LESSON

TOPIC I: SET CONCEPTS

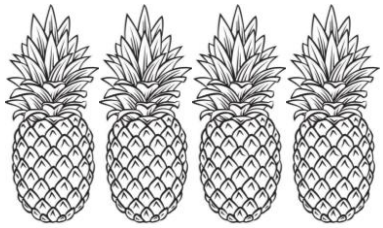
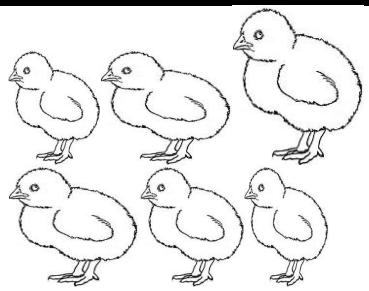
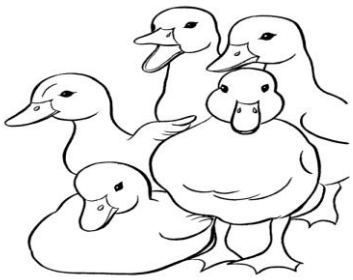
SUB TOPIC: REVISION OF SETS

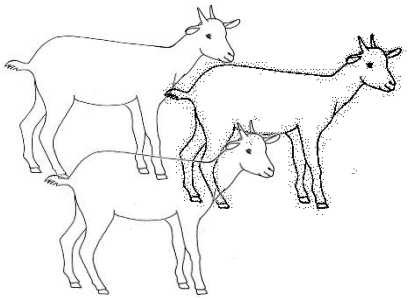
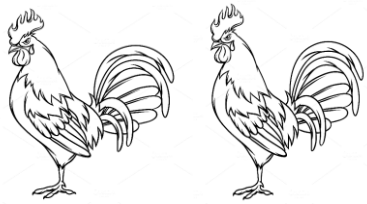
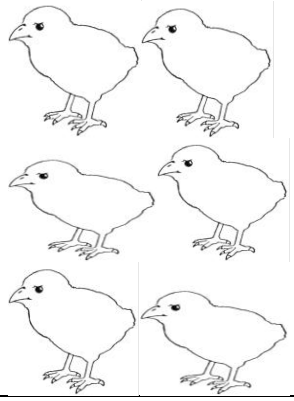
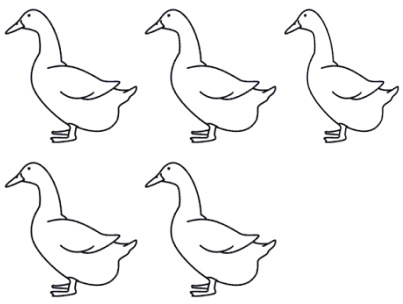
A set is a collection of well-defined objects.

An element is an object or a thing which belongs to a set.

Identifying and naming sets

- A set of tomatoes
- A set of bags
- A set of oranges

EXAMPLES		
Set A 		
A set of 4 pineapples	A set of 6 chicks	A set of 5 ducks

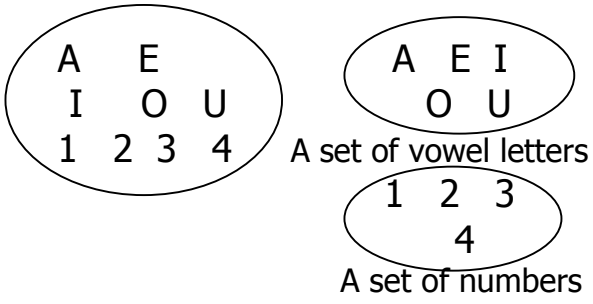
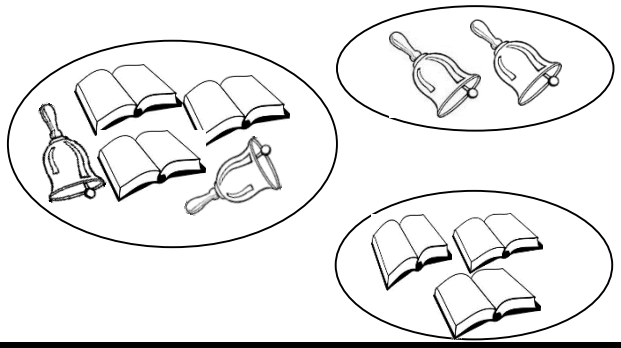
Activity		
Name the following sets		
set R 		
A set of _____	A set of_____	A set of _____
		
A set of _____cocks	A set of _____chicks.	A set of _____ducks.
7. {a, e, i, o, u}	8. {1, 2, 3, 4, 5}	9. {a, b, c, d}

A set of _____	A set of _____	A set of _____

Lesson

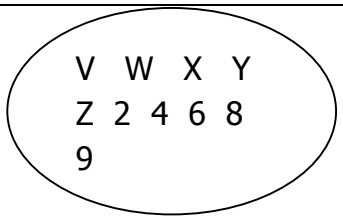
Forming a set

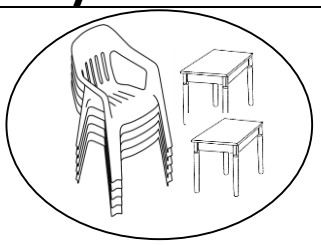
We can form other sets by sorting items of the same type , color, size from collection of given items. The formed sets are new sets from the previous (main)set.

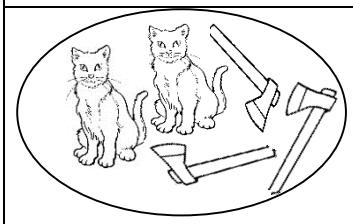
EXAMPLE I	EXAMPLE II
Form two sets from the given set.  	

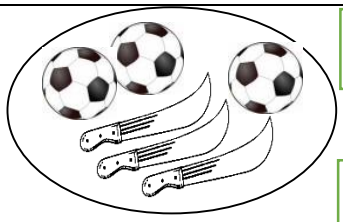
ACTIVITY

Form new sets and name them correctly







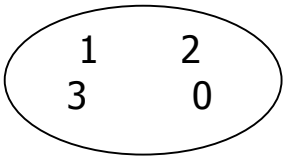
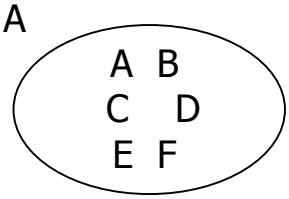
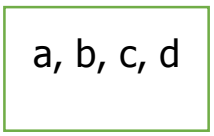


LESSON

Listing members in a set

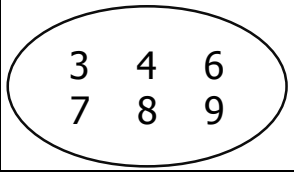
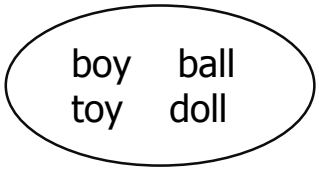
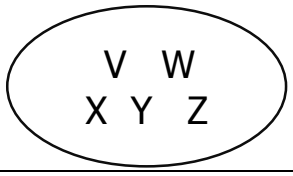
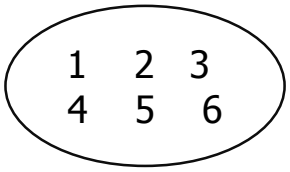
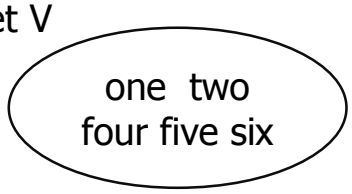
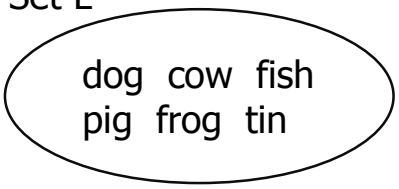
Members of a set are also called elements of sets

To list members of a set, use curly brackets {} and separate each member from another using comma(,)

EXAMPLE I	EXAMPLE II	EXAMPLE III
set K  List the members of set K Set K = {0,1,2,3}	set A  List all the members of set A Set A= {A,B, C, D, E, F}	Set M  List all the elements of set M. Set M= {a, b, c, d}

ACTIVITY

List all the members in the following sets

1	M is a set of 3 names of shapes	2	N is a set of four names of birds	3	K is a set of five names of girls
4	Set R 	5	set H 	6	set S 
Set R={3, 4, 6, 7, 8, 9}					
7	Set B 	8	Set V 	9	Set L 

LESSON

NUMBER OF MEMBERS OF A SET

Use of symbol ∩ ( ) – means how many members.

To find how many members are in the sets, count the number of objects found in each set. These objects are also called ***members*** *or* ***elements of a set.***

EXAMPLE I	EXAMPLE II	EXAMPLE III
Set P = { 1, 2, 4} How many members are in set P? 3 members or n(P) = 3 members	Set M={days of the week} Find n(M). M = { Mon, Tue, Wed, Thur, Fri, Sat, Sun } n(M) = 7 members	P = { a, b, c, d} How many members are in set P? n(P) = 3 members.

Activity

Find the number of members in the following sets.

1. Set A= { first six months of the year}

2. Set X ={0, 1, 2, 3, 4, 5, 6}

3. Set T={ A set of 5 boys}

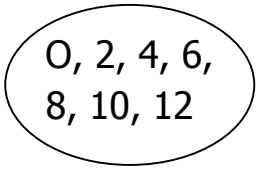
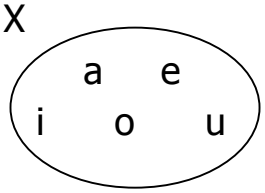
4. Set R={ Tue, Wed, Fri, Sat, Sun}

5. Set M= {book, pen, chalk, duster, desk}

6. Set W= {black, yellow, red, blue}

7. Set Y ={ uncle, aunt, sister, brother, father, mother}

8. Z is a set of months of the year. How many members does F have?

Activity 9	Activity 10	Activity 11
Find the number of members on the following sets		
Set B 	Set H 	set X 

LESSON

CONTENT: EMPTY SETS

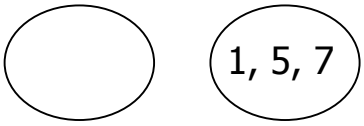
Empty sets are sets which do not have members or a set whose members cannot be found.

NB: Empty sets are also called "Null sets"

Symbol $\emptyset$ or { }

Examples

(a) R S



Set R is an empty set.

(b) A set of goats with 5 legs each is an empty set.

ACTIVITY

1. State whether the sets below are **empty** or not.
   a) A = {birds with seven eyes each}
   b) B = { A bull which lays eggs}
   c) C = {A cow which can fly like an airplane}
   d) D = {Numbers between 1 to 5 in the word **school**}
   e) E= {A girl who cooks food at home}
   f) F = { Boys in the class who are as old as their brothers}
   g) G = { An animal which lays eggs}
   h) H = { A set of letters from 1 to 10}
   i) V = { A set of mothers who lay eggs}

LESSON

EQUAL SETS AND EQUIVALENT SETS

Equal sets:

Equal sets are sets which have the same number of elements which are exactly the same.

Symbol (=)

Examples 1	**Example II**
D a e i o u **E** a u o e i Set D and set E are equal sets Set D = set E	L = { m, n, o} N = {o, n, m} Set L and Set N are equal sets Set L = N

Equivalent sets.

Equivalent sets are sets with the same number of members but they are not the same.

Symbol ⟷

Examples 1	**Example II**
Given that Set A= (a, b, c, d) Set B= (1, 2, 3, 4) **Set A** is equivalent to **Set B** A ⟷ B Set A and B are equivalent sets.	Given that M = (1, 3, 5, 7) N= (a, e, i, o) **Set M** is equivalent to **Set N** Or M ⟷ N Set M and N are equivalent sets.

Non-equivalent sets

These are sets which do not have the same number of members.

Symbol

$\leftrightarrow\!\!\!\!\!/$

Examples 1	Example II
Given that Set K= (a, b, c, d, e) Set L= (1, 3, 5, 7) Set K is not equivalent to set L Set K $\leftrightarrow\!\!\!\!\!/$ set L *Set K and L are non – equivalent, non-matching sets.*	Given that P = {a, b, c} Q = {p, q, u, s} Set P is not equivalent to set Q Set P $\leftrightarrow\!\!\!\!\!/$ set Q *Set P and Q are non – equivalent, non-matching sets.*

ACTIVITY

1. Set M ={2, 3, 5, 7} Set N= {egg, food, boy, girl} Set M has_____ members and Set N has _____ members. Set M and Set N are_____ sets.	K= {Uganda, Kenya , Rwanda} L= { Rwanda, Uganda, Kenya} Set K has_____ members and Set L has _____ members. Set K and Set L are_____ sets.
3. Q={ △ , △ , △ } R= {P, L E } Set **Q** has_____ members Set **R** has _____ members. Set **Q** and Set **R** are _____ sets.	4. R= {Jack, Mark, Joe, Eddy, Sam} P= {cow, goat sheep, pig} Set **R** has_____ members and Set **P** has _____ members. Set **R** and Set **Q** are_____ sets.

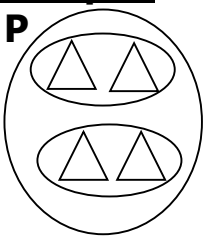
LESSON

CONTENT: Even and Odd sets.

Even sets are sets whose members can all be paired

Example:

P



Set P has 4 members.

Members of set P have all been paired, therefore it is an even sets.

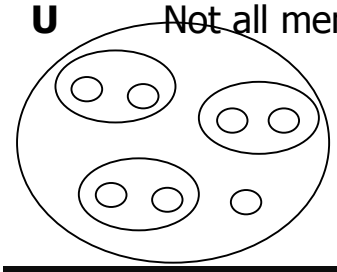
Note: An empty set is an even set.

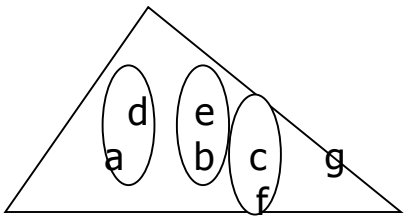
Odd sets

Odd sets are sets whose members cannot all be paired. i.e they give a remainder when their members are paired.

Example:

U ~~Not~~ all members of set U have been paired. Therefore it is an odd set.





ACTIVITY

State whether the following is an odd set or even set

1. A ={ 1, 2, 3, 4, 6, 8}	2. {K= A, B, C, D}	3. Y= { W, Y, X, Z}
4. M= {Joe, Sam, Lucy}	5. B={Uganda, Kenya, Tanzania, Rwanda, Burundi}	
Which of the following are even sets?		
6. C={ a, e, i, o}	7. L= { leg, eye, ear}	8. J={ 2, 4, 6, 8}

LESSON

SUBTOPIC : INTERSECTION OF SETS.

