INSET COORDINATOR INSTRUCTIONS

- BEFORE MEETING WITH TEACHERS FOR THIS MODULE, LOOK AT THE ‘MATERIALS FOR THE SESSION’ AND MAKE SURE THAT YOU AND THE TEACHERS BRING THEM.
- BEFORE MEETING WITH TEACHERS FOR THIS MODULE, ENSURE THAT YOU AND THE TEACHERS HAVE READ THE MODULE IN ADVANCE.
- PLEASE HAVE THE TEACHERS SIGN THEIR SIGNATURE BELOW.

SAY TO TEACHERS:

‘Now we will read the introduction to this module. After the first teacher reads a paragraph aloud, they can call on another teacher to read the next paragraph.’

Date: 
School: 
District: 
Region: 
Start time: 
INSET Coordinator name + signature: 
Finish time: 
Head Teacher name + signature: 

Teacher name: 
Signature: 
Standard: 

CONTENT OF MODULE:
This module provides learning techniques to develop pupils’ addition and subtraction skills within 20. Multiple strategies are introduced and practiced during the module including the use of Number Bonds to develop mental calculation skills and using teaching aids such as the Number Line, Bands of Ten and Counters. These strategies introduce pupils’ to addition and subtraction and improve memory capacity.

CORE CONCEPTS:
1. Addition and subtraction should be introduced progressively based on number of digits and whether the calculation requires carrying (addition) or borrowing (subtraction).
2. Children should develop basic mental strategies before being taught the standard algorithms such as by using number bonds and the number line, which provide a visual representation of the procedure.
3. There are 3 ways to look at subtraction: adding on, take away, difference.

MATHS VOCABULARY:
Number Bond – mental picture of the relationship between a number and the parts that combine to make it.

MODULE LENGTH: 4 hours for Core Concept and Activities + 2 hours of Lesson Planning

MODULE OBJECTIVES:
By the end of this module, teachers will be able to:
1. Describe the learning progression of introducing pupils to addition and subtraction.
2. Develop pupils’ conceptual understanding of addition and subtraction as increase and decrease of things using the number line.
3. Develop pupils’ fluency in mentally adding and subtracting up to 10 using number bonds up to 20.
4. Understand the 3 ways to examine subtraction with pupils: adding on, take away, difference.

MATERIALS FOR THE SESSION:
1. INSET Module and a pen
2. Notebook, flip chart and markers (or use the blackboard for group work and a slate for individual work)
3. INSET Module 1, Standard 1 Syllabus and Standard 2 Syllabus
4. Teaching Aid Toolkit

LEARNING ENVIRONMENT FOR THE SESSION:
1. Review the ground rules established by the participants during the first meeting
2. Make revisions to the ground rules if required
3. Arrange the desks so that all participants can see and speak to each other
4. Feel free to ask questions
5. Always be supportive of your colleagues
6. Try to be creative and think about how ideas apply to your classroom
7. Put phones or pagers on silent mode
REFLECTION

SAY TO TEACHERS:

“Welcome to Module 5 of the INSET training for Counting. In this module we will learn how to incorporate teaching aids and pupil activities to develop the number concept up to 100 in Std. 1 and 1000 in Std. 2. Before we begin, let us each share a success and a challenge faced when putting into practice the concepts and techniques discussed in the previous session. For each challenge that a participant mentions, let’s see if we can come up with a solution. Make sure to write down solutions that you find helpful or address the challenges that you identified.”

READ ALOUD (5 MINUTES)

Since the last session we practiced one or more teaching technique to apply the following concepts developed during the module:

1. Develop pupils’ comprehension of the number concept including zero and recognition of patterns through the use of the Place Value Chart and Bundle of Sticks or Number Discs.
2. Incorporate lesson knowledge check activities into lesson to assess pupils’ learning progress using ‘Answers to Slate’ and ‘Clap your hands, Tap your feet’.

Take a moment to individually jot down a success as well as a challenge you experienced while conducting these lessons in your class.

