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**Acknowledgement**

The following persons devoted much time and effort to the compilation of this guide:

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<th>Name</th>
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<td>AfriLa Project</td>
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INTRODUCTION

The purpose of this syllabus guide is to guide/direct you on how to use the syllabus. A year plan, lesson plan and thematic scheme of work will be explained with suitable examples. These examples in the guide are carefully sequenced to ensure the sound development of mathematical concepts and are designed to support the teacher in mathematical teaching and learning. The examples in the guide can be adapted to suit your own situation.

AN INTEGRATED APPROACH

The issues are structured so that they provide teachers with a framework for delivering an integrated learning process. Learners must be made aware of the usefulness of mathematics in every area of life through:

- Teaching and learning methods
- Discovering methods
- Discussion methods
- Research method
- Co-operative learning
- Experiential learning

HOW DO LEARNERS LEARN MATHEMATICS?

Learners are active mathematical thinkers. Since a very young age they were exposed to mathematical concepts, e.g. discovering the parts of their bodies, discovering that something is bigger, it becomes heavier or that it is more; discovering that something is smaller, is lighter or less; direction, sharing (fractions that lead to division), counting (age, family members, etc.).

When learners are faced with a problem, they use their own experience to find a solution for that problem. This enhances their way of thinking.

PRINCIPLES FOR THE TEACHING AND LEARNING OF MATHEMATICS

- Progression, differentiation and continuity are essential.
- Teaching/learning situations should always link up with the life experience and the developmental stage of learners.
- Active participation by the pupils in classroom activities is a prerequisite for realising the aims of the curriculum.
- Learners are required to explain and justify their way of thinking.
- Learners’ autonomy is essential.
- Problem-solving serves as the focus for the development of knowledge, skills and attitudes.
- The level of number concept and computational skills of learners should be the point of departure for the development of mathematical knowledge and skills.
- A balance should be maintained between the development of measuring skills, number concept, computational skills, problem solving skills and spatial sense.
- Learners should be allowed to progress at their own rate. NO RESTRICTION SHOULD BE PLACED ON LEARNERS’ DEVELOPMENT AND PROGRESS. On the other hand the learning environment should not be impoverished by underestimating the pupils, giving them boring activities.
LESSON PLANNING

- There should be progress from the simple to the complex.
- Methods should be interesting and challenging.
- Teaching/learning situations should be linked to life experiences as much as possible.
- Learners should be encouraged to explain and justify their way of thinking as they solve problems.
- Learners should be allowed to develop their own methods and not expected to use a single operation or strategy to solve problems.
- Within limits the pace of learning should accommodate individual differences in learning speed.
- Lessons are designed to reach learning objectives. Some lessons will take longer than one period. It is best to complete them the next day rather than progress to the next lesson.

A WEEKLY MATHS LESSON PLAN

Each lesson plan should consist of the following components:

Lesson objectives and competencies
1. Number Concept development (Counting every day)
2. Problem solving: All four operations
   Own strategies
   Discussions and demonstrations (peer learning)
   Correcting own mistakes
3. Practical measurement activities: (choose appropriate activities)
   Length
   Mass
   Capacity
   Time
   Money
   Fractions
   Shapes
   Graphs (data from practical activities)
4. Computation
5. Group activities: Teaching group
   Consolidation activities
   Games
   Measuring activities… etc… etc…
6. Continuous Assessment
7. Supplementary activities: Compensatory teaching
   Enrichment
## GRADE 1
### YEAR PLAN – GRADE 1

<table>
<thead>
<tr>
<th>Week</th>
<th>No.</th>
<th>Topic</th>
<th>Measurement</th>
<th>Number concept development</th>
<th>Computation</th>
<th>Problem solving</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>1</td>
<td>The family</td>
<td>Geometry: 2-D Shapes Graphs shapes Spatial relationship</td>
<td>Count→5 Matching: one-to-one Manipulate 5 counters Count out 3 objects</td>
<td>Computation within the ranges 0-2</td>
<td>0-2</td>
</tr>
<tr>
<td>3</td>
<td>2</td>
<td>Social Services</td>
<td>Time: vocabulary Money: identify coins Graphs Spatial relationship</td>
<td>Count→10 Categorise objects Count out 4 &amp; 5 objects Arrange 5 or more objects in a specific order Identify similarities/differences Compare numbers</td>
<td>0-4</td>
<td>0-4</td>
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<tr>
<td>3</td>
<td>3</td>
<td>Culture</td>
<td>Time: days of the week Shapes: pattern making Spatial relationship</td>
<td>Counting→15 Read number names→10 Subitizing Ordering &amp; comparing→5</td>
<td>0-5</td>
<td>0-5</td>
</tr>
<tr>
<td>2</td>
<td>4</td>
<td>National Symbols</td>
<td>Shapes Length: vocabulary</td>
<td>Counting→15 Doubling/Halving Regrouping</td>
<td>0-5</td>
<td>0-5</td>
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<tr>
<td>2</td>
<td>5</td>
<td>Infrastructure</td>
<td>Shapes: 3-D Graphs: furniture Mass: vocabulary</td>
<td>Counting→20 Subitizing Number patterns</td>
<td>0-5</td>
<td>0-5</td>
</tr>
<tr>
<td>2</td>
<td>6</td>
<td>Transport &amp; Communication</td>
<td>Time: long/short time Graph: modes of coming to school Capacity: vocabulary</td>
<td>Counting→24 Number: read and identify numbers→10 Halving Regrouping</td>
<td>0-6</td>
<td>0-6</td>
</tr>
<tr>
<td>2</td>
<td>7</td>
<td>Traffic Safety</td>
<td>Geometry: 2-D &amp; 3-D figures Money: equivalent values</td>
<td>Counting 0-34</td>
<td>0-6</td>
<td>0-6</td>
</tr>
<tr>
<td>1</td>
<td>8</td>
<td>Family as an economic unit</td>
<td>Money: select a set of coins</td>
<td>Counting 0-34</td>
<td>0-6</td>
<td>0-6</td>
</tr>
<tr>
<td>2</td>
<td>9</td>
<td>Personal health</td>
<td>Length: measure Mass: balance</td>
<td>Counting 0-44</td>
<td>0-7</td>
<td>0-7</td>
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<tr>
<td>2</td>
<td>10</td>
<td>Care of oneself and others</td>
<td>Time: match events to time of day Capacity: measuring</td>
<td>Counting 0-44</td>
<td>0-7</td>
<td>0-7</td>
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<tr>
<td>2</td>
<td>11</td>
<td>Safety in and around the house</td>
<td>Money: select a set of coins</td>
<td>Counting 0-54</td>
<td>0-7</td>
<td>0-7</td>
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<tr>
<td>Week</td>
<td>No.</td>
<td>Topic</td>
<td>Measurement</td>
<td>Number concept development</td>
<td>Computation</td>
<td>Problem solving</td>
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</tr>
</tbody>
</table>
| 2    | 12  | Healthy/ unhealthy food                    | Graphs: different coins  
Mass: measuring  
Graphs: mass of fruit or likes/dislikes  
Time: time of day | Counting 0-54                      | 0-8                       | 0-8            |
| 3    | 13  | Local plants                               | Length  
Graphs: types of plants  
Geometry: shapes of leaves | Counting 0-54 & further                  | 0-9                       | 0-9            |
| 2    | 14  | Domestic/ wild animals                      | Mass: ordering vocabulary  
Graphs: pets | Counting 0-54 & further                  | 0-9                       | 0-9            |
| 2    | 15  | Water is life                              | Capacity: measuring  
Graphs: capacity | Counting 0-54 & further                  | 0-10                      | 0-10           |
| 2    | 16  | Weather                                    | Graphs: conditions of weather  
Time: vocabulary days of the week | Counting 0-54 & further                  | 0-10                      | 0-10           |
| 1    | 17  | Keep the environment clean                 | Geometry: 3-D figures  
Graphs | Counting 0-54 & further                  | 0-10                      | 0-10           |

♣ Number Concept Development:
From no. 7 onwards you must decide which concepts to teach and fill them in.
EXAMPLES OF THEMATIC SCHEMES OF WORK – GRADE 1

Thematic Scheme of Work Environmental Studies Grade 1
Theme:…………………………………………………………... Unit:..............
Date/Week:………………………………………….. Grade:…………

**Language 1**

**Theme 1: Social Environment**

**Topic 1.1: The Family:**

- Listening and speaking:
  - Talk about family members: mother, father, sister, brother

- Reading: Visual perception
  - Discuss pictures of families
  - Arrange pictures of families – youngest to oldest

- Phonics: Hearing exercises – two vowels per week: a, e, i, o, u

- Writing: Correct posture
  - correct pencil grip
  - 50 mm fold lines thick crayon
  - Focus on L>R
  - Finger exercises
  - Cutting exercises
  - Colouring pictures
  - Tell stories with patterns

**Language 2**

**Theme 1: Social Environment**

**Topic: The Family**

- Listening and understanding:
  - Listen to: stories; rhymes; songs; respond to instructions

- Speaking:
  - Retell parts of stories
  - Talk in pairs
  - Sing songs (health / family)
  - Role play

- Reading:
  - Read picture words
  - Develop eye movement with pictures of the family

- Writing:
  - Colouring pictures
  - Matching pictures/puzzles
  - Draw own pictures
  - Trace and copy simple words

**Religious Education**

Belonging: Self and the Community

**Story:** Baby Moses

**Song:** Own choice

**Environmental Studies**

**Theme 1: Social Environment**

**Topic 1: Social groups and institutions**

**Preparatory Activity**

- Me – myself

**Sub-topic:** The family as a basic social group

- Tell about family members
- Discuss family relationships
- Draw the family members
- Loyalty to parents, sisters and brothers
- Mutual responsibility among family members
- Obedience and cooperation

**Mathematics**

**Measurement:**
- 2 D shapes
- Graph shapes

**Spatial relationships:**
- Length: vocabulary

**Number concept development:**
- Count to 5
- Matching one-to-one correspondence
- Manipulate 5 counters
- Count out 3 objects

**Problem solving:**
- In the range 0 – 2

**Computation:**
- Computation within the ranges 0 - 2

**Arts**

Become aware of their senses themselves and their immediate surroundings:
- Become aware of voice
- Become aware of movement
- Experiment individually and in pairs with facial expressions

**Physical Education**

**Athletics**
- Running activity
- Jumping activity
- Throwing activity
- Competition (S 3.12)
**Language 1**
Theme 2: Health and Nutrition

Topic 2.1
- Punctuation-clean parts of body, read short sentences, Phonics
- Sight words-this that, those 12.5 mm lines

Topic 2.1
- Adjectives, dangerous objects-yes, no. Read other sentences phone, photo, bl, br, sp revise reading and writing activities. Copy sentences using letters and phonics.
- Punctuation uppercase for word in sentence full stop.
- Plural
- Vocabulary: traffic lights, road signs, pedestrians
- Role play

**Religious Education**
- Discussion of why water is used in Christian baptism

**Mathematics**
Measurement:
Length: measure
Mass: balance
N.C.D.: Counting 0-44
- Doubling / halving

Computation:
Computation within the ranges 0-2
Problem solving: 0-7

**Environmental Studies**
Theme 2: Health and Nutrition
Topic 2.1: Health and Safety
Sub Topic: Personal Health
- Wash hands
- Clean skin
- Caring for the hair
- Keep the nose clean
- Exercise and rest
- Caring for nails
- Caring for teeth

**Physical Education**
- Sport skills
- Changing into practice dress
- Hanging up of clothing
- Washing of hands after play
- Roll and stop activities (5.2.1)

**Religious Education**
- Discussion of why water is used in Christian baptism

**Language 2**
Theme 2: HEALTH AND NUTRITION

TOPIC: Personal Health

Listen & Understanding
- Listen from stories and songs.

SPEAKING
- Ask & answer questions.
- Demonstrate & respond to instructions

READING
- Read loud (body parts) and phrases.
- Read in groups/pairs.

