MATHEMATICS

Foundation Phase

Teacher Training

Counting

GAUTENG PROVINCE
EDUCATION
REPUBLIC OF SOUTH AFRICA

SCI-BONO DISCOVERY CENTRE

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1. INTRODUCTION

Young children are sometimes referred to as "splendid little mathematicians." They have a natural inborn tendency to discover the world around them and they use mathematics as a fundamental way of understanding and describing their world (Ginsberg, 2008:55)

"Don't underestimate a child's ability to do math."

Children need to acquire a deep understanding of number. An understanding of number (or number sense) is a foundational building block for all content areas in mathematics. There the CAPS document has prescribed 65% for Numbers, Operations and Relationships.

A strong number sense is a strong predictor of success in mathematics. Learners who find maths difficult often have not developed a strong number sense. As number sense develops, mathematics take on more meaning. A strong number sense enable learners to make sense of their environment and become numerate people.

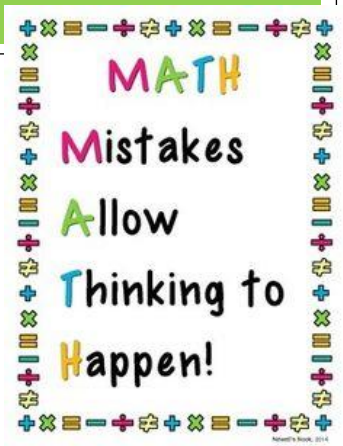
ACTIVITY 01 – INDIVIDUAL WORK

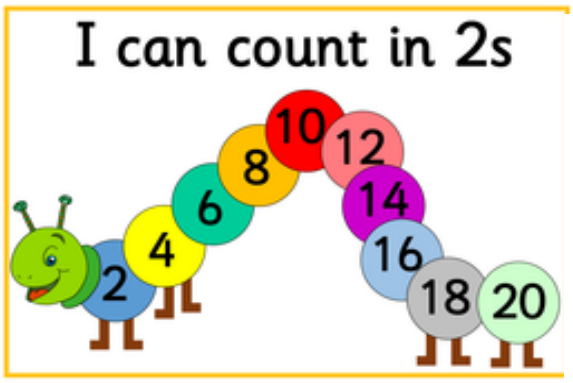
1.1 Think back to your childhood. Who taught you your first set of numbers?

1.2 Write down your number rhyme you learnt as a child. Did this number rhyme help you to gain a sense of numbers?

1.3 Critically discuss the rationale behind the prescribing 65% for Numbers Operations and Relations for Mathematics in the Foundation Phase.

1.4 List 3 challenges learners will experience when their understanding of number sense is not well developed.





2. COUNTING AS THE ORIGIN OF A NUMBER SENSE

Learning to count is a great achievement in a child's life. Although counting itself does not equate to an understanding of number, it is often seen as a starting point of developing number sense.

Many of the mathematical concepts that learners learn in the first few years of school are closely tied to counting.

2.1 WHAT IS COUNTING

Counting is an intricate process by which children call number values by name. Two kinds of counting can be identified

- Verbal counting – reciting the counting sequence in order from memory
- Object counting – the process of matching a number in an ordered sequence with every element of a set, with the aim of finding out "how many" are there. The last number assigned is the cardinal number of the set. (Reys, Lindquist, Lambdin, Smith & Suydam. 2009 in Naude & Meier, 2016)

Counting is the process of determining the number of elements of a finite set of objects.

The traditional way of counting consists of continually increasing a (mental or spoken) counter by a unit for every element of the set, in some order, while marking (or displacing) those elements to avoid visiting the same element more than once, until no unmarked elements are left; if the counter was set to one after the first object, the value after visiting the final object gives the desired number of elements.

The related term *enumeration* refers to uniquely identifying the elements of a finite (combinatorial) set or infinite set by assigning a number to each element.

Counting sometimes involves numbers other than one; for example, when counting money, counting out change, "counting by twos" (2, 4, 6, 8, 10, 12 ...), or "counting by fives" (5, 10, 15, 20, 25 ...)

Counting is an important mathematical skill used throughout the Foundation Phase for problem solving. Meaningful counting activities help learners in developing two separate skills:

- Fluency with the counting of words and their sequence; and
- The ability to connect this sequence in a one-to-one correspondence to the object being counted.

ACTIVITY 02 – GROUP WORK – SHARE YOUR VIEWS AND IDEAS WITH YOUR PARTNER
2.1 Explain what you understand by counting.
2.2 Differentiate between 'verbal counting' and 'object counting'
2.3 Explain what is meant by a 'cardinal number' of a set.
2.4 Circle the cardinal number in each of the following examples
2.4.1 A= {0; 1; 2; 3; 4; 5; 6}
B = {0; 2; 4; 6; 8; 10; 12; 14}
2.5 What is the difference between 'cardinal numbers and ordinal numbers?"

FOR YOUR INFORMATION

In general use, '**cardinal**' is used to refer to natural **numbers**, 0, 1, 2, 3... and '**ordinal**' to refer to place **numbers**, 1st, 2nd, 3rd,...

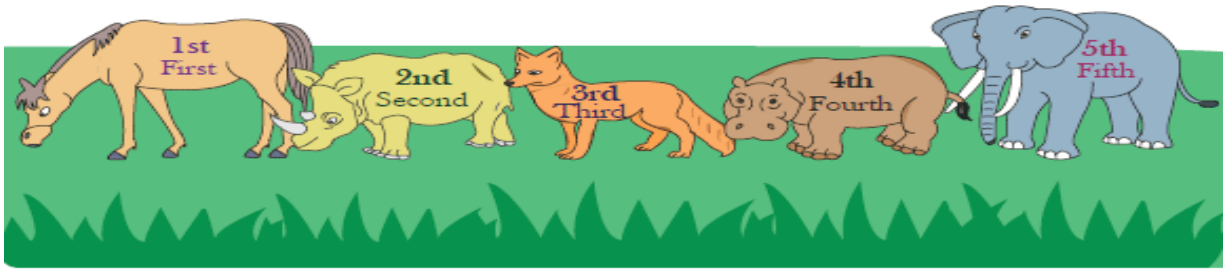
Ordinal numbers all **use** a suffix. The suffixes are: -nd, -rd, -st, or -th. Examples: 'second' (2nd), 'third' (3rd), 'first' (1st), and 'tenth' (10th). We **use ordinal numbers** for dates and the order of something (think ordinal = order).

1	2	3	4	5	6	7	8	9
1	2	3	4	5	6	7	8	9

WORKSHEET

Name :_____ Date :_____

Ordinal Numbers



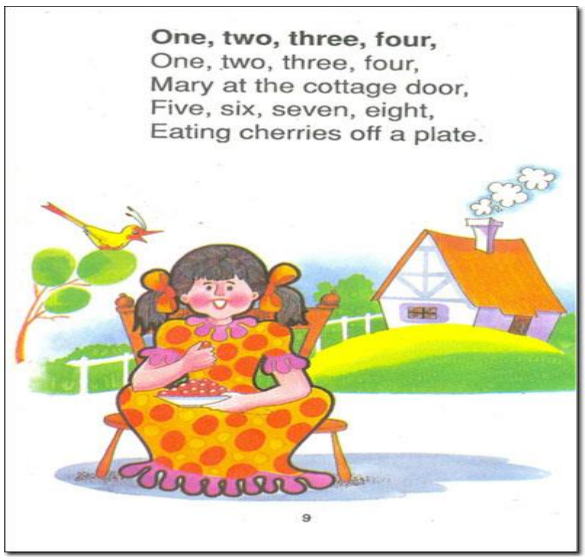
Printable Math Worksheets & Charts @ www.mathworksheets4kids.com

3			2
	4	1	
	3	2	
4			1

	8					2		
				8	4		9	
		6	3	2			1	
	9	7					8	
8			9		3			2
	1					9	5	
	7			4	5	8		
	3		7	1				
		8					4	

				9				4
4	1				3			
8		7	6		4	2	1	
		1			7			2
	6			4			9	
2			5			7		
	4	8	3		6	9		7
			4				2	1
6				1				

3. TEACHING CHILDREN TO COUNT THROUGH SONGS AND RHYMES



Five little ducks went swimming one day

Over the pond and far away

Mother duck says quack, quack, quack

But only four little ducks came back.

Four little ducks went swimming one day…

…… but only three little ducks came back

Three little ducks…….

……but only two little ducks came back

Two little ducks

……but only one little duck came back

One little duck went swimming one day

Over the pond and far away

Mother duck say quack, quack, quack

And all little ducks came back.

1, 2, 3, 4, 5 Once I Caught a Fish Alive

One, two, three, four five
Once I caught a fish alive.

Six, seven, eight, nine, ten
Then I let it go again.

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

Which finger did it bite?
This little finger on my right.

Seven little blackbirds in a tree

Count them and see what they be.

One for sorrow,

Two for joy,

Three for a girl

Four for a boy

Five for silver

Six for gold

Seven for a secret

That's never been told

5 Little Monkeys

Five little monkeys jumping on the bed,
One fell off and bumped his head,
Call for the doctor,
The doctor said,
"No more monkeys jumping on the bed!"

Four little monkeys jumping on the bed,
One fell off and bumped his head,
Call for the doctor,
The doctor said,
"No more monkeys jumping on the bed!"

Three little monkeys jumping on the bed,
One fell off and bumped his head,
Call for the doctor,
The doctor said,
"No more monkeys jumping on the bed!"

Two little monkeys jumping on the bed,
One fell off and bumped his head,
Call for the doctor,
The doctor said,
"No more monkeys jumping on the bed!"

One little monkey jumping on the bed,
One fell off and bumped his head,
Call for the doctor,
The doctor said,
"Put those monkeys straight to bed!"

THIS OLD MAN

Create a hand-jive to go with this song

- This old man, he played one
He played knick-knack on my thumb [some versions use "drum"]
With a knick-knack paddywhack, give a dog a bone, This old man came rolling home

This old man, he played two
He played knick-knack on my shoe
With a knick-knack paddywhack, give a dog a bone, This old man came rolling home

This old man, he played three
He played knick-knack on my knee
With a knick-knack paddywhack, give a dog a bone, This old man came rolling home

This old man, he played four
He played knick-knack on my door
With a knick-knack paddywhack, give a dog a bone, This old man came rolling home

This old man, he played five
He played knick-knack on my hive
With a knick-knack paddywhack, give a dog a bone, This old man came rolling home

- This old man, he played six
He played knick-knack on my sticks
With a knick-knack paddywhack, give a dog a bone, This old man came rolling home

This old man, he played seven
He played knick-knack up in heaven
With a knick-knack paddywhack, give a dog a bone, This old man came rolling home

This old man, he played eight
He played knick-knack on my gate
With a knick-knack paddywhack, give a dog a bone, This old man came rolling home

This old man, he played nine
He played knick-knack on my spine [some versions use "line" here]
With a knick-knack paddywhack, give a dog a bone, This old man came rolling home

This old man, he played ten
He played knick-knack once ag'n [some versions use "on my hen" here]
With a knick-knack paddywhack, give a dog a bone, This old man came rolling home

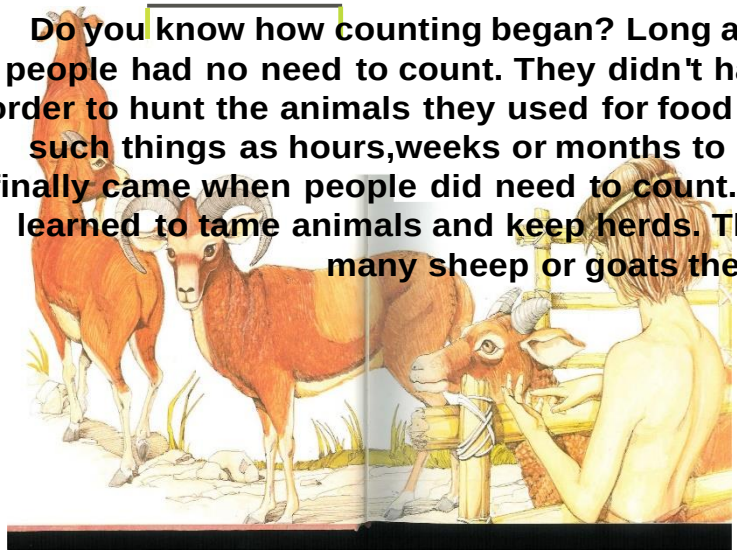
ACTIVITY 03

3.1 Identify number songs and rhymes in your cultural language. Share these songs and rhymes with your colleagues.

3.2 How can you use these songs and rhymes in an integrated manner to teach Languages and Life-skills? Think of the specific skills of the subjects and plan activities.