WRITE INDIVIDUALLY (10 MINUTES)

- Write down individually a success and a challenge you experienced while applying these strategies in the classroom.

Successes

(Describe the practice you have used and explain how you knew it was successful)
### Challenges
(Describe the practice and explain why it is challenging)

<table>
<thead>
<tr>
<th>Challenges</th>
</tr>
</thead>
<tbody>
<tr>
<td>(none)</td>
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</table>

### GROUP DISCUSSION (15 MINUTES)
- Share one of these experiences with the group.
- For each challenge, see if you can come up with solutions for your colleagues’ challenges.
- During the discussion, write down solutions that pertain to the challenges you identified.

### Potential Solutions

<table>
<thead>
<tr>
<th>Potential Solutions</th>
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<tr>
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</table>

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### INTRODUCTION

**SAY TO TEACHERS:**

“Let us reference the syllabus for Standards 1 and the example Scheme of Work in Module 1 to support our learning in this session.”

### THINK – PAIR – SHARE (15 MINUTES)

- Review the activities for Number Operations in the 2015 Standard 1 Syllabus (pages 31-xx) and Standard 2 Syllabus (pages 27-xx).
- Review the example pupil activities for Number Operations described in the example Scheme of Work in Module 1 for Standard 1 and Standard 2.
- Reflect on the math concept and possible pupil activities for developing addition and subtraction skills.
- Turn to the person to your right and rapidly share example pupil activities that can be used in your classroom for this.
In this module we will:

1. Describe the learning progression of introducing pupils to addition and subtraction.
2. Develop pupils’ conceptual understanding of addition and subtraction as increase and decrease of things using the number line.
3. Develop pupils’ fluency in mentally adding and subtracting up to 10 using number bonds up to 20.
4. Understand the 3 ways to examine subtraction with pupils: adding on, take away, difference.

**CORE CONCEPT – INTRODUCTION TO TEACHING ADDITION AND SUBTRACTION**

**SAY TO TEACHERS:**

“Now we will read the core concept. We will take turns reading the text aloud. After the first teacher finishes the paragraph, he/she can call out another teacher’s name so that they read the next paragraph. While we are reading, you should mark any key information. Put an exclamation point (!) Next to anything you think is important. Put a question mark (?) Next to anything that confuses you or that you disagree with. Finally circle (o) any new words.”

**READ ALOUD (5 MINUTES)**

Introduction to Addition and Subtraction

The development of solid understanding of addition and subtraction is essential for the development of later concepts including other arithmetical operations, calculations arising from measurements, data and algebra. Of the four arithmetical operations on numbers, which are addition, subtraction, multiplication and division, addition is the most natural. Subtraction and addition are inverse operations. For example, 6 = 4 + 2 is equivalent to 6 – 4 = 2 and also 6 – 2 = 4.

Children’s ability to add numbers mentally is used when they play, or watch sports like football and when they buy items at the shops. Formal or written algorithms are useful when larger numbers make mental calculations difficult. While there are many ways to calculate with arithmetic, the commonly taught algorithms have remained in constant use because they provide an accurate and efficient means to the answer. **However, it is important for children to develop some basic mental strategies before they are taught the standard algorithm of adding or subtracting vertically.**

The foundation necessary for addition and subtraction of whole numbers are:

- Some ability to decompose small numbers into tens and ones.
• Some understanding of place value.
• Counting forwards and backwards by ones and skip counting.
• The use of the number line to place numbers in relation to other numbers.
• The use of the number line to compare numbers to thirty.
• The ability to make a judgment about the relative size of two or more sets of objects before finding the difference between them.

Children’s early experience of addition and subtraction may include an understanding that ‘when I add, I get more’ and ‘when I subtract, I have less than what I started with’. When we combine two or more disjoint collections of objects, the total number of objects is the sum of the numbers in each of the collections. For example, in the picture below there are 4 pineapples in the first collection and 2 pineapples in the second collection, so we say there are 6 pineapples altogether and we can write $4 + 2 = 6$.