WRITING
- Label pictures
- Write short sentences
- Pattern writing

**Arts**
- Creating arts: Visual arts
- Modelling pictures
- Creating music: playing
EXAMPLES OF LESSON PLANS – GRADE 1

THEME OF INTEGRATION: The Family

Please note: Lesson may be planned accordingly in a book

<table>
<thead>
<tr>
<th>LESSON OBJECTIVES</th>
<th>BASIC COMPETENCIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Counting: Concrete objects</td>
<td>Count objects to 5</td>
</tr>
<tr>
<td>Develop Awareness of Spatial Orientation: Numbers</td>
<td>Compare and describe their understanding of most/least, big/small; long/tall/short</td>
</tr>
<tr>
<td>Word Problems: Solve with knowledge and skills learned.</td>
<td>Solve oral story problems about everyday context using</td>
</tr>
<tr>
<td>Computation: Operation: adding between 0 and 2</td>
<td>Range 0-2</td>
</tr>
<tr>
<td>Geometrical Figures: 2-D shapes, Graphs: collect information and interpret data on a graph</td>
<td>Correctly identify and name 2-D shapes, collect, organize, display and interpret data and form a pictograph.</td>
</tr>
</tbody>
</table>

MONDAY (Time: 80 min.) Day 1 GR/W: Indicate WC (whole class), SG (small group), P (pair work) or I (individual work)

<table>
<thead>
<tr>
<th>INTRODUCTION (Number story/rhyme)</th>
<th>GR/W</th>
<th>MATERIALS</th>
<th>ASSESSMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rhyme: Number Printing WC Rhyme Poster</td>
<td></td>
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<tr>
<td>Number Concept Development Activities</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>1. Learners identify objects in the picture of the family. Use counters to show numbers of objects SG Flash cards different sized objects Oral Questions + Answers</td>
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<tr>
<td>2. Questions about the size of objects SG</td>
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<tr>
<td>3. Recognise, read and understand numerical notation</td>
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<tr>
<td>4. Count shapes on photograph Pair work Photo graph made from shapes</td>
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<tr>
<td>Computation: Problem Solving: Measurement:</td>
<td></td>
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<tr>
<td>1. Shapes: - Describe shapes □ △ ○</td>
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<tr>
<td>2. Activity card: big/small; thick/thin; shape/colour</td>
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<tr>
<td>Written work:</td>
<td></td>
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<tr>
<td>– Learners colour the biggest/smallest, etc. WC Shapes, different sizes, colour, thickness</td>
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</tbody>
</table>
**TUESDAY (Time: 40 min.) Day 2**

<table>
<thead>
<tr>
<th>Introductory Activities: Number/Story/Rhymes: Rhyme – Number printing</th>
<th>WC</th>
<th>Rhyme</th>
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</thead>
<tbody>
<tr>
<td>Number Concept Development: Count different shapes and family members</td>
<td>WC</td>
<td>Photograph and picture</td>
</tr>
<tr>
<td>Computation:</td>
<td>SG</td>
<td>2 of different sizes</td>
</tr>
<tr>
<td>Problem Solving</td>
<td></td>
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</tr>
<tr>
<td>Measurement:</td>
<td>WC</td>
<td>Note learners with difficulty</td>
</tr>
<tr>
<td>□ △ ○ Identify shapes on photograph</td>
<td></td>
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<tr>
<td>Patterns with shapes: New vocabulary</td>
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<tr>
<td>Written work</td>
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</tbody>
</table>

**WEDNESDAY, THURSDAY (Time: __40__ min. each day) Day 3 and 4**

<table>
<thead>
<tr>
<th>Introduction: rhyme/story: Number Printing</th>
<th>GR/W</th>
<th>MATERIALS</th>
<th>ASSESSMENT</th>
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</thead>
<tbody>
<tr>
<td>Counting activities: Count shapes in photo of family; subitising</td>
<td>WC</td>
<td>Photo</td>
<td>Number concept</td>
</tr>
<tr>
<td>Extra Activity: Worksheet more / less, shape/number game</td>
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</tbody>
</table>

**FRIDAY (Time: __min.)**

<table>
<thead>
<tr>
<th>ACTIVITIES (Graph, M/S Ass., Compens. T &amp; Enrichm., Games, Excursion)</th>
<th>GR/W</th>
<th>MATERIALS</th>
<th>ASSESSMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use a pictograph. Complete the graph by colouring the number of shapes given on the activity cards</td>
<td>SG</td>
<td>Grid, counters</td>
<td>Pictograph</td>
</tr>
<tr>
<td>Week</td>
<td>No.</td>
<td>Topic</td>
<td>Measurement</td>
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<td>------</td>
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<tr>
<td>2</td>
<td>1</td>
<td>Own identity in a family</td>
<td>Length: Vocabulary</td>
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<td></td>
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<td>Geometry: 3-D figures</td>
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<tr>
<td>2</td>
<td>2</td>
<td>Local social groups</td>
<td>Time: days of the week</td>
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<td>Graphs: social groups</td>
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<tr>
<td>2</td>
<td>3</td>
<td>Local sources of help and service</td>
<td>Mass: vocabulary</td>
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<td></td>
<td>Capacity: vocabulary</td>
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<tr>
<td>2</td>
<td>4</td>
<td>Local Culture</td>
<td>Time: months of the year</td>
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<td>Geometry: 2-D shapes</td>
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<tr>
<td>2</td>
<td>5</td>
<td>National Culture</td>
<td>Geometry: 2-D – describing sides and corners</td>
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<td>Length: measure lines of the flag</td>
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<td>Money: introduce N$ 1 coins</td>
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<tr>
<td>2</td>
<td>6</td>
<td>Traffic Safety</td>
<td>Graph: tallying modes of transport</td>
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<td>Time: full hours</td>
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<tr>
<td>2</td>
<td>7</td>
<td>Building</td>
<td>Geometry: 3-D shapes</td>
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<td></td>
<td>build models</td>
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<td>Mass: estimate, order and compare</td>
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<tr>
<td>2</td>
<td>8</td>
<td>Transport and Communication</td>
<td>Graph: communication</td>
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<td>Money: equivalent values</td>
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<tr>
<td>1</td>
<td>9</td>
<td>Shops and markets in local community</td>
<td>Time: full hours</td>
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<tr>
<td>2</td>
<td>10</td>
<td>Personal hygiene</td>
<td>Capacity: estimate and measure</td>
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<td>Time: match events</td>
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<td>Length: estimate, ordering and comparing</td>
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<td>11</td>
<td>The senses</td>
<td>Money: identify set of coins</td>
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<td>Graphs: money</td>
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<tr>
<td>1</td>
<td>12</td>
<td>Preparing food</td>
<td>Fractions: quarters</td>
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<tr>
<th>Week</th>
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<th>Topic</th>
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<th>Number concept development</th>
<th>Computation</th>
<th>Problem solving</th>
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<tbody>
<tr>
<td>1</td>
<td>13</td>
<td>Local food</td>
<td>Mass: estimate and measure in kg.</td>
<td>0-104 and further</td>
<td>0-89 Practice number bonds</td>
<td>0-39</td>
</tr>
<tr>
<td>2</td>
<td>14</td>
<td>Basic characteristics of plants</td>
<td>Geometry: vocabulary (physical features) 2-D picture making Capacity: estimate, order, compare</td>
<td>0-104 and further</td>
<td>0-99 Practice number bonds</td>
<td>0-39</td>
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<td>2</td>
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<td>Spread of seed</td>
<td>Graph: ways of spreading: types of seeds</td>
<td>0-104 and further</td>
<td>0-99 and further Practice number bonds</td>
<td>0-45</td>
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<td>2</td>
<td>16</td>
<td>Germination</td>
<td>Length: estimate, measure</td>
<td>0-104 and further</td>
<td>0-99 and further Practice number bonds</td>
<td>0-45</td>
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<tr>
<td>4</td>
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<td>Animals as part of the food chain</td>
<td>Time: full hours and half hours Mass: estimate and measure in kg. Graphs:</td>
<td>0-104 and further</td>
<td>0-99 and further Practice number bonds</td>
<td>0-49</td>
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<td>Seasons</td>
<td>Time: months of the year Fractions: as part of a collection of objects</td>
<td>0-104 and further</td>
<td>0-99 and further Practice number bonds</td>
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<td>2</td>
<td>19</td>
<td>Water</td>
<td>Capacity: estimate, measure Graphs: capacity</td>
<td>0-104 and further</td>
<td>0-99 and further Practice number bonds</td>
<td>0-49</td>
</tr>
</tbody>
</table>

♣ Number Concept Development:
From no. 4 you must decide which concepts are to be teach and fill them in.
EXAMPLES OF THEMATIC SCHEMES OF WORK – GRADE 2

Theme: 1 The Social Environment

Date/Week: 2 weeks

Language 1

Listening & Speaking
- Vocabulary: based on the sub-topic, e.g. member, parents, family, extended, foster, adoption, orphans, family tree, immediate
- Grammar: correct use of nouns, singular and plural forms in speaking

Reading
Phonics – revision of grade 1
- Sight words – I, am, a, we, are, have, aunt, uncle, sister, brother
- Read sentences in simple texts
- Reading for understanding, e.g. recipe, game, word games
- Songs, rhymes, role play

Writing
- Formal and creative writing
- Revise lower case letters
- Write the alphabet in print-upper and lower case in all written work

Religious Education

Belonging
- Explain how members of a family can help each other, e.g.
- Ruth & Naomi or Joseph and his brothers

Mathematics

Measurement:
- Vocabulary
- Geometry: 3-D figures.

N.C.D:
- Counting 0-54
- Subitising, ordering and comparing
- Number patterns 1-20
- Computation:
- Do computation within range 0-10
- Problem solving: 0-10

Environmental Studies

Theme 1: The Social Environment
Topic 1.1: Social groups and Institutions
Sub-topic: Own Identify in a family group
- Draw family trees, showing their own place in group
- Discuss important nuances in terms of family relationships
- Discuss fostering and adoption

Physical Education

Escape: Groups A and B are told to take up specific positions, approximately 3-4 metres apart

Language 2

Theme 1: SOCIAL GROUPS & INSTITUTIONS

TOPIC: Family

Speaking & Listening:
- Listen to stories, songs & rhymes
- Respond to instructions
- Ask & answer questions
- Phonics vowels a, e, i, o, u

READING
- Read loud parts of stories, rhymes, songs in groups, pairs & individually
- Make own booklets with collections of stories.

WRITING
- Copy words & short sentences
- Write letters, words in print scripts
- Learn how to hold pencils
- Write 5 vowels

LANGUAGE
- Listen new words.
- Practise phonics.
- Complete by join words
- Sound the 5 vowels correctly.

Arts
- Experiment individually and in pairs with facial expressions (anger, happiness, fear, etc)
- Experiment with body expression, movement with & without music
- Experiment individually and in pairs with vocal sounds
EXAMPLES OF LESSON PLANS – GRADE 2

Theme of integration: Personal hygiene

Grade: 2

Mathematics

Objectives:
At the end of the lesson learners will be able to:
- Estimate and measure in units of litres
- Count in the range of 0-94
- Do computation with the four operations in the range of 0-59
- Solve story problems in the range of 0-29

Basic competencies:
The learners will be able to:
- estimate and measure capacity in litres
- explain their understanding of number patterns in the range 0-94
- double numbers up to 20 without carrying
- halve even and odd numbers up to 16
- add and subtract correctly in the range 0-59
- solve story problems in the range 0-29

Monday (Time: 40 min)
Introduction:
Sing: *Ninety little ducks went out one day* (Count backwards in 10s)
   Use beanbags – count in 10s, starting from 11, 15 or 18

NCD Activities:
Subitising: - recognise by estimating the number of 8 objects. Arrange it in groups of 25 and 45
Doubling & Halving: Double numbers up to 20 and halve odd and even numbers up to 16
Groups: Subitising – whole class
         Doubling & Halving – work in pairs

Materials: Blackboard
          OHP
          Counters

Tuesday (Time: 80 min)
Introductory activities:
Count in 10’s beginning at 12, 16 or 19.