4. HISTORY OF COUNTING

4.1 Illustration A: Finger counting



Do you know how counting began? Long ago, in prehistoric times, people had no need to count. They didn't have to be able to count in order to hunt the animals they used for food and clothing. They had no such things as hours,weeks or months to keep track of. But a time finally came when people did need to count. Perhaps it was when they learned to tame animals and keep herds. They wanted to know how many sheep or goats they had.

4.2 Illustration B: 10 Fingers

In the beginning, people did all their counting on their fingers. Because they had ten fingers, they counted things by tens. They would count up to ten fingers and then start again. Ten became a sort of stopping place in counting. So the first ten numbers were given special names.

People soon decided that the number 100 was also a stopping place because it was ten of something – ***it*** *was 10 tens. So they gave it a special name too. 1,000 was special because it was also ten of something – 10 hundreds.*

These ten numbers are very important in our system of counting.

ACTIVITY 04

4.1 Why do you think people needed to have an understanding of counting in pre-historic times?

4.2 Think of all the things around you that are broken up into units of tens or are a certain number of tens.

4.3 Write down the value of 10^1; 10^2; 10^3

INFORMATION

Positive powers

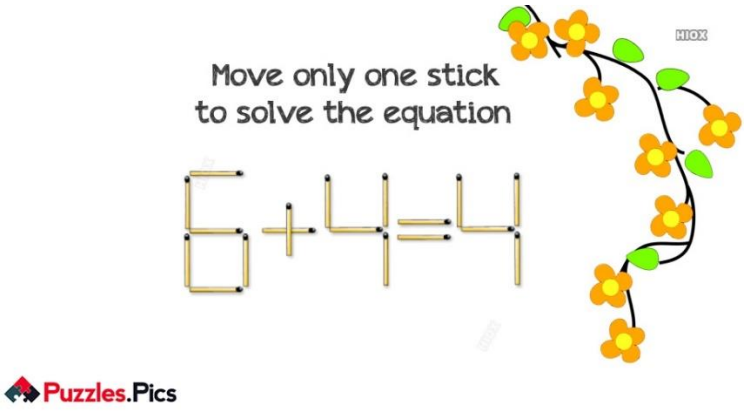
Name	Power	How it is written	Number value
Ten	1	10^1	10
Ten	2	10^2	100
Ten	3	10^3	1000

Ten in:

Maths and Science	• Decade • Decimal • The metric system is based on the number 10, so converting units is done by adding or removing zeros (e.g. 1 centimeter = 10 millimeters, 1 decimeter = 10 centimeters, 1 meter = 100 centimeters, 1 decameter = 10 meters, 1 kilometer = 1,000 meters).
Religion	• 10 commandments • You tithe – one tenth • 10 plagues of Egypt • In Judaism, ten men are the required quorum, called a minyan, for prayer services. • Jesus tells the Parable of the Ten Virgins in Matthew 25:1-13 • In Hinduism, Lord Vishnu appeared on the earth in 10 incarnations, popularly known as Dashaavathar
Money	• Most countries issue coins and bills with a denomination of 10 (R10 note; $10 note. One dime, with the value of ten cents, or one tenth of a dollar, derives its name from the meaning "one-tenth"

Sports	• In boxing, if the referee counts to 10 whether the boxer is unconscious or not, it will declare a winner by knockout • Ten pin bowling • In blackjack, the Ten, Jack, Queen and King are all worth 10 points.
Technology	• Ten-codes are commonly used on emergency service radio systems

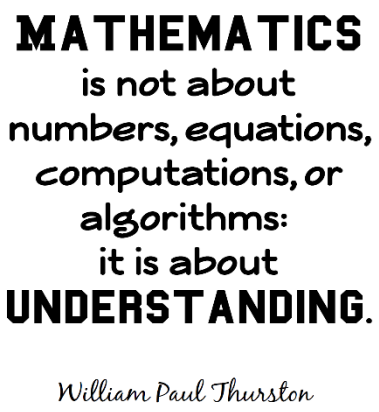
8	1	6
3	5	7
4	9	2



5. TYPES OF KNOWLEDGE RELATED TO COUNTING

Teachers need to have a profound understanding of developing number sense in learners. An in-depth understanding of the different types of knowledge relating to counting will significantly help in planning of lessons to accommodate the different learning styles.

The diagram below represents a triachy of knowledge in counting



TYPE OF KNOWLEDGE	EXPLANATION
Physical knowledge	Manipulating counting objects in the counting process through the use of sense (feeling/touching while counting) and body (e.g. jumping or clapping) while counting
Social knowledge	Learning the number names and counting sequence through practice and repetition (counting rhymes, songs and games). Also, learning to recognise and write number symbols and words through social interaction.
Conceptual knowledge	Knowledge of counting principles and strategies (understanding concepts such as counting on, counting back, etc.), gained from physical and social interaction with the environment.

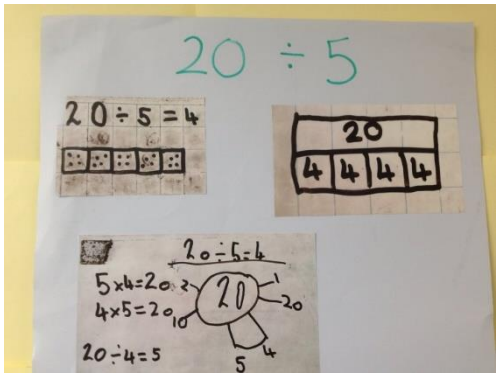
ACTIVITY 05

5.1 Name the 3 types of knowledge every Foundation Phase teacher should understand.

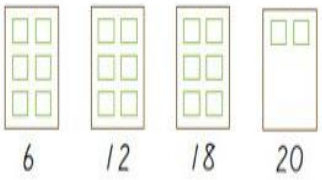
5.2 Give practical examples how you will use physical, social and conceptual knowledge in the maths lesson in your class.

5.3 Critically discuss the importance of applying physical, social and conceptual knowledge in an integrated manner in your mathematics lessons.

ILLUSTRATIVE EXAMPLES OF VARIOUS TYPES OF KNOWLEDGE



Problem 6: Tina is storing 20 packages of seeds in boxes. Each box holds 6 packages. How many boxes does Tina need to store all the packages?



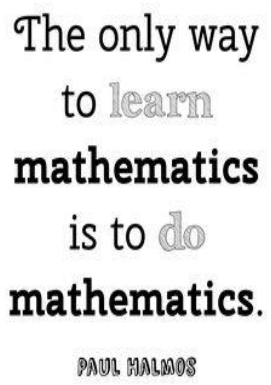
A picture solution

Study the above illustrations carefully and discuss with your partner.

5.4 Critically discuss the advantages and disadvantages of social learning (learning from each other).

5.5 Discuss the importance of conceptual knowledge in mathematics in the Foundation Phase.

6. TYPES OF COUNTING



The ability to count with confidence develops over the course of several years. Age of the learner is not a clear indication of the actual competencies of a child to count, however exposure and experience in counting activities greatly influence a child's development.

6.1 Verbal counting

- **Counting** can be **verbal**; that is, speaking every number out loud (or mentally) to keep track of progress.
- **Also known as rote counting – simply means reciting the counting sequence from memory**

6.2 Object counting

- Object counting implies the process of matching a number in an ordered sequence with a collection of objects in a set (e.g. Counters, fingers, pictures, etc.), with the aim of finding out how many.
- Object counting includes correspondence and cardinality.

6.3 Rote counting

ROTE COUNTING

- Rote counting (Parrot-like counting) implies that a learner can **recite the number names in the correct order from memory**, e.g. the learner says: "One – two – three – four – five – six – seven – eight – nine – ten" (in the correct sequence without using objects).
- Rote counting is important in the Foundation Phase, because it teaches learners the sequence and the language of numbers. Through rote counting, they also gain understanding of the rhythm and pattern that is within numbers.
- Some learners may know some number names, but not necessarily the correct sequence, therefore, do not limit their counting experiences – they need frequent and repeated practise to develop rote counting skills.
- **PRACTICAL IDEAS?**

More ideas for rote counting

One little bee…

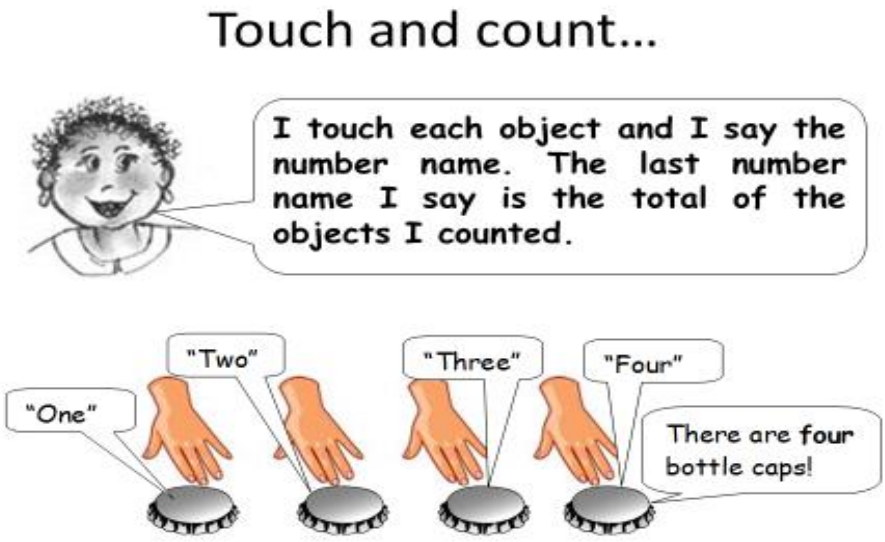
- One little bee blew and flew.
  He met a friend, and that made **two**.
- Two little bees, busy as could be--
  Along came another and that made **three**.
- Three little bees, wanted one more,
  Found one soon and that made **four**.
- Four little bees, going to the hive.
  Spied their little brother, and that made **five**.
- Five little bees working every hour--
  Buzz away, bees, and find another flower.

6.4 Rational Counting

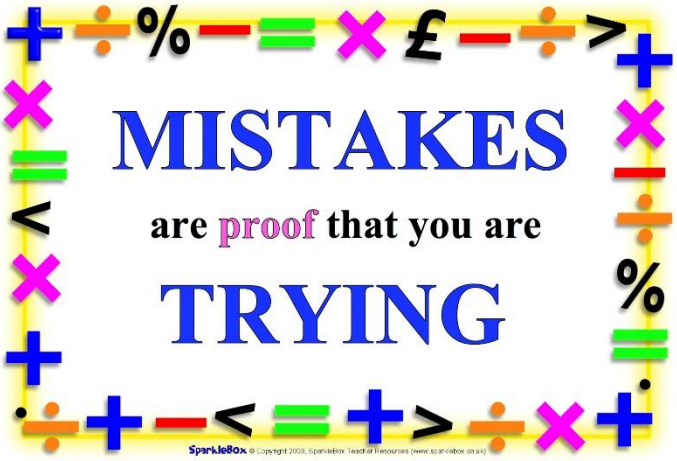
RATIONAL COUNTING

- Rational counting - **count with understanding**.

- Involves the **counting of real objects**.
- It involves matching each number name in order to a series of objects.
- The learner must see and handle the real object and be able to maintain a correct correspondence between the objects been counted and the number names.
- The last number name spoken shows the total value (the **"how-many-ness"**).



ACTIVITY 06
6.1 Explain what you understand by verbal and object counting.
6.2 Differentiate between rote counting and rational counting.
6.3 Critically discuss the importance of rote and rational counting in the Foundation phase.



7. COUNTING PRINCIPLES

According to Clements & Sarama (2009) there are 6 basic counting principles pertinent to Foundation Phase. The development of learning to count with understanding relies on the following principles:

Principle	Explanation
Stable order principle	The idea that the counting sequence stays consistent; children need to know that the number words should be said in the same order, that is 1, 2, 3, 4, 5, 6, 7, 8 and not 1, 2, 3, 5, 6, 8
One-to one correspondence	The idea that each object being counted must be given one count and only one count. In the early stages, it is useful for learners to tag each item as they count it and to move the item out of the way as it is counted
Cardinality	The concept that the last word said stands for the total number of objects in the set. The cardinal number tells 'how many'.
Order irrelevance principle	The idea that the counting of object can begin with any object in a set and the total will still be the same. Children need to know that it does not matter where they start counting, as long as each object is counted only once
Movement in magnitude	The idea that, as one moves up the counting sequence, the quantity increases by 1 or by whatever number is being counted for example counting in 2s, 3s etc.
Abstraction	The idea that the quantity can be represented verbally, physically e.g. 5 can be represented by 5 similar objects, 5 invisible/imaginative things or symbolically (symbol 5).

