**LESSON NOTES OF MATHEMATICS FOR P.5**

**TERM ONE**

**Primary five mathematics topical breakdown of lesson notes 2017**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Theme** | **Topic** | **Sub topic (content)** | **Duration** | **Learning outcomes** |
| Sets | * Set Concept | * Reviewed sets concepts   + Definition   + Describing, shading, listing and forming sets * Types of sets and symbols   + Intersection and union sets   + Equivalent sets and non-equivalent.   + Equal and non-equal sets   + Empty/Null sets   + Subsets (Proper and improper) * Complement of sets * Shading sets on the venn diagram * Sets on venn diagram   + Representing sets   + Interpreting information from the venn diagram * Probability (chance)   + Probability of a coin   + Probability of a dice.   + Probability of days of the week. |  | The learner is able to demonstrate the knowledge of the sets to show problems in real life situations. |
| Numeracy | * Whole numbers | * Forming numbers from digits (sum and difference) * Values of numbers * Sum, difference and product of value of numbers. * Expanding whole numbers using   + Place values   + Using values   + Using exponents / powers of 10 * Expanded numbers * Writing words in words * Writing words into figures * Rounding off whole numbers up to 10,000(ten thousands) * Roman numerals up to 300 (ccc)- Hindu –Arabic numerals | 2weeks | The learner is able to appreciate the need to counting everyday life and work with whole numbers up to 999,999 |
| Numeracy | * Operation on whole numbers | * addition of whole numbers up to 999,999 * with and without regrouping. * Word problem about addition * Subtraction of whole numbers with and without grouping up to 6 digits * Word problems on subtraction. * Multiplication of whole numbers of 4 digits by 2 digits. * Word problems on multiplication * Division of whole numbers up to 5 digits by 2 digits. * Without and with a remainder. | 3 weeks | The learner is able to use the four basic operations to solve problems. |
|  |  | * Word problems involving division of whole numbers. * Combined operations. (BODMAS) * Statistics; * Mean * Mode * Median * Range * Decimal and base five (Quandary base) * Expanding in base five * Writing base five numbers in words. * Converting base five to base ten. * Changing base ten to base five. * Addition of numbers in base five. * Subtraction of numbers in base five. * Finite system * Expressing numbers in finite system. * Addition of numbers in finite using a dial and calculus. * Subtraction of numbers infinite system using a dial and calculus. * Application of finite system. |  |  |
| Numeracy | * Number and sequence | * Types of numbers * Whole numbers * Counting numbers * Even numbers * Odd numbers * Triangular numbers * Prime numbers * Square numbers (composite numbers ) * Cube numbers * Square numbers * Finding square of numbers (neglect square roots) * Multiples of numbers * LCM of numbers by listing multiples. * GCF of numbers by listing factors. * Prime factorization of numbers * By ladder method * By use of factor tree. * Listing prime factors using * Subscript form (set notation) * Power form * Sequences * Increasing progression (addition and multiplication) * Decreasing progression. (subtraction and division) | 2 weeks | The learner is able to relate and apply simple comprehension, skills involving patterns and sequences to real life situations. |
| Numeracy | * Fractions | * Addition * Subtraction with same and different denominators * Multiplication of fractions * Natural numbers * By proper fractions * By reciprocal * Division of fractions * By proper fractions * By natural numbers and vice versa. * Ordering fractions * Interpreting and solving problems in real life situation about fraction | 1½ weeks | The learner is able to solve problems involving fractions and relating them to real life situations. |

**TERM ONE: TOPIC ONE**

**Topic: sets**

Sub topic: types of sets

Content: definition of terms

1. A set is a well-defined collection of elements or members.
2. Union of sets is a collection of elements in 2 or more sets without representing common members.
3. Intersection of sets are common elements in 2 or more sets

**Types of sets**

Equal and equivalent sets e.g. {1, 2, 3,} B {2, 1, 3}

Set A = B

Set K = {a, b, c} set L = {m, n, o}

Set K equivalent to L

Equal and unequal sets

P = {5, 4, 6} set N = {a, b, c}

Definition of terms

Equal sets (same numbers of elements of same kind)