Presentation of new concepts:
Decompose numbers and do addition and subtraction, e.g. 23 + 15
   = (20 +3) + (10 + 5)
   = (20 + 10) + (3 + 5)
   = 30 + 8
   = 38

Writing activities: Count in 10’s forwards and backwards – colour the numbers on a 120 chart

Groups: First whole class, then small groups

Materials: Counters
          Blackboard
          Slates/scrap paper
**Wednesday and Thursday (Time: 160 min)**

**Introductory activities:**
Counting – play game with beanbags
Subitising

**Group activities:**

- **Activity 1: Problem solving:**
  Sara made 12ℓ of juice for a party. Marie brought 2ℓ of juice more. How many litres were there?
  Jan uses 38ℓ of water to bath in. His sister only uses 15ℓ. How many litres does she use less than Jan?

- **Activity 2: Measuring:**
  Different containers. Estimate how many ℓ in each container. Then measure it. Subtract the least from the most.

- **Activity 3: Game**
  Memory game: Number bonds of 14-16.

- **Activity 4: Consolidation**
  Worksheet: Train sums
  Colour odd numbers
  Double numbers

**Groups:**
First – whole class
Then groups rotate

**Materials:**
Counters
Slates
Containers
Games
Worksheet

**Assessment:**
Assess learners on problem solving

---

**Friday: (Total time: 40 min)**

Compensatory teaching – identified during assessment

- **Game:** (for consolidation)
  Give them 13 + 24 – they must write their own story

**Groups:**
Small groups

**Materials:**
Games
Counters
Slates
<table>
<thead>
<tr>
<th>Week</th>
<th>No.</th>
<th>Topic</th>
<th>Measurement</th>
<th>Number concept development</th>
<th>Computation</th>
<th>Problem solving</th>
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</thead>
<tbody>
<tr>
<td>2</td>
<td>1</td>
<td>Family</td>
<td>Geometry: 2-D and 3-D (Name, describe and draw) new shapes: pyramids</td>
<td>Within the range 0-104 Counting: Numbers: read and write up to 10 Subitising: up to 10</td>
<td>Do computation with the range: 0-99</td>
<td>Do problem solving in the range 0-49</td>
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<td></td>
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<td>Count the sides and corners of a square, a rectangle and a triangle</td>
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<td>Height of family members in cm and m</td>
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<td>Estimate and measure</td>
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<td>Graphs: of height</td>
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<td>1</td>
<td>2</td>
<td>Social Groups</td>
<td>Time: Days of the week; months of the year; relate to everyday occurrences</td>
<td>0-104 Counting Numbers Regrouping Ordering and comparing</td>
<td>0-99</td>
<td>0-49</td>
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<td>Graphs of different groups: church, youth, local community groups</td>
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<td>Social Service</td>
<td>Money: Introduction: Notes N$10; N$20; value and properties</td>
<td>0-154 Counting odd and even numbers Decades Decomposition</td>
<td>0-109</td>
<td>0-49</td>
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<td>Time: full hours and half hours</td>
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<td>Cultural diversity</td>
<td>Mass: estimate and measure gram and kilogram</td>
<td>0-154 Counting Ordering and comparing</td>
<td>0-119</td>
<td>0-59</td>
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<td>5</td>
<td>National Culture</td>
<td>Geometry: measure, cut and fold paper to demonstrate</td>
<td>0-204 Counting Doubling and halving Regrouping</td>
<td>0-129</td>
<td>0-59</td>
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<td>Money: select a set of coins of 50c, N$1</td>
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<td>6</td>
<td>Public holidays</td>
<td>Time: calendar and quarter hours</td>
<td>0-204 Counting Number patterns</td>
<td>0-139</td>
<td>0-59</td>
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<td>Traffic safety</td>
<td>Length: straight line, compare, measure cm and m</td>
<td>0-254</td>
<td>0-149</td>
<td>0-59</td>
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<td>2</td>
<td>8</td>
<td>Transport and communication</td>
<td>Money: select from assorted coins those which total in value to a stated cost up to N$5</td>
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<td>Capacity: estimate and measure. Compare real measurements - using expressions</td>
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<td>0-304</td>
<td>0-159</td>
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<td>- abbreviations ml and l</td>
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<td>Time: timetable</td>
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<tr>
<td>Week</td>
<td>No.</td>
<td>Topic</td>
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<td>Computation</td>
<td>Problem solving</td>
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</table>
| 1    | 9   | Housing before and now                     | Geometry: construct 3-D articles  
Mass: abbreviation: kg  
using appropriate expressions | 0-354                      | 0-199                     | 0-69           |
| 1    | 10  | Our resources                              | Capacity: estimate and measure everyday containers  
Graphs: capacity of different containers | 0-404                      | 0-249                     | 0-69           |
| 1    | 11  | Crafts and factories                       | Length: ordering and comparing  
Money: buy and sell articles up to N$1. | 0-454                      | 0-299                     | 0-69           |
| 1    | 12  | Economic activities                         | Graphs: different jobs | 0-504                      | 0-349                     | 0-79           |
| 2    | 13  | Infectious diseases                        | Graphs:  
Capacity:  
Money: determine change | 0-504                      | 0-399                     | 0-79           |
| 2    | 14  | HIV and AIDS                               | Mass: appropriate expressions  
Money: determine change up to N$10 | 0-504 and further          | 0-449                     | 0-79           |
| 2    | 15  | Food shortage and preparation              | Mass: compare and measure  
Fractions: relationships between fractional parts  
Common fractions: thirds as partial quantities of a whole  
Geometry: construct 3-D articles | 0-504 and further          | 0-499                     | 0-79           |
| 2    | 16  | Food from Namibia                          | Money: total cost of two items  
Mass: order objects  
Graphs: different products in Namibia and South Africa | 0-504 and further          | 0-499                     | 0-89           |
| 2    | 17  | Plants: growth                             | Time: categories of time  
Length: appropriate expressions | 0-504 and further          | 0-499 and further | 0-89           |
| 2    | 18  | Identification                             | Length: measure objects and record data | 0-504 and further          | 0-499 and further | 0-89           |
| 4    | 19  | Animals                                    | Time: minutes  
Mass: record  
Fractions: eighths | 0-504 and further          | 0-499 and further | 0-99           |
| 2    | 20  | Weather/independence of climate            | Fractions:  
Time: timetables | 0-504 and further          | 0-499 and further | 0-99           |
| 2    | 21  | Clean water                                | Capacity:  
Money:  
Geometry: | 0-504 and further          | 0-499 and further | 0-99           |

*Number concept Development:*

From no. 7 onwards you must decide which concepts to teach and fill them in.
EXAMPLES OF THEMATIC SCHEME OF WORK – GRADE 3

Theme 1: The Social Environment

Date/Week: 2 weeks  Grade: 3

Language 1
Theme: Social Environment
Topic: The Family
Listening & Speaking
- Role-play of a family group togetherness
Grammar:
- Support, doctor, teacher, members, help, sharing
Vocabulary:
- Read 10 sentences from reader or passage selected by teacher
- Do silent reading
Phonics:
- au: aunt, cause, pause, clause, fault
- ui: juice, bruise, fruits
Sight words:
- Strengthen, occupation, fire, bridge, airplane
Writing:
- Formal writing and creative writing
  - names of family members, e.g. Esther, Freddie

Religious Education
- Belonging: The first community
- Listen to the story of God creating Adam and Eve and assigning them work to do
- Mime the story

Environmental Studies
Theme 1: The Social Environment
Topic 1.1: Social groups
Sub Topic: Family
- Discuss and dramatise what each person does at home
- How work can be shared
- What they can contribute

Language 2
Theme: THE SOCIAL ENVIRONMENT
Topic: Family as Social Group
Listening & Speaking
- Greetings
- Listen to stories, rhymes & telling parts of them
- Sing songs
- Role play
- Revision of grade 2 Phonic work & Phonics: spl, spr

Reading
- Read stories, rhymes & songs in groups, in pairs & individually
- Read passages aloud & for understanding

Writing
- Copy words & short sentences
- Practise spelling words
- Complete sentences
- Writing short paragraphs

Mathematics
Measurement:
- Geometry: 2-D and 3-D (Name, describe and draw) new shape-pyramid
- Count the sides and corners of a square, a rectangle and a triangle
- Length of family members in cm and m
- Estimate and measure
- Graph: of length
- N.C.D: Within the range 0-104
- Counting: Numbers: read and write up to 10.
- Subitising: up to 15
- Doubling and Halving
- Regrouping
- Computation: Do computation within the range 0-99
- Problem solving: Do problem solving in the range 0-49

Physical Education
Overtaking a partner:
- B waits for A approaching
- As soon as A crosses a certain line, B must take off and run as fast as possible to remain ahead while A tries to overtake B before a third given mark.

Arts
- Sense games and exercises in hearing
- Vocal sounds and vocal colour
- Experiment with voice: volume, pitch, tempo & articulation
- Use voice and movement characterisation
Theme 2: Health and Nutrition

Date/Week: 2 weeks
Grade: 3

Language 1
Topic B: Infectious diseases
Reading: Read silently books and find factual information. Categorize words in alphabetical order.
Grammar: Listen & speaking. Group discussions (debate) using correct pronunciation. Do contraction words, e.g. don't = do not.
Vocabulary: Family, disease signs, spread common illnesses. silent w in WR: Write, wrong, wrap, wring, wrist, wrinkle, wreath.
Phonics: silent w in WR: Write, wrong, wrap, wring, wrist, wrinkle, wreath.
Handwriting: Creative writing. Draw & write a "Get well" card. Make a first-aid kit, label it and writing a first-aid booklet with hints.
Sightwords: Infection, identify, survey, symptoms, prevent.

Religious Education
Theme: Personal values
Story: The Healing of the ten lepers
Song: Own choice

Environmental Studies
Theme 2: Health & Nutrition
Topic 2.1: Health and Safety
Sub topic: Infectious diseases
- Infectious diseases
- Explain the ways to prevent infectious diseases

Mathematics

Language 2
Theme: HEALTH AND NUTRITION
TOPIC: Infectious Diseases
Listening & Speaking
- Listen to a story. - Ask and answer questions. - Do a role play.
- Phonics: silent/magic e.o.e -male.
READING
- Read stories loud in groups. - Read for information. - Read books in school/class libraries.
WRITING
- Copy words & short sentences (print). - Write unprepared short paragraphs.
- Write phonic words silent e-o-e.
LANGUAGE
- Phonics - Prepositions.

Physical Education
Games & sport skills
- Races & relays (5.5).
- Self-designed games.
- Knowledge of behavioural rules (5.4).
- Moving, rolling/dribbling 5.4.3.