INFORMATION

1. Consistently use the number words in the same order (stable order principle)
2. Count every item in a set only once, using only one number word (one-one principle)
3. Understand that the last number word used represents the cardinality of the set (cardinal principle)

4. Recognize that any collection of like or unlike items can be counted as a set (abstraction principle)

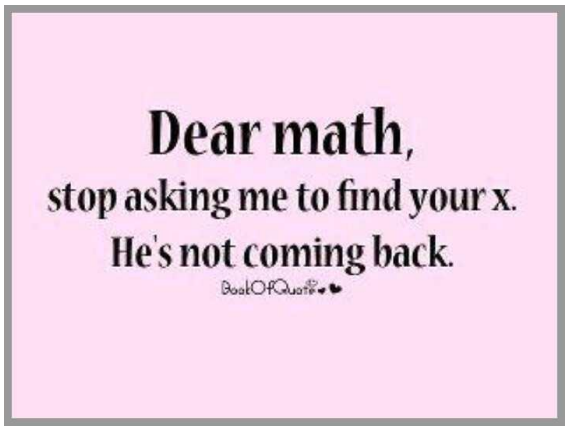
5. Understand that the result is the same no matter the order in which the objects are counted (order irrelevance principle)

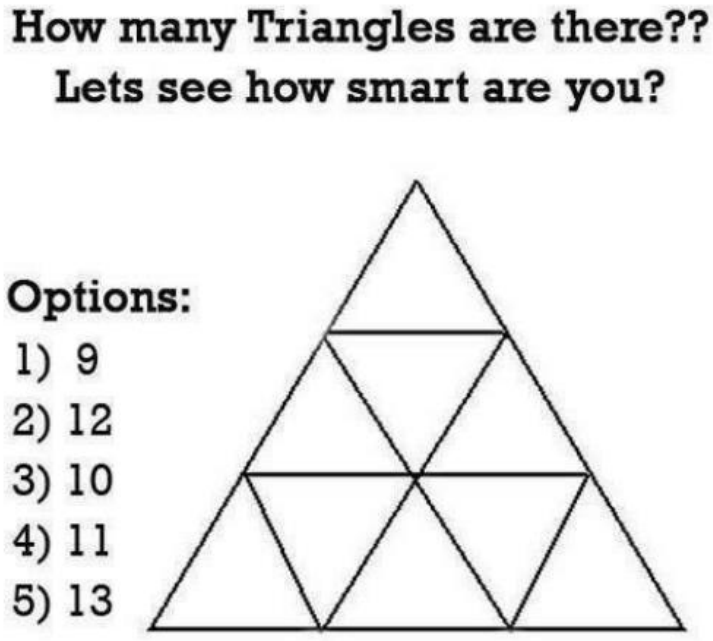
ACTIVITY 07

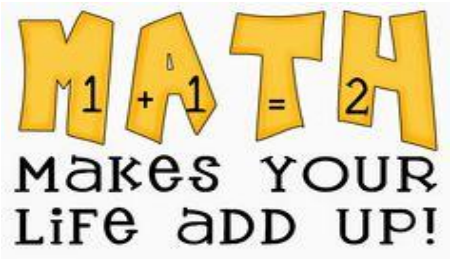
7.1 List the number of counting principles pertinent to the Foundation Phase.

7.2 Name and discuss each of the counting principles.

7.3 Why is it important that teachers must make sure that learners have a good understanding of the application of the counting principles?







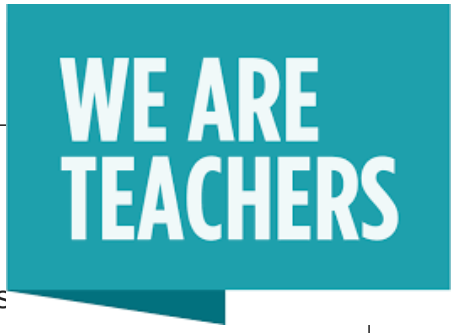
8. VOCABULARY AND SYMBOLS

Language plays an important role in developing number sense, where number words provide children with verbal tools to make their thinking about number explicit. Learning the number names from 1 to 20 may involve memorization, but children should learn to recognize and use the repeated patterns that occur after 20 as they continue the number sequence (Fosnot & Dolk, 2001; Fuson, 2012; Fuson, Richards, & Briars, 1982).

It is very important that learners understand the mathematical vocabulary and symbols pertaining to counting.

Number: An object used to count. 0,1,2,3,4	**Numeral:** A symbol used to describe a number 3 57	**Counting:** Finding the amount of a set
Cardinal number: The amount of a set. 1,2,3 objects 3 is the cardinal number	**Ordinal number**: A word that shows the order in a set Third Fifty-seventh	**Even:** A number divided evenly by 2. 0, 2, 4, 6, 8,10
Odd; A number not divided by 2 1,3,5,7,9	**Quantity**: The amount of a set	**More:** A word describing a set that is larger
Less: A word describing a set that is smaller	**Equal** Two sets that have the same amount	

9. STRATEGIES TO TEACH COUNTING IN THE FOUNDATION PHASE



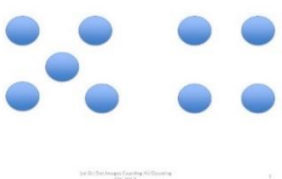
How to introduce counting

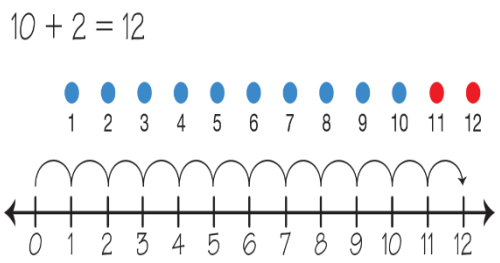
Steps

1. Teach counting. ...
2. Introduce the numbers themselves
3. Discuss each individual number. ...
4. Incorporate images. ...
5. Engage the sense of touch. ...
6. Show children how to write their numbers. ...
7. Emphasize the importance of the sequence of numbers. ...
8. Teach the concept of “counting on.”

9.1 Counting all

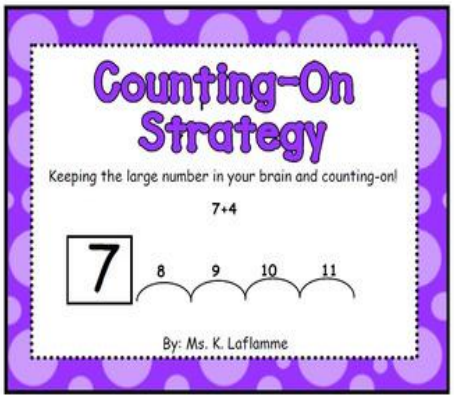
Counting All is exactly what it sounds like. Learners count every number to find the sum. Usually learners use Counting All if they cannot visualize what a number represents.





9.2 Counting on

Counting On is a strategy learner's use to, you guessed it…add numbers. Learners start using this strategy when they are able to conceptualize numbers. They move from counting everything or Counting All to Counting On. This addition strategy is so important because it's a sign that your students are beginning to do mental math. Learners have to be able to "hold" a quantity in their mind and then add on to it.



9.3 Counting from

Learners count from a given number e.g. count from 35 to 55. Learners will not start counting from 1 but start from 35 onwards until he/she reaches 55.

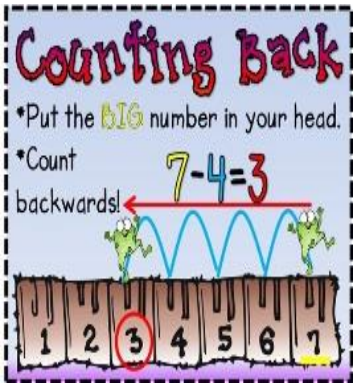
35; 36; 37; 38; 39; 40 ….55

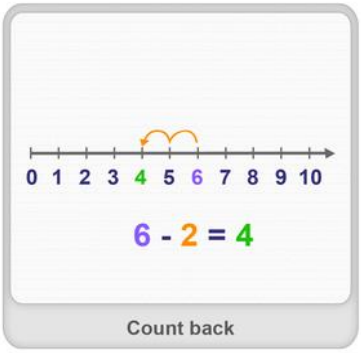
9.4 Counting between

Learners will count only the numbers between the ranges for example. Count all the numbers between 30 and 50. Learners will not include numbers 30 and 50

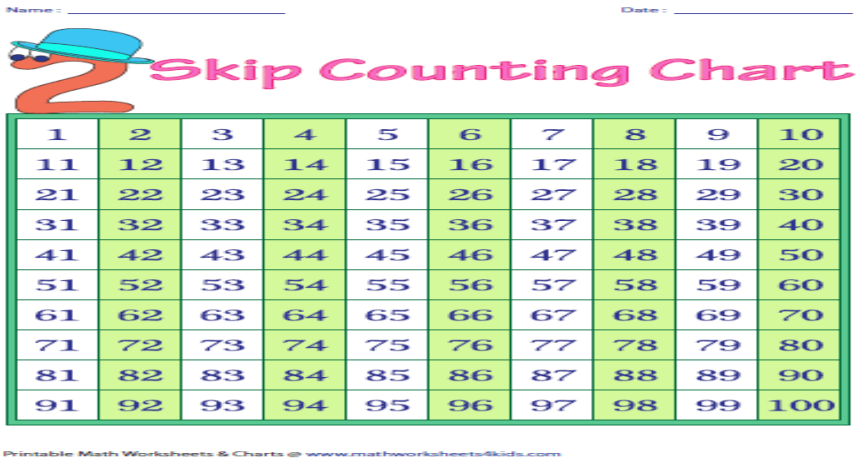
31; 32; 33; 34; 35; 36 ….49

9.5 Counting backwards



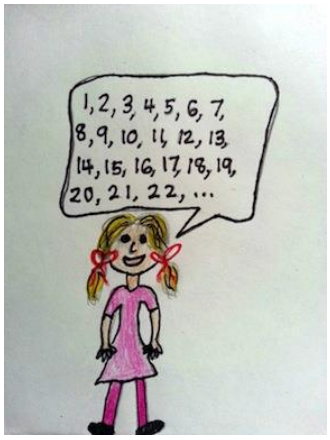


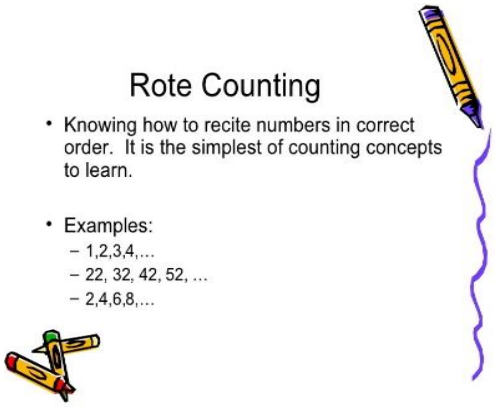
9.6 Skip counting:



9.7 Rote or verbal counting

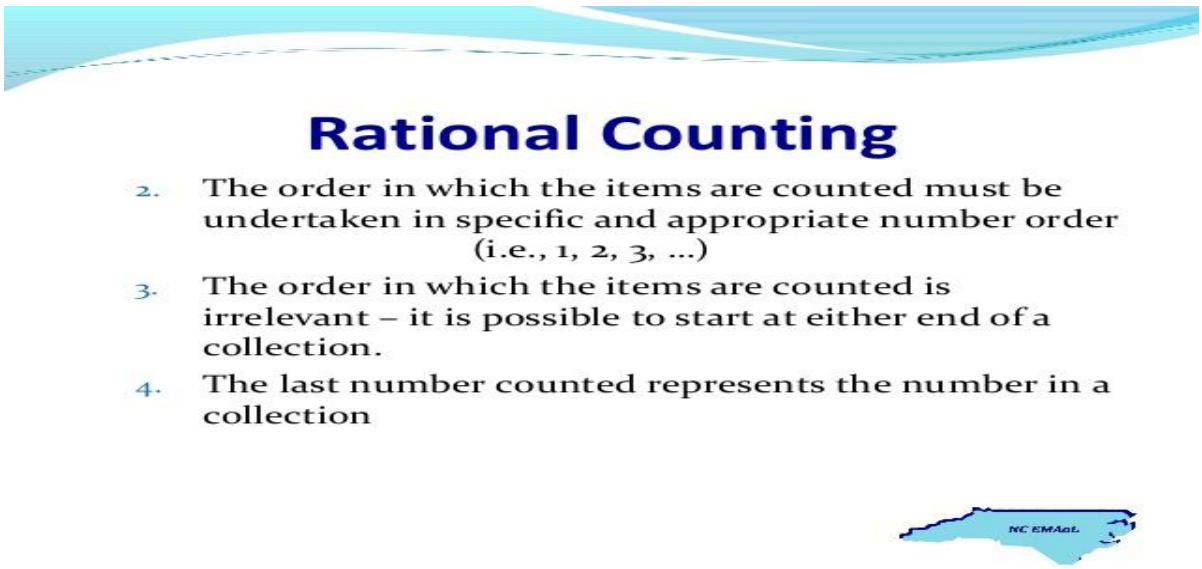
Rote counting is the simplest number concept that children develop, and it merely consists of **counting** numbers sequentially. **Counting** by **rote** is a skill that come quite naturally to most children, as it doesn't require direct instruction to learn the skills needed to **count**.



