Roots (Cassava, yam, cocoyam)
                                        Seeds (Egusi, groundnuts)
                                        Stem (Sugarcane)
   Fruits (Mango, apple, banana, watermelon)
    Put the picture cards (food items) in a box.
    • With a song learners pick a card each.
    • Still with the song, ask learners to find others with the same item as theirs.
       - All fruits together, all roots together, etc.
    • Each group identify and name their item. In turns, they talk about them.
   Example: We have cassava, yam, cocoyam.
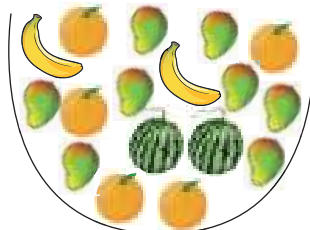   They all grow in the soil. They are roots.
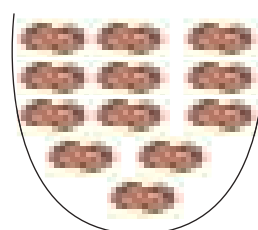   We can use them all for fufu.

    • Each group counts their items, and write the number on a card.
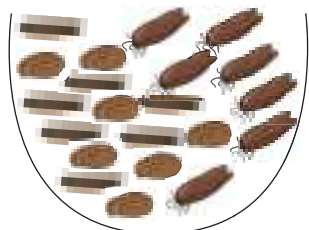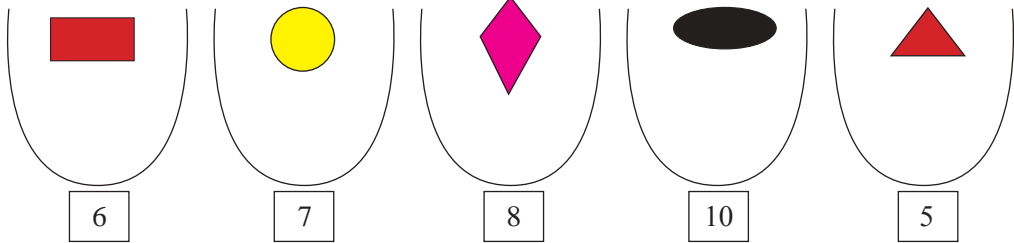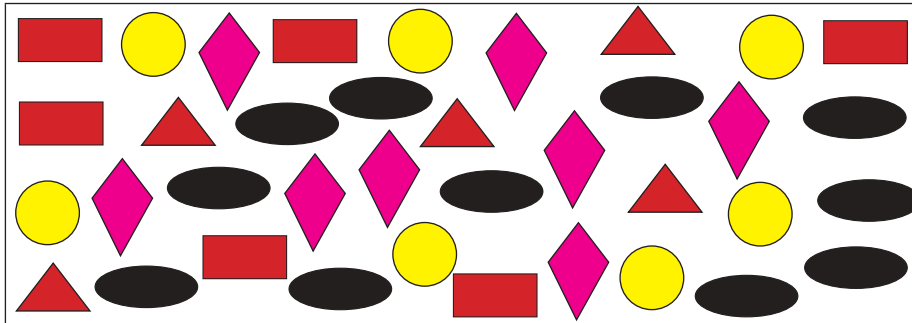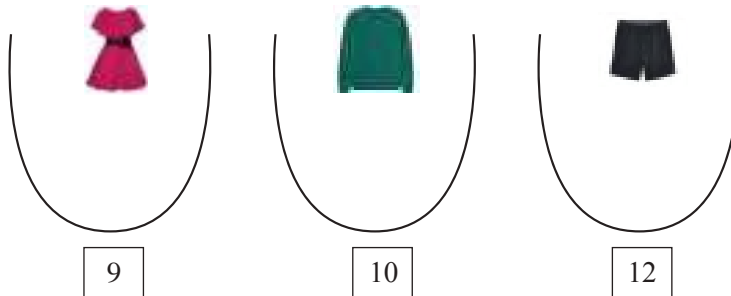

| 15 | 17 | 12 |

Practical Activity C

1. Have learners classify shapes and colours and count.
    They work in groups of 5

| 6 | 7 | 8 | 10 | 5 |

2. Talk about and classify the clothing

| 9 | 10 | 12 |

	🟢	
	🟢	
👗	🟢	
👗	🟢	
👗	🟢	
👗	🟢	
👗	🟢	🩳
👗	🟢	🩳
👗	🟢	🩳
👗	🟢	🩳
👗	🟢	🩳
dress	sweaters	shorts

1. Which group has more; dress and shorts?

2. Which group has more: sweater and dress?
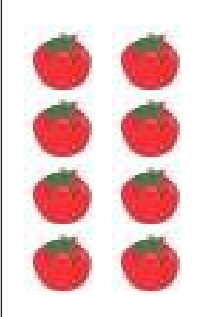
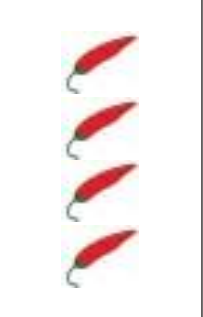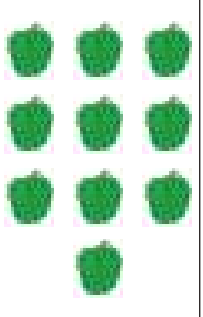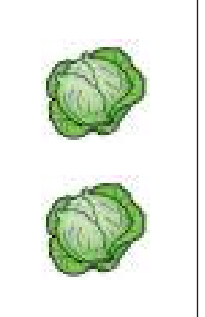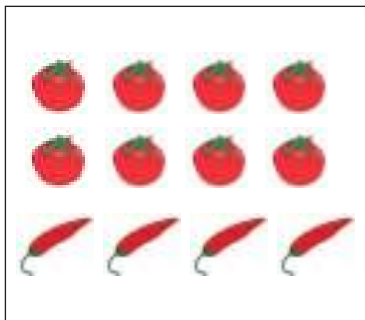3. Which group has fewer objects; dress and shorts?