Arts
- Experiment with materials surrounding them (wet, dry).
- Collect objects for modelling and construction (sand, wool, leaves).
- Perform songs and song games together in their mother tongue, other Namibian languages, English and from neighbouring countries.
- Participate in mirror and mime games, mime animals.
Thematic Sheme of Work: Topic – The Family

Date / Week: 2 weeks

Language 1

Listening and Speaking:
Grammar: vocabulary
Role-play: all words based on the theme
Verbs, adverbs, plural and singular, prepositions
Oral presentation
Reading:
Phonics: sight words
Diagraphs
Trigraphs
- read more and more sight words, prepared and unprepared reading from local newspapers and magazines
Writing:
Handwriting: write in lines
- size 4 spaces per 25mm
- using HB pencils
- printing words
Creative writing:
- describe pictures
- writing stories

Religious Education

Theme 1: Belonging to the community – s.p 17
Story: Adam and Eve
Gen. 2: 2-5 and 2: 7-23
Song: own choice

Language 2

Theme 1: Family
Listening and Speaking
- stories and songs
- role-playing
- revise phonics
Reading:
- read rhymes and songs in groups/pairs
- read individual passages on topic
Writing:
- 4 spaces in 25mm lines using HB pencil
Language:
- spelling
- verbs: simple past tense
- adverbs, singular and plural forms
Phonics:
- au = cause, pause, gauze, because, launch
- ui = juice, bruise, fruit, suit, quick, ruins, quit, quiz

Environmental Studies

Theme 1: Social Environment
Topic 1.1L: Social groups
Sub-topic: Family
Discussion:
- sharing food, problems, space
- personal positions
- different occupations, e.g. doctor, nurse, builder

Physical Education

Athletics (5.3)
- running (5.3.1)
- jumping (5.3.5)
- throwing (5.3.11)
- competing (5.3.12)

Mathematics

Topic: My family
Geometry: name, describe and draw 2 D and 3 D figures / shapes
- new shape: pyramid
- count sides and corners
Length: estimate and measure in cm and m
Graph: -length
Number Concept Dev.
- range 0 – 104
Computation
- range 0 -99
Problem solving
- range 0 - 49

Arts

Sense game and exercises in:
- vocal sounds, vocal range and vocal colour
- facial expressions
- body expressions and movement with and without music

Grade: 3
EXAMPLES OF LESSON PLANS – GRADE 3

Weekly Lesson Planning for Mathematics

Theme of Integration: Social Groups

- **Lesson objectives:**
  - count with and without objects
  - read and write numerical notation
  - understand regrouping, addition and subtraction
  - think logically, systematically and accurately to solve story problems
  - describe time correctly

- **Basic Competencies:**
  - Read time in hours and name the days and months
  - solve oral story problems about everyday contexts using addition and subtraction in
    the number range 0 – 49
  - express orally and in writing understanding of number patterns

**Monday (Time: 40 min)**

*(whole class)*

- **Introduction:**
  - Sing a counting song: “Ten green bottles”

- **Number Concept Development**
  - Count in ones, twos and fives from 0 – 104
  - Count backwards in ones, twos and fives from 104 – 0
  - Read numbers up to 104 and number names up to 10
  - **Assessment:** observe learners’ performance

- **Addition and subtraction**
  - Flashcards 0 – 20 (number bonds)
  - Do stepwise addition and subtraction
  - **Assessment:** observe

- **Time**
  - Question: ‘What time do you wake up?’
    ‘What time do you take breakfast / eat?’
    ‘When do you go to school?’

- **Written work (individual)**
  - Find the names of the months in the puzzle
  - **Assessment:** oral questions and learners’ answers

**Materials:**
- number line
- counter / s
- number names
- names of months
- clocks
Tuesday (Time: 40 minutes)

(whole class)

Presentation of new topic: **Time:**

- Introductory activities:
  - Counting song
  - Counting activities: count in ones, twos and fives from 0 – 104
count in ones, twos and fives backwards from 104 - 0

- Time
  - Whole group
    - Using a clock learners show/demonstrate the time when they wake up, eat breakfast,
go to school, etc.
  - Small group
    - Using clocks and show the time in hours

- Written work
  - do stepwise addition and subtraction
  - regrouping: regroup 60 objects in twos, threes, fours and fives

Wednesday and Thursday (80 minutes)

(whole class)

- Introduction
  - counting song and counting activities of previous days (revising/reinforcing)

  Rotational groups: Teaching groups
  Group 1: Problem solving 0 -49
  Group 2: Filling in the time on watches (see page 70)
  Group 3: Mathematics cross number (puzzle) – (see page 69)
  Group 4: A crisscross puzzle – numbers and number names – (see page 50)

  Group 1 and group 4 on Wednesday and Group 3 and Group 2 on Thursday

Materials: - worksheet and workbooks

Friday – (40 minutes)

- Identify problems experienced by learners during the week
- Do compensatory work with learners on those areas
- Do enrichment work and problem solving with the stronger learners
- Learners write their own problems to solve
- Play a mathematic game
ENRICHMENT: NUMBER DETECTIVE

Find the mystery number in each problem below

1. I have 2 digits. Their sum is 8.
   I have 6 tens.

   ______________

2. I have 2 digits. Their difference is 2.
   My ten digits are greater than my one digit.
   I have 3 ones.

   ______________

3. I have 2 digits. Their sum is 9.
   Their difference is 3.
   I have more tens than ones.

   ______________

4. I have 2 digits. Their sum is 11.
   Their difference is 7.
   I have more tens than ones.

   ______________

8. I have 3 digits.
   They are all the same
   Their sum is 6.

   ______________
## GRADE 4
### YEAR PLAN – GRADE 4

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<thead>
<tr>
<th>Week</th>
<th>No.</th>
<th>Topic</th>
<th>Measurement</th>
<th>Number concept development</th>
<th>Computation</th>
<th>Problem solving</th>
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<tbody>
<tr>
<td>2</td>
<td>1</td>
<td>Know the region</td>
<td>Capacity: vocabulary</td>
<td>Within number ranges 0-504</td>
<td>Do computation within ranges 0-499</td>
<td>Do problem solving within ranges 0-99</td>
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<td>Mass: vocabulary</td>
<td>Counting Numbers recognize, read and write 0-10</td>
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<td>Subitising Doubling, Halving</td>
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<td>Origins of people</td>
<td>Length: vocabulary</td>
<td>0-504</td>
<td>0-499</td>
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<tr>
<td>1</td>
<td>3</td>
<td>Our family life</td>
<td>Graphs: duties of</td>
<td>0-504</td>
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<td>Time: hours, half</td>
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<td>Graph: different</td>
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<td>How early people lived</td>
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<td>How farmers feed our people</td>
<td>Money: compare</td>
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<td>Fishing and Mining</td>
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<td>Graphs: social</td>
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<td>How our region is governed</td>
<td>Money: compute</td>
<td>0-704</td>
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<td>Counting Odd and even</td>
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<td>14</td>
<td>Security and social services</td>
<td>Time: days, hours,</td>
<td>0-754</td>
<td>0-699</td>
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Page 23 of 60
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<tr>
<th>Week</th>
<th>No.</th>
<th>Topic</th>
<th>Measurement</th>
<th>Number concept development</th>
<th>Computation</th>
<th>Problem solving</th>
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<tbody>
<tr>
<td>1</td>
<td>15</td>
<td>Location and physical features</td>
<td>Length: compare estimates with measures</td>
<td>0-754</td>
<td>0-699</td>
<td>0-359</td>
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<td>16</td>
<td>Weather, plants and animals</td>
<td>Graph: weather Fractions: ¼, 1/3, ½</td>
<td>0-754</td>
<td>0-699</td>
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<td>Our settlements</td>
<td>Money: estimate and compute</td>
<td>0-804</td>
<td>0-749</td>
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<td>1</td>
<td>18</td>
<td>Our population distribution</td>
<td>Graph: density and spread of population</td>
<td>0-804</td>
<td>0-749</td>
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<td>My body</td>
<td>Mass: compare estimates with real measurements Use of abbreviations</td>
<td>0-854</td>
<td>0-749</td>
<td>0-439</td>
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<td>20</td>
<td>Growing up</td>
<td>Length: estimate and measure with accuracy in m, cm and mm – conversion</td>
<td>0-854</td>
<td>0-799</td>
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<td>Capacity</td>
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<td>1</td>
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<td>HIV/AIDS</td>
<td>Money: compute money values</td>
<td>0-904</td>
<td>0-799</td>
<td>0-499</td>
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<td>Good nutrition</td>
<td>Capacity: estimate and measure ml &amp; l</td>
<td>0-954</td>
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<td>Living and non-living</td>
<td>Graphs:living and non-living things</td>
<td>0-954</td>
<td>0-849</td>
<td>0-499</td>
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<td>Needs of living things</td>
<td>Fractions: 1/5, 1/6, 1/7</td>
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<td>0-899</td>
<td>0-499</td>
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<td>Plants as living things</td>
<td>Length: compare vocabulary: thick/thin</td>
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<td>0-499</td>
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<td>27</td>
<td>Plants: important source of food</td>
<td>Geometry: construct 3-D figures</td>
<td>0-1004</td>
<td>0-949</td>
<td>0-499</td>
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<tr>
<td>1</td>
<td>28</td>
<td>Animals as living things</td>
<td>Time: months, days, abbreviations and conversions</td>
<td>0-1004 and further</td>
<td>0-949</td>
<td>0-499</td>
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<tr>
<td>1</td>
<td>29</td>
<td>Materials and their characteristics</td>
<td>Geometry: 3-D and 2-D (cut and fold)</td>
<td>0-1004 and further</td>
<td>0-999</td>
<td>0-499</td>
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<td>1</td>
<td>30</td>
<td>Water</td>
<td>Capacity: order objects Appropriate expressions</td>
<td>0-1004 and further</td>
<td>0-999</td>
<td>0-499</td>
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<td>1</td>
<td>31</td>
<td>Soil</td>
<td>Mass: compare, order and use appropriate expressions</td>
<td>0-1004</td>
<td>0-999 and further</td>
<td>0-499</td>
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<tr>
<td>Week</td>
<td>No.</td>
<td>Topic</td>
<td>Measurement</td>
<td>Number concept development</td>
<td>Computation</td>
<td>Problem solving</td>
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<td>1</td>
<td>32</td>
<td>Light</td>
<td>Time: hours and half hours Length: measuring shadows on specific hours and half-hours</td>
<td>0-1004 and further</td>
<td>0-999 and further</td>
<td>0-499</td>
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<td>1</td>
<td>33</td>
<td>Sound</td>
<td>Length: estimate, measure and compare</td>
<td>0-1004 and further</td>
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<tr>
<td>1</td>
<td>34</td>
<td>A healthy environment</td>
<td>Money: computing money values</td>
<td>0-1004 and further</td>
<td>0-999 and further</td>
<td>0-499</td>
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<tr>
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<td>Plant and animal conservation</td>
<td>Fraction: 1/8, 1/9 and 1/10 (fractional parts of animals and notation)</td>
<td>0-1004 and further</td>
<td>0-999 and further</td>
<td>0-499</td>
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</tbody>
</table>

♣ From no. 6 – fill in own Number Concept Development.
EXAMPLES OF THEMATIC SCHEMES OF WORK – GRADE 4

Theme 1: The Social Environment

Date/Week: 2 weeks

Language 1
- Talk about the names of their regions
- Read the region's names correctly
- Read phonic words selected by the teacher
- Read sight words from the lesson
- Writing: Filling the regions names on the map
- Creative writing: Write a short paragraph: My region
- Formal writing:

Religious Education
- Leadership in the church or faith
- Community
- Leadership is African traditions and religions

Mathematics
- Measurement:
  - Capacity: vocabulary
  - Mass: vocabulary
- N.C.D: Within number ranges 0-504
- Counting numbers recognize, read and write 0-10 Subitising
- Doubling Halving
- Computation:
  - Doing computation within ranges 0-499
  - Problem solving
  - Doing problem solving within ranges 0-99

Environmental Studies
- Theme 1: The Social Environment
  - Topic 1.1: Our Regions
  - Sub Topic: Know the Region
  - Name the Regions of Namibia
  - Locate Regions on the Map

Physical Education
- Sprints
- Running fast over 30-50 metres emphasising.
- Straight forward running.
- Correct foot placing
- High knee action

Reading
- Read the region's names correctly
- Read phonic words selected by the teacher
- Read sight words from the lesson

Writing
- Filling the regions names on the map
- Creative writing: Write a short paragraph: My region
- Formal writing:

Language 2
- Theme: The Social Environment
- Topic: KNOWING THE REGIONS
- Listening & Speaking
  - Listen to songs, rhymes on the topic.
  - Ask & answer questions
  - Revision
- Reading Comprehension
  - Read for information
  - Read factual texts & answer questions on topics
- Writing & Comprehension
  - Writing a short paragraph on topic (creative writing)
  - Drawing & labelling the regional map
- Creative writing
- Language
  - Phonics
  - Revision
  - Spelling
  - Verbs: Simple present

Arts
- Learn the National anthem
- Learn more challenging songs
- in terms of pitch, rhythm, tempo, etc.
Theme 2: Health Safety and Nutrition

Date/Week: 1 week
Grade: 4

Language
Listening & Speaking
- Vocabulary about a topic e.g. body parts
- Grammar: ask questions of teacher/peers in order to gain more information
- Song: Dry bones

Reading
- Each learner reads his/her riddle; other guess. The winner reads his/her riddle.