If we start with 6 pineapples and take away 2, we are left with 4 pineapples. We can write the mathematical equation $6 - 2 = 4$.

Later, when they have some experience with negative numbers, they will learn that this is not always true.

**Learning Progression for Addition and Subtraction**

At the early stage, the focus for adding and subtracting is on the use of numbers up to ten. As the child develops understanding and strengthens her mental strategies, larger numbers can be introduced. The graphic below describes the learning progression, which is reflected in the Scheme of Work for Standards 1 and 2 in Module 1.
One more and one less
Starting with a number that they know, pupils can be introduced to addition and subtraction through the ideas of ‘one more’ and ‘one less’. These ideas are familiar to the child who has experienced counting forwards and backwards by ones. Then, you can build the understanding by talking about ‘two more’ and ‘two less’ than a particular number and so on. In the beginning, these ideas should be discussed using teaching aids such as counters, the number line and number cards. After some time exploring one and two more and one and two less, children begin to recall the addition or subtraction ‘fact’ quickly, without having to think for very long about it. We call this automatic recall of facts, and this comes from understanding the processes, not just memorisation.

One more than five is six
1 and 5 is 6 or 5 and 1 is 6
5 +1 is 6

five counters
add one counter
count remaining counters

LEARNING PROGRESSION FOR ADDITION AND SUBTRACTION

- One more and one less
- Add and subtract with single-digit numbers within 10
- Add and subtract with single-digit numbers within 20
- Add a single-digit number to a two-digit number without carry
- Subtract a single-digit number from a two-digit number without borrowing
- Add a single-digit number to a two-digit number with carry
- Subtract a single-digit number from a two-digit number with borrowing
- Add two two-digit numbers without carry
- Subtract two two-digit numbers without borrowing
- Add two two-digit numbers with carry
- Subtract two two-digit numbers with borrowing
- Add a three-digit number with one-digit or two-digit number without carry
- Subtract a one-digit or two-digit number from a three-digit number without borrowing
- Add a three-digit number with one-digit or two-digit number with carry
- Subtract a one-digit or two-digit number from a three-digit number with borrowing
- Add two three-digit numbers with and without carry
- Subtract two three-digit numbers with and without borrowing
Before the concepts of addition and subtraction are introduced, children work with small numbers and represent them in different ways, showing their understanding of the number system and the ways we can combine and decompose numbers. For example, they may use the Band of Ten with counters to illustrate their understanding that ten is 4 and 6 or 3 and 7 as shown:

Add and subtract with single-digit numbers within 10

It is also useful for students to become adept at all of the different ways to decompose each number under ten and include these in their repertoire of facts. For example, 7 = 7 + 0 = 6 + 1 = 5 + 2 = 4 + 3 = 3 + 4 = 2 + 5 = 1 + 6 = 0 + 7. The quick recall of these makes more complex calculations much simpler and efficient later on. Number bonds are a useful teaching strategy to develop mastery of basic addition and subtraction facts.
A number bond is a mental picture of the relationship between a number and the parts that combine to make it. A whole thing is made up of parts. If you know the parts, you can put them together (add) to find the whole. If you know the whole and one of the parts, you take away the part you know (subtract) to find the other part. Number bonds let children see the inverse relationship between addition and subtraction.

You can draw number bonds on paper using circles or bar diagrams. Imagine each circle to be a pile of counters, and think of the bar as blocks lined up in a row. Even a young student who does not understand math notation can clearly see the connection between these numbers: the whole (6) has been pulled apart into two piles (4 and 2), and the piles can be pushed back together to make the whole. The diagram is a simple way of illustrating the following four facts:

\[
\begin{align*}
4 + 2 &= 6 \\
2 + 4 &= 6 \\
6 - 2 &= 4 \\
6 - 4 &= 2
\end{align*}
\]

Children who master the number bonds within 10 for Standard 1 and within 20 for Standard 2, and automatically recall these facts rapidly are able to calculate with efficiency and accuracy. They are also able to problem solve with self-confidence and become proficient in their arithmetic skills. The addition facts within 20 are as follows:

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<tr>
<th></th>
<th>0</th>
<th>1</th>
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<th>4</th>
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<td>0 + 4 = 4</td>
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<td>2 + 6 = 8</td>
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<td>3 + 1 = 4</td>
<td>3 + 2 = 5</td>
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<td>10 + 2 = 12</td>
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<td>10 + 5 = 15</td>
<td>10 + 6 = 16</td>
<td>10 + 7 = 17</td>
<td>10 + 8 = 18</td>
<td>10 + 9 = 19</td>
<td>10 + 10 = 20</td>
</tr>
</tbody>
</table>
Add and subtract with single-digit numbers within 20
Once the numbers to ten are known, then pupils can build to twenty and beyond. Knowledge of addition and subtraction with small numbers helps with the more difficult ones. For example, knowing that 6 + 3 is 9 is essential when calculating 26 + 3 = 29. Once again the number line is a visual aid that helps to understand addition.

Each addition is a jump to the right. So we can show 4 + 7 = 11 on the number line:

Each subtraction is a jump to the left. So we can show 9 – 7 = 2 on the number line:

Once the additions to 20 have been mastered, pupils can solve similar problems where one of the numbers is larger by ten, or a multiple of ten. For example, if we know that 8 + 7 = 15, then 18 + 7 is ten more, so 18 + 7 = 25 and 28 + 7 = 35 and so on. Also for additions beyond 20, pupils should have a strong understanding of ‘ten’ and of place value for which the Bundle of Sticks and Place Value Chart or Tray introduced in Module 3 can be used. We will explore addition and subtraction beyond 20 in the next module.

GROUP DISCUSSION (30 MINUTES)

- What were some of the new or important ideas that you marked with an exclamation (!) point?
- What were some of the unclear ideas that you marked with an exclamation (?)?
- What were new concepts that you circled?
<p><strong>SAY TO TEACHERS:</strong></p>

“Now you will do an activity with your group. First take 5 minutes to silently read the example lesson that illustrates how to use number bonds to develop addition skills.”

**ACTIVITY – NUMBER BONDS FOR ADDITION**

<table>
<thead>
<tr>
<th>SILENT REFLECTION (5 MINUTES)</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Read the example lesson plan below silently and think about how you can try it in your classroom</td>
</tr>
<tr>
<td>- Write down any doubts or questions in your notebook to share with the group at the end of this session</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Learning Objective:</th>
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<tbody>
<tr>
<td>Add with total not exceeding 10</td>
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</table>

<table>
<thead>
<tr>
<th>Lesson Objective:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number bonds of 7</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Material:</th>
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<tbody>
<tr>
<td>Picture Cards</td>
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<table>
<thead>
<tr>
<th>Activities:</th>
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<tbody>
<tr>
<td>Group work</td>
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<table>
<thead>
<tr>
<th>Vocabulary or Phrase:</th>
</tr>
</thead>
<tbody>
<tr>
<td>add, total</td>
</tr>
</tbody>
</table>

**Steps to follow:**

1. **Introduction (10 minutes):**
   - Sketch a scene on the board and stick four picture cards on the board; for example, 4 birds fly into a tree
   - Describe the scene and count the number of birds
   - Now, add three picture cards to the scene
   - Tell students that 3 more birds have flown in to join their friends. Guide students to say 4 birds and 2 birds, when put together, the total becomes 7 birds
   - Draw the number bond and guide students to name the number pair for 7 as follows: 4 and 3 when put together makes 7

2. **New Knowledge (15 minutes):**
   - Form groups of three to five pupils. If your class size is greater than 50 pupils, you can also create a group per row
   - Give each group ten counters
   - Now draw a number bond diagram on the board for a total of 7 starting with 1