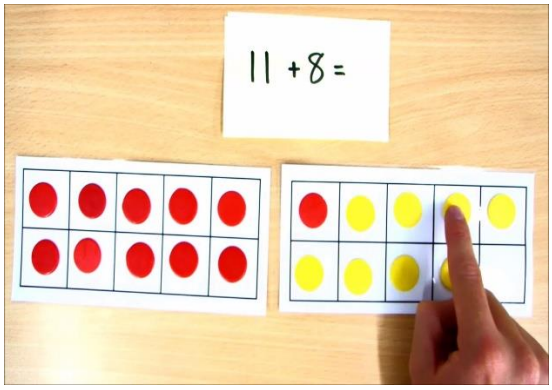


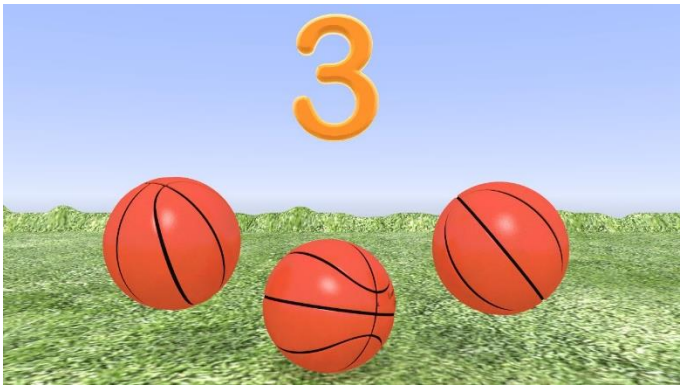
9.8 Rational counting

Rational counting refers to a child's ability to assign a number to the objects she is **counting**. As she counts a set of objects, the child must understand that the last number is equivalent to the total number of items in the set. **Rational counting** requires a mastery of rote **counting** and one-to-one correspondence.



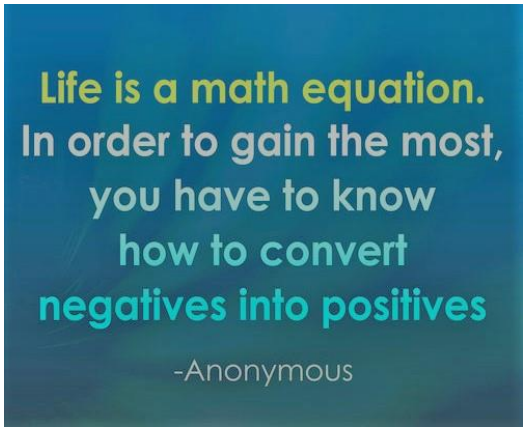
9.9 Counting using objects (manipulatives)





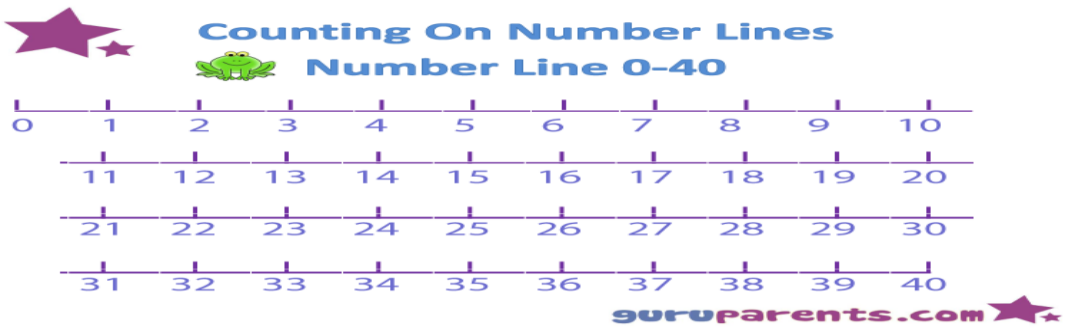
9.10 Teach and sing counting songs

It has been said that *learning is child's play* and this has become evident as young children become caught up in the rhythm and rhyme of traditional songs and chants.



9.11 Practice counting with number lines or hundreds charts

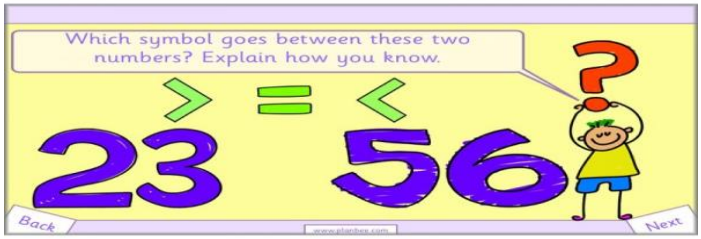
Learners use number lines in a variety of ways, including counting, comparing, adding and subtracting, rounding, measuring, and graphing.



9.12 Compare numbers

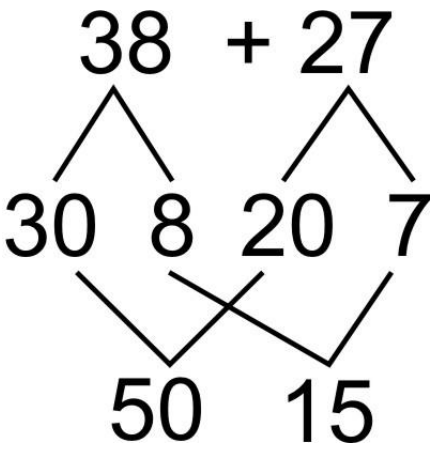
Compare Two **Numbers** Using a **Number**-Line. This selection will show **how to compare** two **numbers** using a **number** line. This will allow you to tell if a **number** is larger or smaller than another **number**, using a **number** line

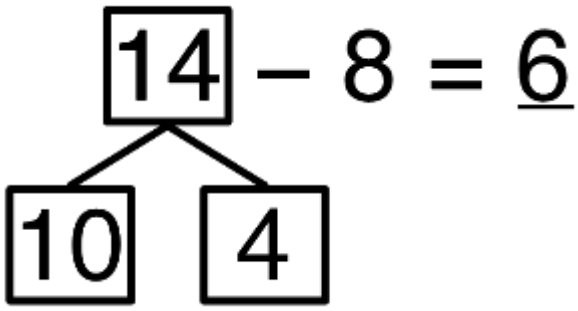
The greater the **number** of digits, the greater is the **number**. If two **numbers** have the same **number** of digits, the **number** with the bigger digit on the left hand side is greater.



9.13 Breakdown numbers

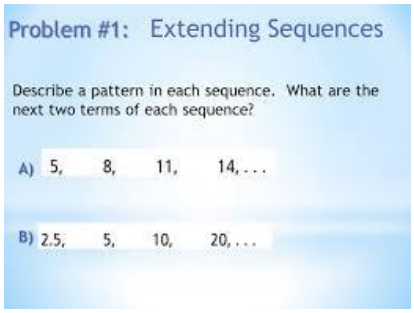
Break apart - Dictionary **definition** and **meaning** for word **break apart**. (Verb) take **apart** into its constituent pieces. Synonyms: **break** up, disassemble, dismantle, and take **apart**. (Verb) **break** violently or noisily; smash. Synonyms: **break** up, crash

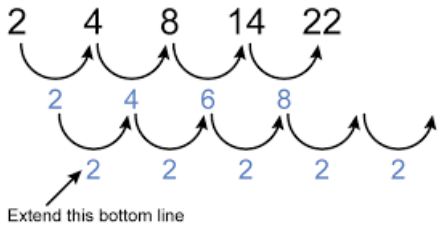




9.14 Extend the sequence

A sequence of numbers follows a pattern. If you can find that pattern, you can find more numbers in the sequence! When you're looking at a sequence, each value in that sequence is called a term.

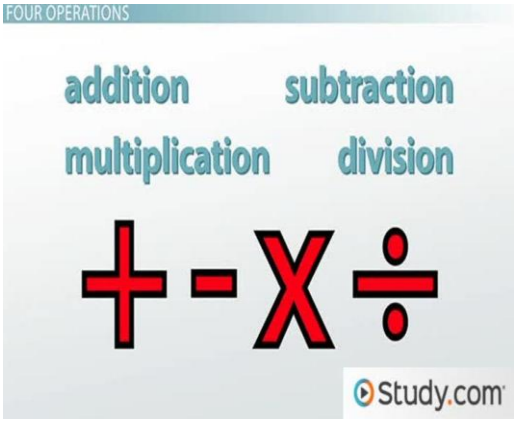




9.15 Computation: Add and subtract

Math computation skills comprise what many people refer to as basic arithmetic: addition, subtraction, multiplication and division.

Generally speaking, **computations** entail finding an answer to a problem via **math** or logic.



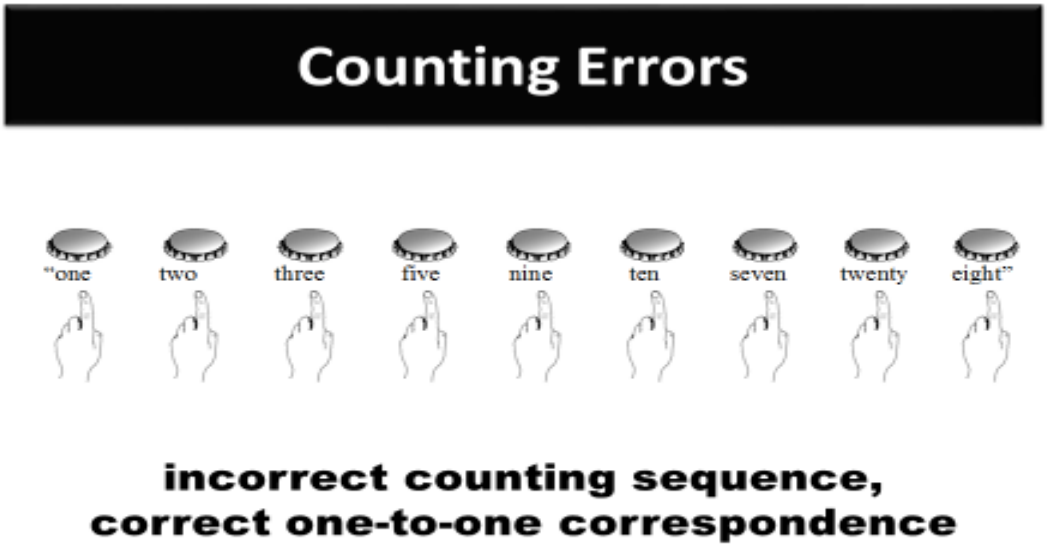
9.16 Write numbers

- Practice motions of writing numbers in sand
- Teach appropriate pencil holding
- Practice writing numbers on paper
- Learn rhymes for writing numbers
- Number Writing Rhymes

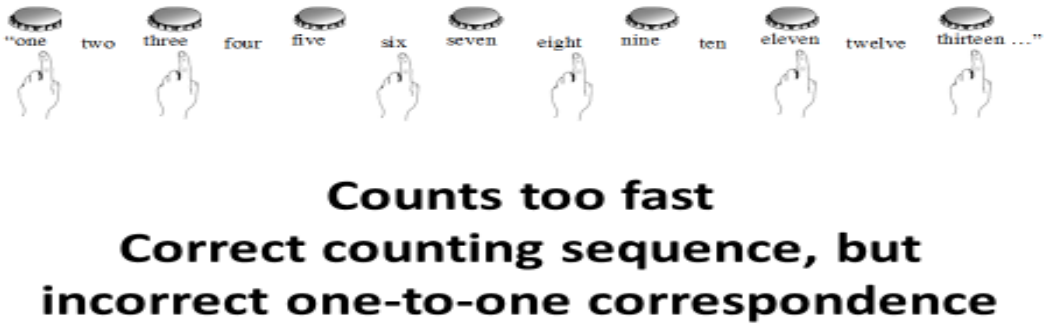
  - Number 1 is like a stick, a straight line down that's very quick.
  - For number 2 go right around, then make a line across the ground.
  - Go right around, what will it be? Go round again to make a 3.
  - Down and over and down some more, that's the way to make a 4.
  - Go down and around, then you stop, finish the 5 with a line on top.
  - Make a curve, then a loop, there are no tricks to making a 6.
  - Across the sky and down from heaven, that's the way to make a 7.
  - Make an "S" and then don't wait, go up again to make an 8.
  - Make a loop and then a line, that's the way to make a 9.