Intersection of set is the region / set of common members of the two or more sets.

CONTENT: Symbol for intersection "∩"

Finding intersection of sets

1.	Given that set Q = {a, b, c, d, e, f} P = {a, e, I, o, u} Find P ∩ Q **Solution** set Q = {ⓐ, b, c, d, ⓔ, f} P = {ⓐ, ⓔ, I, o, u} **P ∩ Q = {a, e}**	2.	Given that set K = {e, q, a, t } Set L = {e, q, u, a, l} Find K ∩ L **Solution** set K = {ⓔ, ⓠ, ⓐ, t } Set L = {ⓔ, ⓠ, ⓤ, a, l} **K ∩ L** = {e, q, a}

Examples:

P = (a, b, c, d, e) **q** = (a, e, i, o ,u)

Find (i) $P \cap Q$. = (a, e)

$n(P \cap Q) = 2$ elements

Note: Sets without common members are non – intersecting sets.

Identify the common elements by circling or ticking.

Examples

W = {1, 2, 3, 4} N = {a, b, c}

Set W and N are non – intersecting sets.

Note: Use only curry brackets when listing elements of set concepts.

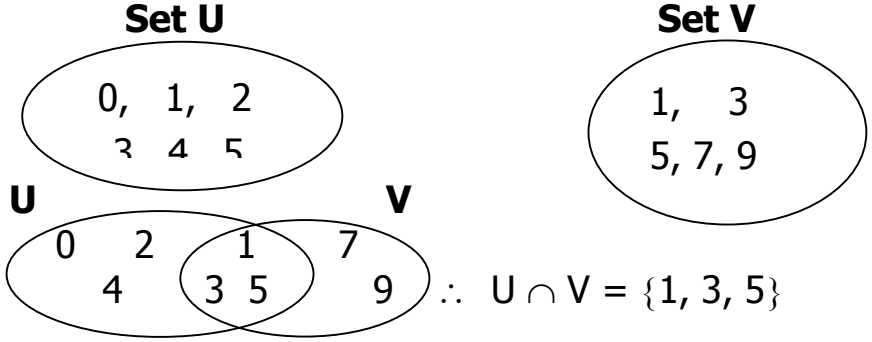
ACTIVITY

Find the intersection of the following pair of sets.

A= { book, pen, table, chair} B= {bed, chair, table, mat}	D={Dan, Mike, Rita} E={ Mike, Kate, Dan	X = { hat, shorts, shirt } Y = {hat, shirt, coat}
A = { 1, 3, 5, 7, 9, 11 } B = {1, 2, 3, 4, 6, 10}	G = { a, e, i, o, u} H = {a, r, c, h, e}	I = { a, b, c, d, e } J = {a, e, i, o, u}

Listing members in the intersection

Example:



$\therefore$ $U \cap V = \{1, 3, 5\}$

2. Set D = {p, q, r, s, t}

Set E = {f, g, r, p}

$\therefore$ $D \cap E = \{p, r\}$

ACTIVITY

1. Set A= { boy girl, man, woman} Set B= {man, boy, Bible , Quran} List the common elements of A and B.	2. Set Y= { a, e, i, o, u} Z= {a, d, c, d, e} List the common members of Y and Z.
3. L= {0, 2, 4, 6, 8} M= {1, 2, 3, 4, 5, 6} List all common members of L and M.	4. W= {Joe, Mark, Tim, Sam, Joel} X= {Tim, Mark, Sam, Lil, Pius} List the common members of W and X.

LESSON

UNION OF SETS

A Union set is a collection of all the members in the given sets.
In union set, write the common elements or members in the two sets only once. Do not repeat the common members of the sets.
Symbol; U

Listing members of the union of sets

Example I	**Example II**
If P = {a, e, i, o, u} Q = {a, b, c, d, e} What is P U Q? P ∪ Q = {a, e, i, o, u, b, c, d} ***a*** *and* ***e*** *are repeated but we write them once only*	**Given that** Set A = {a, e, o, u } B = { 2, 4, 6, 8 } Set A U B = { a, e, o, u, 2, 4, 6, 8 }

ACTIVITY

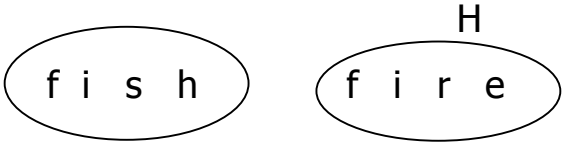
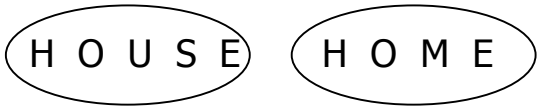
List down the members of the union of sets below

1. Given that Set A={a, b, c, d, e, f} Set C={c, d, e, f, g}	2. Given that P= {Teo, Joe, Bob, Caro} Q= { Joe, Caro, Inno}	3. Given that M= {1, 2, 3, 4, 5, 6, 7, 8} N= {1, 3, 5, 7, 9}
A ∪ C= _____	P ∪ Q= _____	M ∪ N= _____

4. K= {beans, peas, maize, millet}, L= {maize, sorghum, millet}
   List the members of K ∪ L

5. H={ apple, mango, orange, lemon}, I={guava, pear, apple}
   List all the members of H ∪ I.

6. Y= { book, ball, bell, bean}, set B= {bench, ball, boy, book}
   List all the members of Y ∪ B.

ACTIVITY 8	ACTIVITY 9
G H  List all the members of G ∪ H.	S T  List all the members of S ∪ T.

LESSON

FINDING THE NUMBER OF INTERSECTION AND UNION OF SETS

Intersection of a set is a set with the common members of the given sets.
Symbol: "∩ "

To find the intersection of the two sets, identify the common elements in the two sets, then just count their number and write exactly what you found.

Example I	Example II
If P = {a, e, i, o, u} Q = {a, b, c, d, e} **a) find n(P ∩ Q)** P n Q= {a, e} n(P ∩ Q) = 2 **b) find n(P U Q)** P U Q = {a, e, i, o, u, b, c, d} n(P U Q) =8	**Given that** P = { 1, 2, 3, 4, 5 } B = { 0, 1, 3, 4, 5} Find: **a) P ∩ B** P ∩ B ={ 2, 3, 4, 5} n(P ∩ B) = 4 **b) n(P U B)** P U B ={ 0, 1, 2, 3, 4, 5} n(P U B) = 6

ACTIVITY

1	Given that A={Banana, Orange} B = {Apple, Orange} List: a) A ∩ B b) A U B Find c) n(A ∩ B) d) n(A U B)	2	Given that Y={ 2, 4, 6, 8, 10} Z= {1, 2, 3, 4, 5, 6} List: a) Y ∩ Z b) Y U Z Find c) n(Y ∩ Z) d) n(Y U Z)	3	Given that G = { h, o, m, e } H = {h, o, u, s, e} Find: a) n(G ∩ H) b) n(G U H)

4. Given that
   Set A={a, b, c, d, e, f}, Set C={c, d, e, f, g}
   Find:
   a) n(A ∩ C)
   b) n(A U C)
5. K= {beans, peas, maize, millet}, L= {maize, sorghum, millet}
   Find:
   a) n(K ∩ L)
   b) n(K U L)
6. V= { book, ball, bell, bean}, set W= {bench, ball, boy, book}
   Find:
   a) n(V ∩ W)
   b) n(V U W)

LESSON

DIFFERENCE OF SETS

These are members of a set that exist in only on set.

It does not include the common members of the sets.

Examples

Members of set A only is represented by A – B

Members of set B only is represented as B – A

Example I	Example II
Set A = {1, 2, 3, 4, 5} B = { 0, 2, 4, 6, 8} Find members of Set A only = {1, 3, 5} Set B only = {0, 6, 8}	**Example 2** Set M = { 2, 3, 4, 5, 6} Set Q = {1, 2, 5, 8, 10} **Find (i) M – Q** M – Q = { 3, 4, 6} **(ii) Q – M** **(Q – M)** = {1, 8, 10}
Example 3	
Set O = { i, c, g, a, b} Set V = { e, a, b, d} Find (i) O – V (O only) = {i, c, g, d} V – O (V only) = { e, a, d}	

Activity

Find the difference of these sets

1. Set D = {a, p, y, m}
   Set C = {b, c, p, n, m}
   Find (i) D – C

   (ii) C – D

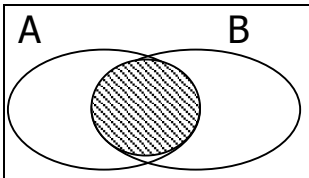
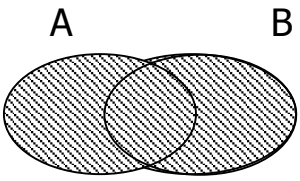
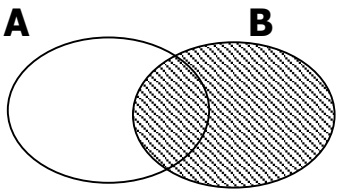
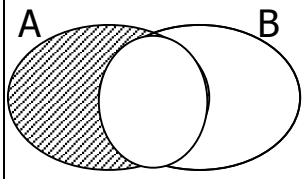
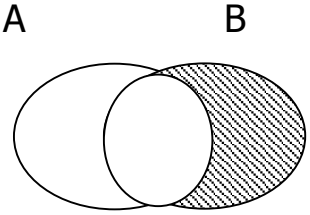
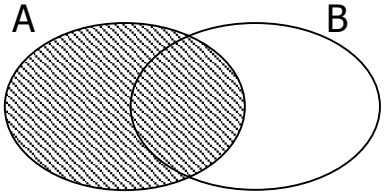
   (iii) D ∩ C
2. Set E = {0 , 2, 4, 6, 8}
   Set F = { 1, 2, 3, 8, 5}
   Find (i) E – F

   (ii) F – E

   (iii) E ∪ F

Lesson

Showing the difference of sets on Venn diagrams.

		
$A \cap B$	$A \cup B$	Set B
		
A only (A – B)	B only (B – A)	Set A

ACTIVITY

Draw and shade these regions

(i) A but not B

(ii) $A \cup B$

(iii) Set B

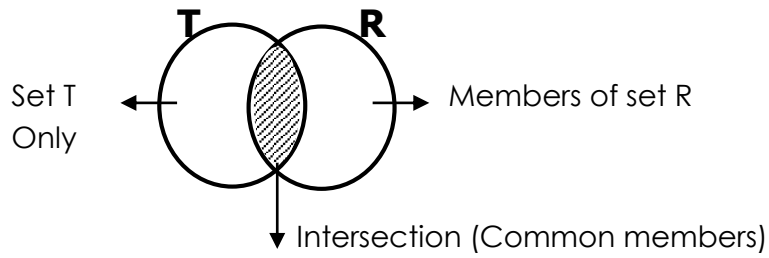
(iv) B – A

(v) A - B

lesson

REPRESENTING ELEMENTS ON A VENN DIAGRAM

Venn diagrams



Example:

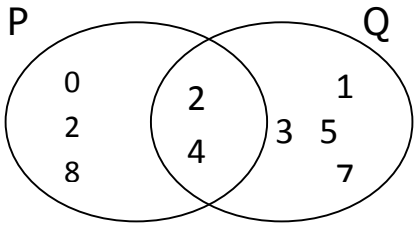
Given P = {0, 2, 4, 6, 8}

P = {1, 2, 3, 4, 5, 78}

Find: P∩ Q ={ 2, 4}

A U B = {0, 1, 2, 3, 4, 5, 6, 7, 8 }

Represent the sets on a Venn diagram.



Set T = { 0, 2, 3, 4, 5}

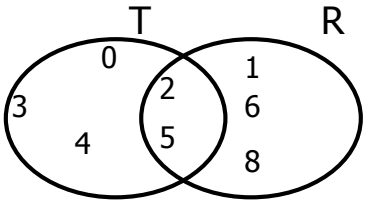
Set R = {1, 2, 5, 6, 8}

Find ;

(i) T ∩ R = { 2, 5}

(ii) T ∪ R = { 0, 2, 3, 4, 5, 1, 6, 8}

(iii) Represent the sets on a Venn diagram.



(iv) List set T only

= { 0, 3, 4}

(v) Find set R only

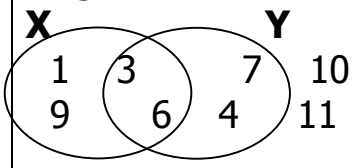
= { 1, 6, 8}

Examples:

X = {1, 6, 3, 4, 9}

Y = {4,6, 7,10, 11}

Represent the two sets on a Venn diagram.



List members of

X only = {1, 3, 9}

Y – X = {7,10,11}

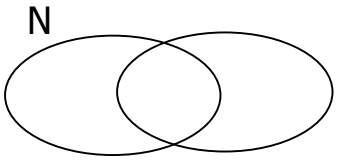
X∩ Y = {4, 6}

ACTIVITY

1. Set M = {a, b, c, d, e}

N = {a, e, i, o, u}

(a) Represent the two sets on the Venn diagram below



(b) Use your Venn diagram to answer the following:-

(i) M ∩ N

(ii) M ∪ N

(iii) n(P)

(v) P – Q

(vi) n(Q – P)

(vii) n(Q) only

(iv) n(Q)

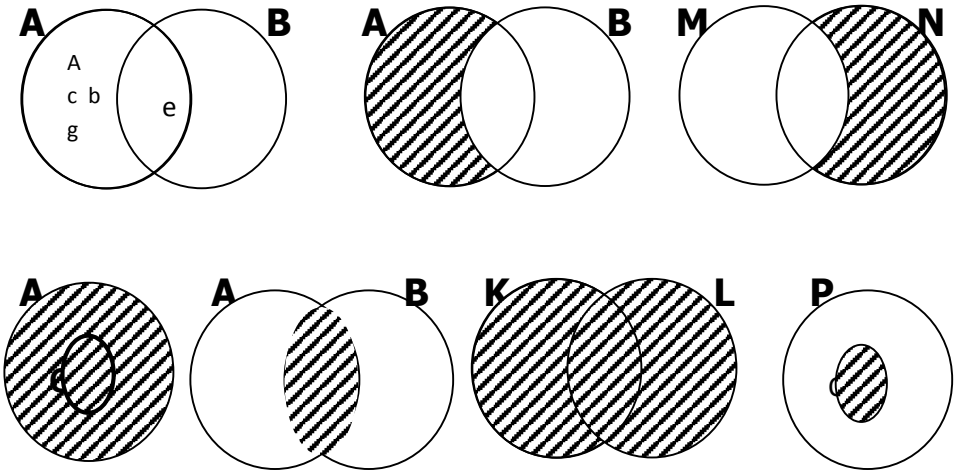
2. Given P = {0, 2, 4, 6, 8}
Q = {1, 2, 3, 4, 5, 7, 8}
Find: (i) P∩ Q

(ii) A U B

Represent the sets on a Venn diagram.