![Number bond diagram](image)
• Ask the groups to determine the number that belongs in the third circle of the number bond
• Pupils can use their counters to determine the answer by forming a group of 1 counter by counting 1 and another group of counters by counting on from 1 to 2, 3, 4, 5, 6, 7. Then they can count the second group
• Repeat this for all of the number bonds that total 7; as you go through each number bond, write down the following statements on the board:
  o 1 and 6 is 7
  o 2 and 5 is 7
  o 3 and 4 is 7
  o 4 and 3 is 7
  o 5 and 2 is 7
  o 6 and 1 is 7
  o 0 and 7 is 7
  o 7 and 0 is 7
• Note that at this stage, the mathematical symbols of + and = have not yet been introduced; only the concept of total, adding, all together are being explored

3. Lesson Knowledge Check (5 minutes):
• Check pupils understanding by playing ‘Answers to Slate’
• Have them write answers individually on their slate for number bonds covered in the previous lessons up to 6
• Draw a number bond diagram for 6 such as 2 and ? is 6
• Pupils put their response on their slate and hold it up for you to see

ROLE PLAY (20 MINUTES)

• In a group, practice the lesson. One teacher can play the role of the teacher and all the others can pretend to be pupils in Standard 1.

SILENT REFLECTION (5 MINUTES)
• Read the example lesson plan below silently and think about how you can try it in your classroom
• Write down any doubts or questions in your notebook to share with the group at the end of this session
Learning Objective:
Add with total not exceeding 10

Lesson Objective:
Write a number sentence

Material: Picture Cards
Activities: Group work

Vocabulary or Phrase:
add, total, +, =

Steps to follow:
1. **Introduction (10 minutes):**
   - Tell a story about totalling or adding
     - ‘In the morning there were 3 flowers blooming in the yard. I counted them, 1, 2, 3. A few hours later, when I walked by, there were two more flowers that had bloomed. It was so beautiful and made me so happy. I counted them again, 1, 2, 3, 4, 5! There were five flowers blooming in my yard.’
   - Sketch the scene on the board as you tell the story
   - Draw the number bond and guide students to name the number pair for 5 as follows: 3 and 2 when put together makes 5
   - Get pupils to draw the number bond diagram in their exercise books
   - Repeat this with other short stories using different number bonds under 10
   - Keep the drawing of each number bond on the board without erasing it

2. **New Knowledge (10 minutes):**
   - Now draw the sign + on the board
   - Explain: This is the sign for “adding” or “putting together” or “totalling”
   - Draw the = sign on the board
   - Explain: this is the sign for “is same as” or “is”
   - Guide students to write the addition sentence 3 + 2 = 5 using the symbols next to the number bond in their exercise books
   - Repeat this for all the number bonds on the board from the introduction

3. **Reinforcement (10 minutes):**
   - Form groups of 3 to 5 or by rows and give each group a set of number cards and equal number of plus and equal sign cards
   - Ask each group to make as many addition sentences as they can within five minutes
   - Check for correctness of each addition sentence
   - For each correct sentence, award one point and declare the group with the highest score the winner
ROLE PLAY (20 MINUTES)

In a group, practice the lesson. One teacher can play the role of the teacher and all the others can pretend to be pupils in Standard 1.

SILENT REFLECTION (5 MINUTES)

- Read the example lesson plan below silently and think about how you can try it in your classroom
- Write down any doubts or questions in your notebook to share with the group at the end of this session

<table>
<thead>
<tr>
<th>Learning Objective: Add with total not exceeding 10</th>
<th>Lesson Objective: Write commutative addition facts for a number bond</th>
</tr>
</thead>
<tbody>
<tr>
<td>Material: Picture Cards, Number Cards</td>
<td>Vocabulary or Phrase: add, total, +, =</td>
</tr>
<tr>
<td>Activities: In pairs</td>
<td></td>
</tr>
</tbody>
</table>

Steps to follow:

1. **Introduction (5 minutes)**:
   - Place on your table a group of picture cards of the same object but with a clearly visible difference such as size or colour
   - Call a pair of pupils to come up to the front of the class and sort through the cards and form two groups
   - Discuss the differences between the two groups with the class
   - Repeat this at least three times for three types of objects on picture cards