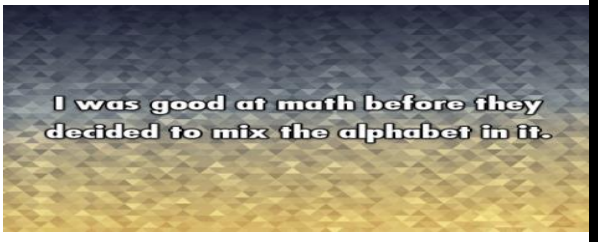
10. COUNTING ERRORS

10.1 Incorrect counting sequence

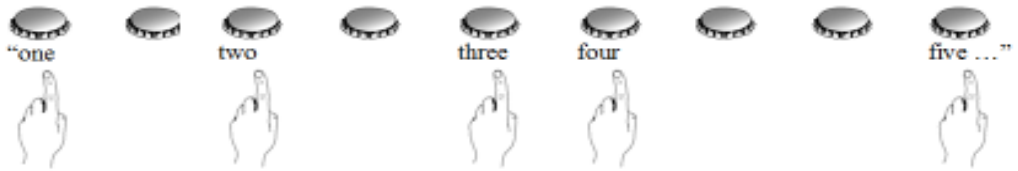


10.2 Counting too fast





10.3 Pointing too fast



Points too fast.
Correct counting sequence, but incorrect one-to-one correspondence

ACTIVITY 10

11.1 Learners in your class are experiencing counting challenges. Some are counting to fast, thus skipping numbers, others are counting but are unaware of the sequence of the numbers. Discuss in detail how you will assist these learners to overcome these challenges.

11. LEVELS OF COUNTING

LEVELS IN COUNTING AND NUMBER SENSE:

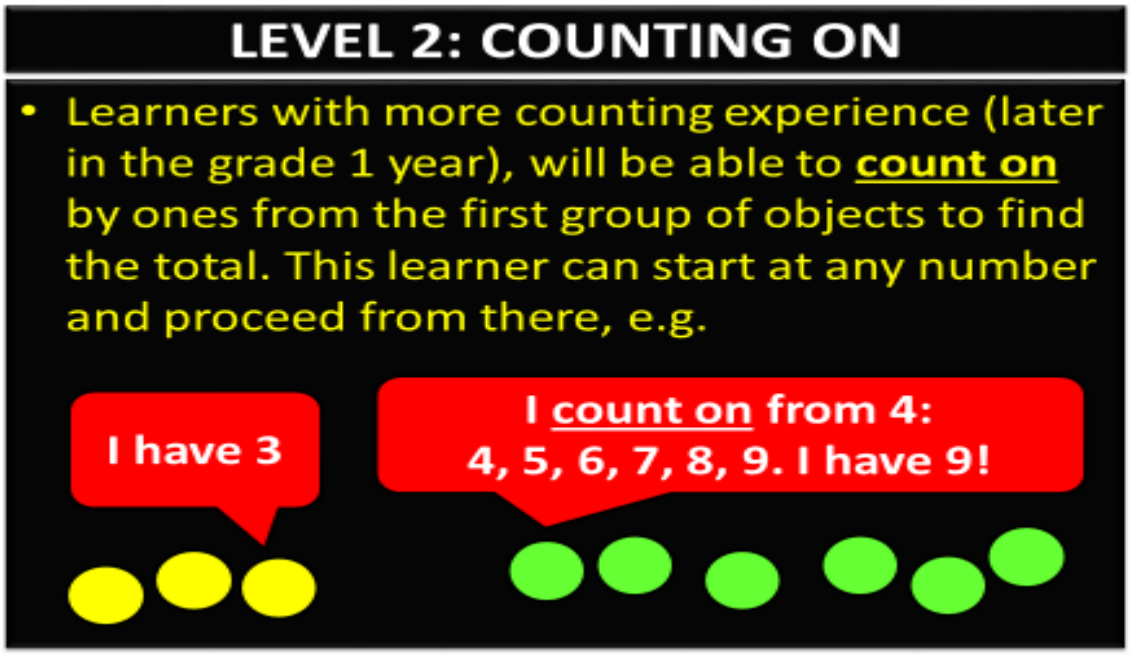
- **Level 1**: Count All
- **Level 2**: Count On
  counting back, skip counting and knowing from experience (visualisation/sight recognition)
- **Level 3**: **Breaking Down and Building Up Numbers**.

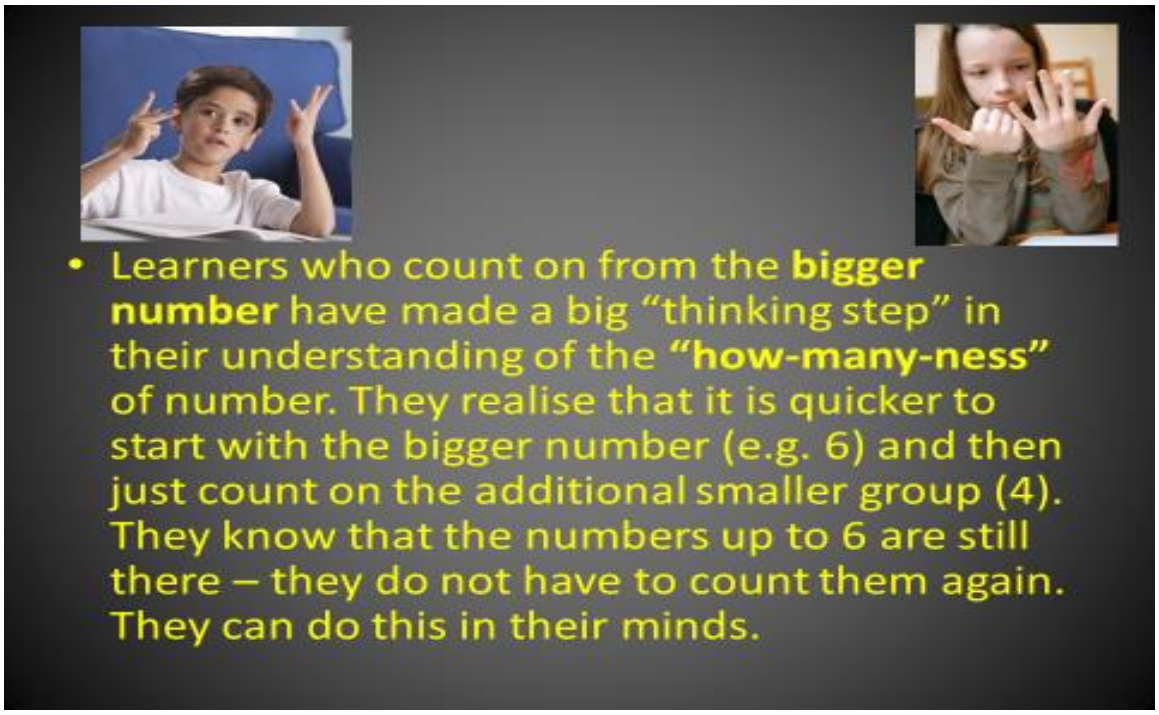
11.1 Level 1 – Count all

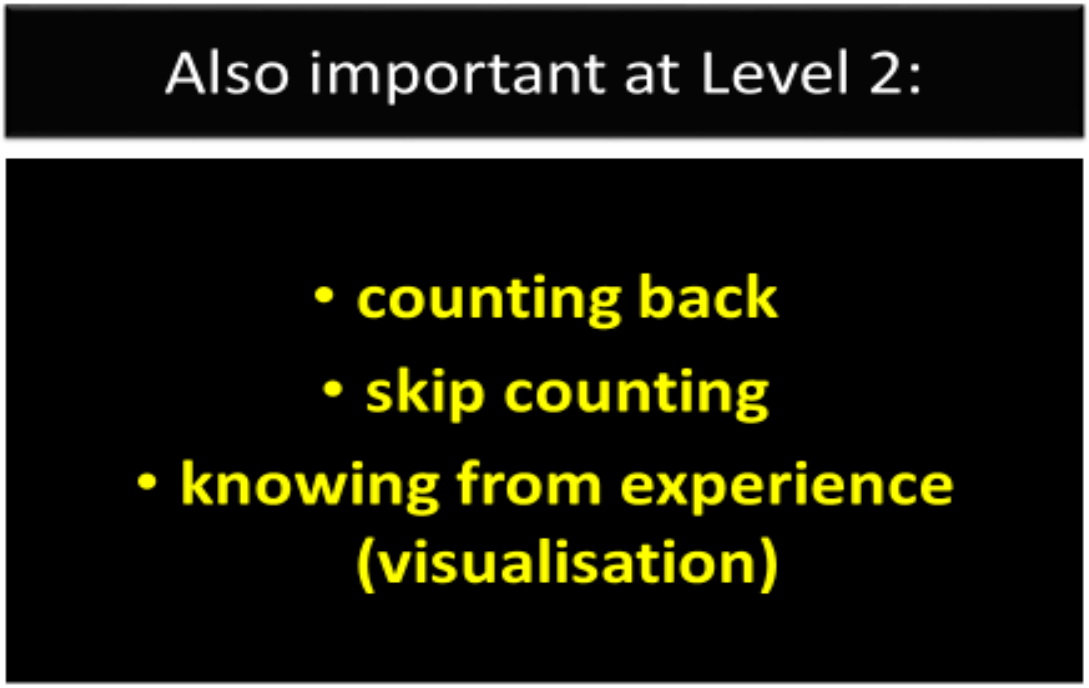
Level 1 : Count All

- The learner counts all the objects **one by one** to find the **total number** of objects.
- The learner must count in the correct order: one, two, three, four … AND must also be able to connect this sequence in a one-to-one correspondence with the objects in the set being counted.
- Each object must get one count only.
- The learner is able to count rationally (with understanding)