Equivalent sets (same number of elements of different kinds)

No equivalent sets (different number of elements of different elements)

Examples

1. A = {a, e, I, o, u} B = {1, 2, 3, 4, 5}
2. C = {T, O, P} D = {P, O, T} then C = D

Ref:

Mk New edition Bk5 page one exercise 1:1

Mk Old pg 1

**Lesson two**

Sub topic: Joint and disjoint sets

Content: definition of terms

Joint sets have some common elements

Disjoint sets have no common elements

Examples

1. Set M = {1, 2, 3, 4, 5} N = {4, 5, 6, 7,}

MnN = {4, 5}

Set M and N are joint sets

1. P = {man, boy, girl} Q = {tree, leaf, cow}

PnQ = { }

P and Q are disjoint sets i.e.

P Q

**Empty set/Null set**

**Definitions of terms**

Empty set is a set with no member

Symbol for empty set is { } or

Example

A = {a car which can fly like a helicopter} A = Ø or { }

K = {animals which lay eggs} K = not empty set

Union and intersection of sets

Intersection of sets. The symbol used to represent intersection set is Ո

Example A = {a, b, c, e, f, g}, B = {b, d, e, f, g}

AnB = {b, e, f, g}

***Note: common elements must be identified i.e. by circling, ticking or crossing them. This is the main subject competence.***

Union of sets the symbol used to represent Union set is U

Examples P = { } Q = a, b, , }

PuQ = { , a, b }

Ref:

Old mk edition bk5 page 3-4

Understanding mtcbk 5 pg 5

Remarks

**Lesson three**

Sub topic: use of Venn diagrams to represent intersection and union sets

Content: naming parts of a Venn diagram

Elements found in set A B elements found in set

A only B only (B-A) or A1

(A-B)

Or B1

Intersection

Example : Show the information below on the venn diagram

A = {a, b, c, d} B = {e, b, f, g, h} AnB = {b}

**A B**

A = {1, 2, 3, 4} B = 2, 3, 5, 7}

**A B**

1

AuB = {1, 2, 3, 4, 5, 7}

n(AuB) = 6members

2. Use thevenn diagram to answer the questions

**X Y**

1 2 7 0

3 4 5

List the members of set Y

X = {2,4,7,0,5}

Find

1. X∩Y
2. (X∪Y)
3. n(X∪Y) = 7 elements /members

ref:

Mk new edition bk5 page 5

Mk old edition bk5 page 5

Understanding mtcbk 5 pg 5-6

Remarks

**Lesson 4**

Sub topic: difference of sets (complements)

Content: A = {a, b, i, c, d, e} B = {e, d, g, f, i, h, j}

A B

1. A – B = {a, b, c} of (B)’
2. B – A = {g, I, f, h} or (A)’
3. N(A – B) = 3members
4. N(B – A) = 4members

Note: A – B means members in set A only but not in set B (B complement) B1

B – A means members in set B only but not in set A (A complements) A1

B1 = {a, b, c}

A1 = {g, j, h}

Ref

Mk new edition 2000 bk5 page 13-14

Mk old bkpg 14-17

**Lesson 5**

Sub topic: sub sets

Content: definition of terms

A sub set is small set found in a big set

Universal set is a set that contain other smaller sets

Universal set is a subset itself though not a proper subset.

Symbols used

Sub set

Not sub set ¢

Universal set Є

Examples

P = {1, 2, 3, 4, 5, 6} K = {2, 4, 6} E = {1, 3, 5} Q = {9, 10}

Then

1. ECP( E is a sub set of P)
2. Q¢P (Q is not a sub set of P0
3. P = Є( P is a universal set of K and E)
4. Represent the given sets on the Venn diagram

P = ε

K E

P

Q

E P

Ref:

Mk old edition exercise 1m book 5 page 19

**Lesson 6**

Sub topic: finding the number of sub sets

1. By listing
2. By use of a formula

Content: examples

Set K = {a, b, c}

Sub sets of K = {a, b, c}, {a, b}, {b, c} {a, c}, {a}, {b}, {c}, { }

N(C)K = 8 sub sets

The curriculum recommends the use of listing method at this level.