LESSON

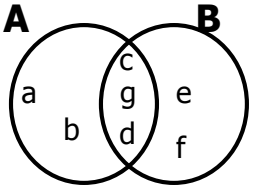
Sub topic : Getting information from Venn diagrams



AUB A∩ B KUL P∩ B

Review representing information on Venn diagrams of P.3

E.g.



(a) List members of
(i) Set A = { a, b, c, d, g}
(ii) Set B = { c, g, d, e, f}
(iii) A ∪ B = {a, b, c, g, d, e, f}

(iv) $A \cap B = \{c, g, d\}$

(v) $n(A \cup B) = \{ a, b, c, g, d, e, f\}$

7 members

(vi) $B = \{ e, f, c, g, d\}$

$n(B) = 5$ members

(vii) $A - B = \{a, b\}$

$\therefore n(A - B) = 2$

Lesson

SUBSETS

Definition

A subset is a small set of members got from a given main set.

An empty set is a subset of any set

A set is a subset of itself (it's called a super set).

A mother set is also a subset of itself.

Symbol

$\subseteq$

Symbol for not subset

$\not\subseteq$

Example

Given ; E = { all pupils in P.4}

F = { all boys in P.4}

B = { all girls in P.4}

Set B and F are subsets of set E.

Forming subsets by listing

Example I	Example II
Given set B = { s, t, v} **Form subsets** {s}, {s, t}, {v}, {t}, s, v}, {t, v}, {s, t, v}, { }	Set P = {1, 2, 3} The subsets are:; { }, {1, 2, 3}, {1, 3}, {2, 3}, {1}, {2}, {3}, {1, 2}

NB. ✓An empty set is a subset of the main set.

✓ A set itself is a subset of that set.

Activity

1. Given that set Y = {1, 2, 3}

   a) List all the members of subsets in Y.

   b) How many sub sets had Y?

2. Given that set P = {a, b, c, d}
   a) List down all the subsets in set P.

   b) How many sub sets had P?

3. List down number of subsets in the following sets.
   a) A = { 1, 2 }

   b) B = {x, y, z }

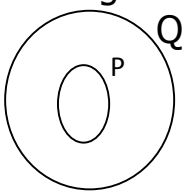
   c) C = { a, e, i, o , u }

4. Find the number of subsets in the following sets.
   a) K = { } b) M = { 1 } c) Q = { a, b }
   d) P = { daddy, mummy, uncle }

Lesson

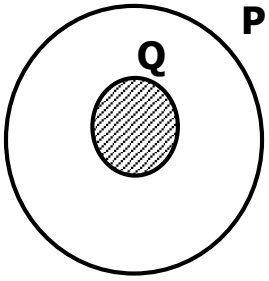
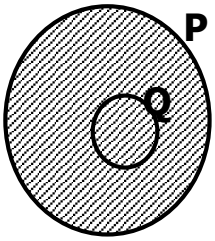
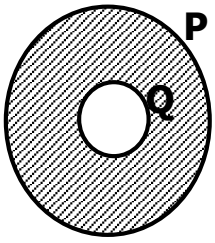
Sub topic : Using a Venn diagram to represent subsets

Using a Venn diagram to represent subsets.



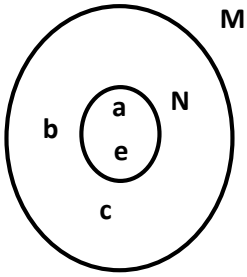
Set P is a subset of set Q
P c Q

✓shading Venn diagrams

P ∩ Q	**P ∪ Q**	**P – Q**
		

ACTIVITY

Represent the sets on a Venn diagram
Given Set M = { a, b, c, d, e}
Set N = { a, e, }



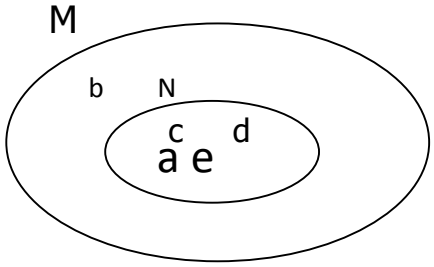
1. Getting information from the Venn diagram
   Find (i) $M \cap N$

   (ii) $M \cup N$

   (iii) $M - N$

   (v) $n(M \cup N)$

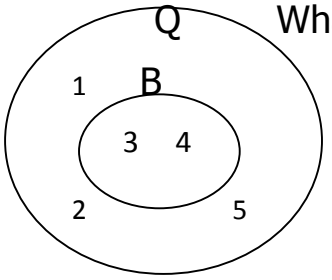
Given: $M = \{a, b, c, d, e\}$
$N = \{a, e\}$
Represent the sets on a Venn diagram.



Find: $M \cap N = \{a, e\}$

$MUN = \{a, b, c, d, e\}$

$n(MUN)$ 5 Members



What is the relationship between P and B?

B is a subset of P

Find: $P \cap B = \{3, 4\}$

THEME : NUMERACY

WHOLE NUMBERS UP TO 99,999

FORMING NUMBERS UP TO 99,999

- ✓ To form the smallest number, arrange the digits from the smallest to the greatest.
- ✓ To form the greatest number, arrange the digits from the greatest to the smallest.

Example I	**Example II**
Given the digit: 2, 1, 4, 5, 6. (a) Form the smallest number 12,456 (b) Form the largest number. 65,421 (c) Find the sum of the smallest and the biggest numbers formed. ***Solution*** 1 2, 4 5 6 + 6 5, 4 2 1 7 7, 8 7 7	(a) Use the digit 3, 8, 9, 2, and 7 to form the smallest and the biggest numbers The smallest number is **23,789** The biggest number is **98,732** (b) Find the difference between the biggest and the smallest number formed ***Solution*** 9 8, 7 3 2 - 2 3, 7 8 9 7 4 9 4 1

Activity

1. Use the digits:3, 5, 7, 9, 2 to form the smallest and the biggest number.

2. Given the digits 9, 1, 3 ,5 and 7.
   a) Arrange these digits from the:
      i) smallest to the biggest

      ii) biggest to the smallest

   b) Form the smallest and the biggest numbers from the digits above.

3. What is the biggest number we can form from 9, 2, 8, 3, 1?

4. Given the digits 8, 9, 3, 2, 4.
   a) Form the smallest and the largest number.

   b) Find the sum of the lowest and the highest number.

c) Find the difference of the smallest and the largest numbers.

5. Write the smallest and the biggest numbers we can get from these digits:
   a) 24801

   b) 23145

   c) 6879 d) 4567
6. Find the smallest and the largest numbers we can get from 5, 1, 2, 3 and 1, 2, 4, 9.
   a) Find the sum of the smallest and the largest numbers.

   b) Find the product of 2 and the smallest numbers formed.

LESSON

Counting in tens from 10 to 200.

- ✓ To count upwards in tens, keep on adding 10.
- ✓ To count backwards in tens, keep on subtracting 10.

Examples

Count in tens from 10 to 200

10	20	30	40	50	60	70	80	90	100
110	120	130	140	150	160	170	180	190	200

Example I	**Example II**
Fill in the missing numbers: 50, 60, 70, 80 ___, 100, ___, 120. +10 +10 +10 +10 +10 +10 +10 80+10 =**90** 100+10= **110** 50, 60, 70, 80, **90**, 100, **110**, 120	Find the missing numbers: 150, 140, _____, 120, 110, _____,90 . -10 -10 -10 -10 -10 -10 140 - 10 =**130** 110 - 10= **100** 150, 140, **130**, 120, 110, **100**, 90

Activity

Fill in the missing numbers

a)	160, ____, 180, ____,200, ____.
b)	80, ____,100, ____, ____,130.
c)	40, ____,60, 70, 80, ____, ____.
d)	10, 20, ____,40, 50____,70____.
e)	110, ____, 130, ____, ____,160, ____.
f)	150, ____,170, ____, ____,190, ____.

Find and fill in the missing numbers

	g) 150, ____,130, 120, ____,100.
	h) 100, 90, 80, ____,60, 50, ____
	i) 140, ____, 120, ____, 100, ____.
	j) 200, ____, 180, ____, 160, ____.
	k) 70, ____,50, ____,30____,10

LESSON II

Counting whole numbers up to 99,999

Examples

Count in thousands

10000	11000	12000	13000	14000	15000	16000	17000	18000	19000
20000	21000	22000	23000	24000	25000	26000	27000	28000	29000
30000	31000	32000	33000	34000	35000	36000	37000	38000	39000
40000	41000	42000	43000	44000	45000	46000	47000	48000	49000
50000	51000	52000	53000	54000	55000	56000	57000	58000	59000
60000	61000	62000	63000	64000	65000	66000	67000	68000	69000
70000	71000	72000	73000	74000	75000	76000	77000	78000	79000
80000	81000	82000	83000	84000	85000	86000	87000	88000	89000
90000	91000	92000	93000	94000	95000	96000	97000	98000	99000

ACTIVITY

Fill in the missing numbers.

1. 11,000, 12,000, 13,000, _____, _____, _____, 17,000.

2. 23,500, 23,600, 23,700, _____, _____,24,000, _____.
3. 21,000, 21,100, _____,21,200_____,21,300_____.
4. 23,500, 23,510, 23,520, _____,23,540, _____,23,560
5. 45,100, 45,200, _____, 45,400, 45,500, _____, 45,700, _____.
6. 53,300, 53,400_____,53,600, 53,700, _____.
7. 64,110, 64,120, 64,130, _____, 64,150, 64,160_____,_____.
8. 78,100, _____,78,300, _____,78,500, _____, _____, _____.
9. 93,600, _____, _____, 93,300, _____, 93,100, _____.
10. 99,990,99,991, 99,992, _____, _____.

LESSON

TOPIC: Whole Numbers

Place values of 5-digit numbers

To find the place value of digits, of a number, arrange the digits in the place value table starting from the right.

Find the place value of each of these numbers

Example I: 4582

Thousands	Hundreds	Tens	Ones
4	5	8	2

The place value of 2 is **Ones**
The place value of 8 is **Tens**
The place value of 5 is **Hundreds**
The place value of 4 is **Thousands**

Example II:247,186

HTH	TTH	TH	H	T	O
2	4	7	1	8	6

The place value of 6 is **Ones**
The place value of 8 is **Tens**
The place value of 1 is **Hundreds**
The place value of 7 is **Thousands**
The place value of 4 is **ten thousands**
The place value of 2 is **hundred thousands**

ACTIVITY

1. Write the place values of each of the digits in the following numbers
   a) 692

   b) 6,708

   c) 83, 719

   d) 99,098

2. What is the place value of 4 in the following numbers?
   a) 54

b) 3467

c) 34,982

d) 245

e) 123,657

f) 45, 125

3. Given the number: 95382,
   a) Identify the digit in hundreds place value.

   b) Write he number that is in the ten thousands place value.

   c) Which digit is in the place value of **ones**?

LESSON

FINDING PLACE VALUES OF DIGITS IN NUMBERS

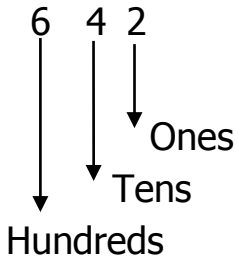
Content:

Place value and value of whole numbers

1. **Finding the place value of the given digits.**

	Hundred Thousand	Ten thousands	Thousands	Hundreds	Tens	Ones
7041			7	0	4	1
24,678		2	4	6	7	8
132,407	1	3	2	4	0	7

2. What is the place value of 4 in



$\therefore$ The place value of 4 is Tens

Activity

Find the place value of 5 in these numbers

a) 23,521

e) 89,654

b) 543,380

c) 12,875

d) 90,653

LESSON

Finding values of digits in 5- digit numbers

To find the value of each digit, multiply each digit by its place value.

Value = digit x place value

EXAMPLE I

Find the value of each of the digits in 672.

Place values	**H** 100	**T** 10	**O** 1
DIGIT	6	7	2
Value	6 X 100 = 600	7 X 10 = 70	2 x 1 = 2

EXAMPLE II

Find the value of 2 in 6204.

Place value	**TH** 1000	**H** 100	**T** 10	**O** 1
Digit	6	**2**	0	4
Value		2 X 100 = 200		

EXAMPLE III

What is the value of 5 in the number 3 1 5 9

Place value	**TH** 1000	**H** 100	**T** 10	**O** 1
Digit	3	**1**	5	9
Value			5 X10 = 50	

The value of 5 in 3159 is 50

EXAMPLE IV

What is the sum of the value of 3 and 4 in the number 7 4 6 3 2

Solution

Place values	**TTH** 10000	**TH** 1000	**H** 100	**T** 10	**O** 1
DIGIT	7	4	6	3	2
Value		4 x 1000 =4,000		3 X 10 = 30	

Sum of the value of 3 and 4

$$\begin{array}{r} 4,000 \\ +\quad 30 \\ \hline 4030 \end{array}$$

ACTIVITY

1. Find the value of each of the digits in 672.

2. Find the value of 0 in 6042.

3. What is the value of 2 in 432?

4. Find the value of each digit in the following numbers.

(a) 439

(b) 1,089

(c) 57,823

(d) 92,835

5. What is the value of each of the underlined digit below?

a) 3, 8̲94

b) 6̲7923

c) 48, 621

d) 6̲43, 758

e) 154,93̲7

f) 468,564̲

6. What is the value of 4 in each of the following numbers?

a) 143

b) 49

c) 143, 123

d) 14

e) 28,564

f) 467,839

7. Given the number 36915, what is the value of

(a) Nine

(b) Three

(c) Six

LESSON

Sub topic : Application of place values and values of whole numbers

Value of wholes

1. Find the sum of the value of 2 and 3 in the number 6234

THS H T O

6 2 3 4

3 X 10 = 30 = 2 0 0

2 X 100 = 200 + 3 0

2 3 0

2. What is the difference between the value of 4 and the value of 6 in the number 36248

Place value	**TTHS**	**THS**	**H**	**T**	**O**
Digit	3	6	2	4	8
Values		6 x 1000		4 x 10	
		6,000		40	

Difference of the value of 4 and 6

6,0 0 0

- 4 0

5 9 6 0

ACTIVITY

1. Find the sum of the value of 6 to the value of 8 in the number: 46,850.

2. Subtract the value of 3 from the value of 3 from 21,368.

3. What is the difference between the value of 3 and 6 in 83,647?

4. Given the number: 24, 165, find the value of

(a) 2 (b) 5.