Writing: Creative and Formal
- Learners write riddles to guess the object; e.g. It's hard and when it lies in the sun it is warm, at night it is cold. What is it? A stone

Mathematics
Measurement:
Mass: compare estimates with real measurements
Use of abbreviations.
N.C.D: 0-854

Computation:
0-749

Regrouping:
- odd and even numbers

Problem-solving
0-439

Religious Education
Personal Values
- Listen and discuss stories about people being helped to recover from illness

Environmental Studies
Theme 2: Health, Safety and Nutrition
Topic 1: Health and Safety
Sub Topic 1.1: My body:
- Identify the functions of human sense organs
- Investigate the functions of the human skeleton and muscles
- Understand the digestive system

Physical Education
- Physical fitness
- Run fast over 30-40 metres emphasizing:
  - Straight running
  - Correct foot spacing
  - High knee action
- Run in groups + partners 5.1.2

Language 2
THEME 2: Health, Safety and Nutrition
TOPIC: My body:
Listening & Speaking
- Listen from songs, rhymes & stories
- Talk about myself & my environment
- Sing & say the songs, rhymes & stories about body parts

READING
COMPREHENSION
- Read for enjoyment.
- Read aloud the parts of the body
- Read more book from the class library

WRITING & COMPREHENSION
- Label parts of body, e.g. navel, chest
- Write short paragraph on parts of the body

LANGUAGE
- Spelling
- Phonics: soft letters, e.g. g, k in giraffe, knee, etc.

Arts
Visual Arts
- Discover and recreate bright + subdued colours in nature + materials
- Communicate his/her interpretation of and response to her artistic expression with appreciative attitude
Thematic Scheme of work

Topic: Our Regions

Grade: 4

Date/Week: 1 week

Language

Listening & Speaking
- listen to songs, rhymes on tape
- answer questions
- phonics (revision)

Reading – For information
- read factual texts and answer questions on the topic

Writing & Comprehension:
- write short paragraph on topic
- creative writing

Language
- phonics revision
- spelling
- verbs: simple present

Religious Education

Theme 1: Festivals
- Temptation: syllabus p.23
- Teacher's guide 26-28
- Story: Temptation of Jesus in the desert- Luk. 4:1-13
- Song: own choice

Environmental Studies

Theme 1: The Social Environment
Topic 1: Our Regions:
Sub-topic 1.1: Know the regions
- discuss the map of Namibia
- locate and name the regions on the map correctly
- know the 13 regions of Namibia

Physical Education

Athletics: (S.3)
- sprints (S.3.2)
- the start (S.3.3)
- relays (S.3.4)
- hurdles (S.3.7)
- shotput (S.3.10)

Mathematics

Measurement:
- Capacity – Vocabulary
- Mass : vocabulary

N.C.D: 0 - 504

Decomposition of numbers
- number patterns

Computation: 0 - 499

Problem-solving: 0 - 99

Language 2

Theme: Know the Regions
- use vocabulary based on theme in Environmental Studies for reading

Handwriting and creative writing:
- standard writing in lines 5 and 6 spaces per 25mm lines with HB pencil
- keep handwriting neat with suitable layout, spacing, etc. in a given time frame
- write own non-fiction paragraph about a region, using past, present and future tense correctly

Reading:
- read high frequency/sight words
- read vocabulary based on theme
- recognise phonics in words
- read aloud prepared and unprepared paragraphs or passages from class readers, non-fiction and various reading material on the topic

Arts

Learn more challenging songs in terms of pitch, rhythm, tempo, etc.
Learn the national anthem
Sense games and exercises in hearing, e.g. vocal sounds, vocal range, vocal colour
EXAMPLES OF LESSON PLANS – GRADE 4

WEEKLY LESSON PLANNING FOR MATHEMATICS

THEME OF INTEGRATION: Our Regions

<table>
<thead>
<tr>
<th>OBJECTIVES</th>
<th>BASIC COMPETENCIES</th>
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<tbody>
<tr>
<td>1. Understand and use vocabulary of Mass</td>
<td></td>
</tr>
<tr>
<td>2. Develop and understand number concepts. Number recognition 0-10, doubling + halving</td>
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</tr>
<tr>
<td>3. Compute using the 4 basic operations 0-499.</td>
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<tr>
<td>4. Solve word problems with the 4 basic operations</td>
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**MONDAY (Time: ________ min.)**

<table>
<thead>
<tr>
<th>INTRODUCTION (Number story/rhyme)</th>
<th>GR/W</th>
<th>MATERIALS</th>
<th>ASSESSMENT</th>
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<tbody>
<tr>
<td>Number rhymes 500 hens cluck and say (Counting backwards in 5’s)</td>
<td>WC</td>
<td>Rhymes poster</td>
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</table>

**NUMBER CONCEPT DEVELOPMENT ACTIVITIES**

1. Counting in 1’s, 2’s, 5’s, 10’s backwards 104-0 and forward 0-504 | SG   | 1000 chart | Individual counting in small groups |
2. Recognise, read + write numerical notation 0-10 | Pairwork | |
3. Double and halve even numbers 0-200 | |

Written work: Counting patterns, number names | Ind | Ex. books |

**TUESDAY (Time: ________ min.)**

<table>
<thead>
<tr>
<th>INTRODUCTORY ACTIVITY</th>
<th>GR/W</th>
<th>MATERIALS</th>
<th>ASSESSMENT</th>
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</thead>
<tbody>
<tr>
<td>Counting rhyme, counting forward and backwards</td>
<td>WC</td>
<td>Scissors, paper, glue</td>
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</tbody>
</table>

**PRESENTATION OF NEW CONCEPT**

Fractions: thirds and sixths | WC | Fraction chart |
**WEDNESDAY, THURSDAY (Time: 80 min. each day) = 160 min**

<table>
<thead>
<tr>
<th>INTRODUCTORY ACTIVITY</th>
<th>GR/W</th>
<th>MATERIALS</th>
<th>ASSESSMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>W: Numerical notation, counting rhyme</td>
<td>WC</td>
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</tr>
<tr>
<td>Th: Counting patterns</td>
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<td>1000 chart</td>
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</tbody>
</table>

**GROUP ACTIVITIES**

**Act 1 – PS:**

1. Choose the numbers of any 5 regions and add up the number of letters in their names.
2. If I invite 4 people from each region to my party how many people will come?

**Act 2 – Measurement:**

Collect a number of stories – order from heaviest to lightest.

**Act 3 – Game**

“*I have*” game

**Act 4 - Consolidation**

Worksheet with computation & halving & doubling

**Extra Act**

Enrichment. Write word problems for sets of numbers

**FRIDAY (Time: ________ min.)**

<table>
<thead>
<tr>
<th>ACTIVITIES (Graph, Compensatory Teaching, More Structural Assessment, Enrichment, Other)</th>
<th>GR/W</th>
<th>MATERIALS</th>
<th>ASSESSMENT</th>
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<tbody>
<tr>
<td>Graph: Make a bar graph, indicating the number of letters per region. Discuss: more than less than, equal to, etc</td>
<td>SG</td>
<td>4 grids, 1 for each group</td>
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ASSESSMENT

ASSESSMENT CRITERIA FOR MATHEMATICS

<table>
<thead>
<tr>
<th>GRADE</th>
<th>MARK</th>
<th>CRITERIA</th>
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</table>
| A     | 5    | • Apply own ways and methods to solve problems with different techniques beyond the suggested number ranges  
       |      | • Explain orally the methods used  
       |      | • Reflect on different methods for some problems  
       |      | • Identify and correct errors  
       |      | • Record appropriate ways and sequences to come to a solution |
| B     | 4    | • Apply own ways and methods to solve problems with different techniques beyond the suggested number ranges  
       |      | • Explain orally the methods used  
       |      | • Reflect on different methods for some problems  
       |      | • Identify and correct errors |
| C     | 3    | • Apply own ways and methods to solve problems with the suggested number ranges  
       |      | • Explain orally the methods used  
       |      | • Reflect on different methods for the same problem |
| D     | 2    | • Apply ways and methods to solve problems by using concrete objects with the help of the teacher |
| E     | 1    | • Unable to apply most competencies even with the help of the teacher and peers |

When you plan the assessment strategies and the assessment criteria for lessons you want to record, remember that the better learners are going to demonstrate understanding beyond the basic competencies listed in the syllabus. You should plan activities for these learners whenever possible.

1. The teacher should establish:
   - what learners know
   - what learners understand
   - what learners can do (skills)
   - how well they can do it
   - how successful your lesson has been

2. You should identify:
   - the learners' strengths
   - the learners' weaknesses
   - the learners' needs

3. Levels of development in respect of number concept and relative computational strategies are:
   3.1 Level 1 Counting all Concrete bound (typical D grade learner)
   3.2 Level 2 Counting on Abstract calculations (typical C grade learner)
   3.3 Level 3 Develop own strategies/methods to calculate, e.g. breaking up or changing numbers to make computation easier,  
       e.g. 31=30+1=20+11  
       9+9=10+10-2=1 (typical A or B grade learner)
When you plan the assessment strategies and the assessment criteria for lessons you want to record, remember that the better learners are going to demonstrate understanding beyond the basic competencies listed in the syllabus. You should plan activities for these learners whenever possible.

The main purpose of assessment will be to obtain as reliable a picture as possible of the learner’s progress and level of achievement in relation to the competencies specified in the subject syllabus.

Assessment is not a separate aspect removed from teaching and learning. It is part of teaching and learning.

Information gathered through assessment will be used:
1. to inform the learner and his/her parents of progress and achievements
2. to inform the teacher of problems and ensure compensatory teaching
3. for promotion purposes

At Lower Primary level assessment will consist of both less structured and more structured continuous assessment which is:
1. less structured because it will be conducted while learners are carrying on with normal continuous classroom activities and because the teacher throughout the year systematically observes and makes judgements about the quality of every learner's participation and achievement in informal oral, practical and written work in relation to the competencies in the syllabus.
2. more structured because oral, practical and written tests are specifically set by the teacher for this purpose. The assessment tasks referred to will assess learner achievement in relation to the competencies specified in the syllabus and because the above mentioned continuous more structured assessment tasks are conducted during the course of the year.
HOW TO ........................

MEASUREMENT, GRAPHS, VOCABULARY, SHAPES

1. Measurement activities for learners must refer to real-life situations in which numbers occur naturally and should form an important part of the learners’ activities out through the year.

2. Estimation must consistently be integrated with measurement activities. This gives rise to meaningful questions, like: “Whose estimation was the best?” “How far out were you?”

3. However much standard measuring units may be taught formally in higher grades, there is great value in keeping a variety of measuring materials like mass meters, balance scales, clocks, capacity measures (empty containers), tape measures and rulers in the classroom.

4. Any activities concerning money are of great value. The teacher should ensure that every learner understands the nature of buying, selling and receiving change before word problems can be set.

5. Graphic representations offer both an introduction to statistics as well as additional opportunities for handling numbers in a meaningful way, and must be used throughout the year.

6. Learners must not only be able to distinguish between the well-known geometric shapes like squares, triangles and circles, but they must also be able to distinguish them from more general shapes.

Taking away

Learners take away a certain number of objects from an existing group.
“I have 5 leaves in my hand. I throw away 2. (Do this action). How many are left?” (3)

Give learners plenty of practice in which they perform the actions before you proceed to using backboard diagrams.

Introduce the “minus sign.” Write $4 - 2 = 2$ on the backboard and tell them that ‘ - ’ minus is a short way to write “take away”.

Page 33 of 60
Counting on

Ask the learners to pick 5 counters. Now ask them to add 3 more counters, one at a time, saying 6, 7, 8, as they add each one. So 5, add 3 gives 8 or \(5 + 3 = 8\). Give plenty of practice in this activity.