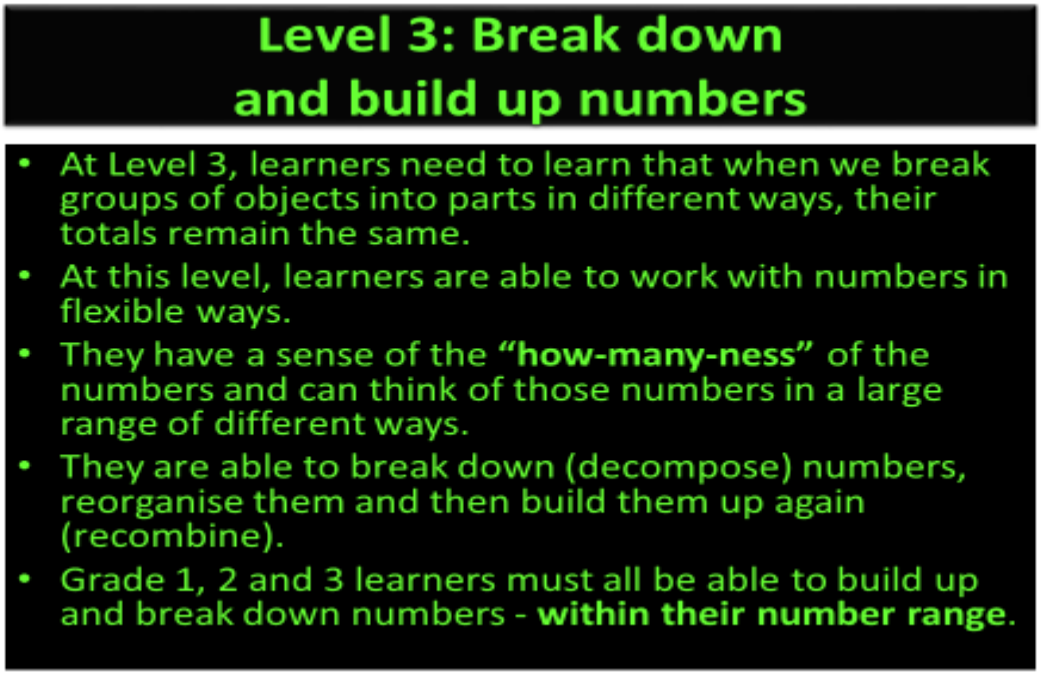
11.2 Level 2- Counting on

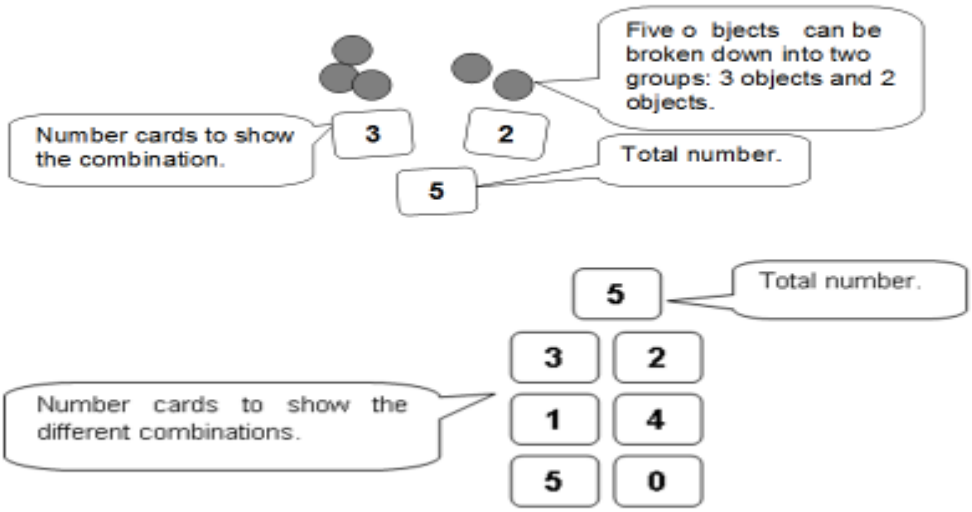




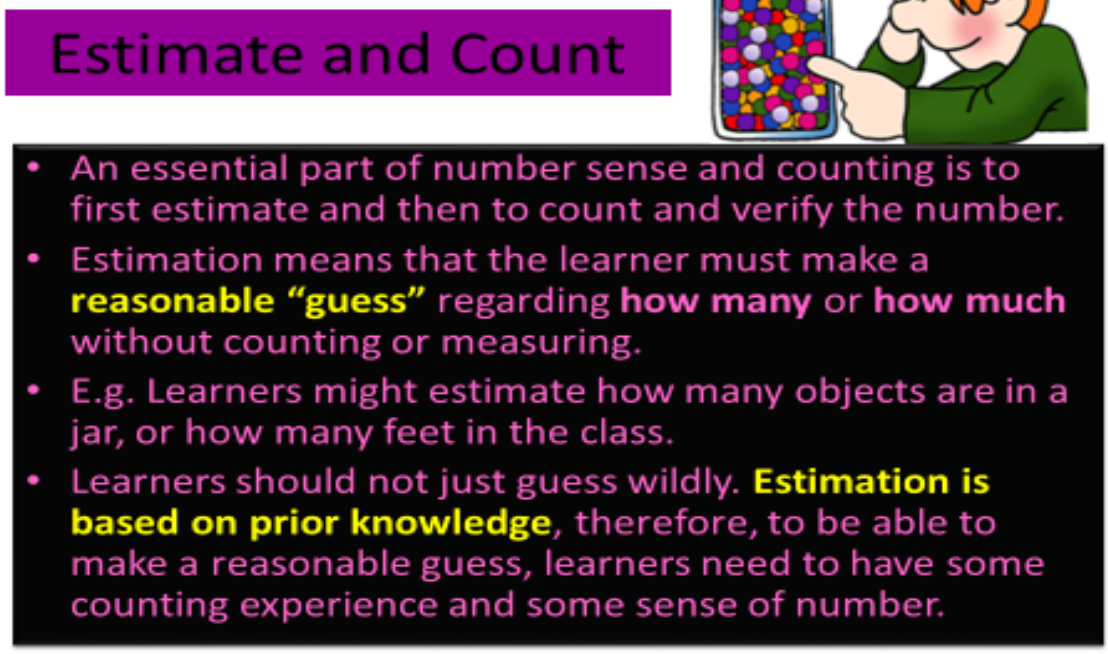


11.3 Level 3- Break down and build up numbers





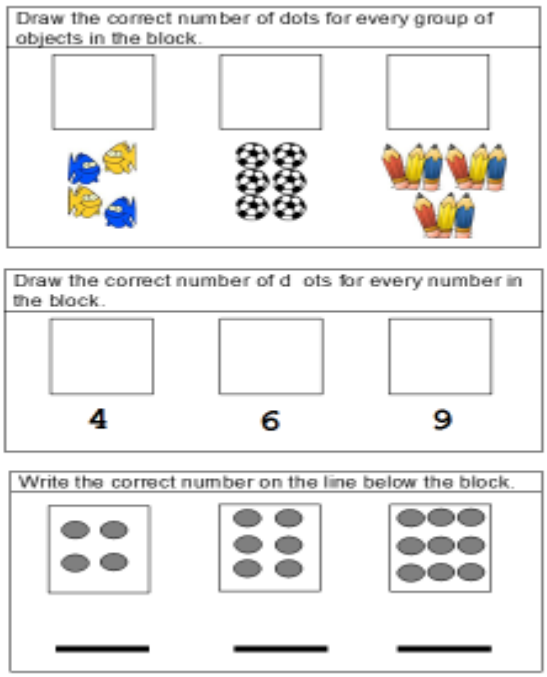
11. 4 Estimate and Count



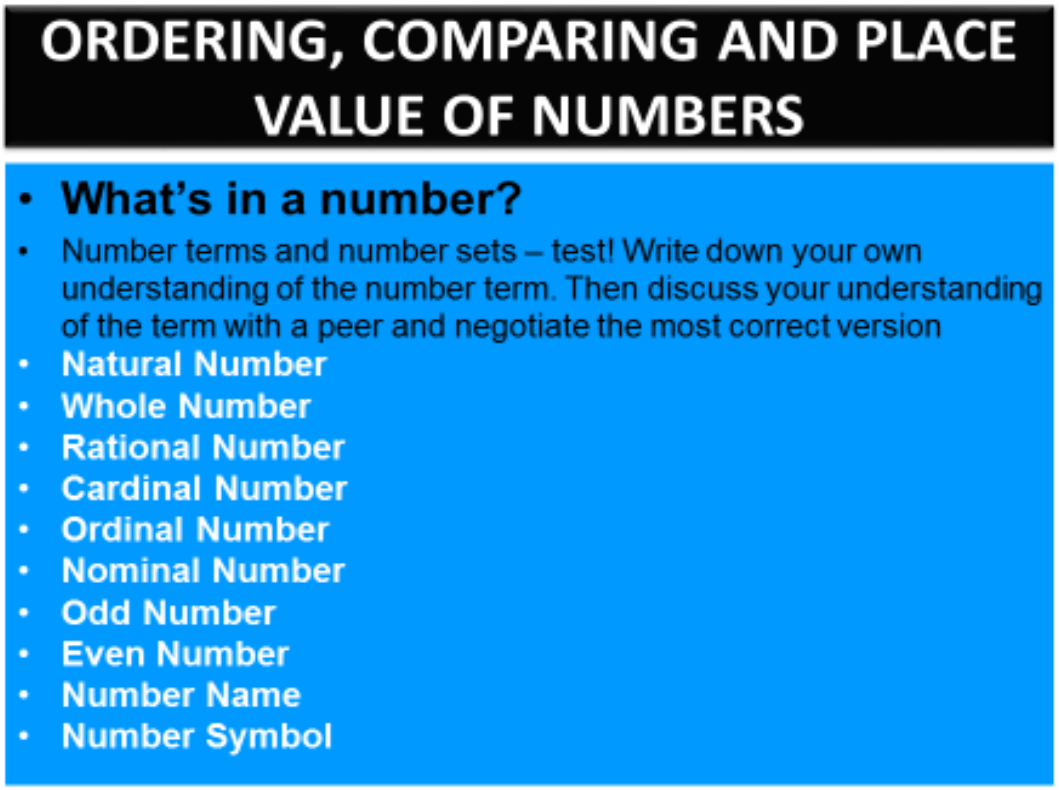
12 RESOURCES FOR COUNTING

RESOURCES for Counting (also reading and writing numbers)

- **Counters – Dried beans; Bottle caps; Seeds; Stones; Pebbles; Sticks; Bread tags; Beads; Buttons, …**
- **Counting frames;**
- **Counting songs, rhymes, books;**
- **Dot cards;**
- **Number charts;**
- **Number track and number line;**
- **Numbers for tracing (indicating the starting point and direction of writing); Number frieze; Self-correcting number puzzles; and Worksheets (e.g. counting and dot-to-dot).**



13 ORDERING, COMPARING AND PLACE VALUE OF NUMBERS



A number is a mathematical object used to count, measure, and also label.

Natural numbers	A number is a mathematical object used to count, measure, and also label.
Whole numbers	A number is a mathematical object used to count, measure, and also label.
Rational numbers	A number is a mathematical object used to count, measure, and also label.
Cardinal numbers	In mathematics, cardinal numbers, or cardinals for short, are a generalization of the natural numbers used to measure the cardinality (size) of sets
Ordinal numbers	An Ordinal Number is a number that tells the position of something in a list, such as 1st, 2nd, 3rd, 4th, 5th etc. Most ordinal numbers end in "th" except for: one ⇒ first (1st) two ⇒ second (2nd) three ⇒ third (3rd)

Nominal numbers	Nominal Number. more ... A number used only as a name, or to identify something (not as an actual value or position) Examples: · the number on the back of a footballer: "8"
Odd numbers	Odd numbers can NOT be divided evenly into groups of two. The number five can be divided into two groups of two and one group of one.
Even numbers	Even numbers always end with a digit of 0, 2, 4, 6 or 8. ... Odd numbers always end with a digit of 1, 3, 5, 7, or 9.
Number names	We often use word names to write numbers. A word name for 42 is “forty-two.” The total number of weeks in a year, 52, is written as “fifty-two.” For whole numbers with three digits, use the word “hundred” to describe how many hundreds there are in the number. ... The word name for the number is “three hundred sixty-five.”
Number symbol	Digit. A digit is a single symbol used to make numerals. 0, 1, 2, 3, 4, 5, 6, 7, 8 and 9 are the ten digits we use in everyday numerals. Example: The numeral 153 is made up of 3 digits ("1", "5" and "3").
Prime numbers	A prime number is a whole number greater than 1 whose only factors are 1 and itself. A factor is a whole numbers that can be divided evenly into another number. The first few prime numbers are 2, 3, 5, 7, 11, 13, 17, 19, 23 and 29

ACTIVITY 11

11.1 Discuss critically the three levels of counting. State clearly which levels are appropriate for each of the grades?

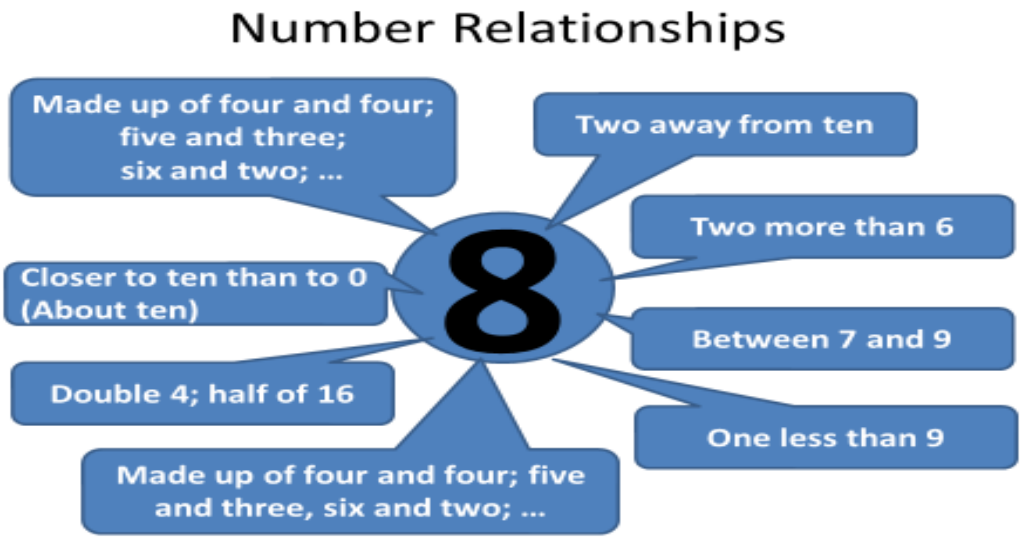
11.2 Explain the importance of integrating all level of counting when teaching young learners.