The logical would be that at this level the children have not covered indices and prime factorization.

Using the formula to find the number of elements in set K

n( ) K = 2n where n stand for number of element is K

23

2 x 2 x 2

8 sub sets

Note:

1. Any set is a sub set of itself
2. An empty set is a subset of every set

Shading and describing

Shaded regions

Examples

1. Describe the shaded parts

M N P R

Shade

A B X Y

(A-B) (X∩Y)’

Evaluation activity

New MK bk 5 pg 16

**Lesson 8**

Sub topic: probability in sets

Content: idea of probability

Probability of zero e.g. sun setting in the north

Probability of 1 e.g. sun setting in the west

Probability of ½ e.g. tossing a coin to get either head or tail

Tossing a coin

Examples: when you toss a coin, what is the probability of a head showing up

Sample space = {head, tail}

Probability of impossibilities occurs when the chances are mutually exclusive.

N(S) = 2

Number of events = (head)

= n(E) – 1

Toss 2 coins probability of getting two head appearing

Samples = (H.H) (H.T), (T, T), (T, H)

Number of event = n (E) two heads 1

Ref

Mk old edition bk5 page 22-23

Mk new edition pg 118

Remarks

Lesson 9

Sub topic: tossing a die

Content: examples

What is the chance of 2 appearing when a dice is tossed once?

Sample space = { 1, 2, 3, 4, 5, 6} n(S) = 6

No of events = {2} n(E) = 1

Probability of different items e.g there are 10 pencils in a tin, 3 of them are red and the rest are black, what is the probability of picking a black pencil randomly?

**Ref**

Mk old edition bk5 exercise 10 page 23

Remarks

**Topic two**

**Topic: Numeration and place value**

**Sub topic: types of number systems**

Lesson one

Content: (a) Hindu and Roman numerals

Hindu Roman

1 I

5 V

10 X

50 L

100 C

500 D

1000 M

Example

1. Write 19 inRoman numerals

19 = 10 + 9

= X + IX

= XIX

1. Practice changing 4, 9, 6, 11, 40, 60, 90, 99 etc to Roman numerals and vice vasa

**Ref:**

Mk New edition Bk 5 page 24

Understanding mtcpg 31

Old MK pg 50

**Lesson 2**

Content: change the given Roman numerals to Hindu Arabic numerals

Example

1. Write XLIX into Hindu Arabic

XLIX = XL + IX

XLIX = 40 + 9

XLIX = 49

1. Practice changing iv, vi, ix, lx, xc, xcix etc to Hindu Arabic numerals and vice versa

**Ref**

Mk New edition Bk 5 pg 38

Understanding mtchpg 31

MK Old bk 5 pg 50

Remarks: ..................

**Lesson 3**

Sub topic: addition and subtraction of Roman numerals

Content:

Example

1. Add XXIV + XIX

XXV = XX + IV XIX = X + IX 24 43 = 40 + 3

XXIV = 20 + 4 XIX = 10 + 9 43 = XL + III

XXIV = 24 XIX = 19 43 = XLIII

1. Subtract CV – LV

CV = C + V LV = L + V 105

CV = 100 + 5 LV = 50 + 5 -55

CV =105 LV = 55 50 = L

Ref

Mk old edition bk 5 pg 53

MK new pg 38

Understanding mtcpf 32

Remarks: ......................

**Lesson 4**

Sub topic: place value of whole numbers

Content: Writing place value and finding values

Example

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| H/th | T/th | Th | H | T | O |
| 1 | 3 | 4 | 6 | 7 | 8 |
| Hundred thousands | Ten thousands | Thousands | Hundreds | Tens | Ones |

The place value of 6 is hundreds

Values of digits in whole numbers

Example

Write the value of each digit in the number 123768

1 2 3 7 6 8

Ones = 8 x 1 = 8

Tens = 6 x 10 = 60

Hundreds = 7 x 100 = 700

Thousands = 3 x 1000 = 3000

Ten thousands = 2 x 10,000 = 20000

Hundred thousands = 1 x 100,000 = 100,000

1. Find sum of the place value of 6 and value of 3 in the number 3726
2. Workout the difference between the place value and value of 8 and 2.