5. Find the product of 2 and the value of 5

6. What is the sum of the value of 6 and 2 in the number 632?

7. Find the product of the value of 2 and place value of 3 in 362.

8. The place value of 2 is tens. What is its value.

9. The place value of 7 is hundred thousands. What is its value?

10. The place value of 8 is thousands, what is its value?

LESSON

SUB TOPIC: **Expanding numbers using place values**

EXAMPLE I

Expand 3 7 4 6 using its place values

TH	H	T	O
3	7	4	6

1
10
100
1000

(3 X 1000) + (7 X 100) + (4 X 10) +(6 X 1)

EXAMPLE II

Expand 623 using place values

H	T	O
6	2	3

1
10
100

6 Hundreds + 2 Tens + 3 Ones
(6 X 100) + (2 X 10) +(3 X 1)

ACTIVITY

1. Expand these using place values
   a) 3408

   b) 95664

   c) 8088

2. Write the following numbers in expanded forms

i) 384	vi) 67089	xi) 12397
ii) 7803	vii) 248	xii) 56,301
iii) 56340	viii) 10237	xiii) 5147
iv) 526	ix) 70124	xiv) 26708
v) 9670	x) 1356	

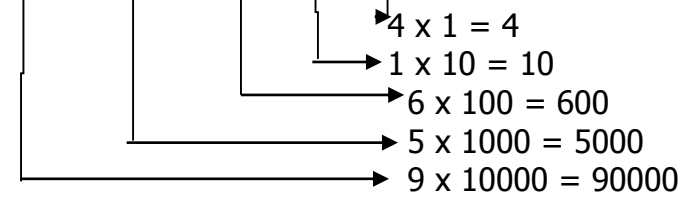
LESSON

EXPANDING NUMBERS USING THEIR VALUES

Example

Expand 95614 using its values

T/TH	TH	H	T	O
9	5	6	1	4



∴ 95614 = 90000 + 5000 + 600 + 10 + 4

ACTIVITY

Write the following numbers in expanded forms

1. 384
2. 7803
3. 56340
4. 526
5. 9670
6. 67089
7. 248
8. 10237
9. 70124
10. 1356
11. 12397
12. 56,301
13. 5147
14. 26708
15. 99389

LESSON

WRITING EXPANDED NUMBERS IN SHORT

When writing expanded number in short or as a single form, arrange the values according to the place values then add.

Example I	Example II
What number has been expanded to give	
(7 x 1000)+ (4x 100)+ (3x10)+ (8x1) 7000 + 400 +30 + 8 7 0 0 0 4 0 0 + 3 0 8 7 4 3 8 = 7438	(2x10000)+ (3x1000)+ (2x10)+(1x 1) ***Solution*** (20000)+ (3000)+ (20) + (1) 20000 3000 + 20 1 23021

ACTIVITY

What number has been expanded.

1. 500 + 70 + 2

2. 3000 + 400 + 90 + 2

3. (1 x 10,000) + (6 x 100) + (8 x 10) + (3 x 1)

4. (7 x 1000) + (9x 100) + (4 x 1)

5. 5000 + 70 + 8

6. (8 x 100) + (6 x 10) + (3 x 1)

7. 2000 + 400 + 10 + 2

8. 70,000 + 6,000+ 300 + 50 + 7

Write these expanded numbers as single numeral

Find the number which has been expanded	
a) 4000 + 200 + 7	b) (9 x 10,000) + (4 x 10) + (5 x 1000) + (6 x 1) + (7 x 100)
c) 4000 x 200 x 40 x 7	d) (5 x 100) + (6 x 1000)+ (4 x 1)

LESSON

Writing numerals in expanded form.

EXAMPLE I	EXAMPLE II	EXAMPLE III
Expand 3485 using place values 3485 = (3 x 1000) + (4 x 100) + (8 x 10) + (5 x 1)	Expand 3485 using values 3485=3000+400+80+ 5	expand 46,246 using values 46,246 = 40,000 + 6000 + 200 + 40 + 5

ACTIVITY

1. Write the following in expanded form using place values.
   a) 89
   b) 872
   c) 15,301
   d) 2873
   e) 19972
   f) 8261
   g) 92,789
   h) 12,003
   i) 60,742
   j) 178,109

LESSON

1. Expand 6232 using values;
   4532 = (6 x 1000) + (2 x 100) + (3 x 10) + (2 x 1)
   = 6000 + 200 + 30 + 2
2. Write 876 in expanded form using values.
   876 = (8 x 1000 + (7 x 10) + (6 x 1)
   = 8000 + 70 + 6

ACTIVITY

1. Expand the following numbers using place values

a) 74

b) 673

c) 19,194

d) 26,478

e) 207, 468

f) 442,002

g) 301,020

h) 449,999

2. Copy and fill in the missing numbers

a) 63,231 =(___x 10,000) + (3 x _____)+(2 x 100) + (___ x 10) + (___ x 1)

b) 30,765= (__x 10,000) + (0 x _) +(7 x 100) + (___x 10) + (__x 1)

LESSON

READING AND WRITING NUMBERS

WRITING FIGURES IN WORDS

A number is an idea of how many, how much and how far.

A numerical is a symbol used to represent a number.

Examples

1. Write 6438 in words.

Thousands	Hundreds	Units
6	4	38

6438 →Six thousand four hundred thirty eight.

2. Write 14,008 in words

Thousands	Hundreds	Units
14	0	08

14,008→ Fourteen thousand eight.

3. Express 240,402 in words

Thousands	Hundreds	Units
240	4	02

240,402 → Two hundred forty thousand four hundred two.

ACTIVITY

1. Write each of the following in figures;

a) 321

b) 2,418

c) 16,419

d) 11,999

e) 99,114

f) 11,111

g) 10,101

h) 800,800

i) 9,999

j) 11,111

2. Write in words: 33, 333.

3. Write 4352 in words

LESSON

SUB TOPIC : WRITING NUMBER WORDS IN FIGURES

EXAMPLE I

Write twelve thousand four hundred seventy two in figure.

TH	H	T	O
12	4	7	2

1x2 =2

10x 7 =70

100 x 4 =400

1000 x 12 =12000

12000
400
70
+ 2
12,472

EXAMPLE II

Write forty four thousand two hundred fifty-six in figures.

Forty four thousand = 44,000
Two hundred = 200
Fifty six =+ 56
44,256

EXAMPLE III

Write in figures; "Sixty thousand five hundred twenty.

Sixty thousand 60000
Five hundred 500
Twenty + 20
60,520

EXAMPLE IV	EXAMPLE V
Write "three thousand six hundred in figures". Three thousand 3000 Six hundred +600 3600	Write three hundred forty nine in figure Three hundred = 300 Forty = 40 Nine = + 9 349

ACTIVITY

Write the following number words in figures

i) Nine thousand nine hundred ninety nine

.....

ii) Two thousands, six hundred seventy two

.....

iii) Forty thousand, eight hundred thirty three

.....

iv) Eight thousand, thirty six

.....

v) Eleven thousand five hundred twenty two

.....

vi) Twenty one thousand, one hundred sixty eight

.....

vii) Thirty nine thousand , seven hundred five

.....

viii) Fifty thousand, nine hundred thirty three

.....

ix) Nine hundred twenty four

.....

x) Ninety nine thousand, two hundred fifty four.

.....

Lesson

Word problem in writing numbers in figures

EXAMPLE I	EXAMPLE II
Mukasa went to the market and bought a coat of one hundred forty five thousand, six hundred fifty six shillings. Write the cost of a coat Mukasa bought in figures. **Solution** one hundred forty five thousand 145,000 six hundred + 600 fifty six 56	Kakembo sold twenty thousand five hundred forty two chicks from his farm last year. Write the number of chicks sold by Kakembo in figures. **Solution** Twenty thousand =20,000 Five hundred 500 Forty two + 42

145,656	20,542

Exercise

Read and write these numbers in figures

1. Muwonge has five hundred sixty seven cattle on his farm. Write the number of cattle he has in figures.

   .....

2. A kilogram of sugar costs three thousand two hundred fifty shillings. Write the cost of sugar in figures.

   .....

3. Akot bought a pair of shoes at fifteen thousand, seven hundred fifty shillings. Write the price at which she bought her pair of shoes in figures.
4. During the election, Musa got fifty nine thousand, three hundred thirty four votes. Write Musa's votes in figures.

   .....

5. Mummy sent two hundred sixty two thousand five hundred twenty two shillings to the mechanic who repaired our car. Write that amount of money in figure.

   .....

6. Annet was given twenty five thousand five hundred shillings by her mother. Write that amount of money in figure.

   .....

7. Musoke bought a goat from Latigo at the price of ninety six thousand eight hundred fifty five shillings. Write the cost of the goat in figure.

   .....

LESSON

ORDERING WHOLE NUMBERS

Comparing numbers

When comparing numbers of the same number of digits, compare the digits in each corresponding place values starting from the left.
When comparing numbers with different number of digits, the greater number has more digits.

EXAMPLE I

Which is greater: 634 and 1276?

These numbers have different number of digits. So, compare by counting the number of digits in each

TH	H	T	O
	6	3	4
1	2	7	5

634 have smaller number of digits

1276 have greater number of digits

1276 is greater than 634.

EXAMPLE II

Which is smaller: 5475 and 5472?

These numbers have same number of digits. So, compare starting from the largest value

TH	H	T	O
5	4	7	5
5	4	7	2

The first three digits from the left have the same value. From the place value of ones,

5472 is smaller than 5475

Exercise

Compare these numbers using greater, less or equals to

Which is greater?

i) 385 or 1283?

ii) 3386 or 742?

iii) 2346 or 4321?

iv) 34,675 or 77,789?

v) (226+ 10) or (226 x 10)

Which is less:

i) 297 or 972?

ii) 1345 or 5421?

iii) 24613 or 26413?

iv) 49381 or 43189?

v) 10001 or 1001?

vi) (403x 5) or (403+ 5)

Lesson

Arranging numbers from the lowest to the highest.

To arrange numbers from the lowest, you first compare the digits in each place value starting from the left.

This order is called ***ascending order.***

EXAMPLE I

Arrange these numbers from the lowest to the highest: 6531, 5631, 3156, 6315

TH	H	T	O	**order**
6	5	3	1	**4**
5	6	3	1	**2**
3	1	5	6	**1**
6	3	1	5	**3**
The order is 3156, 5631, 6315, 6531				

EXAMPLE II

Arrange these numbers in ascending order.241, 456, 3456, 7865

TH	H	T	O	**order**
	2	4	1	**1**
	4	5	6	**2**
3	4	5	6	**3**
7	8	6	5	**4**
The order is 241, 456, 3456, 7865				

Activity

Arrange these numbers starting with the lowest.

1. 643, 346, 634, 436, 264

2. 183, 813, 138, 381, 831

3. 2563, 3632, 5362, 3652

4. 4682, 4862, 4826, 8426, 8426

5. 5937, 7359, 9753, 3795

6. 20345, 30345, 40, 345,10234

7. 90199,99019,99109,99091,99901

8. 89127, 81729, 89721, 89712, 89721

Lesson

Arranging numbers from the highest to the lowest.

When arranging numbers from the lowest to the highest, you first compare the digit in each place value starting from the left.
This order is called ***descending order.***

EXAMPLE I

Arrange these numbers from the highest to the lowest:
6531, 5631, 3156, 6315

TH	H	T	O	**order**
6	5	3	1	**1**
5	6	3	1	**3**
3	1	5	6	**4**
6	3	1	5	**2**
The order is 6531, 6315, 5631, 3156				

EXAMPLE II

Arrange th numbers below in descending order.
241, 456, 3456, 7865

TH	H	T	O	**order**
	2	4	1	**4**
	4	5	6	**3**
3	4	5	6	**2**
7	8	6	5	**1**
The order is 7865, 3456, 456, 241				

Exercise

Arrange these numbers starting with the greatest to the smallest.

1. 415, 514, 145, 154, 541

2. 368, 863, 638, 836, 386

3. 22005, 22006, 22009, 22002, 22005

4. 7312, 7213, 7123, 73217, 2137

5. 6081, 6801, 6180, 6810

6. 67475, 67743, 67347, 67734

7. 5608, 87650, 68075, 70856

8. 93939, 99339, 99933, 93993

Lesson

PLACE VALUE OF DECIMALS

EXAMPLE I

1. Find the place value of 6 in 0.6

0 . 6
↓ ↓ Tenths
Ones It is tenths

EXAMPLE II

2. What is the place value of 2 in 0.42

0 . 4 2
↓ ↓ ↓ Hundredths
Ones Tenths
It is hundredths

ACTIVITY

1. Write the place value of each digit in 14.23.

2. Write the place value of 8 in 1.183.

3. Write the place value of 6 in the following decimal numbers:

   a) 62.458

   b) 0.126

   c) 56.109

   d) 2.2016

   e) 23.698

4. Write the place value of each of the digits in the numbers below.

   a) 34.543

   b) 78.236

   c) 80.123

LESSON

VALUES OF DECIMALS

To find the value of decimals, multiply digit by its place value.

Value = Digit x place value

EXAMPLE I	EXAMPLE II
1. Find the value of 6 in 0.6 0 . 6 ↓ ↓ Tenths Ones $6 \times \frac{1}{10} = \frac{6}{10}$	2. What is the value of 2 in 1.52 1 . 5 2 ↓ ↓ ↓ Hundredths Tenths Ones Value of $2 = 2 \times \frac{1}{100} = \frac{2}{100}$

Find the value of each digit in 23.46

2 3 . 4 6

Hundredths=6x $\frac{1}{100} = \frac{6}{100}$

Tenths = $4 \times \frac{1}{10} = \frac{4}{10}$

Ones = $3 \times 1 = 3$

Tens = $2 \times 10 = 20$

Activity

Write the value of each of the following decimals.

1. 24.98
2. 34.9
3. 0.98
4. 56.78
5. 2.456
6. 0.143
7. 56.899
8. 9.089
9. 7.098

Write the value of 8 in these decimals.

1. 23.98
2. 8.09
3. 18.94
4. 12.80
5. 18.345
6. 0.8

LESSON

WRITING DECIMALS IN WORDS

EXAMPLE I	EXAMPLE II
Write 0.2 in words. =0 + $\frac{2}{10}$ =Two tenths =Zero point two	Write 0.25 in words =$\frac{25}{100}$ =Twenty five hundredths =Zero point two five.
EXAMPLE III	**EXAMPLE IV**
Write 12.5 in words. =12 + $\frac{5}{10}$ =Twelve and five tenths =Twelve point five.	Express 245.6 in words. =245 + $\frac{6}{10}$ =Two hundred forty five and six tenths. =Two hundred forty five point six.