Assessment
1. Have learners classify objects as heavy or light
   Teacher's chair and learner's shoes
   Teacher's chair (heavy); learner's shoes (light)

2. Give a collection of foods to be classified according to colour.
3. Picture cards of foods

8	4	10	2	8

12

20

WORKBOOK

Activities in Numeracy for KG 2
Activity 91 –K2. 6.4.1.7
Do the exercise after Practical Activities A
Activities 92 to 93 – K2. 6.5.1.7
Activity 94 –K2. 6.6.1.7
Do each exercise after Practical Activities B
Activities 95 and 96 – K2. 6.9.1.7
Do the exercise after Practical Activities C

• Read and explain instructions to learners.
• Discuss each activity.
• Learners work on one activity at a time. Give support to learners who may need individual attention.

Sub Strand: Whole Numbers: Operations

ACTIVITIES 97, 98, 99, 100, 101, 102, 103, 104 – K2. 6.9.1.7 (Pages 96 - 104)

TAKE AWAY (-): SEPARATING AND FINDING HOW MANY ARE LEFT

Content Strandard:
Demonstrate understanding of positive and negative effects of weather conditions.

Core Competencies
Communication and Collaboration, Personal Development and Leadership, Problem Solving and Critical Thinking, Creativity and Innovation

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Introduction
Subtraction means to take something (objects or people) away; to remove something (objects/people) from a group; or separate one group of objects/people from a larger group to see how many will be left.

Learners daily experience the concept of subtraction, when they open a pack of biscuits and begin to eat, when they give away a play thing from a collection.
Addition and subtraction (or separation) are opposites. While addition adds on, subtraction takes away.

Indicators/Objectives
Developing conceptual understanding of subtraction (1 – 20)

Materials/Resources
Refer to Activities 36 and 37 – K2.2.3.1.7

Procedure/Methods and Assessment
Refer to Practical Activities under Activity 36 and 37 – K2.2.3.1.7

WORKBOOK
Activities In Numeracy for KG 2
Activity – K2.6.9.1.7
Activities 97 – 104
- Read and explain instructions to the learner
- Work out one example with him/her.
- Learner does exercises independently.
- Support individuals who need assistance.

Sub Strand: Whole Numbers: Operations

ACTIVITIES 106 AND 107 – K2. 7.1.1.8 (Pages 106 - 107)

ADDITION AND SUBTRACTION: BUYING AND SELLING

Content Strand:
Demonstrate understanding of the various ways we connect with the global community.

Core Competencies
Communication and Collaboration, Personal Development and Leadership, Problem Solving and Critical Thinking, Creativity and Innovation.

Introduction
Refer to Activity 28 – K2.2.1.1.6 and
Activity 36 – K2.2.3.1.7
All other countries have their own currencies for buying and selling. The United States of America uses the US Dollars ($) and Britain uses the Pound Sterling (£), Togo uses the CFA Francs, Ghana uses the Ghana Cedis and pesewas.

Indicators/Objectives
Developing a conceptual understanding of addition and subtraction in the buying and selling that goes in among different countries.

Materials/Resources
Play Money – U.S. Dollar ($): $1 , $2 , $5 , $10

British Pound (£): £1 , £2 , £5 , £10

Countable objects in Activities 28 and 36
Empty packets and cans of various items; crayons, cups, toys

Procedure/Methods

Practical Activities A
Set up a shop in the classroom with the materials listed above.
   •   Place price tags on the items using the foreign currencies

| British shop		American shop		
Fruit juice	sprite	Milk	doll	crayons
£1	£1	$2	$5	$2
book	corn flakes	crisp	ball	
£2	£3	$2	£1	

- One learner sits in the American shop. Another learner sits in the British shop. The rest of the class pick/make their own play money and goes to the shop to buy.
- At the American shop

Nana buys 2 packets of crayons at $2 each. How much will she pay?

1 crayon + 1 crayon = 2 crayons

$2   + $2   = $4

Kofi's shop has 20 balls in stock. Each cost £1

20 balls = £20

Kofi sold 5 of the balls = £5
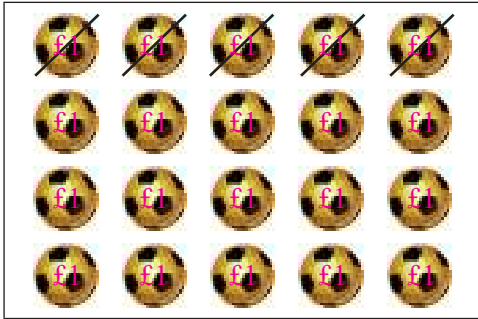
£ 20 – £ 5 = £15

How much money will he have when Kofi sells the rest of the balls in his shop?

20 balls	5 balls	15 balls
£20	£5	£15

Assessment

Have learners work out the following using countable objects.

12 – 6 = ………   7 – 3 = ………..

20 – 4 = ………   10 – 8 = ………

WORKBOOK

Activities In Numeracy for KG 2

Activities 106 and 107 – K2.7.1.1.8

- Read and explain the instructions to the learners.
- Have learners do the activities independently. Do one activity at a time.
- Give support to those who need individual attention.