11.3 In mathematics, learners need to have an understanding of the different names assigned to different numbers. List each of the numbers and their names, also give an examples for each to strengthen learner understanding of the

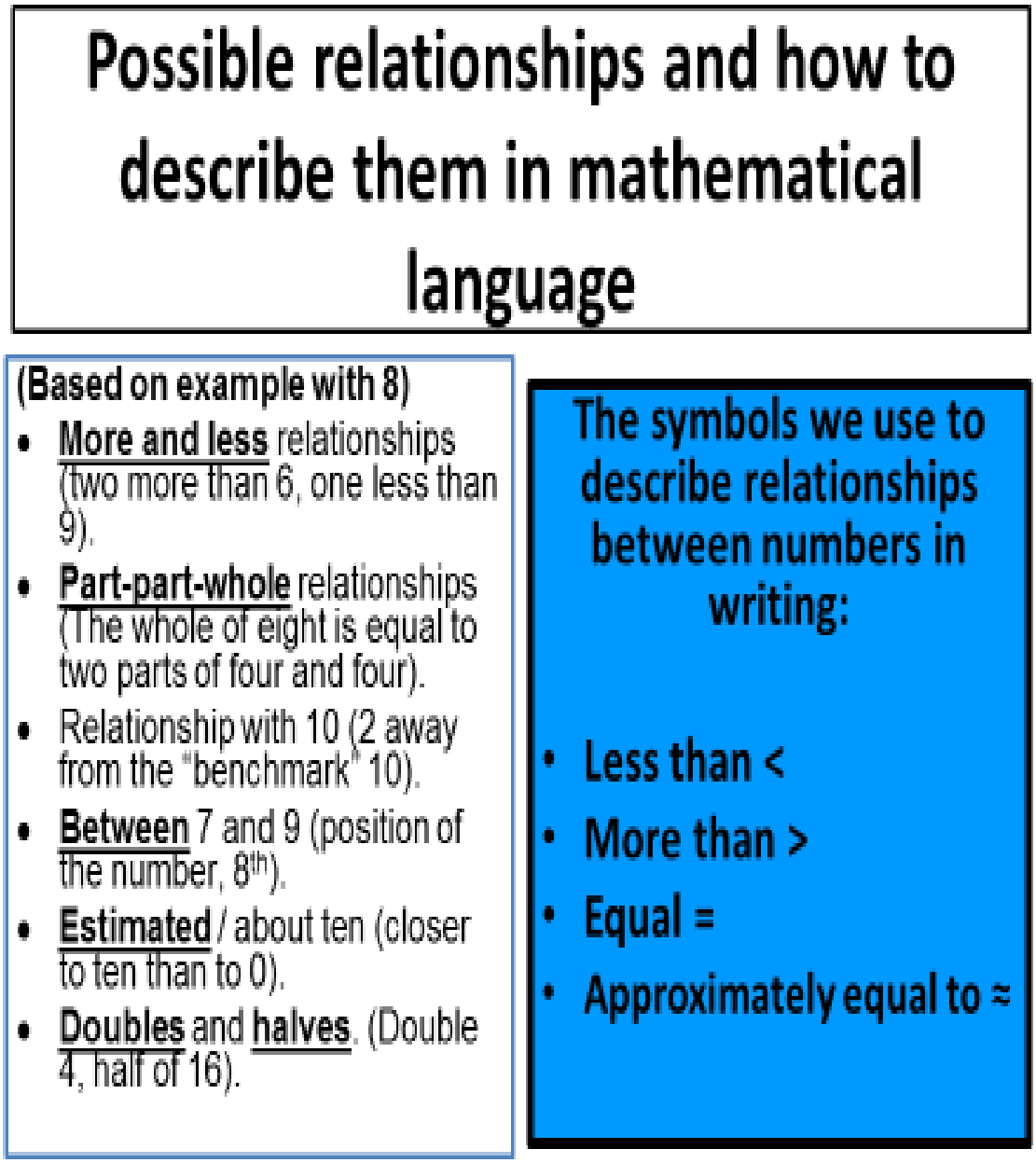
ORDERING, COMPARING AND PLACE VALUE OF NUMBERS

- Numbers are related to one another through a variety of number relationships. We can only describe, order and compare numbers if we understand the relationship between numbers, for example...

14. NUMBER RELATIONSHIPS

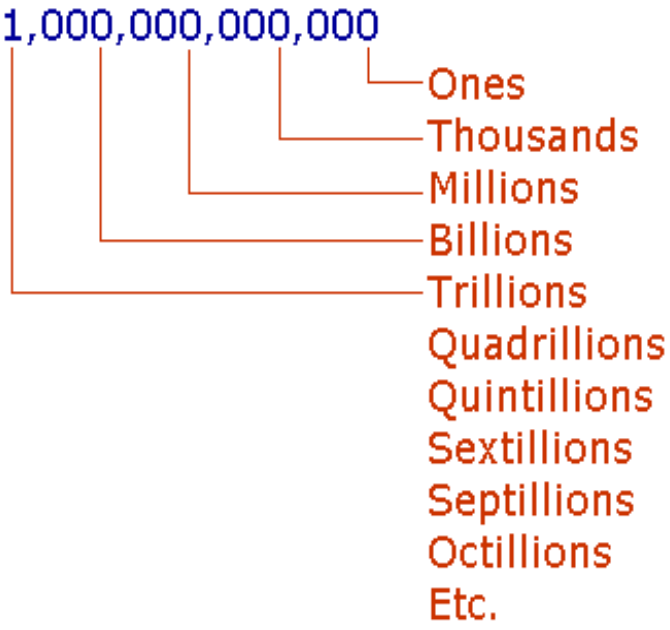


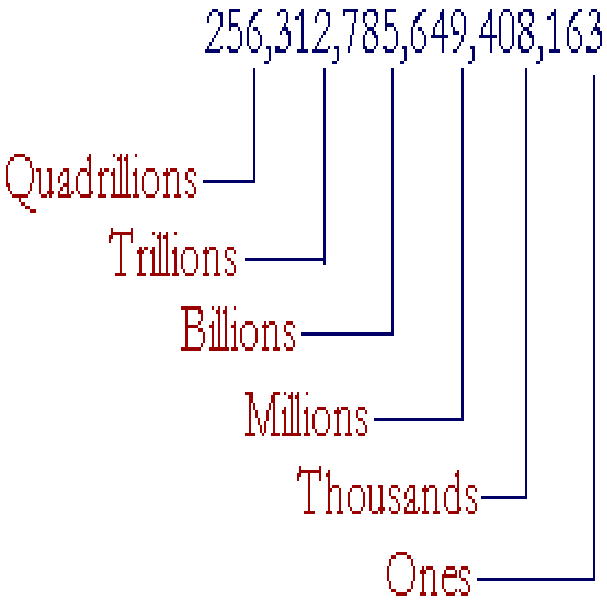
15. POSSIBLE RELATIONSHIPS AND HOW TO DESCRIBE THEM IN MATHEMATICAL LANGUAGE



16. READING NUMBERS

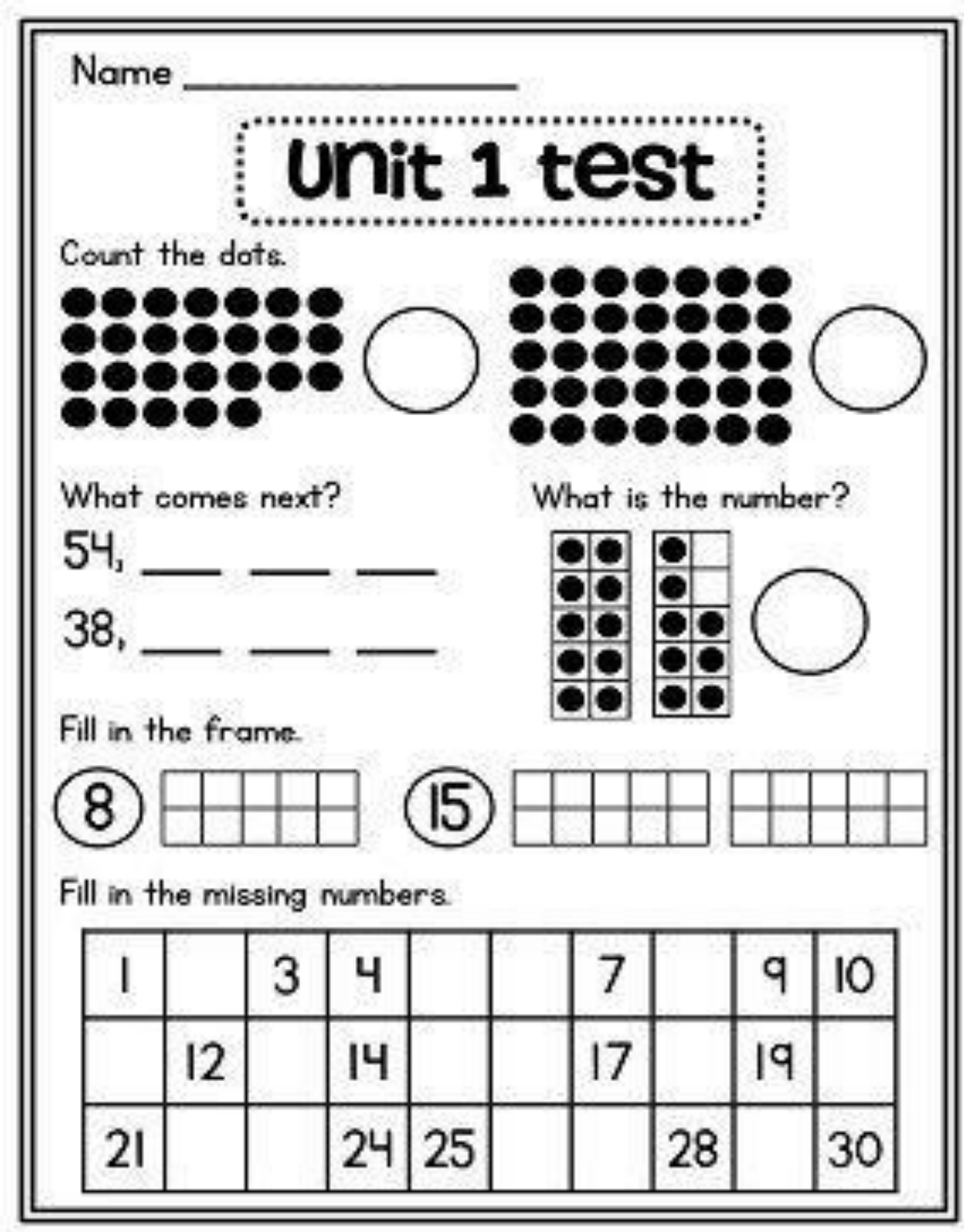
3. What are the names of the classes?



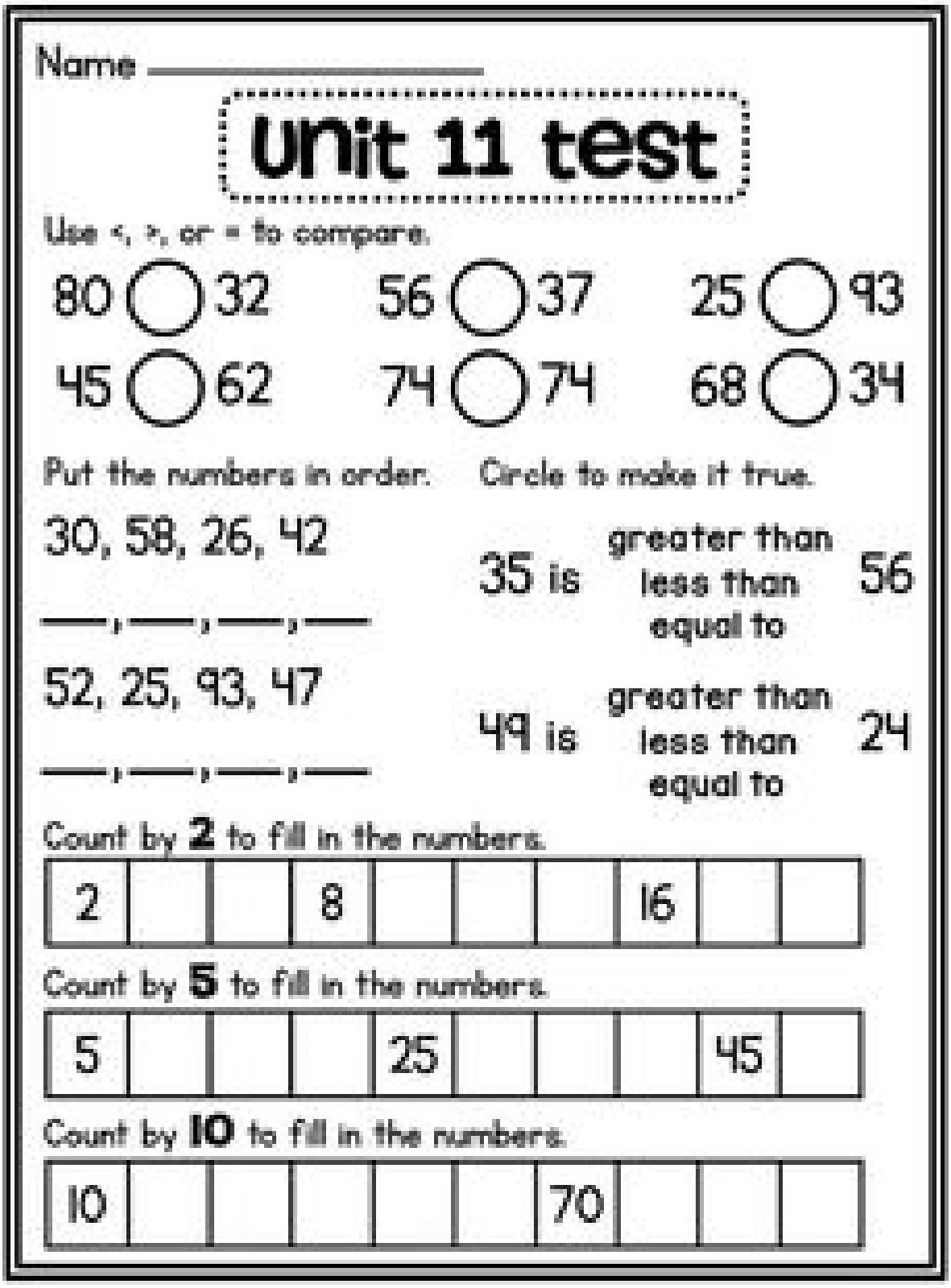


17. ASSESSMENT ACTIVITIES FOR COUNTING

17.1 Count the dots



17.2 Compare numbers



Name _____

Unit 11 test

Use <, >, or = to compare.