Activity

Write these decimal numbers in words without using **point**

1. 234.5
2. 75.9
3. 0.9
4. 54.8
5. 67.9
6. 12.3
7. 7.67
8. 9.12
9. 5.98

Write these decimal numbers in words using **point**

1. 23.109
2. 125.56
3. 321.33
4. 34.112
5. 67.34
6. 9.82

Lesson

Writing decimals in figure

EXAMPLE I	EXAMPLE II
Write "four tenths" in figures. $\frac{4}{10}$ = 0.4	Write "seventeen hundredths" in figures. $\frac{17}{100}$= 0.17

EXAMPLE III	**EXAMPLE IV**
1. Write "two hundred twenty three and two tenths" in figures. 200 + 23 + $\frac{2}{10}$ 200 + 23 + 0.2 223.2	Write three hundred fifty two and three tenths" in figures 300 + 52 + $\frac{3}{10}$ 300 + 52 + 0.3 352.3

SUB TOPIC : ROUNDING OFF TO THE NEAREST TENS

Examples

(a) Round off 92 to the nearest tens

```
  T   O
  9   2
+ 0   0
-----
  9   0
-----
```

ACTIVITY

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REMARKS

(b)

```
  4  3  6
     H  T  O
  4  3  6
+    1
-------
  4  4  0
-------
```

LESSON : 20
SUB TOPIC : ROUNDING OFF TO NEAREST HUNDREDS AND THOUSANDS
CONTENT
Example:

(c) Round off 1245 to the nearest hundreds

```
   TH  H  T  O
    1  2  4  5
+      0  0  0
-----------------
    1  2  0  0
-----------------
```

1. (a) Round off 184 to the nearest tens.
   184 = 180 + 4 (4 is less than half of 10 (5) so no change in tens.

(b) 46 to the nearest tens.

46 ~ 50

(c) 54

The number is between 50 and 60

5 4

Ones four is nearer to zero than ten

Tens The required place value

= 50

+ 00

50

We add zero to the value of the required place value.

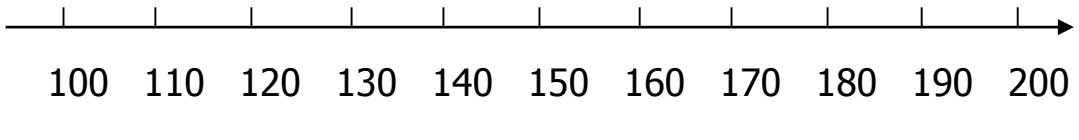
(d) T O

5 4

0

5 0 54 ~ 50

2. (a) Round off 142 to the nearest hundreds.



142 ~ 100

(b) Round off 142 to the nearest hundreds

1 4 2

ones

tens 40 is nearer to zero than hundreds

hundreds The required place value

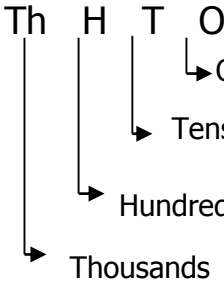
We add zero to 100

= 100

+ 0

100

(b) Round off to the nearest 1000 (thousands)



1000 and 2000

300 in nearer to zero than 1000

(Required place value) 1000

\+ 0

Th H T O

1 3 8 1

\+ 0

1 0 0 0 **1381 ~ 1000**

LESSON

SUB TOPIC : ROMAN NUMERALS

Basic Roman Numerals

Example:

Basic Roman Numerals are

	1	5	10	50	100	500	1000
	I	V	X	L	C	D	M

Roman numerals got by repeating 1 or x.

2 = I + I = II

3 = I + I + I = III

20 = 10 + 10 = XX

30 = 10 + 10 + 10 = XXX

200= 100= 100= 200 = CC

300 =100 + 100 + 100 = CCC

Roman numerals got by adding to 5

6 = 5 + I 7 = 5 + 2 8 = 5 + 3

6 = VI 7 = VII 8 = VIII

Roman numerals by adding

1	6 = 5 + 1 = V + 1 = VI	2	60 = 50 + 10 = L + X = LX	3	7 = 5 + 2 = V + II = VII	4	700 = 500 + 200 = D + CC = DCC

The Roman numerals got by subtracting from 5 or from 50.

4 = 1 subtracted from 5

4 = IV

40 = 10 subtracted from 50

40 = XL

The roman numerals got by subtracting from 10 and 100 e.g. 9 = 1 subtracted from 10.

9 = IX

90 = 10 subtracted from 100= XC

LESSON

Changing from Hindu – Arabic numerals to Roman numerals

Examples:

(a) 19 = 10 + 9
X + IX
= XIX

(b) 44 = 40 + 4
XL + IV
= XLIV

ACTIVITY

Express the following as Roman numerals

a) 26

b) 14

c) 11

d) 90

e) 31

f) 289

g) 242

h) 322

i) 483

j) 984

LESSON

Changing roman numerals into Hindu Arabic numerals.

Example 1	**Example 2**	**EXAMPLE III**
XIV = X + IV = 10 + 4 XIV = 14	Change XXXIX to Hindu Arabic XXXIX = XXX + IX 30 + 9 XXXIX = 39	Change XXIV to Hindu Arabic XXIV = XXX + IV = 20 + 4 = 24
EXAMPLE IV	**EXAMPLE V**	**EXAMPLE VI**
Change XCVIII to Hindu Arabic numeral XCVIII = XC + VIII = 90 + 8 = 98	XLV = XL + V = 40 + 5 = 45	VI = V + I = 5 + 1 VI = 6

ACTIVITY

Change these Roman numerals to Hindu Arabic numerals.

1. CXVII
2. LXVIII
3. XXVII
4. XXXVIII
5. VII
6. XCV
7. CCXXII
8. LXV
9. CVII

LESSON

WORD PROBLEMS INVOLVING ROMAN AND HINDU ARABI NUMERALS

EXAMPLE I	**EXAMPLE II**	**EXAMPLE III**
Henrys' age is 18. Write his age in Roman numerals. 18 = 10 +8 X + VIII 18 = XVIII	Mukiibi's vehicle has been driven for 24 months. Write the months in Roman numerals. 24 months 24 = 20 + 4 24 = XX + IV **24 = XXIV**	There are XLIV pupils in a class. Express the number of pupils in Hindu Arabic numerals XL =40 IV =4 **XLIV= 44**

ACTIVITY

1. Juma has a card with the number LXIII written on it. Express the number in Hindu Arabic numerals.

   ……..

2. John was born on MCMLXII, express it in Hindu Arabic numerals.

   ……..

3. The last desk in our examination room is marked with the numeral XLVII. Write that numeral in Hindu Arabic.

   …….

4. The numeral XXIX is written on my father's car that he won. Write that numeral in Hindu Arabic.

   ……

5. The numeral XLIV is written on one of the tables in a restaurant. Write that numeral in Hindu Arabic.

   ……..

6. John was given a card written XXXVII. Write that numeral in Hindu Arabic.

LESSON

SUBTOPIC : ADDITION OF ROMAN NUMERALS

Examples I	Examples II	Examples III
IX + V = 9 + 5 =14	14 = 10 + 4 = X + IV = XIV	Add: XX to VII = 20 + 7 = 27

ACTIVITY

1. Find the sum of IV and XXV.

2. What is the sum of III and XLIII?

3. Find the sum of XIII and IV.

4. Add: VII and VII

5. What do we get when we add III mangoes on to VIII mangoes?

6. Mugume added XXI onto XI. What did he get?

7. **Add the following**

   (b) XXXIV + XLV

   (c) XV + XXIX

   (d) XCII + XL

8. There are XXIV boys and XIX girls in the class.

   a) Find the total number of pupils in the class

b) How many more boys than girls are in the class?

LESSON

Subtraction of Roman numerals

EXAMPLE I	EXAMPLE II	EXAMPLE III	EXAMPLE IV
XXXVI - XXII =(30+ 6)-(20 +2) 36 – 22 14	a) 14 =10 + 4 = X + IV = XIV	IX - V = 9 - 5 = 4	45 =40 - 5 XL - V =XLIV

ACTIVITY

1. **Subtract the following:**
   a) XXV – V

   b) XXIV – XVI

   c) XLIX – XII

2. Subtract XII from XXIX

3. What is XXXI – XXI?

4. Subtract XVI from XX.

5. What is XXV minus XXIV?

6. Subtract XIV from XVI.

Lesson

Matching Roman numerals to Hindu Arabic numerals

EXAMPLE I	EXAMPLE II
Match Roman to Hindu Arabic	**Match Roman to Hindu Arabic**
I 5 V 10 X 1	VII 29 XVII 7 XXIX 17

ACTIVITY

Circle one of the following is equivalent to:

9	**XXIV**	**34**
IX XI IV VI	19 29 24 25	XXXIV XLIV LXIV
Match Romans to Hindu Arabic numerals correctly		
3 VII 6 X 7 III 10 VI	19 XXIX 29 XIX 49 XXXIX 39 XLIX	40 XX 60 CX 90 XL 50 LX 20 L
Write the following in Hindu Arabic Numerals		
1. XIX	2. XXVI	3. XXXVIII

THEME 3 : NUMERACY

TOPIC: OPERATION ON WHOLE NUMBERS

LESSON

Addition of 5 digits numbers without regrouping.

Add the following numbers correctly.			
EXAMPLE I	**EXAMPLE II**	**EXAMPLE III**	**EXAMPLE IV**
4 2 8 + 131 4 2 8 + 1 3 1 5 5 9	78 + 510 5 1 0 + 7 8 5 8 8	32320 + 14369 3 2 3 2 0 + 1 4 3 6 9 4 6 6 8 9	Add: 473442 + 369298 2 3 2 5 6 +7 3 4 4 2 9 6 6 9 8

ACTIVITY

1. Add these numbers correctly

a) 22,230 + 2,230	b) 45,164 + 12 + 245
c) 2,674 + 6,793	d) 43,185 + 14 + 129

e) 16,571 + 230

2. What is the sum of 6,849 and 2,467

3. There are 1263 men in the organization and 313 women. How many people are in the organization altogether?

4. Khadijah harvested 21, 340 kg of rice in the first seasons and 3,528 kg in the second season. Find the amount of rice she harvested.

5. Morgan had 21 pens. He received 48 pens more. How many pens does he have now?

6. Bolingo paid Sh. 12, 500 for a school uniform and Sh. 32, 000 for school fees. How much did he spend?

LESSON

Addition of 5 digit numbers with regrouping

EXAMPLE I	**EXAMPLE II**	**EXAMPLE III**
1. Add: 7464 + 4425 Arrange these numbers in their place values TH H T O 7 4 6 4 + 4 4 2 5 11 8 8 9	2. Add: 4622 + 5043 + 6231 TH H T O 4 6 2 2 5 0 4 3 + 6 2 3 1 1 5 8 9 6	2 4 5 6 8 + 4 3 3 1 4 6 7 8 8 2 $^{1}1$ 8 5 4 3 + 4 ^{14}6 1 2 ^{10}7 6 4 6 7 0

ACTIVITY

Add the following with regrouping

1. 45, 756 + 99, 348

2. 81, 365 + 36, 478

3. 34, 243 + 36, 984

4. 87, 237 + 6, 458

12, 835 + 13,986

LESSON

Simple word problems

Kamoga has shs. 35,500 and Kikoti has shs. 45,000. How much money do they have altogether?

1+ 10

Sh. 35,500
+ Sh. 45,000
Sh. 80,500

They have shs. 80,500

2. Alice carried 146 708 litres of milk in her car and her brother carried 23329 litres. How many litres did they carry altogether?

1 4 6 7 0 8
+ 2 3 3 2 9 1
3 7 9 9 9 9

1. There are 469 goats, 943 cows and 6401 chicken on the farm. How many animals are there altogether?

4 6 9
9 4 3
+ 6 4 0 1
7 8 1 3

:. There are 7813 animals altogether.

ACTIVITY

1. Namanya bought a garden at Sh. 46, 250 and a bicycle at Sh. 422, 630. How much did he spend altogether?

2. Father gave Kato Sh. 78, 987 and on the very day, mother gave him Sh. 51, 023. How much did Kato have altogether?

3. Father bought 43, 479 tiles and later bought 36, 521. How many tiles did he buy altogether?

4. Find the sum of 223, 987 and 678, 245.

5. There are 75,322 children in our school. Our neighboring school has 25, 648. How many children are in the two schools altogether?

LESSON

SUB TOPIC: SUBTRACTION OF WHOLE NUMBERS

Subtracting 5- digit numbers without regrouping

Count object equivalent to the first number then subtract (take away) the objects equivalent to the second number.

The result obtained after subtracting given numbers is the difference.

1. What is the difference of 143 and 36? 1 4 3 - 3 6 **1 0 7**	2. Subtract 94 from 342. 3 4 2 - 9 4 **2 4 8**	3. Subtract: 8 4 3 2 - 4 7 3 2 **3 7 0 0**
Examples IV	**Example V**	**Example VI**
What is 246 - 192? H T O 2 9 6 -1 4 2 1 5 4	**Subtract:** 6 6 6 6 6 – 5 3 4 5 2 1 3 2 1 4	Find the difference of: 7 6 5 4 8 – 3 4 3 2 2 4 2 2 2 6

ACTIVITY

1.
$$\begin{array}{r} 7\,8\,9\,0 \\ -\,1\,8\,9\,0 \\ \hline 6\,0\,0\,0 \end{array}$$

2.
$$\begin{array}{r} 6\,8\,9\,8 \\ -\,\,7\,8\,8 \\ \hline 6\,1\,1\,0 \end{array}$$

Subtract the following without regrouping.

3. 38,236 - 5,123	**4.** 59,875 - 6,423	**5.** 45,785 - 4,072

6.

7. What is the difference between 76, 589 and 51, 364?
8. Subtract: 61, 347 from 85, 798
9. Find the difference between 96, 787 and 51, 634.
10. What is 59, 636 minus 43, 514?
11. In a class of 85 pupils, 44 are boys and the rest are girls. How many girls are there?

12. Find the difference of 64, 548 and 41, 307.
13. Subtract 24, 444 from 45, 686.

LESSON

WORD PROBLEM INVOLVING SUBTRACTION

Working out word problems on subtraction without regrouping.

Read the word problem, arrange the digits according to the place values , then subtract on the ordinary or usual way.

Example:

1. What is the difference between 243 and 37?

$$\begin{array}{r} 243 \\ -\,\,37 \\ \hline 206 \end{array}$$

2. Katabula had shs. 2500. He bought a book for shs. 350. What was his change?

Katabula had	-	2500
He paid	-	350
His change		2150

3. Okot had Shs. 630. He bought a toy car for Shs. 560. How much money did Okot remain with?

Sh.	630
- Sh.	560
Sh.	**070**

ACTIVITY

1. A water tank holds 10,000 litres of water. If 3,000 litres are used, how much water is left in the tank?

2. Tom planted 28,770 seedlings of coffee, 1,400 seedlings of coffee did not grow, how many seedlings of coffee grew up?

3. A district had a population of 630,000 in the 1990 census. Of these, 350,231 were females. How many males were there in the district?