2. **New Knowledge (10 minutes)**
   - Using the cards from the introduction, display picture cards of the same object but separated into two groups on the basis of a clearly visible feature. For example, the object is an orange, feature is that one group has larger oranges than the other
   - You can mount the cards on the board with masking tape
   - Ask pupils ‘how many small oranges are here?’, ‘how many large oranges are here?’, ‘how many apples are there altogether?’
   - Ask pupils to think about a story about the oranges; let them be creative and compose a short story to tell the class
   - Write on the board while reading out loud ‘There are 4 small oranges and 3 big oranges. There are 7 oranges altogether. \(4 + 3 = 7\)’
   - Get pupils to write down the addition sentence in their notebooks
   - Now exchange the position of the two groups
   - Ask pupils to write down the addition sentence for the new arrangement \(3 + 4 = 7\)
   - Remove the picture cards and draw the two different number bonds of the same number
• Repeat at least three times with different groups of picture cards for different number bonds

3. **Lesson Knowledge Check** (10 minutes):
   • Check pupils’ understanding by playing ‘Clap your hands Tap your feet’
   • Explain the game that if the teacher claps her hands, the pupils should write two commutative number bonds for the number and if the teacher taps her feet, the pupils should write both number sentences for the number
   • Shuffle a pack of number cards up to 10
   • Ask a pupil to pick a card from the pack
   • Clap your hand or tap your feet
   • If pupil picks 8 for example and the teacher claps her hand all pupil draw the number bonds on their slates or exercise books. Any of the following number bonds is correct:
     \[8 + 0 = 8 \text{ and } 0 + 8 = 8\]
     or
     \[1 + 7 = 8 \text{ and } 7 + 1 = 8\]
     or
     \[2 + 6 = 8 \text{ and } 6 + 2 = 8\]
     or
     \[3 + 5 = 8 \text{ and } 5 + 3 = 8\]
     or
     \[4 + 4 = 8 \text{ only}\]
   • If pupil picks 3 for example and the teacher taps her feet, all the pupil write either of the two number sentences in their exercise book or slate:
     \[3 + 0 = 3 \text{ and } 0 + 3 = 3\]
     or
     \[2 + 1 = 3 \text{ and } 1 + 2 = 3\]

**ROLE PLAY (20 MINUTES)**

In a group, practice the lesson. One teacher can play the role of the teacher and all the others can pretend to be pupils in Standard 1.

**TURN AND TALK (15 MINUTES)**

• After trying the activity, turn and talk to the person to your right about the experience. Some questions to reflect on:
  o Do you think this activity is suitable for your classroom?
  o Will you practice it in your class?
  o What challenges do you think you will encounter in trying it in the class?
Now we will read the core concept. We will take turns reading the text aloud. After the first teacher finishes the paragraph, he/she can call out another teacher’s name so that they read the next paragraph. While we are reading, you should mark any key information. Put an exclamation point (!) Next to anything you think is important. Put a question mark (?) Next to anything that confuses you or that you disagree with. Finally circle (o) any new words.

**Subtraction**

The optimal way to solve a subtraction exercise depends on the numbers involved. For subtraction under 20, there are three approaches: subtraction as take away, subtraction as adding on and subtraction as a difference. For example, we usually calculate 20 − 17 using subtraction as adding on 3 to 17 to get 20, whereas we calculate 20 − 3 directly by taking away 3 from 20 to get 17. Both correspond to the same addition fact 20 = 17 + 3. For subtraction beyond 20, there are other approaches, which will be discussed in the next module. For larger numbers, once pupils start using the subtraction algorithm, they might be less likely to develop new strategies. It is therefore important that pupils are given the opportunity to develop a variety of useful strategies to develop conceptual understanding by using counters, number lines, number cards and number bonds before an algorithm is introduced.

**Subtraction as take-away**

Subtraction can be thought of as removing some objects from a group of objects.