80 ◯ 32 56 ◯ 37 25 ◯ 93

45 ◯ 62 74 ◯ 74 68 ◯ 34

Put the numbers in order.

30, 58, 26, 42

___, ___, ___, ___

52, 25, 93, 47

___, ___, ___, ___

Circle to make it true.

35 is greater than / less than / equal to 56

49 is greater than / less than / equal to 24

Count by **2** to fill in the numbers.

2			8				16		

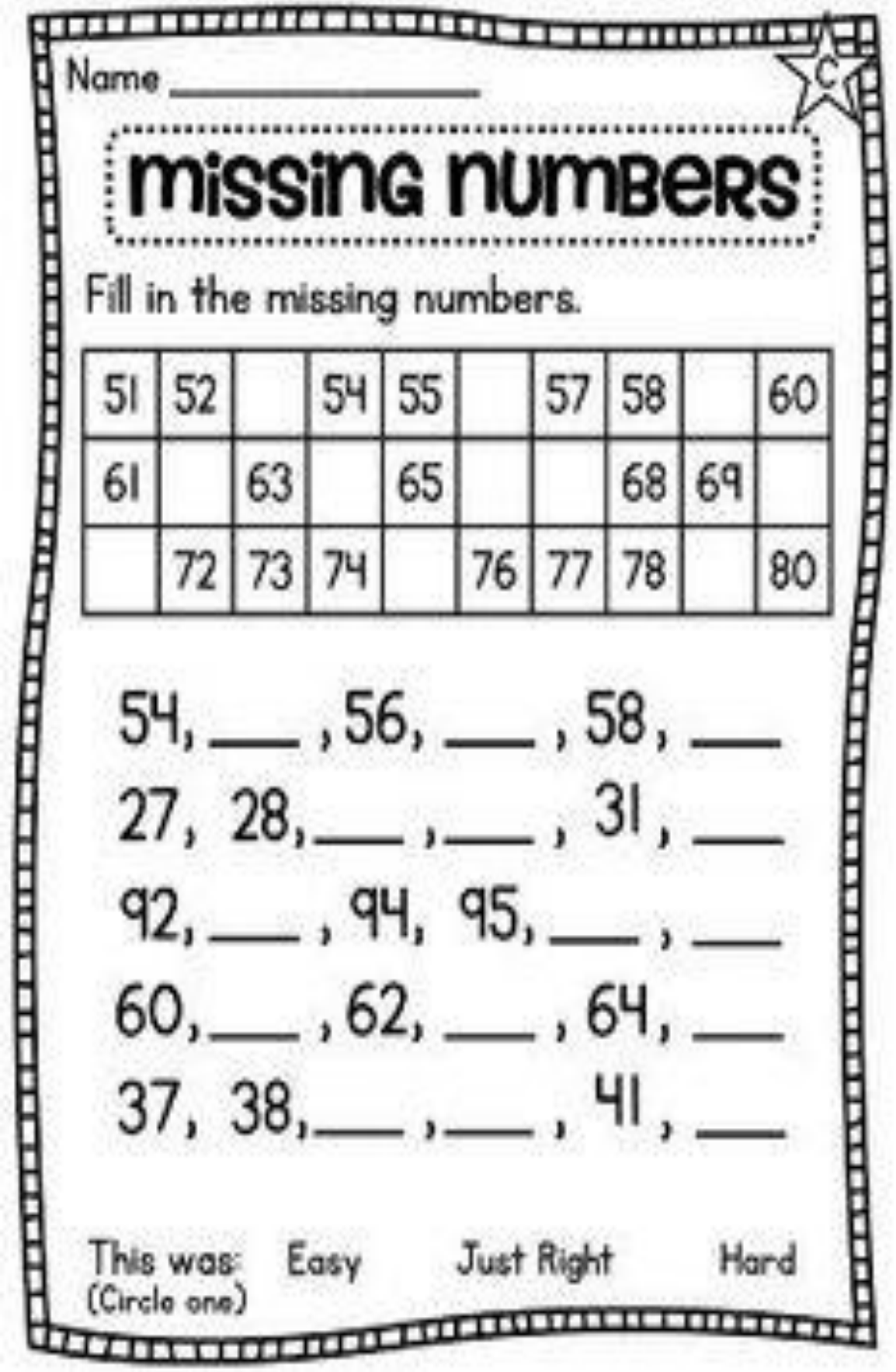
Count by **5** to fill in the numbers.

5				25				45	

Count by **10** to fill in the numbers.

10						70			

17.3 Fill in the missing numbers



Name _____

C

missing numbers

Fill in the missing numbers.

51	52		54	55		57	58		60
61		63		65			68	69	
	72	73	74		76	77	78		80

54, ___ , 56, ___ , 58, ___

27, 28, ___ , ___ , 31, ___

92, ___ , 94, 95, ___ , ___

60, ___ , 62, ___ , 64, ___

37, 38, ___ , ___ , 41, ___

This was: (Circle one) Easy Just Right Hard

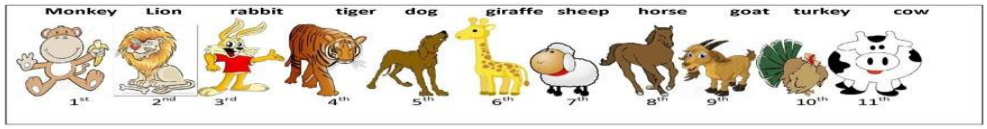
17.4 Ordinal Numbers

March is the	9th month of the year.
April is the	1st month of the year.
May is the	4th month of the year.
June is the	8th month of the year.
July is the	5th month of the year.
August is the	11th month of the year.
September is the	12th month of the year.
October is the	3rd month of the year.
November is the	2nd month of the year.

17.5 Ordinal numbers

Name : _____ Grade:_____ Score: _____

ordinal numbers



Which animal is the:

1. Fourth — _____
2. Seventh — _____
3. Second — _____
4. Sixth — _____
5. Ninth — _____
6. First — _____
7. Third — _____
8. Tenth — _____
9. Eighth — _____
10. Fifth — _____

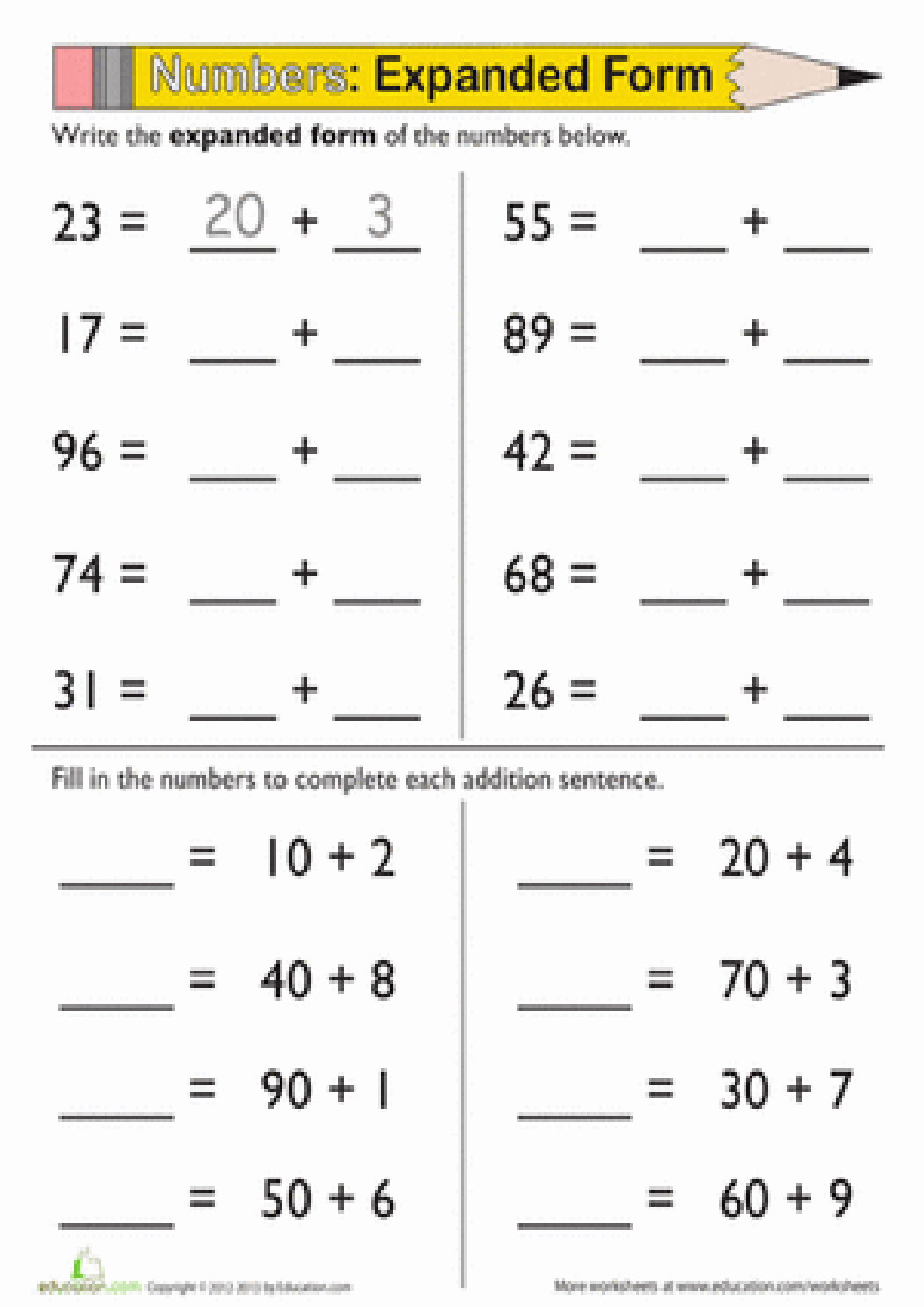
17.6 Cardinal numbers

Find the cardinal number of the indicated set. Use the cardinal number formula.

If $n(A) = 5$, $n(B) = 11$ and $n(A \cap B) = 3$, what is $n(A \cup B)$?

- A. 12
- B. 16
- C. 13
- D. 14

17.6 Expanded form



Numbers: Expanded Form

Write the **expanded form** of the numbers below.

23 = 20 + 3	55 = ___ + ___
17 = ___ + ___	89 = ___ + ___
96 = ___ + ___	42 = ___ + ___
74 = ___ + ___	68 = ___ + ___
31 = ___ + ___	26 = ___ + ___

Fill in the numbers to complete each addition sentence.

____ = 10 + 2	____ = 20 + 4
____ = 40 + 8	____ = 70 + 3
____ = 90 + 1	____ = 30 + 7
____ = 50 + 6	____ = 60 + 9

17.7 Skip counting

Name : _____ Score : _____

Teacher : _____ Date : _____

Complete the Skip Counting Series

27, 30, 33, ___, ___, ___, ___, ___

22, 25, 28, ___, ___, ___, ___, ___

30, 33, 36, ___, ___, ___, ___, ___

20, 23, 26, ___, ___, ___, ___, ___

16, 19, 22, ___, ___, ___, ___, ___

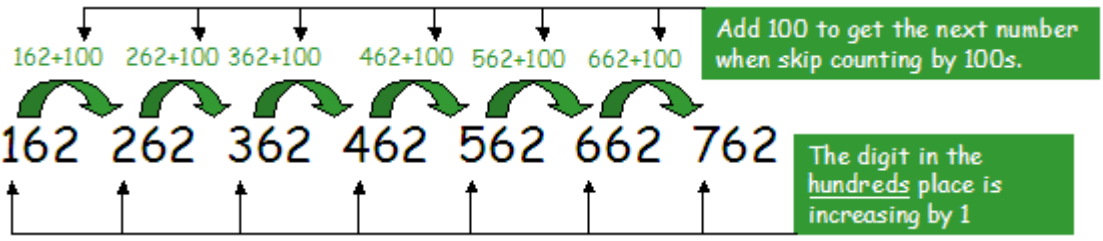
15, 18, 21, ___, ___, ___, ___, ___

8, 11, 14, ___, ___, ___, ___, ___

3, 6, 9, ___, ___, ___, ___, ___

12, 15, 18, ___, ___, ___, ___, ___

23, 26, 29, ___, ___, ___, ___, ___



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