4. The distance between two airports is 3,908 km. If a plane had covered 2,108 km only. What distance was left?

5. By how much is 236 greater than 182?

6. Nassim is 13 years old. Alex is 3 years younger than her.
   How old is Alex?

7. A petrol station attendant sold 44,100 litres of petrol of the 87,400 litres in the tank. How much fuel was left?

14. **SUB TOPIC: SUBTRACTION OF LARGER NUMBERS**

10246 - 3118 TTH TH H T O 1 0 2 4 6 - 3 1 1 8 **7 1 2 8**	24035 - 3727 TTH TH H T O 2 4 0 3 5 - 3 7 2 7 2 **0 3 0 8**	TTH TH H T O 9 8 0 5 7 – 3 2 0 1 4 6 6 0 4 3	36528 – 12299 3 6 5 2 8 – 1 2 2 9 9 2 4 2 2 9

ACTIVITY

6 4 5 8 0
– 3 1 2 3 4

Workout the following.

1	3 4, 6 8 3 -3, 4 6 8	**2**	3 8, 4 3 0 - 7, 9 8 5	**3**	4 2, 6 8 5 - 9, 8 7 6
4	5 1, 3 0 7 - 1 9, 8 3 9	**5**	7 4, 3 4 2 - 1 9, 6 2 9	**6**	4 9, 3 4 6 - 6, 6 8 1

Solve the following pairs of subtractions

7. 52, 103- 39, 837

8. 57, 365 – 39, 678

9. 73, 545 - 56, 987

10. 54, 105 – 38, 469

11. 61,305- 43, 876

12. 81,798 – 57, 819

LESSON

SUB TOPIC: WORD PROBLEM INVOLVING SUBTRACTION

Working out word problems on subtraction with regrouping.

First form the subtraction problem, arrange the digits according to the place values , then subtract on the ordinary or usual way.

EXAMPLE I	**EXAMPLE II**
Take away 34, 679 from 43, 348. - 4 3, 3 4 8 3 4, 6 7 9 **8, 66 9**	Subtract 24,673 straws from 41, 348 straws. 4 1, 3 4 8 - 2 4, 6 7 3 1 6, 6 7 5

Activity

1. Subtract 23, 864 from 48, 230.

2. What is the number which is added to 36, 485 to get 52, 432?

3. Take away 3, 789 from 53, 845.

4. There are 14, 678 pupils in our village. If 8, 979 were taken to another village, how many children will remain in our village?

5. A sugar factory made 84, 836 kg of sugar last week and 68,977 were sold out. Find the total amount of sugar not sold.

6. Milk processing factories processed 73, 446litres of milk and sold 34, 687 liters. How many liters of milk remained?

LESSON

MULTIPLICATION OF WHOLE NUMBERS

Multiplying whole numbers by zero

When any number is multiplied by zero, the result is always zero.
The result after multiplying given numbers is the product.

EXAMPLE I	**EXAMPLE II**	**TRIAL EXAMPLE I**	**TRIAL EXAMPLE II**
Multiply these numbers by zero		Find the product of these numbers	
234 2 3 4 X 0 0 0 0	**457** 4 5 7 X 0 0 0 0	2 3 9 X 0	1, 2 4 5 X 0

ACTIVITY

WORKOUT THE FOLLOWING

1. 12 x 0	4. 6578 x 0	7. 0 x 123
2. 245 x 0	5. 984 x 0	8. 0 x 345
3. 451 x 0	6. 65 x 0	9. 56,99 x 0

1. What is the product of 9824 and 0?

2. Find the product of 8, 9 and 0.

3. What is the product of 4, 8 and 0?

4. What is 1 x 0?

5. Multiply: 45 x 0.

Multiplying a whole number by 10.

To multiply a number by 10, simply put a zero on the right hand side of the numbers in the ones place values.

EXAMPLE I	EXAMPLE II	EXAMPLE III
1 3 0 x 1 0 **2 6 0**	4 3 0 x 1 0 **4 3 0 0**	1 2 0 x 1 0 **12 0 0**

ACTIVITY

Work out the following:

1. 111 x 10	5. 458 x 10	9. 427 x 10
2. 123 x 10	6. 967 x 10	10. 158 x 10
3. 147 x 10	7. 345 x 10	11. 491 x 10
4. 243 x 10	8. 186 x 10	12. 384 x 10

13. What is the product of 873 and 10?
14. Find the product of 124 and 10.
15. What is thee product of 899 and 10?

LESSON

Multiplying a whole number by 100.

To multiply a number by 100, simply put two zeros on the right hand side of the numbers in the ones place values.

EXAMPLE I	EXAMPLE II	EXAMPLE III
1 3 0 x 100 = 13,000	4 3 0 x1 0 0 **4 3, 0 0 0**	1 2 0 x 1 0 0 **1 2 0 0 0**

ACTIVITY

Workout the following:

24 x 100	74 x 100	259 x 100
37 x 100	86 x 100	967 x 100
48 x 100	99 x 100	568 x 100
65 x 100	211 x 100	276 x 100

1. Nakito made 670 pancakes and sole each at Sh. 100. How much did she get after selling all the pancakes?

2. Okello bought 100 chicks at 863 shillings each. Find the amount of money he paid.

3. There are 3245 pupils in Amati primary school. If each child contributed Sh. 100 for the orphanage, how much money did the contribute altogether.

4. John laid 100 bricks daily for 20 days. How many bricks were laid by John?

5. Matthew gave one hundred shillings to 863 children at our school. How much did he give to the school children?

LESSON

Sub topic : Multiplication of 3 digits by a whole number

Mental work of multiplication by 0, 10 and 100

e.g. 12 x 0 = 0 5 x 0 = 0
12 x 10 = 120 5 x 10 = 50
12 x 100 = 1200 5 x 100 = 500
5 x 1000 = 5000

EXAMPLE I	EXAMPLE II	EXAMPLE III	EXAMPLE IV
1 3 1 X 2 **1 6 2**	2. 2 1 3 X 3 6 3 9	1 4 3 x 1 1 4 3	6 7 3 X 5 3 3 6 5

ACTIVITY

1. 112 x 2	2. 421 x 4	3. 301 x 5	4. 432 x 3
5. 800 x 8	6. 811 x 9	7. 912 x 9	8. 608 x 6
9. 313 x 3	10. 510 x 10	11. 170 x 7	12. 601x 6

LESSON

TOPIC: OPERATION ON WHOLE NUMBERS

MULTIPLICATION OF 3 DIGIT NUMBERS BY NUMBER 1-10

Other words that call for multiplication are: product, times.

CONTENT: Multiplying 3 digits by **one** digit

Example I	**Example II**	**Example III**	**Example IV**
4 3 4 6 x 3 13 0 3 8	1 0 x 2 2 0	4 3 x 4 1 7 2	1 3 6 x 8 1 0 8 8

ACTIVITY

Multiply the following numbers correctly

1. 432 x 3
2. 546 x 5
3. 67 x 3
4. 23 x 3
5. 78 x 2
6. 90x 4
7. 75 x 5
8. 186 x 2
9. 221 x 6

10. Find the product of 234 and 4.

11. What is the product of 344 and 2?

12. Find the product of 765 and 3.

13.

4 5 2 X 5	4 6 4 X 2	4 0 0 X 4	1 2 5 X 5

LESSON

Word problems involving multiplication by one digit.

Juma is paid shs. 6960 a day. How much will he get if he works for 7 days.

Solution:

1 day he gets shs. 6960

7 days he gets 6 9 6 0

x 7

Shs. 4 8 7 2 0

∴ He gets 48, 720 in 7 days.

ACTIVITY

1. Juma is 10 years old. Steven is twice as old as Juma.
   How old is Steven?
   Find their total age.

2. Mummy gave me 5 mangoes. Sarah got thrice as much as mine.
   How many mangoes did Sarah get?
   Find the total number of mangoes we got.

3. Peter works at our school and he is paid per day at 5,000 shillings.
   How much does he get if he works for

a) 5 days?	b) 10 c) d) days	e) 30 days?

1. What is the product of 331 and 3?
2. Each oof the seven classes in our school has 124 pupils, how many pupils are in all the seven classes?
3. Find the product of 911 and 9?
4. 8 pupils contributed money to buy a ball. If each contributed Shs. 500, how much was the ball?
5. A match box contains 30 match sticks. How many match sticks are in 8 match boxes?
6. Our school cook is given 345 kilograms of beans to prepare weekly. How many kilograms of beans will he get for 6weeks?
7. A box contains 411 blue pens. How many blue pens are in 7 similar boxes?

LESSON

Multiplication as repeated addition

CONTENT:

Example:

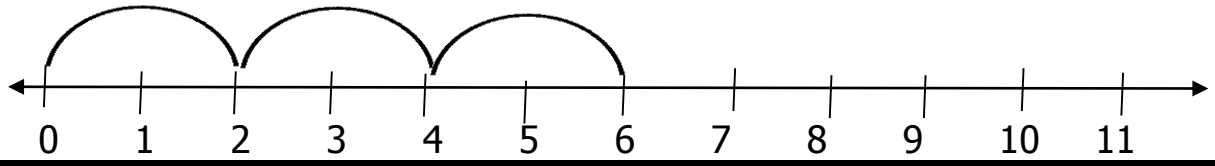
(a) 4 x 2 = 2 + 2 + 2 + 2

= 8

(b) 3 + 3 + 3 + 3 = 4 x 3

= 12

c) Show 3 x 2 on a number line below



ACTIVITY

Use repeated addition to multiply the following:-

(i) 3 x 2 (iii) 4 x 3 (v) 8 x 2

(ii) 6 x 4 (iv) 5 x 3 (vi) 3 x 4

Complete

a) 2 + 2 + 2 + 2 = _____ x _____

b) 4+4 + 4 + 4 + 4 = _____ x _____

c) 3 + 3 + 3 + 3 + 3= _____ x _____

d) 8 + 8 = _____ x _____

e) 9 + 9 + 9 = _____ x _____

f) 6 + 6 + 6 +6= _____ x _____

Use number lines to solve:

(i) 2 x 5

(ii) 3 x 3

(iii) 2 x 3

LESSON

DIVISION AS REPEATED SUBTRACTION

*When dividing numbers using repeated subtraction, divide from the dividend until you get "**0**"*

Count the number of times you make the subtraction. This is the answer.

Divide the following numbers using repeated subtraction

Example I	**Example II**	**Example III**
12 ÷ 3 12 – 3= 9 9 - 3 = 6 6 - 3 = 3 3 - 3 = 0 ∴12 ÷3 = 4 **4 times**	16 ÷ 4 16 - 4 =12 12-4 =8 8- 4 =4 4-4 =0 **16 ÷4 = 4** **4 times**	30÷ 6 30 -6 = 24 24- 6=18 18-6= 12 12-6= 6 6-6=0 **30÷ 6 = 5** **5 times**

ACTIVITY

Divide the following numbers using repeated subtraction

1.	25÷5	2.	12÷4	3.	18÷2
4.	20÷4	5.	30÷5	6.	40÷4
7.	12÷3	8.	49÷7	9.	21÷7

LESSON

TOPIC : OPERATION ON NUMBERS

Dividing 4 digit whole number by 10

To divide a whole number by 10, simply remove the last zero from the number. All numbers divisible by 10 end with zero.

*The result after dividing the numbers is the **quotient**.*

Example 1:	**Example 2:**	
Divide 4500 by 10 $\frac{4500}{10}$ 4500 divided by 10= 450	Divide 8930 by 10 $\frac{8930}{10}$ 8930 divided by 10=893	Divide 4670 by 10 $\frac{4670}{10}$ 4670 divided by 10=467

ACTIVITY

Workout the following

1. 1130 ÷ 10	2. 2240÷ 10	3. 2120÷ 10	4. 1230÷ 10

5. 1110÷ 10	6. 3350÷ 10	7. 3750÷ 10	8. 1300÷ 10
9. 1420÷ 10	10. 3480÷ 10	11. 4000÷ 10	12. 6700÷ 10

Dividing 4 digit whole number by 100

*To divide a whole number by 100, simply remove the last two zeros from the number. All numbers divisible by 100 end with at least **two** zeros.*

Example 1	**Example 2**	**Example 3**
Divide 4500 by 100 $\frac{4500}{100}$ 4500 divided by 100= 45	Divide 8900 by 10 $\frac{8900}{100}$ 8900 divided by 100=89	Divide 4600 by 10 $\frac{4600}{100}$ 4600 divided by 10=46

ACTIVITY

1. 2200÷ 100	2. 3000÷ 100	3. 8300÷ 100
4. 3100÷ 100	5. 4700÷ 100	6. 9600÷ 100
7. 2400÷ 100	8. 5600÷ 100	9. 9900÷ 100

LESSON

Dividing whole numbers by numbers 1-10 without a remainder.

Divide starting from the number in the greatest place value and keep on subtracting the nearest multiples until there is no remainder

Example 1:	**Example 2:**
Divide 4804 by 4. 1201 4√4 8 0 4 4÷4 = 1 **8**÷4= 2 **0**÷4= 0 4÷4 = 1 **Divide 4804 by 4 = 1201**	124 ÷ 4 31 4√1 2 4 12 ÷ 4 =3 12 4 4 ÷ 4 = 1

ACTIVITY

Divide the following numbers correctly.

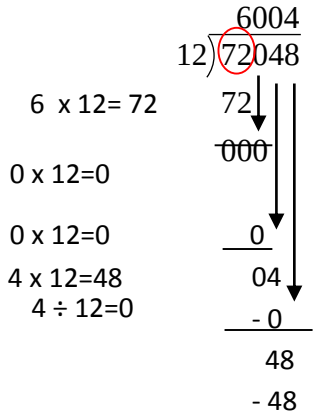
1. 303 by 3	2. 2525÷5	3. 903÷3	4. 9215÷5
5. 1246 by 4	6. 1246÷2	7. 1216÷4	8. 9272÷ 8
9. 8080 ÷4	10. 6890÷2	11. 921÷3	12. 2526÷4

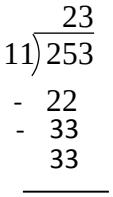
LESSON

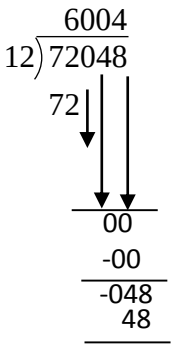
Sub topic : Dividing by 2 digit numerals.