Use a number line for addition and subtraction

Learners count 3, starting from 0. Ask them to keep one finger on 3. Let them use the other hand to count 5, starting from 3. They reach 8, so 3 and 5 equals 8. They write \(3 + 5 = 8\). They must count after each movement of the finger.
Do similar problems on the number line.
Draw a number line on the floor and let the learners do addition and subtraction by jumping forward or backwards.

Making up stories for addition and subtraction

Write an addition sum on the blackboard, e.g. \(3 + 2\)

Tell the learners a simple story about this problem.

“I have three pencils in my hand.” Point to the 3.
“Now I add some more.” Point to the + sign.
“I am going to add two more.” Point to the 2.
“How much do I have.” Write = 5 on the blackboard after \(3 + 2\)

Repeat the same strategy for subtraction.

Multiplication

Present children with situations involving repeated addition. One child has two ears, how many ears will three children have?
\[2 + 2 + 2 = 6\]
Give children lots of practical examples.
Then introduce the multiplication sign \(\times\) as a shortcut to the writing of lots of addition.
e.g. \(3 + 3 + 3 + 3\) we can write \(4 \times 3\).
\(4 \times 3\) can be spoken as 4 lots of 3 or 4 times 3.
\[3 + 3 + 3 + 3 = 4 \times 3 = 12\]

Making tables
Children discover the two times table.
<table>
<thead>
<tr>
<th>0</th>
<th>00</th>
<th>000</th>
<th>0000</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>00</td>
<td>000</td>
<td>0000</td>
</tr>
<tr>
<td>1 x 2 = 2</td>
<td>2 x 2 = 4</td>
<td>3 x 2 = 6</td>
<td>4 x 2 = 8</td>
</tr>
</tbody>
</table>

Use similar methods for the three times table.
FUN ACTIVITIES

The following activities provide some practical ideas for teaching children how to count and recognize numbers. They are intended to introduce or reinforce the main teaching part of the lesson.

Counting, properties of numbers and number sequences

Action rhymes
There are many action rhymes that can help to build children’s confidence and pleasure in counting as they sing, chant or join in with the actions. These include ‘Ten green bottles’, ‘One, two, three, four, five, Once I caught a fish alive’, ‘The beehive’, ‘Five fat sausages’, ‘One, two, Buckle my shoe’ and ‘On the first day of Christmas’.

Count in turn
Children stand in a line facing the same direction; they stamp gently as they count and throw their arms up in the air for the last number in the counting sequence. As the last number is said, they turn and begin the counting sequence again, keeping to a regular rhythm. They could also clap in time to the count.

Boston wave
Children sit in a circle and count slowly in unison, “one, two, three, four five; one, two, three, four, five,” and so on. Decide in which direction the Boston wave will go; as one is chanted, point to a child who quickly stands up and sits down. Point to the next child as two is chanted, who again has quickly to stand up and sit down. Continue around the circle. With practice, there will be no need to point; children will automatically continue the Boston wave around the circle.

Thigh, clap, snap, snap
Sit in a circle and slowly slap the tops of your legs, then clap hands and snap fingers, first with one hand and then with the other, developing a steady rhythm. Count each number from one to four in time to the actions:

<table>
<thead>
<tr>
<th>thigh</th>
<th>clap</th>
<th>snap</th>
<th>snap</th>
<th>thigh</th>
<th>clap</th>
<th>snap</th>
<th>snap</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

These counting activities can be developed to give practice in counting backwards and forwards (see pages 16 and 17), counting in fives and tens (pages 15 and 23), counting in threes (page 24) and counting in twos (pages 18-20).

Place value and ordering

Behind the wall
Slide a number card up from behind a “wall”(which could be any suitable screen such as a piece of cardboard or a book. Slide the number up slowly so that it just peeps over the top of the “wall”and ask which number it might be. Keep showing a little more of the number until the children work out which number it is. Repeat for other numbers.

Show me
Give each child a set of numeral cards 0 to 10, (page 63). Play “show me”activities where each child shows a numeral card by holding it up in the air as you say, ”Show me the number 8", “Show me 3”, ”Show me 0”, ”etc. Hold up a numeral card yourself and ask the children to show a number like it; what does it say? The children could hold up numeral cards to show
the answers to questions such as: "Show me a number....greater than 3... smaller then 8... between 6 and 9". "Show me one more than 7.... one less than 4".

Numbers all around us
Talk to the children about where they can see numbers in the environment, around the home and in the street as well as in parks, public buildings, shops and restaurants (for example, they could look for numbers on front door, telephones, road signs, petrol pumps, motor-cars, televisions sets, microwave ovens, clocks, price tags and menus).

All about the number
The children could make a scrapbook or poster of numerals cut from magazines, catalogues and birthday cards with each number having a page of its own. They could draw pictures to illustrate the numbers.

Numbers in the air
On large pieces of paper, use one colour to write a number such as 1, that is written in a continuous stoke, and two colours to write the numbers that need two strokes, such as 4 and 5 (writing the first stroke in one colour and the second in another). Ask individual children to stand and point to each number, tracing the separate stroke in the air. This will help the children to see the different strokes needed when writing numerals. Discuss the variations in number formation between left- and right-handed children.

Flash cards
Give each child a set of flashcards (page 169). Ask the children to make different numbers, showing the value the tens and units. Extend by using the language of comparison: "Show me... a number less than 40... a number greater than 70... a number between 50 and 60". The children could work in small groups, each child making different Ten and Unit number. Questions could be asked, such as, "Who has got the highest and the lowest numbers in each group?" Ask the children in each group to stand in order of the numbers they have made.

People numbers
Give out one set of large numeral cards 0 to 10. The children holding the numeral cards stand facing the rest of the class. Ask them to arrange themselves in order, from 0 to 10. Ask individual children who are not holding a number to change places with a numeral chosen by you. ("Sam, change places with number three; Emma, change places with number eight."") Use the language of position, such as before and after, within this. ("A, change places with any number before the number three.")

Washing lines
String up a washing line in part of the classroom and give the children numbers to hang on the washing line using small bulldog clips. Ask the children to hang the numbers in order. When all the numbers are in position, ask the children to identify particular numbers. ("Point to the number 14; point to the number between 12 and 14: point to the number before 19.") In all these activities, use the language of comparison (such as more or less, greater or smaller) and the language of order (first, last, before, after, next, between).

Queues
Arrange the children in a queue and ask who is first, second, third, last. Tell the children to turn around so that they are facing the opposite direction and ask them again who is first, second and so on.
ESTIMATING

*Handfuls*
Ask a child to take a handful of beads or counters. The rest of the class try to estimate how many have been taken. The total can be checked by counting.

*Estimates and measures*
Set the children challenges, asking them to estimate and then measure, for example, how far they can jump or throw a beanbag, how many cubes would fit across the table top and how many cups of water would fill a jug.

CLASSIFYING AND GROUPING
Different ways of grouping the class. The grouping can be used to interpret graphs in terms of which has the most and which has the least.

Materials:
Chalkboard and chalk or a large writing pad and a marker. A large enough space for the entire class to stand.

Lesson Steps
1) Ask the children to sit at their desks or in one big group.
2) One at a time, call each child to the centre of the room. Direct all the boys to stand on one side and all the girls to stand on the other. Try not to make the pattern obvious.
3) Once everyone is standing, have the two groups face each other and ask them to make observations about their grouping. If they do not recognise the gender division, give them some hints.
4) Once someone has correctly identified the pattern, explain to your students that when similar things are put together, this process is called "grouping" or "sorting" and they have been grouped using the "rule" of placing boys in one "set" and girls in a different "set". Ask them why sorting things might be important.
5) Using the board or writing pad, draw a graph representing the two groups. A bar or line graph is the easiest to read. Ask your class to identify which group has more than the other and to explain how this is represented on the graph. Ask them why graphing is useful and important.
6) Have your students name other ways to sort the class (e.g. hair color, shoe size, etc). Help them form groups according to these rules.
7) For each rule, draw a graph depicting the relevant sets. DO NOT ERASE THE GRAPHS.
8) After several groups have been formed, have the students sit down and review the graphs. Go over each rule and set used (e.g. Gender is the rule and boys and girls are the sets). Wrap up with a discussion on the importance of sorting and graphing data.

Assessment
Observe your students' ability to form groups and to answer your questions on the importance of graphing and sorting.
HOW MUCH TIME HAS PASSED?

Materials:
- big sample clock
- individual student clocks with moveable hands
- notecards with a digital time on the front and a traditional draw clock answer on the back

Procedure:
1. Begin the lesson with an example of a face. Draw a circle on the board and tell the students: This is a face. Then ask: What belongs to a face?
2. Ask the students, after your classroom face has been created, “If I said that hands go on a face, would you agree or disagree? “ Allow students time to figure out their answers before asking them to respond.
3. We are going to talk about a clock face. Put big sample traditional clock on board. Identify the hands of the clocks with student assistance.
4. Move the hands on the big clock to represent 08:30. Ask the students to tell you what time the clock is: (Ask the students a couple of examples: 04:15, 07:34, 05:02, etc.)
5. Hand out individual student construction paper clocks with moveable hands. (If you have access to traditional watches use them.)
6. Write a time on the board and ask students to show you on their clocks to make sure they comprehend
7. Hand out sets of time notecards (5 sets) to grouped pairs of students. Allow students to work together to create the times and then check their answers. When students are done give them a new set to work with.
8. Have two students show you one of the times on the clock that they received (e.g. 09:30 and 03:23)
9. Use these two times to demonstrate elapsed time. (e.g. “I left home at 09:30am to play at my friend’s house, and did not return home until 15:23pm. “How long did I play with my friend?”) Work this problem out with students using your own strategy, the moveable clocks, and/or a math problem. One idea: 09:30 - 14:23 = 6 hrs. 7 min.
10. Give students a worksheet, or use the other notecards to create math problems. **Hint:** Make sure that students can work problems in 3 different ways:
   a) Alicia and Summer arrived at the movies at 18:10, on a Friday night. They met Tiffany, Bob and Chris at the theatre. The movie would not start until 18:15: How long did the 5 friends wait before the movie started? 14 minutes
   b) Pamela jumped rope for 5 minutes. If she started jumping at 10:45, what time will it be when she stops? 10:50am.
   c) An hour and 54 minutes ago, Melissa, Chase and Martha went swimming. The time is now 10:04. What time did the three friends go swimming? 08:10 (10:04 - 1 hour = 9:04 - .04 = 9:00 = 8:60 - .50 = 8:10 )
11. Have students create their own time word problems. (These can be integrated into later review/practice problems).

Assessment:
Teacher can check student’s knowledge by circulating the room while students are working with time notecards, as well as elapsed time problems.
FRACTION FUN

Materials: Each student will receive construction paper:
- one whole piece
- two halves
- four fourths
- eight eighths
- paper clips
- pencil
- paper
- spinner

(The teacher should also make the same model as the students, but larger for demonstration).

Procedure:

Hand out materials to students. Go over each piece and make sure every student has what they are supposed to. Have students write the fraction on its respective piece of paper. The object of the lesson is to have the students clear the area in front of them of all paper. (Paper must be removed one layer at a time.)

To begin, cover the whole with all the pieces in order (halves first, fourths next, etc.) Work through a whole game with students before allowing them to play in pairs. Partners A spin by placing the paper clip on the spinner, placing their pencil in the centre of the circle and "flicking" the paper clip. (The spinner is as simple as an index card with a circle drawn on it, divided up and labelled with whatever fractions you want to include). Whatever fraction the spinner lands on is what the student removes. The game continues until the whole is broken apart and the area is completely clean.

As you play against the class, questions will arise and confusions will clear. For example, if your spinner says, $\frac{1}{2}$ but your board is covered with $\frac{1}{8}$s the students may not be aware of how to remove one half. This will be demonstrated and discussed while the class plays together. After all questions have been answered and the students are sure how to play, allow them to work in pairs. To close, have the students keep their boards. As you ask them about what they have learned, have them show you on their boards.