If we start with 9 fish in the pond

And take away 7

And we are left with 2

Subtraction can be shown as a jump to the left on the number line.
Subtraction as ‘adding on’
Sometimes we add to solve subtraction situations. To calculate the subtraction $5 - 2$ we can ask “What do you add to 2 in order to get to 5?” This can also be illustrated on the number line.

That is $5 - 2 = 3$. One example of this is “I have 5 pencils and my brother has 2 pencils so I have 3 more pencils than my brother.”

Subtraction as difference
Subtraction can also be approached as the difference between the sizes of two groups. This helps us answer questions of the type “What is the difference between 9 and 7?” This can be shown using counters.

We line up 9 counters and then line up 7 counters, placing them so that there is one-to-one correspondence between the collections as far as possible:

We can see that there is a difference of 2 in the size of the collections. So we say that the difference between 9 and 7 is 2. Difference arises naturally when comparing the heights of two people. For example, Andrew is 123cm tall and Allen is 112cm tall. How much taller is Andrew than Allen? We calculate the difference between their heights and conclude that Andrew is 11 cm taller than Allen or Allen is 11cm shorter than Andrew.

GROUP DISCUSSION (10 MINUTES)
1. What were some of the new or important ideas that you marked with an exclamation (!) point?
2. What were some of the unclear ideas that you marked with an exclamation (?)
3. What were new concepts that you circled?
SAY TO TEACHERS:
“Now you will do an activity with your group. First take 5 minutes to silently read the example lesson that illustrates how to use skip counting to develop the number concept.”

**Learning Objective:** Subtract within 10

**Lesson Objective:** Using number bonds for subtraction

**Material:** Counters, Empty bottles, 1 to 100 Number Chart

**Activities:** Song, Group Work, Fill in the blank

**Vocabulary or Phrase:** Skip count by ten

**Steps to follow:**

1. **Introduction (5 minutes):**
   - Show a collection of picture cards that can be separated into two groups on the basis of a visible feature
   - Draw the corresponding number bond on the board
   - Point out that 6 is the ‘whole’ whereas 1 and 5 are the ‘parts’
   - Guide students to say that the whole equals part plus part
   - Write the two addition sentences $1 + 5 = 6$ and $5 + 1 = 6$
   - Have the children copy down the sentences in their exercise book

2. **New Knowledge (15 minutes):**
   - Now erase the board and remove the picture cards
   - Narrate the following story to your pupils: ‘Mohammed was picking oranges from his father’s orange tree. He picked 6 oranges. He examined the oranges and he noticed that one was a lot larger than the other and so he decided to eat that one right away and take the remainder home. How many oranges did he take home?’
   - Give pupils a few minutes to think about their response and call out answers
   - Now mount the picture cards again on the board to match the story
   - Repeat the story and do the act of taking away and pretending to eat the large orange
   - Pupils can count the remaining oranges and find that there are 5 oranges that Mohammed took home
   - Write the following number bond on the board with a question mark and fill in the subtraction and equal
sign into the number bond
• Then write the number sentence $6 - 1 = 5$
• Repeat the above exercise with other number combinations each time telling a story around the exercise

3. Lesson Knowledge Check (10 minutes)
• Check pupils’ understanding by playing ‘Clap your hands Tap your feet’
• Explain the game that if the teacher claps his hands, the pupils should write the number bond for the problem and if the teacher taps his feet, the pupils should write the number sentence for
• Shuffle a pack of number cards up to 10
• Ask two pupils to pick a card from the pack each and show it to the class
• Clap your hand or tap your feet
• For example if the two cards were 8 and 6 and you clap your hands then pupils should draw a number bond for $8 - 6 = 2$
• Walk around the class check pupils’ exercise books
• Repeat a few times

ROLE PLAY (20 MINUTES)
• In a group, practice the song, new knowledge and reinforcement parts of the lesson. One teacher can play the role of the maths teacher and all the others can pretend to be pupils in Standard 1.

TURN AND TALK (10 MINUTES)
• After trying the activity, turn and talk to the person to your right about the experience. Some questions to reflect on:
  o Do you think this activity is suitable for your classroom?
  o Will you practice it in your class?
  o What challenges do you think you will encounter in trying it in the class?

