

YOUNG WORLD LEARNING CENTRE-MUKONO

P.5 MATHEMATICS HOME LEARNING PACK-By Tr. Joseph

Message for Children

- As you are all aware, schools are closed for a good cause – to stop the spread of the Corona virus, which is making a lot of people around the world very sick and can spread when people get too close to each other
- However, during this period, children need to keep safe and continue learning at home – so their minds stay active and they can do well in class when schools reopen again - and parents and caregivers have a role to support this.
- This pack is based on what you were supposed to cover for term one. It also includes activities you can practice on your own. Please copy in your exercise book. For new topics, you can read on your own and ask for support from your parents/guardians or sibling for help. When schools open teachers will continue supporting you building on what you have learnt your self
- There also a number of lessons delivered on radio and TVs which relates to the information in this pack
- **Please remember to stay home, wash your hands always and stay safe and continue learning**

SUB TOPIC: ROUNDING OFF WHOLE NUMBERS

Content:

Examples

1. Round off 53 to the tens

$$\begin{array}{r} 53 \\ +00 \\ \hline 50 \end{array}$$

2. Round off 55 to the tens

$$55$$

$$+10$$

$$\hline 60$$

Note: 0, 2, 3, 4, you add 0

5, 6, 7, 8, 9 add the value of the required place value

Topic: OPERATION ON WHOLE NUMBERS

Sub topic: Addition of large numbers

Content: addition

Example

$$\begin{array}{r} \text{Add:} \quad 473442 \\ \quad \quad +369215 \\ \hline \quad \quad 842657 \end{array}$$

Masinde went to the market and bought 5books at 3500/= and 12 pens at 109000/=. How much did he spend altogether?

$$\begin{array}{r} 109000/= \\ + 3500/= \\ \hline 112,500/= \end{array}$$

Sub topic: subtraction of large numbers

Content: subtraction

Example

$$\begin{array}{r} \text{Subtract:} 123643 \\ \quad \quad -14262 \\ \hline \quad \quad 109,381 \end{array}$$

By how much is 367015 greater than 346729?

$$\begin{array}{r} 367015 \\ -346729 \\ \hline 20286 \end{array}$$

Sub topic: multiplication

Content: multiplication of numbers by one digit

Example

$$\begin{array}{r} 450 \times 6 \\ 450 \\ \times \quad 6 \\ \hline 2700 \end{array}$$

The cost of a book is shs.750/=. Find the cost of 9 similar books at the same rate

$$\begin{array}{r} 750/= \\ \times \quad 9 \\ \hline 6750/= \end{array}$$

Sub topic: multiplication by two-digit figures

Content: example

Multiply :35

$$\begin{array}{r} \times 12 \\ 70 \\ +350 \\ \hline 420 \end{array}$$

How many pupils are in 33 classrooms if each classroom has 109 pupils? 109

$$\begin{array}{r} \text{X } 33 \\ 327 \\ +3270 \\ \hline 3597 \text{ pupils} \end{array}$$

Sub topic: division of numbers

Content: without remainders

Example

Divide 864 by 6 144

$$\begin{array}{r} 6 \sqrt{864} \\ -6 \qquad \qquad = 144 \\ \hline 26 \\ -24 \\ \hline 24 \\ -24 \\ \hline \end{array}$$

A school has 480 pupils. Each classroom can take 40 pupils. How many classrooms are there in the school?

Divide 4824 by 12

$$\begin{array}{r} 402 \\ 12 \quad 4824 - \\ \hline 48 \\ -48 \\ \hline 002 \\ -0 \\ \hline 24 \\ -24 \\ \hline 00 \end{array}$$

25 bottles hold 1725 litres of water, how much does each bottle hold?

Evaluation : Exercise

i. Divide $12 \div 5$

02 rem 2

$$5 \quad 12$$

$$5 \times 2 \quad \underline{10}$$

$$2$$

$$12 \div 5 = 2 \frac{2}{5}$$

ii) $126 \div 2$ 031 rem 2

$$\begin{array}{r}
 4 \quad 126 \\
 4 \times 0 \quad 0 \downarrow \\
 \quad \quad 12 \\
 4 \times 3 \quad \underline{12} \\
 \quad \quad \quad -- 6 \\
 4 \times 1 \quad \underline{\quad 4} \\
 \quad \quad \quad \quad \quad 2
 \end{array}$$

$$126 \div 4 = 31\frac{2}{4}$$

Sub topic: combined operation of numbers

Content: **BODMAS**

Example

Workout $\frac{1}{2}$ of $10 + 15 \div 5$

$$(\frac{1}{2} \text{ of } 10) + 15 \div 5$$

$$(\frac{1}{2} \times 10) + 15 \div 5$$

$$5 + (15 \div 5)$$

$$5 + 3 = 8$$

Sub topic: statistics

Content: definition of terms

- (a) Mode
- (b) Range
- (c) Median

Example

Given 2, 3, 0, 6, 3 and 4

Find

(a)