Assessment:

This is a good assessment to see how well the students understand fractions. Work through the game with the class, walking around while the students work in pairs, and then during the closure you can observe how well the students grasp this sometimes difficult concept.
MEASUREMENT

Materials:

- stop-watch
- 2 litre soda bottles per team
- water

Procedure: Introduction

Prior to the lesson, the teacher will:
- securely fasten two soda bottle caps together
- drill small holes of various size through the bottle caps
- drill a hole slightly larger than that of the cap, in the side of each bottle. This hole should be placed in the center of the bottle, between the top and bottom.

The teacher will begin the lesson by asking:
- How long is a minute?
- What can you do in a minute?
- How often have you heard, "I'll be there in a minute"?

Main Activity

Teacher and students will share in a discussion about time and make estimations of how long a minute would be.

Children will count off 60 seconds to practice timing the passage of one minute.

Teacher will explain to the class that they are going to construct one minute timers.

Teacher will model for the students how they will construct their times by:
- showing the students the various parts of the timer
- demonstrating how they should fill up their bottles with water
- pointing out the hole on the side of the bottle and asking students why they should avoid filling up the bottle past the hole on the side
- showing the students the fastened caps and the holes drilled through them. Ask students why they think there is a hole drilled through the caps and what role it will play in helping our timers to work
- model how caps should first be secured to the bottom bottle filled with water, and then how to screw the empty bottle to the top cap. Ask children why it must be done in this matter and not in reverse
- show children how to turn the bottle carefully over and start counting
- depending on the duration of your timer, ask the children what they should do to correct it. What if the outcome were different, how would you alter the amount of material?

Call teams up to collect their materials and to fill their bottles. Monitor that they are not filling the bottles past its centre hole. Show them what would happen if they did.

Monitor student progress, and offer guidance where necessary.

Students should self-test their timers by counting to 60, and adjust the amount of water used accordingly.
When students feel they have their timers calibrated for one-minute, time them with the stopwatch.

Have teams make notes on what they needed to do to create their timers.

When all teams have completed their timers, students will then break up into small groups and proceed with one of the following activities:

- discuss with other teams what they did to build their timers
- time their timers against another team’s to see that they actually measure the same duration of time
- choose from a selection of one-minute games to play and use their timers to time them
- gather the class together and ask them why they think the bottles had to have a hole in the side
- demonstrate to children, by covering the hole, that a vacuum is created. Without the hole, the air in the bottom bottle would have nowhere to go, and there would be no room in the bottom bottle for the water to enter.
- invite teams to experiment with this. Depending on the timer, you can even feel the air blowing out of the hole

**Trying It All Together**

Invite other classes into your room for a brief presentation given by your students. Allow your guest students to explore for themselves how the timers work while members of each team stand with their creations, ready to answer questions.

**Assessment:** Students should be able to:

- demonstrate their ability to calibrate time
- describe the process involved
MAKE A LIVING GRAPH

Math Activity

Children learn to translate a concrete activity into a graphic representation, in this case, a bar graph.

What you need

- Masking tape
- Large, clear floor space marked off as a bar graph
- Newsprint or chart marked off as a bar graph
- Broad felt-tipped marker

What to do

1. Tape a large, clear floor space in the classroom as a right angle to represent a graph. Explain that in any group of people, including families, some members of the group will like the same things. But say that it isn't likely that any two people will like the same things all the time.
2. Tell children that they are going to test whether or not this is true. Explain that you are going to name some foods. As you name each food, e.g. pizza, spaghetti, macaroni and cheese, hamburgers, ice-cream, have children line up vertically or horizontally from the baseline in the line for their favorite.
3. Have children in each line count off. Write those numbers on the chalkboard beside the name of the food. Ask the group to compare the numbers. Which is the most popular food? Which food comes closest to it? Which one has the shortest line? What does this mean?
4. Explain that there is a simple way of showing this information. On the newsprint graph, mark the equivalent number of spaces for each food. Tell children that this is what their lines would look like if someone were looking down on them. Explain that each line you draw stands for one of the lines they have formed. Demonstrate how you used the numbers along the side to know where to end each line.
5. After children are seated, have them again compare the lines, pointing out how easy it is this way to see the relative length of each one.

TEACHING OPTIONS

Poll children on other topics. Examples include after-school activities, favourite colours, birthday months, number of family members, and number of siblings. Challenge children to suggest how you can record all things on a graph without forming living lines. Follow their directions to make a graph.

After one such activity, supply students (working in teams) with duplicate graphs, and have them complete them on their own.
I AM THE GREATEST

Resources/materials:

1. Teacher made number cards, one for each digit, 0-9.
2. Scratch paper and crayons for each student. (If you use pencil, some students may not be able to resist the urge to change number positions during the game.)
3. Reward for winners.

Activities and procedures:

1. Predetermine the number of digits in the mystery number. Begin with three-digit numbers and increase number of digits as student skill increases.
2. On scratch paper, have students draw lines so that there are the same number of lines as digits:
3. Shuffle "pack" of number cards.
4. Select first card, students must write this digit on any one of the lines.
5. Continue this process until all lines have been filled in.
6. Select a student to arrange all the selected number cards from greatest to least.
7. All students having this number declare, I AM THE GREATEST.
8. Award all the GREATEST students with reward.
9. Reshuffle the number cards and repeat the game.

Tying it all together:
As students become more proficient add digits to the mystery number.
Eventually older students could use a double pack of number cards. Because of the element of chance, even your lower math students will sometimes have the opportunity to declare, "I AM THE GREATEST!"
FRACTIONS WITH ORANGES

Materials:

- Cutting platform
- Knife
- Pocket of oranges
- Paper towels
- Paper plates
- Overhead projector
- Overhead pens
- Basic fractions worksheet that uses circles as whole (needs to be created by the teacher or taken from a classroom workbook)

Vocabulary:

1. fraction - Cutting a whole into equal parts
2. whole - The entire object
3. part - A piece off a whole object
4. equal - Of the same amount of size
5. half - One of the parts that results when a whole is cut in two equal parts
6. quarter - One of the parts that results when a whole is cut in four equal parts

Procedure:

Set up a cutting area in front of the students. Pull out the pocket of oranges to get their attention. Inform students that they will be learning about fractions. Write the word *fractions* on the overhead. Pull out one orange and say, "This is a whole orange." Write *whole* on the overhead, and draw an orange next to it. Take the orange and dramatically cut it in half. Show students the two equal parts. Ask them if they think both parts are the same size. After they have agreed that they are "equal", write *half* on the overhead and draw half and orange. Pull out another orange. Ask students how much of an orange it is. The student who states that it is a whole orange can get the whole thing. Hold up one of the half pieces and ask how much of the whole orange it is. The student who answers half can get that part. Follow the same procedure to introduce a quarter of an orange. Repeat cutting up the oranges until students can all state what part you are holding up. Stress the importance of equal parts by cutting a couple of oranges unequally and offering these "unfair" parts to several students. Check for comprehension by having the class state the different parts you hold up. Also make sure to draw an orange with half of it shaded to show students how *half* is illustrated on paper. Also show how a quarter would be shaded on a circle so they are familiar with the representations when they work on their worksheet.

Assessment: Observe individual student responses during the activity. Check for individual understanding by having students complete a basic fractions worksheet that uses circles as wholes.

Special Comments: Wash oranges ahead of time. As an extension you can also have students estimate how many seeds are in an orange (if you have been teaching students about estimation).
LEARNING FRACTIONS WITH PICTURES

Materials:

- manipulatives - egg cartons, tennis balls, ice cube trays, or coloured balls
- white board and two differently coloured markers
- worksheets and Review Sheets

Vocabulary:

1. fraction - A number that indicates a part of a whole
2. numerator - The top number in a fraction that tells how many of the equal parts are chosen
3. denominator - The bottom number in a fraction that tells the total number of equal parts

Procedure:

Draw a few objects on the board (such as circles) and ask the students, "How many objects are on the board?" Write the number on the board. Shade in some of the objects and ask the class, "How many objects are shaded?" Record the number on the board, above the first number. Explain how to read the fraction, introducing the terms "numerator" and "denominator." Repeat the process by drawing different objects and then shading them. Demonstrate simple fractions such as 1/2, 1/4, 1/3. Ask for volunteers to go up to the board to write the fraction for each example. Then draw boxes on the board and shade certain areas to represent fractions. Ask students how the fraction would be written in each case. Afterwards, use objects such as different coloured balls, cans of tennis balls, ice cube trays, and egg cartons to demonstrate fractions in model form. (Example: 4 red balls and 8 blue balls can be placed in an egg carton. What fraction of the balls are red?)

Give each student a two-page fraction worksheet. While students are completing the worksheets, move around the room to see if students have any questions. When students are finished, ask them to share their answers. Review any problems which gave students difficulty. Conclude the lesson by reviewing the vocabulary terms.

Assessment: As a homework assignment, give each student a review sheet. The review sheets will be turned in the next day and graded.
CLIP AND SAVE

Materials:

- coupons
- coins
- price list of various (low priced) items written on board or on a handout
- candy

Procedure:
Each child is given an assorted group of coupons. For each coupon, the students will show how much money it is worth. Each student must find at least one item that could be purchased with the savings.

Extension:
How much money could be saved with coupons for a week's worth of groceries? How could you show this amount? (Use dollars & coins). What could you buy with these savings?

Assessment: The teacher will observe the students while working. After the teacher okays the work completed, the child will have the opportunity to "pay" the teacher the correct (preset) amount for a piece of candy.

BEAN FLICK

Materials:

- story: Jack and the Beanstalk
- dried beans (one per student)
- pencils
- bean bags
- rulers
- yardsticks or measuring tapes
- Student Recording Sheet
- Bean Art Activity

Vocabulary:

1. Length - The measured distance of an object
2. Distance - Amount of separation or space between two points
3. Estimate - A guess or judgement based on observations

Procedure:
Read Jack and the Beanstalk. After reading the story, tell students that in a few minutes they will each get a "magic" bean to practise their measuring skills. Review or introduce the following vocabulary: length, distance and estimate.

Explain to students that they will be "flicking" a bean at their desks, recording estimates and actual measurements. (Students may work individually or in pairs). Demonstrate how to "flick" a bean across the desk top in a controlled manner. Let students know that the bean must stay on their desktops. Pass the recording sheets and explain how they should be filled in. Students will estimate the distance that the bean travelled (centimetres) and record on
their sheets. Then students will use a ruler to measure the actual distance and record on their sheets. Students can see how close their estimates were by finding the difference between the two measurements.

After students have completed 10 trials with the beans, the class may work together outside (or in a open classroom area) tossing a bean bag. This activity will give students and opportunity to estimate and measure longer distances. [Author's Note: I have done this activity as a race with a start point and an end point in a large playground or field area. Each team is equipped with a bean bag, clipboard, pencil, recording sheet, and a standard unit of measure (yardstick or tape measure). I give the signal to gently underhand-toss the bean bag. Students should make an observation, record and estimate, and then work together to measure the actual distance. The first group that gets from finish to start with the correct measurement wins].

Lesson Extensions:
Teachers may want to integrate science by having students plant their bean seeds. In addition, instructions for an art activity are provided in a handout listed in the Materials section.

Assessment: Collect students' recording sheets to determine if students have used appropriate units of measurement. Informally, teachers can ask students to move their beans about centimetres (to see if students comprehend how long one centimetre is).

Special Comments: I had extra bean seeds from annual planting. I also found that I was running out of classroom materials for my learners to measure. This little activity provided a solution!
ENRICHMENT AND COMPENSATORY TEACHING

COMPENSATORY TEACHING

Compensatory exercises for learners with problems in Mathematics must be guided step by step through different processes.

Teachers must remember that patience and a slower tempo and the level of ability is important for these learners.

Teachers can make use of the Compensatory Teaching Guide for Identification of problems and the Compensatory Methods.