LESSON PLANNING
SAY TO TEACHERS:
“ To improve pupils' learning, it is very important that teachers are able to practice the teaching techniques they learn from INSET in their classrooms. For this, it would be beneficial to develop the lesson plans together as a group instead of individually. When we

LESSON PLANNING
LESSON PLANNING (2 HOURS)
To improve pupils’ learning, it is very important that teachers are able to practice the teaching techniques they learn from INSET. Therefore, it is important to set aside at least 2 hours to lesson plan together with other teachers.
• Set a time to meet in order to complete this activity before continuing on to the conclusion of today’s session.
support each other through this process of lesson planning, we will be able to design better quality lessons. So let us dedicate at least 2 hours to lesson plan together. Let us decide now when we will meet next to complete this component of the INSET for this module.”

JOINTLY DETERMINE WHEN THE TEACHERS WILL MEET AGAIN TO COMPLETE THE LESSON PLANNING SECTION OF THIS MODULE. WHEN YOU MEET AGAIN TO WORK ON THIS SECTION, WALK AROUND AND SEE IF TEACHERS NEED HELP WITH THE PLANNING.

CONCLUSION

SAY TO TEACHERS:

“We have come to the end of the module. Please take minute to reflect on the session. Fill in the form to record your appraisal of today’s module. After you are finished, rip the page out and give it to me. Please be honest with your answers because your feedback will help to improve school based INSET in the future. “

COLLECT THE TEACHERS’ APPRAISAL FORMS AND BRING THEM TO THE NEXT WARD CLUSTER MEETING. WHILE THE TEACHERS ARE FILLING OUT THE APPRAISAL FORM, REFLECT ON THE OVERALL SUCCESSES AND CHALLENGES OF TODAY’S SESSION AND COMPLETE THE FORM BELOW.

CONCLUSION

WRITE INDIVIDUALLY (15 MINUTES)

Please fill in the following form to record your appraisal of today’s module. After you are finished, rip this page out and give it to your INSET Coordinator. Please be honest with your answers because your feedback will help to improve school based INSET in the future.

Marking Scheme for the INSET Appraisal:

<table>
<thead>
<tr>
<th>0 points: I completely disagree with the statement</th>
<th>1 point: I partially disagree with the statement</th>
<th>2 points: I partially agree with the statement</th>
<th>3 points: I completely agree with the statement</th>
</tr>
</thead>
</table>

INSET Appraisal Form:

School: ______________________    District: _________________________
Region:_____________________
Appraisal for Module # ________     Topic of Module:

Number of teachers who participated: ________         Did the Head Teacher participate:   Yes/No
Was the INSET Coordinator present to facilitate:   Yes/No

Read the statements below and tick the box that indicates whether your answer: 0 1 2 3

1. The Core Concepts of today’s module was very clear. I feel like I have a very good understanding of the topics.
2. This module had many useful and relevant strategies that I will try in my class.
3. The amount of time it took to complete this module was appropriate. It did not feel too long.
4. This module prompted a lot of interesting discussion and reflection.
5. The INSET Coordinator was prepared for the session – he/she has clearly read the module and had all the materials ready.
6. The INSET coordinator effectively facilitated discussion – he/she knows how to get people talking and how to help with answers
| School: ______________________ | District: ______________________ |
| Region: ______________________ | Appraisal for Module # ____ | Topic of Module: |
| Number of teachers who participated: ________ | Did the Head Teacher participate: Yes/No |
| Was the INSET Coordinator present to facilitate: Yes/No |

7. The INSET coordinator knows how to maintain a good group dynamic – he/she makes sure that teachers are supportive, collegial and energised.

8. The INSET coordinator knows how to keep teachers motivated – he/she follows up with teachers who are absent/late and reminds us of why INSET is important.

- Close the session by setting the meeting time and date for the Lesson Planning session for this module and the meeting time and date for the new module.