ModeNo	Frequency
0	1
2	1
3	2
4	1
6	1

$$\text{Mode} = 3$$

Modal frequency is 2

(b) Range = biggest – smallest $6 - 0 = 6$

(c) Median = 0, 2, 3, 3, 4, 6

$$\underline{3+3=6}$$

$$\begin{array}{r}
 2 \quad 2 \\
 = 3
 \end{array}$$

Sub topic: mean/ average

Content: average =

Example

Find the average (mean) of 0, 2, and 4

$$\text{Average} = \frac{0+2+4}{3}$$

$$= \frac{6}{3}$$

$$= 2$$

Comparing averages and total

The average age of 12 pupils is 9 years. What is their total age?

Average age of 12 is 9

Total age = (12 x 9) years

Total age = 108 years

Sub topic: comparing numbers using symbols

Content: use >, <, =

$$375 \underline{\hspace{1cm}} 752$$

$$5 + 6 \underline{\hspace{1cm}} 6 + 5$$

$$\frac{1}{4} \underline{\hspace{1cm}} \frac{2}{8}$$

Sub topic: ordering the numbers on a number line

Content: ascending and descending order

Example

Given 24, 38, 64, 83 and 44 use a number line to arrange the numbers in ascending order

1st	2nd	3rd	4th	5th
24	38	44	64	83

Sub topic: bases

Content: grouping items in base five and ten

Example

In base ten IIIIIII means 7 ones

In base five IIIIIII means IIIII and II

= 1 group of fives 2ones

= 12_{five}

Sub topic: place values of non-decimals bases (2, 5, 8)/ reading bases in words

Content:

Example

423_{five} = 4 2 3

= 1

Fives = 5

Five fives (twenty fives) = 25

Reading bases in words

Sub topic: expanding in base five

Content: example

Expand 13_{five}

13

Ones

Fives

$$= (1 \times \text{fives}) + (3 \times \text{ones}) = (1 \times 5^1) + (3 \times 5^0)$$

Sub topic: changing to base ten/ decimal base

Content: example

Change 14five to base ten

$$14_{\text{five}} = (1 \times \text{fives}) + (4 \times \text{ones})$$

$$= (1 \times 5^1) + (4 \times 5^0) = 5 + 4 = 9_{\text{ten}}$$

Sub topic: converting base ten to non-decimal bases

Content: example

Change 56ten to base five

÷	No	Rem
5	56	1
5	11	1
	2	

$$= 56_{\text{ten}} = 211_{\text{five}}$$

Sub topic: addition of numbers in bases (2, 4, and 5)

Content: example

Add 3five + 4five

$$3_{\text{five}} \qquad 7 \div 5 = 2 \text{ rem } 1$$

$$\begin{array}{r} +4_{\text{five}} \\ \hline 12_{\text{five}} \end{array}$$

Sub topic: subtraction in bases

Content: example

Subtract 123five – 24five

$$\begin{array}{r} 123_{\text{five}} \\ -24_{\text{five}} \\ \hline 44_{\text{five}} \end{array}$$

Sub topic: multiplication of bases

Content: example

Multiply: 421five x 3

$$421_{\text{five}} \quad \text{SDW/side work}$$

$$\begin{array}{r} \times 3_{\text{five}} \\ \hline 2313_{\text{fiv}} \end{array} \quad 6 \div 5 = 1 \text{ rem } 1$$

$$2313_{\text{fiv}}$$

$$\underline{\quad e \quad} \quad 13 \div 5 = 2 \text{ rem } 3$$

Sub topic: finite system

Content: counting in finite five and seven

Example

1(finite5) = 6, 11, 16, 21,

3 (finite 5) = 8, 13, 18, 23,

Table of finite 5 and 7

Sub topic: addition in finite system (2, 5, 7)

Content: example

 $2 + 3 = ___$ (finite 5) $5 \div 5 = 1 \text{ rem } 0$ (finite 5) $= 0$ (finite 5)

Dial method in addition of finite

Sub topic: subtraction in finite system (2, 5, 7)

Content: example

Subtract $3 - 4 = ______$ (finite 5) $(3 + 5) - 4 = ______$ (finite 5) $8 - 4 = 4$ (finite 5)Dial method $3 - 4 = ______$ (finite 5)

Ref

Teacher's collection

Topic: NUMBER FACTS AND SEQUENCE**Sub topic: divisibility tests of 2 and 3**

Content: any number which ends with an even, digit i.e. 0, 2, 4, 6, 8 is divisible by 2 A number is divisible by 3 if the sum of its digits is divisible by 3 Example

 $144 = 1 + 4 + 4 = 9$

144 is divisible by 3

Sub topic: divisibility test of 4, 5 and 10

Content: any number ending with 00 or when the last two digits are divisible by 4 is divisible by 4