Divide starting from the number in the greatest place value and keep on subtracting the nearest multiples until there is no remainder

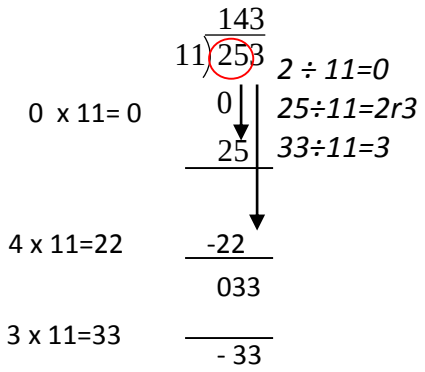
72048 ÷ 12 = 6004







.g. 253 ÷ 11 = 23



ACTIVITY

1. 144÷ 12	2. 315÷ 15	3. 258
4. 1100÷ 11	5. 3333÷33	

LESSON

WORD PROBLEMS INVOLVING DIVISION WITH REMAINDERS

Working out word problems on division with a remainder.

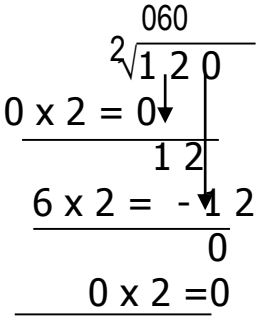
To solve word problems on division, keep on subtracting the nearest multiple of the divisor below the formed number. Start dividing from the greatest place value until you realize a remainder.

CONTENT : Examples

1. There are 120 oranges in 2 bags. How many oranges are in each bag?

Divide

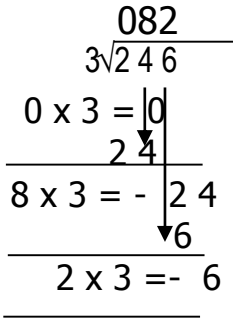
Example 1:



Each bag has 60 oranges

Example 2

Divide 246 text books among 3 classes



Each gets 82 books.

ACTIVITY

Workout:

1. There are 1868 kg of beans to be distributed between two families. How much kilograms will each family get?	2. Kameron divided Sh. 8160 among his 3 children. How much did each get?
3. What is the quotient of 2244 divided by 12?	4. A total of 4164 goats were given to 4 farmers groups. How many goats did each group get?
5. Five children shared shs. 158, 500 equally. How much did each child get?	6. Schools shared 3656 mathematics books. How many books did each school get?

LESSON

SUB TOPIC : DIVISION WITH REMAINDERS

Example I	**EXAMPLE II**
Divide 38148 by 5.	Divide 7435 by 9

```
        07629
    5√3 8 1 4 8
  1 x 3 = 0
        3 8
  2 x 4 =- 0 8
          3 8
    7 x 5 = - 3 5
            3 1
    6 x 5 =- 3 0
              1 4
      2 x 5 =- 1 0
                4 8
      9 x 5 = - 4 5
                  3
```

```
      9√  7 4 3 5
  8 x 9 = 72  -72
            2
            23
    2 x 9 =-  18
              5 5
    6 x 9  = - 5 4
                1
```

∴ 38148 ÷ 5 = 7629 rem 3

Divide the following:-

1. 1516 by 5 =
2. 2425 by 3 =
3. 1212 by 5 =
4. 135 by 2 =
5. 215 by 4 =
6. 1212 by 7 =

LESSON

Solution of real life problems

Forming and solving simple addition number sentences.

To solve this problems, subtract to find missing number in an addition sentence

EXAMPLES

Musisi had some goats. He bought 6 more goats. He now has 24 goats. How many goats did he have?

Musisi had____ goats + 6 goats = 24 goats

So ☐ + 6 = 24

☐ = 24-6

= 16

Musisi had 16 goats

ACTIVITY

1. Nakato had some books. The teacher gave her 10 more books. She now has 29 books. How many books did she have?

2. Opio had 8 cocks. His father gave him 6 more cocks. He now has 20 cocks. How many cock were given by the father?

3. Wamala had some cows, his uncle gave him two more cows. He has 22 cows now. How many cows were given by the uncle?

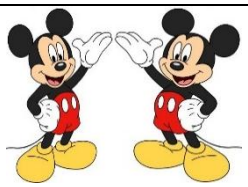
4. Tendo had 6 bags of maize harvested in the previous season. He harvested more maize in the current season. He has 28 bags now. How many bags did he harvest last?

5. Nancy had 5 pencils. Her sister gave her some pencils. She has 23 pencils now. How many pencils did Nancy receive from the sister?

LESSON

Forming and solving simple subtraction number sentences.

Add to find the first number in a subtraction sentence.
Subtract to find the second number in a subtraction sentence

EXAMPLES I	**EXAMPLES II**
Med was carrying some eggs. When he fell down, 12 of the eggs got broken and he remained with 8 eggs. Find the number of eggs he had.	Bolingo lost 7 books of his and remained with 15 books. How many books did he have altogether?
☐ - 12= 8 ☐ = 12+ 8 ☐ = 20 *Med had 20 eggs.* 	☐ - 7 =15 ☐ -7+7=15+7 ☐ =22 *Bolingo had 22 books*

ACTIVITY

1. Abayo had some bananas and 8 of them were eaten during breakfast. If he remained with 22 bananas, how many bananas did he have altogether?
2. Babu had some liters of milk. He sold 12 and remained with 3 liters of milk. How much milk did he have?
3. Mama Rhodah had 11 mangoes left. If she had given 19 mangoes to her children, find the total number of mangoes altogether.
4. Raila had Shs. 500. He used some to buy a box of match box. If his balance is Shs. 200, find the cost of the matchbox?
5. There were some birds on the tree. Juma threw a stone and 8 birds flew away. If 8 birds remained, how many birds were on the tree?

6. Jesan had some pens in his bag. 12 of the pencils were stolen and he remained with 13 pencils. How many pencils did Jesan have?

7. Morgan had some friends. 5 of them were transferred to another school. If he remained with 5 more friends, how many were they?

LESSON

Forming and solving simple multiplication number sentences.

Divide to find the missing numbers in multiplication sentences

EXAMPLES I	EXAMPLES II
Mugisha put an equal number of eggs in 6 baskets. If he had 36 eggs, how many eggs were put in each basket?	Robinah put an equal number of pencils in 3 tins. If she had 36 pencils, how many pencils were put in each tin?
Mugisha put __eggs in 6 baskets to make 36 ☐ X 6 = 36 ☐ = 36÷6 ☐ = 6 Mugisha put 6 eggs in each basket	*Robinah put ___pencils in 3 tins to get 36 pencils* ☐ X 3 = 36 ☐ = 36 ÷ 3 ☐ = 12

ACTIVITY

1. A market vendor made 6 heaps of oranges each with an equal number of oranges. If there are 32 oranges, find the number of oranges in each heap.

2. Juma bought 36 shoes. He put them in pairs. There are two shoes in each pair. How many pairs of shoes did he find altogether?

3. Paula put 48 books in groups of dozen.. if a dozen has 12 items. How many dozens were the books grouped?

4. Each of the child in my group got 7 books. How many pupils are in that group if the teacher gave out 49 books?

5. Pingo used mugs and 6 trays to serve tea to 48 people. How many mugs were on each tray?

LESSON

Forming and solving simple division number sentences.

Multiply to find the first number (dividend) in a division sentence
Divide to find the second number (divisor) in a division sentence

EXAMPLES I	EXAMPLES II
Achieng shared 36 mangoes among children. If each child got 4 mangoes, how many children were there? **Solution** Aceng shared 36 by_to get 4 mangoes **So 36** ÷ ☐ = 4 ☐ **=**36÷4 ☐ = 9 *There were 9 children*	Morgan shared sweets among his 7 friends and each got 5 sweets, find the number of sweets he had. **Solution** ☐ ÷7 = 5 ☐ =7 x 5 ☐ =35 *Morgan had 35 sweets*

ACTIVITY

1. Betty had some pencils. She gave them out to 4 children and each got 6 pencils. How many pencils did she have?

2. The L.C chairperson gave out mosquito nets to 10 families. If each family got 4 nets, find the number of nets he had.

3. Tusabe baked 60 pancakes and packed them into 6 similar boxes. Find the number of cakes that were put in each box.

4. Mugalu packed 80 bananas in 10 similar boxes. How many bananas were packed in each box?

5. Mitchel put 28 pens in 4 similar tins. How many pens were packed in each tin?

TOPIC 4: MONEY

Money is a medium of exchange.

Identifying denominations of Uganda currency

Steps taken

- Definition of money
- Identifying coins and paper money.
- identifying the features On Uganda currency

Note: money is the medium of exchange.

Examples of coins	**Examples of paper notes**
Sh. 50	sh. 1000
Sh. 100	sh. 2000
Sh. 200	sh. 5000
Sh. 500	sh. 10000
Sh. 1000	sh. 20000
	sh. 50,000

ACTIVITY

1. Identify the special features of the following coins

(a) sh. 50	(b) sh. 100
sh. 200	(c) sh. 500

2. **Identify the special features of the following paper notes**

(a) sh. 2000
(b) sh. 5,000
(c) sh. 20,000
(d) sh. 50,000

LESSON

Conversion of money

Every coin and note has its value. we can combine two or more coins to get only one note or coin of bigger value

Examples

1.	How many one hundred shilling coins are found in 3,000 shillings
2.	How many 500 shillings coins can be got from Sh. 2,000?

3.	Pemba has 20,000. How many 10,000 notes can he get from it?

ACTIVITY

a) How many coins of Sh. 100 can I get from Sh. 1,000?	b) How many Sh.200 coins can I get from of Sh. 5,000 note?
c) I have 1 note of Sh. 50,000. How many Sh.2,000 shilling notes shall I get from it?	d) Simi has 2 notes of Sh. 2,000. How many coins of Sh. 1,000 will she get from these?
e) Petra has Sh. 20,000 and she would like to convert it to 2,000 shilling notes. How many 2, 000 shilling notes will she get?	f) Rita was given Sh. 5,000 by mum. She wanted to convert it to 1,000 coins. How many will she get?

Lesson

Writing and reading money in words and in figure.

Examples

Write in words

Three thousand two hundred shillings

Three thousand two hundred	Three thousand	two hundred
	3, 000	**200**
3, 0 0 0 + 2 0 0 3, 2 0 0		

ACTIVITY

Write the following in figures

a) Five thousand five hundred shillings	b) Two thousand shillings
c) Twenty two thousand shillings	d) Five hundred shillings

e) One thousand, eight hundred shillings.	f) Six thousand two hundred shillings

Lesson

Writing money in words

EXAMPLES

Write these money in words

1. Sh.2,850 = 2,000 + 800 + 50
   Two thousand eight hundred fifty shillings
2. Sh.35, 950
   Sh. 35, 950= 35,000 + 900 + 50
   Thirty five thousand nine hundred fifty shillings

ACTIVITY

Write the following in words:

a) Sh. 23,200	b) Sh. 34,00
c) Sh. 1,500	d) Sh.14,230
e) Sh.6,700	f) Sh.3,600
g) Sh. 1,800	h) Sh.6,000
i) Sh. 34,000	j) Sh.50,000

Lesson

Addition of money

Steps taken

- Arrange the given money according to the place values.
- Add accurately and regroup where applicable.

Example 1:

Add sh. 450 + sh. 1,500

```
    sh  1 5 0 0
+   sh.    450
  sh. 1,9 5 0
```

Example II:
Annet had sh. 24,000. Her parent gave her more sh. 1,600. Find the amount she has.

Solution

Sh. 2 4 0 0 0
+ sh. 1 6 0 0
sh. 2 5 6 0 0

Example III:
Add: sh. 23,000 + sh. 12,500

sh. 2 3,0 0 0
+ sh. 1 2,5 0 0
sh. 3 5,5 0 0

Example IV:
Okello got sh. 30,000 from his father and later got sh. 18,000 from his mother. How much money did he have altogether?

sh. 3 0,0 0 0
+ sh. 1 8,0 0 0
Sh, 4 8,0 0 0

ACTIVITY

Add the following money correctly

(a) Sh. 650 + sh. 250

(b) sh. 1350 + sh. 750

(c) Sh. 5,700 + sh. 4,500

(d) sh. 1,200 + sh. 800

(e) Sh. 9,500 + sh. 6,800

LESSON

Word problem with addition of money

I have 1 coin of Sh. 1,000 and 2 notes of Sh. 2000. How much money do I have?

Tom has 5 notes of Sh. 1,000 and 2 notes of Sh. 2,000. How much money does Tom have?

activity

1. Ruth has Sh. 550 and Sarah has sh. 850. how much do both of them have?
2. A father had Sh.22,500 her daughter gave him Sh.5,500. Work out the total amount the father has.
3. My father has Sh. 12,000 and any mother has Sh. 25,000. How much money do they have altogether?
4. A book costs Sh. 1,200 and a pen costs sh. 500. Find the total cost of the two items.
5. A ruler costs Sh. 500 and a book costs Sh. 3,000. What is the total cost of the two items?

How much can I get from:

k) 4 coins of Sh. 200 and 2 coins of Sh. 100?	l) 10 notes of Sh. 5,000
m) 1 note of Sh. 50,000 and 2 notes of Sh. 20,000	n) notes of Sh. 2,000, 2 notes of Sh. 5,000

LESSON

Subtraction of money

Note: The outcome of subtraction is a difference.

Steps taken

- Arrange the vertical form according to place values.
- Subtract correctly and borrow where necessary.

Example 1:

Subtract sh. 14,000from sh. 25,000

Sh.2 5, 0 0 0
+ sh. 1 4, 0 0 0
Sh.1 1,00 0

Example II:

Subtract: sh. 5,000 – sh. 3,750

Sh. 5,0 0 0
-sh. 3,7 5 0
sh. 1,2 5 0

Example III:
Subtract: sh.6,500- sh.19,500
sh. 1 9,5 0 0
-sh. 6,5 0 0
sh.1 3,0 0 0

ACTIVITY

1. Subtract Sh. 4,000 – Sh..1,750

2. Subtract Sh.2,800 from Sh.30,000

3. Find the difference of Sh.3,400 and Sh.52,00.

4. Juma bought a cake at Sh.600. Find his change if he had Sh.1,000.

5. A boy had Sh.25,000 in his pocket. He later gave out Sh.5,000 to his friend. Find his change.

6. Mary had Sh.12,000 and gave Sh.8,000 to her mother. Find her change.

7. **Subtract the following:**

(a) Sh.9600 (b) Sh.2000
- Sh.7750 - Sh.1550

Find the difference of sh. 950 and sh. 200.

LESSON

Division of money

Example 1: How many sh. 500 coins make up sh. 2,000?
Solution 1:
$\frac{2,000}{500}$ = 4 five hundred coins make up sh. 2000.
OR
4 five hundred coins balance with sh. 2000.

Example 3:
Divide sh. 10,000 by sh. 500 coins
= $\frac{10,000}{500}$
= **20 coins.**

Example 2:
How many sh. 1000 coins make up sh.5,000?
Solution 1:
$\frac{5,000}{1000}$ =5 five hundred coins make up sh. 5000.
OR
5 one thousand notes are in sh. 5,000

LEARNER'S ACTIVITY

1) Divide sh. 2,000 by sh. 200.