WHAT IS NEW MATHS ABOUT?

The New Maths that we are now implementing in the Lower Primary phase is basically to allow learners to show their own skills in solving problems in an informal and constructivist way. They discover mathematical patterns and their relationships and find out that they can get the answers in different ways. They find that there is order and sameness /consistency” in Mathematics and that it has its own language. It is a tool to solve problems. They can also share their knowledge by telling the rest of the class and the teachers what they did to get answers. It demands reflection, that is, they have to think again on the steps that they followed to get the answers. It becomes a way of thinking.

This is a child centred approach because learners are not "spoon-fed" as earlier, but they bring their own problem-solving ideas and skills to the classroom.

LEARNING PROBLEMS IN MATHS

Perception and perceptual problems:

Perception simply means "to become aware of and give meaning to". As in reading, one finds perceptual problems interfering with success in doing Maths. Babies begin to learn something of the world through perception, that is they see shapes, colours and forms all around them. They develop movement by reaching and kicking and they soon touch things and feel them. At first nothing has meaning and parents and siblings talk to them. They hear and learn about things through language. Things or objects get meaning. Once they can crawl they reach more things and they pick up things that are heavy and fall out of their hands or drift in the air (mass). They play in sand and water and they experience volume. They crawl distances and thus experience distance. All this takes place in space. The baby finds his/her way among things and knows where thing are, because (s)he experiences spatial orientation.

They soon learn such concepts as "take away", "make less", "a few", "put together", "make more," etc. By playing with objects they also learn about numbers and that number indicates "how many" (number concept) and they further notice that numbers follow one another (sequence).

Further, the young child learns through these experiences and the more they develop the better they generalise to other objects and understand that the world is full of Maths.
Hyperactivity:
The child cannot stay still for any period of time and cannot help it, because the brain cannot get the message through that the child should control his movements. Any stimulation distracts them and they cannot give attention to important things. They cannot concentrate for a longer while. They can also be disruptive in class. Obviously they will not know what is explained in class and will have memory problems. Their minds are quite disorganised.

Concentration problems:
These children are not necessarily hyperactive, but are easily distracted. Some will daydream. These children may have any of the following problems:
- Emotional problems
- No understanding of what they must do
- The work is too difficult
- They are too young
- They have hearing or visual problems
- The child is highly intelligent and finds the work very boring
- There is a neurological problem

Memory problems:
Children as in the previous examples, who cannot concentrate will have memory problems
- Children with epilepsy will have gaps in memory
- Children who has been in accidents and had brain damage or concussion may have memory problems

Perseveration:
The child makes the same computation over and over or writes the same answer at each sum.

Reduced mental ability:
These learners will obviously not be able to understand what they should do. They will take longer than other learners to understand explanations or do calculations. They may not have grasped the basic concepts. They cannot think logically about the problem.

Dyscalculia
It could be an inherited problem or could have been acquired through brain damage. These learners cannot read or write numbers or count series of numbers. They cannot recognise the categories or structure of numbers or understand computations. Acalculia means that the child is totally unable to understand Maths, that is, he/she has no mathematical ability at all.

Dyslexia or a reading problem
This child will not be able to read at all or read correctly and will therefore understand and write the problem incorrectly.

Sensory problems
The child has a visual or a hearing problem and cannot hear the verbal explanations of the teacher or other children or will not be able to see what is done either by the peers in the group or by the teacher on the blackboard. Learners who cannot see well obviously not be able to read the problem.

Lack of motivation
Motivation is important for good learning. A learner with a problem may be unmotivated, because he has only experienced failure. An uninteresting lesson will not help. Neither will it help to struggle along on his/her own.
Concepts:
They do not know that "make more" or "add" means "plus" or +, or that "take away" or "make less" means "minus" or -.

Structuring:
They do not work with a plan or in steps.
They are impulsive and do not reflect on what they have done.

Abstract thinking:
They cannot do computations without concrete material, they use fingers, dots or anything to work on. They cannot think of numbers abstractly.

GENERAL HINTS TO HELP LEARNERS

- It is easy for the teacher to see who are the learners that find Maths difficult. Observing learners individually and in groups will indicate that.
- We know that learners with problems need guidance and individual attention. Group work and peer teaching is a solution. The child can listen to how the group discusses the problem and can ask questions to the group. With peer teaching the stronger child and one who has mastered concepts and computations can explain to the weaker ones. If a learner still does not know what to do after a few tries, take him/her through the steps of computation slowly.
- Learners with problems should have concrete materials to manipulate when they have to do operations and computations. Not many children may have had these experiences before. Learners who cannot form abstract concepts and ideas will be able to do it concretely. Through concrete experiences symbols get meaning.
- Some learners are scared to work with large numbers. Give them smaller numbers for the same computations first and then the larger numbers afterwards.
- The hyperactive child must be reminded at all times to sit and do his work. Keep an eye on when his attention is distracted.
- The child who cannot concentrate must be called back to his work at all times. Make the work interesting and challenging for the intelligent child. If an emotional problem is suspected, try and find out diplomatically what it could be and consult with the Regional School Counsellor. Do not ask the child questions in class, but get the child alone and be kind to the child. Children may be scared of the teacher and will not talk.
- All children must work at their own pace. Do not go on with something new if the previous work is not mastered.
- Go back to an easier level if a child cannot cope with the difficult work.
- Lead the child's thinking by making suggestions and asking questions all the time. Discuss steps taken.
- Always explain in simple and understandable language - on the level of the child's ability to understand. Work slowly and step by step to help the child organise his/her thinking.
- For problems with remembering the sequence of numbers give a series of numbers with numbers left out and ask them to complete it.
- For memory problems, play memory games. Do revision of the previous day's lesson before a new lesson begins.
- For learners with reduced mental ability do all the above. Children with Dyscalculia, Acalculia and Dyslexia should be referred to a remedial teacher for specialist help.
- Learners with sensory problems should be discussed with the Regional School Counsellor.
• Learners with motivational problems must receive **meaningful and interesting teaching** with a lot of praise for every effort and should be **supported emotionally**.
• Teach the learner to **visualise** the problem and draw sketches of the problem or act it out.
• Ask them to **find patterns** in pictures or numbers and find different possibilities to arrive at answers.
• **Reflect** on answers and steps taken to see if they are correct. If they are wrong, read again and find another way to solve the problem.

**Use the following strategies:**
• Use problems based on other subjects (cross-curricular).
• Mix groups with better and weak learners so the better learners can help the weaker ones.
• Give different tasks on the same computation.
• Learners must be allowed to explain their method of computation.
• First do computations individually and then in groups.

**Supply the following to the learners:**
• Cards or worksheets
• Concrete materials
• Games and competitions
• Calculators if available to check answers
• Project work

**REMEMBER:**
• Read and understand what to do
• Think of a plan to solve the problem - draw the plan
• Carry out the plan
• Reflect (think back) how you got the answer

**PRACTICAL IDEAS:**

**Some problems can be acted out:**
Six children are at the teacher’s table.
Five children join them. How many children are at the teacher's table?

Open a book on page 54. Go 5 pages further. Come back 10 pages. On which page are you now?

There are N$15 in your pocket. Go to the shop and buy a loaf of bread for N$2.00. How much change must the shopkeeper give you?

**Problems to draw sketches of:**
A bus has 10 rows of seats. There are 4 seats in each row. How many seats are there on the bus?

It takes 3 minutes for you to saw through a piece of wood. How long will it take to saw the wood into 4 pieces?

You drive 10 km to the nearest farm, 35 to the next farm and 17 back home. How many kilometres have you driven?
Find patterns:
Use 3 dots to make a triangle. Then use 7 dots to make a triangle.

How long will it take to spread a rumour in a village of 1200 people if each person told the rumour to 12 people each day?

There are 12 eggs in a box. If a farmer sells 10 boxes a day, how many eggs will he sell in 5 days?

A man found the following table on a cave wall. Try to complete it.

<p>| | | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>6</td>
<td>1</td>
<td>3</td>
<td>0</td>
<td>8</td>
<td>16</td>
</tr>
<tr>
<td>11</td>
<td></td>
<td></td>
<td>7</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Find different ways to solve the problem:
In how many ways can a car driver get from Swakopmund to Windhoek?

If you give each letter a number, what will the following addition answer be? Use numbers 1, 2, 3, 6, 7, 9 and 0.

\[
\begin{align*}
S & \quad U \quad N \\
+ & \quad F \quad U \quad N \\
\hline
S & \quad W \quad I \quad M
\end{align*}
\]

You need 17 kilograms of corn-seeds to plant. You can only get the following bags:

How many bags should you buy at the lowest cost?

Work backwards to check the answer:

Mary baked some cookies. She put half of them away and divided the rest between her two sisters so that each got 4. How many cookies did she bake?
LIST OF MATERIALS

List of materials needed in Mathematics class:

**Abacus**
Invest your money in this necessity if your school does not provide. (It is listed on the text book catalogue.) You could also make one with wire or string, using beads, buttons or clothes pegs.

**Number lines**
Build a variety of number lines e.g.

**120-chart**
IDENTIFYING NUMBERS
Example: Point to a given number – e.g. 16, 49, 113
Calendar

Make a calendar for the year

![Calendar 1999]

Use a clothes peg with the mobile or the wall chart to indicate the day of the week

Bottle tops/counters

Gather bottle tops, stones, large seeds (like beans), cooldrink can rings, buttons, shells, etc. Store them in jars, boxes or tins according to type.

![Bottle tops and counters]

Balance

Scale

Find a piece of wood and two lids from coffee tins. You can also use the tins themselves, the lids of a jar, or shoe polish cans. Drill or punch a hole in the middle of the piece of wood, and suspend it with a piece of string. (Or attach it to an upright piece of wood with a nail or wire so it can move.) Punch a hole at either end and suspend the lids. NOTE: It is important that the wood is balanced.

Alternatively you can use a wire coat hanger and tie two similar tins on both ends.
Fraction chart

<table>
<thead>
<tr>
<th></th>
<th>1 WHOLE</th>
<th>1/2</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 HALF</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 THIRD</td>
<td>1/3</td>
<td></td>
</tr>
<tr>
<td>1 QUARTER</td>
<td>1/4</td>
<td></td>
</tr>
<tr>
<td>1 FIFTH</td>
<td>1/5</td>
<td></td>
</tr>
<tr>
<td>1 TENTH</td>
<td>1/10</td>
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<td>1 TENTH</td>
<td>1/10</td>
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</tbody>
</table>

Shapes (2 dimensional and 3 dimensional)

CONTAINERS

For storing and measuring capacity. They can be tins, jars, bottles, milk cartons, boxes, etc.

NUMBER FRIEZE

one
two
three
PLAY MONEY
Carton circles. They can all be the same size (± 5 cm diameter)
Indicate the coin value on it.

![Circles with values](image)

Use real coins and notes for demonstrations. For the learners prepare play money as follows:
Yellow poster card – cut out circles in two different sizes and write N$5 and N$1 on them respectively (Gold coins)
Blue/white poster card – cut out circles in three different sizes and write 50c, 10c, and 5c on them respectively (Silver coins)

Cut poster card in rectangles and write the different note values on, e.g.

- N$ 200
- N$ 100
- N$ 50
- N$ 20
- N$ 10

Clocks

Draw a clock face with the hours marked as usual. Around the outside, draw a larger circle with the minutes marked: 0, 5, 10, 15 … to 60 which is back at 0 again (see diagram). Show the class how this helps to read the time by setting a time such as 9:20 and explaining that the inner circle of the clock face shows the hours, while the extra outer circle shows the minutes. Practice this with various times by asking children to read the time and to say where the hands should be for a given time.

Flashcards

Non-standardized
draw or glue pictures on a length of material or poster. This way, they measure something as “6 fish long”, etc.
Measuring tape
A standard unit of measurement is required in order to standardise all forms of measurement.

MEASUREMENT

Length

a hand-span   a palm   a thumb   a footprint

a pace   a cubit

Mass