Example

320, 100, 1540

Any number ending with 0 or 5 is divisible by 5

Example

220,540,725

A number ending with 0 is divisible by 10 e.g. 100, 120, 20 Activity

Teacher's collection

Sub topic: multiples of numbers

Content: definition of terms

(a) A multiple is a product of two numbers

Example

1. $M_5 = \{5, 10, 15, 20, 25, \dots\}$

2. $M_4 = \{4, 8, 12, 16, \dots\}$ Ref

Sub topic: **Lowest Common Multiples(LCM/ LCD)**

Content: listing method

Ladder method

Example

Find LCM of 4 and 6

$M_4 = \{4, 8, 12, 16, 20, 24, 28, 32, 36, \dots\}$

$M_6 = \{6, 12, 18, 24, 30, 36, \dots\}$

Common multiples = $\{12, 24, 36, \dots\}$

LCM = 12

Note: Common members must be identified.

Ladder method

÷	4	6
2	2	3
2	1	3
3	1	1

$$2 \times 2 \times 3$$

$$4 \times 3 = 12$$

Sub topic: **Factors of Numbers**

Content: definition

A factor is a number which is multiplied by another number to get a multiple Example

Multiplication

$$F_{12} \quad 1 \times 12 = 12$$

$$2 \times 6 = 12$$

$$3 \times 4 = 12$$

division

$$12 \div 1 = 12$$

$$12 \div 2 = 6$$

$$12 \div 3 = 4$$

$$F_{12} = \{1, 2, 3, 4, 6, 12\}$$

$$F_{12} = \{1, 2, 3, 4, 6, 12\}$$

Sub topic: **Greatest Common Factor (GCF/HCF/HCD)**

Content: GCF and HCF refers to the biggest common factor / divisor

Example: Find the GCF of 12 and 18

F12	F18
1 x 12 = 12	1 x 18 = 18
2 x 6 = 12	2 x 9 = 18
3 x 4 = 12	3 x 6 = 18

Identify the common factors

F1

2 = {1, 2, 3, 4, 6, 12}

F1

3 = {1, 2, 3, 6, 9, 18}

CF = {1, 2, 3, 6}

GCF=6

Ref

New Mk pg 82

Old Mk pg 102

Remarks

Sub topic: **Prime and Composite numbers**

Content: definition

Prime number is a number with only two different factors i.e. 1 and a number itself Composite number is a number with more than two different factors

Examples

13 = 1 x 13

F13 = {1, 13}

13 is a prime number

3 is a composite number

4 = 1 x 4

4 = 2 x 2

F4 = {1, 2, 4}

Sub topic: prime factorization

Content: we use any prime numbers when prime factorizing

Example

Prime factorize

12

1 6

2 3

3 1

In multiplication form 12 = 2 x 2 x 3 In set

notation form 12 = 2², 3¹.

Note: in set notation form we write small numbers (subscripts) below prime factors when listing them to show the number of times a prime factor has appeared. In powers form 12 = 2² x 3¹

Ladder method

÷ 12

2 6

2 3

3 1

Sub topic: application of square roots

Content: example

If $X^2 = 9$ Find X

9

$$\sqrt{X^2} = \sqrt{9}$$

3 3

$$\sqrt{X^2} = \sqrt{3 \times 3}$$

3 1

$$X = 3$$

The area of a square is 16cm^2 . Find the length of one side of the square

$$S \times S = \text{Area}$$

$$S^2 = 16\text{cm}^2$$

$$\sqrt{S^2} = \sqrt{(2 \times 2) \times (2 \times 2)}$$

$$S = 2 \times 2$$

$$S = 4\text{cm}$$

2	16	
2	8	
2	4	
2	2	
	1	

Sub topic: set of numbers

Content:

Triangular numbers form triangular patterns when properly arranged Square numbers are got by multiplying a number by itself

Even numbers are numbers exactly divisible by 2 e.g. 0, 2, 4, 6, 8,

Odd numbers are numbers not exactly divisible by 2 e.g. 1, 3, 5, 7, 9.....

Natural (counting numbers) are numbers used in counting e.g. 1, 2, 3, 4, 5,

Triangular numbers are numbers that form a triangle when arranged

Examples

	1	3	6	10	15
Square numbers					
e.g.	= 1 x 1				
	= 4 = 2 x 2				
	= 9 = 3 x 3				

Sub topic: completing puzzles

Content: magic square

Example

Complete the magic square below

	8	a	B
d		5	C
4		e	2

$$\text{Magic sum} = 8 + 5 + 2 = 15$$

$$= 15 - (8 + 4) = 15 - 12 = 3$$

$$= 15 - (3 + 5) = 15 - 8 = 7$$

$$= 15 - (2 + 7) = 15 - 9 = 6$$

$$= 15 - (1 + 5) = 15 - 6 = 9$$