2) How many sh. 200 coins are

3) in a note of sh. 2,000?

4) In a note of sh. 5000?

5) Divide sh. 4000 by sh. 1,000

6) How many coins of shs 200 are in sh. 5000?

7) 5.How many one thousand notes are in shs. 10,000?

8) How many coins of one hundred shillings are in sh. 1000?

9) 7.Work out sh. 5,000 ÷ sh. 1000

10) Divide sh. 20,000 by sh. 1,000.

11) How many sh. 2,000 notes are in sh. 10,000?

LESSON

Solving word problems in multiplication of money.

There are two prices in buying and selling items

(i) Total price is the price that buys for more than one item.

(ii) Unit price is the price that buys one item.

TOTAL PRICE

Steps taken

- ❖ Multiply the quantity by the unit price.
- ❖ The product obtained is the total price

Note:

Unit price is worded with

- per
- each
- every

Example 1:
A book costs sh. 600. Find the cost of 4 similar books.
1 book costs sh. 600
4 books cost sh. 600 x 4
sh. 600
x 4
sh.2,4 0 0

Example II:
A dress cost sh. 12,000. Work out the cost of 6 dresses at the same rate.

1 dress costs shs. 12000
6 dresses cost sh. 12000 x 6
sh. 12000
x 6
sh. 72,000

Example III:
Find the cost of 3kg of sugar at the rate of 3,400 each kg.
1kg costs sh. 3,400
3kg cost sh. 3,400 x 3
sh. 3,400
x 3
sh.10,200

Example IV
A kg of maize flour is sh. 2,400. What is the cost of 5kg of maize flour?
A kg of maize flour costs sh. 2,400
5 kg of maize flour cost sh. 2,400 x 5
sh. 2,400
x 5
sh. 12,000

Example V:
What is the cost of 3 rulers if one ruler is sold at sh. 500.
1 ruler costs sh. 500
3 rulers cost sh. 500 x 3
sh. 5 0 0
x 3
sh. 1,500

LEARNER'S ACTIVITY

1. A pen costs sh. 400, find the cost of:
(a) 5 pens at the same rate

	(b) 7 pens at the same rate. (c) 11 pens at the same rate 1 dozen of pens at the same rate		
2	**The cost of a ruler is sh. 500, work out the cost:**		
	a) 13 rulers at the same rate	b) 9 rulers sold at the same rate.	c) 7 rulers at the same rate.
	d) 6 rulers sold at the same price.		
3	.Find the cost of 4kg of meat at sh. 10,000 per kg.		
	4.How much will Annet pay for 6 dresses at sh. 15,000 per dress? 5.What will John pay for 5 bed sheets sold at sh. 6000 per bed sheet? 6.Find the cost of 3 apples at sh. 600 each apple.		

	7.How much money will Kato pay for 8 chairs if each is sold at sh.20,000?

LESSON

Finding bills and change

Steps taken

- Find the total price for each item
- Find the sum of all items

Example 1:

Below are items Mary bought
2kg of sugar for sh. 5,000 each kg.
3kg of rice for sh. 3,000 per kg.
How much did she pay?

Sugar	**Rice**	**Bill / Expenditure**
Sh. 5,0 0 0 x 2 **sh, 10,000**	Sh. 3,0 0 0 x 3 **sh, 9,000**	Sh. 10,0 0 0 + 9 0 0 0 **sh,1 9,000**

Example 2:

James bought the following items
2 litres of milk for sh. 3,200.
3 Loaves of bread for sh. 7,500.
4 Tins of blue band for sh. 1,300 each tin.
What was his bill?

Milk	**Blue band**	**Total bill**
sh, 3,2 00	Sh. 1 3,0 0 x 4	s h. 3,200
Bread	**sh, 5,2 00**	sh 7,500
sh, 7,5 00		+ sh 5,200
		Sh 15,900

LEARNER'S ACTIVITY

1)	1.**Betty bought the following items** 2 pens for sh. 500 each pen. 5 books for sh. 500 per book. 2 rulers for sh. 500 a ruler. How much did she pay?

2)	**Noah bought the following items** 3kg of meat for sh. 10,00 per kg. 2kg of sugar for sh. 3,400 each kg. 4kg of beans for sh. 2,400 each kg. How much was his bill?
3)	Robert bought 2 pairs of shoes for sh. 30,000 each pair and 3 shirts for sh. 15,000, how much did he pay altogether?
4)	Juma bought 2kg of rice for sh, 3,000 per kg. 3 loaves of bread for sh. 4,500 each loaf and 2 tins of blue band at sh. 2,500 each tin. What amount did he pay altogether?
5)	**Ruth bought the following items:** 4 cakes of sh. 500 each cake. 3 bottles of soda for sh. 1000 each bottle. 5 bottles of mineral water for sh. 1000 per bottle. How much money did she pay altogether?

LESSON

Finding profits

Profit is the difference in price or selling and buying of items.

Steps taken

- ❖ Subtract the price of selling minus the prices of buying.
- ❖ The difference of the prices is the profits

	Example 1: Akullo sold a book for sh. 700 which she bought at sh. 500. Calculate the profit she got. **The formula for profit** Profit = selling price - buying price = sh. 700 - sh 500 **sh. 200.**
	Example 2 Robert bought a dress for sh. 8,000 and sold it for sh. 12,000. Workout the profit Robert got. Profit = selling price - buying price = sh. 12,000 = sh. 8,000 = **sh. 4,000**
	Example 3 Okello bought a phone for sh. 45,000 and later sold it at sh. 55,000. Calculate his profit. Profit = selling price - buying price. = sh. 55,000 - sh. 45,000 = **sh. 10,000**

LEARNER'S ACTIVITY

1. Calculate the profit of an article which was bought at sh. 70,000 and sold it at sh. 80,000.

2. Workout the profit on an article which was bought for sh. 24,000 and sold for sh. 30,000.

3. An article was bought for sh. 14,000 and later sold for sh. 16,000. Find the profit made.

4. Mary bought a text book for sh. 18,000 and sold it to Sarah for sh. 23,500. How much was the profit she made?

5. Joseph bought a pair of shoes for sh. 45,000 and later sold it for sh. 55,000. How much profit did he make?

6. Mugabo bought a radio for sh. 60,000 but later sold it for sh. 75,000. Calculate his profit after selling the item.

7. Elvis bought a bicycle at sh. 220,000 and later sold it to Mukasa at she. 250,000. How much profit did Elvis made?

8. John bought a bottle of soda at Sh. 1200 and sold it at Sh. 1,500. How much profit did he make?

LESSON

Finding loss

Loss is the difference of the buying price and selling price.
We make loss when we sell items lower than their cost price.

Steps taken

- Subtract the price of buying minus the price of selling.
- The difference obtained is the loss.

Example 1:
Andrew bought an article for sh. 1,200 and sold it for sh. 900. Find the loss he made.
Loss = Buying price - Selling price
= sh. 1,200
- sh 900
sh. 300

Example 2:
Musa bought a shirt for sh. 10,000 and later sold it for a price of sh. 8,500. Find the loss he made.
Loss = Buying price - Selling price
= sh. 10,000
= sh. 8,500
= **sh. 1,500**

Example 3:
Kato bought a cow for sh. 200,000 and later sold it at sh. 180,000. Calculate the loss he made.
Loss = Buying price - Selling price
= sh. 200,000
- sh. 180,000
= **sh. 20,000**

Example 4:
Mary bout a dress for sh. 25,000 and later sold it for sh. 15,000. What loss did she make?
Loss = Buying price - Selling price
= sh. 25,000
- sh. 15,000
= **sh. 10,000**

LEARNER'S ACTIVITY

1. An article was bought at sh. 5,000 and later sold at sh. 3,800. Find the loss made.

2. A table was bought for sh. 75,000 and later sold for sh. 64,000. Find the loss made.

3. A chair was bought for sh. 25,000 and later sold for sh. 21,500. Find the loss made.

4. A belt was sold for sh. 4,300 which was bought for sh. 5,000. Find the loss made.

5. A bag was bought at sh. 35,000 and was sold for sh. 30,000. What was the loss?

6. A bird was bought for sh. 18,000 and later said for sh. 16,400. Calculate the loss that was made.

7. A table was bought for sh. 50,000 and later sold for sh. 44,000. What loss was made after selling the table?

LESSON

Calculating costs

To find total cost, add all the money that is spent in the process of buying an item such as cost of transport, labour, expenses related

EXAMPLE I	**EXAMPLE II**
Musa bought a box of mineral water at Sh. 13, 000. He used transport of 3,000. Find the total cost of the water. **Solution** Cost of water = Sh. 13, 000 Transport = Sh. 2,000 Total cost = Sh. 15, 000	Apio used 20,000 to buy material for making her cloth. She gave a seamstresses 13,000 for labor. How much is the cloth? Cost of material = Sh. 20,000 labour = Sh. 13,000 Total cost = Sh. 25, 000

ACTIVITY

1 Latigo bought a cock at Sh. 23,000 and used 2,000 for transport to and from the market. Find the total cost of the cock.

2 Maria bought a thread of Sh. 11,500, used Sh.1,800 for transport and Sh.950 to pay for the labor. What is the cost of the sweater?

3 Veronica bought a goat of Sh.75,000 and used Sh.5,000 for transport. Find the cost of the goat.

4 Mirriam bought pencils at Sh. 5,000. She used Sh.2,000 for transport, Sh.1,000 for lunch. Find the cost of the pencils.

5 Judie used Sh.2,000 to go to the market, Sh.34,000 to buy cups. How much is the cost of the cups?

LESSON

Finding unit costs

To find the unit cost, divide the total amount by the number of items.

EXAMPLES

1. A set of 3 plates costs 27,000. What is the cost of each plate?

   Solution

   3 plates cost 27,000

   1 plate costs $\frac{27,000}{3}$

   1 plate = 9,000

   A plate costs Sh. 9,000

2. A dozen of books cost 24, 000. What is the cost of each book?

   Solution

   A dozen means 12

   12 books cost 24,000

   1 book costs $\frac{24,000}{12} = 2000$

   Each book costs Sh. 2000

Activity

1. Nancy bought a crate of soda at Sh.18,000. How much did she pay for a bottle if a crate has 24 bottles?
2. There are 24 tablets of toilet shops in a box. A box costs Sh. 48,000. What is the cost of each tablet of soap?
3. Muyingo paid Sh. 54,000 for a set of 6 vests. Find the cost of each vest.
4. A carpenter sold asset of 8 chairs at Sh. 560,000. What was the cost of each chair?
5. A packet of 9 pens costs Sh. 12,600. What is the cost of each pen?
6. Two school bags are sold at 56,000. How much is each school bag?
7. Baker bought a tray of eggs at Sh. 9,000. Find the cost of each egg if there are:
   (a) 30 3ggs in the tray.
   (b) 20 eggs in the tray.
8. 2 pairs of cups costs Sh. 8,000. What is the cost of each cup?

LESSON

Finding the sum of days in given months

- A year has 12 month.
- A month has 4 weeks on average.
- A month has 30 days on average.

Month of year	No. of days		Month of year	No. of days
January	31 days		July	31 days
February	29/28 days		August	31 days
March	31 days		September	30 days
April	30 days		October	31 days
May	31 days		November	30 days
June	30 days		December	31 days

	EXAMPLE 1:		EXAMPLE 2:
	Find the sum of days in January and April. January 31 days April + 30days **61 days**		Calculate the total days in October, November and December October 31 November + 30 December 31 **92 days**

LEARNER'S ACTIVITY

1. **Find the total number of days in the months of:**

(a) January and December	(b) October and June	(c) May and August
(d) January, March and September		(e) August and November
(f) April, July and November	(g) March, May and June	(h) October and December

LESSON

Completing tables of bills and changes

- *Multiply quantity by unit cost to get total cost.*
- *Divide total cost by quantity to get unit cost or total cost by unit cost to get quantity*

Example

John was given a shopping list below . study and complete it.

Item	Quantity	Unit cost	Total cost
Blue band	½ kg	Sh. 9,600	**Sh. 4,800**
bread	3 loaves	Sh. 3,500	**Sh. 10,500**
Tea leaves	¼ kg	**Sh. 10, 000**	Sh. 2,500
Sugar	**4** kg	Sh.2,600	Sh. 10,400

Solution

For blue band	For Bread	For tea leaves	Sh. 4,800
Total cost= qty x unit cost	Total cost= qty x unit cost	Unit cost= total cost	Sh. 10,500

= ½ x 9,600 9,600 = 4, 800 2	3 loaves x 3,500 10,500	Quantity 2,500 ÷ ¼ = 25,000x4 1 = 10,000	Sh. 2,500 Sh. 10,400 Sh.27,200

ACTIVITY

1. The table below shows some of the items Mrs. Okurut bought for Christmas. Use it to complete the table below.

Items	**Quantity**	**Cost per kg**	**Total**
Rice	3 kg	sh.900	sh
Meat	3 kg	sh.2,000	sh.6,000
Sugar	2 kg	sh	sh.2,600
Tomatoes		sh.400	sh.1,000
Onions	2 kg	sh.600	sh.1,200
Total			**sh**

2. Complete the table.

ITEM	**PRICE**	**TOTAL COST**
3 kg of meat	sh.2,200 per kg	sh.6,600
2 loaves of bread	sh. 1,500 per loaf.	sh
2 litres of milk	sh per litre	sh.2,400
3 bars of soap	sh per bar	sh.2,250
1 bag of charcoal	sh per bag.	sh.8,500
transport home	sh.3,000	sh.3,000
Total expenditure		

3) Complete the table below.

Item	**Quantity bought**	**Price per kg**	**Amount spent**
Posho	kg	sh.700	sh.2,800
Beans	2 kg	sh.1,300	sh
Rice	3 kg	sh	sh.1,800
Sugar	3 kg	sh.800	sh
		Total	sh

4. A P.4 pupil was sent to the market with sh.20,000 to buy the items shown in the table below. Use the table to answer the questions that follow.

ITEM	**PRICE**	**TOTAL COST**
3 kg of beans	sh per kg	sh.2,100
3 kg of sugar	sh. 1,400 per kg	sh
4 kg of meat	sh per kg	sh.10,000
loaves of bread	sh.1,600 per loaf	sh.3,200
Total Expenditure		**sh.18,500**

a) Complete the table above.

5.Complete the list on the table below

Item	Quantity	Unit Cost	Amount
Sugar	3kg	Sh…..per kg	Sh 14,400
Rice	….kg	Sh 5,000 per kg	Sh 2,500
Milk	250ml	Sh 3,000 per litre	Sh…….
Biscuits	2 packets	Sh…..per packet	Sh…….
Total Expenditure	Sh 29,650		