Ref

Old edition pg 30-32

New Mk pg 26-27

Understanding math bk 5 pg 15

Remarks: ..................

**Lesson 6**

Sub topic: writing figures in words

Content:

Note: we use three zeros ‘000’ to write a thousand

Examples

Write the following figures in words

1. 62 = sixty two
2. 108 = one hundred eight
3. 9405 = nine thousands four hundred five

Ref

New Mk pg 28

Mk Old Edition Pg 33-34

Understanding mtcbk 5 pg 15

Remarks: ...............

Lesson 6

Sub topic: writing numbers in figures

Content: writing number in figures

Examples

Write in figures

1. Four hundred twenty five thousand three hundred seventeen

Four hundred twenty thousand = 425,000

Three hundred seventeen = + 317

425,317

Ref

Mk New edition Bk 5 page 29 and Mk old edition page 34

Understandingmtcbkl 5 pg 7

**Lesson 7**

Sub topic: forming numerals from digits

Content: example

Write down the numbers formed by the digits 3, 7, 5

375, 357, 537,573, 735, 753

Biggest number formed = 753

Smallest number formed = 357

Note: The biggest number is formed using descending order (big to small)

The smallest number is formed using ascending order (small to big)

**Note: use examples with zero as a digit also.**

Ref

Mk New editionBk5 pg 25 and Mk old edition pg 29

Understanding mtcbk 5 pg 19

Remarks:.................

**Lesson 8**

Sub topic: expanding whole numbers

1. Using values
2. Using place values
3. Using exponents (powers)
4. Expand 7394 using values = 7000 + 300 + 90 + 4
5. Expand 3780 using place values: 3780 = (3 x 1000) + (7 x 100) + (8 x 10) + (0 x 1)

Sub topic: expanding numbers

1. Using power of 10 (exponents)

Expand 7914 using powers of ten (10)

7914 = (7 x 103) + (9 x 102) + (1 x 101) + (4 x 100)

Ref

Mk old edition bk5 pg 39

New mkbk 5 pg 31

Remarks: ............

**Lesson 9**

Sub topic: changing form expanded form to single numbers

Content: writing expanded numbers as single numerals

Examples

Write (4 x 1000) + (5 x 100) + (7 x 10) + (3 x 1)

4000 + 500 + 70 + 3

4000

500

70

+ 3

4573

Ref

Mk new edition bk5 pg 32

Mk Old [g 39-41

Understanding mtcbkpg 33

**Lesson 10**

Sub topic: **ROUNDING OFF WHOLE NUMBERS**

Content:

Examples

1. Round off 53 to the tens

53

+00

50

1. Round off 55 to the tens

55

+10

60

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

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

Ref

Mk new edition bk 5 page 39-44

Mk old 54-55

Understanding mtcpg 20-22

Remarks: .....................................

**TOPIC THREE**

**Topic: OPERATION ON WHOLE NUMBERS**

Lesson one

Sub topic: Addition of large numbers

Content: addition

Example

Add: 473442

+369215

842657

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

109000/=

+ 3500/=

112,500/=

Ref

Mk New edition Bk5 page 48 -49

MK old edition pg 58-60

Understanding mtcbk 5 pg 36-38

Lesson 2

Sub topic: subtraction of large numbers

Content: subtraction

Example

Subtract: 123643

- 14262

109,381

By how much is 367015 greater than 346729?

367015

-346729

20286

Ref

Mk New edition Bk5 page 50-57

Understanding mtcpg 40-44

Remarks

**Lesson 3**

Sub topic: multiplication

Content: multiplication of numbers by one digit

Example

450 x 6

450

X 6

2700

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

750/=

x 9

6750/=

Evaluation activity

Mk New edition Bk5 page 52

Mk old pg 53

Understanding mtcbk 5 pg 45-48

Remarks

**Lesson 4**

Sub topic: multiplication by two digit figures

Content: example

Multiply : 35

x 12

70

+350

420

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

109

X 33

327

+3270

3597 pupils

Ref

Mk Old edition Bk5 page 64 – 67

Mk new edition bkpg 53-56

Understanding mtcbk 5 pg 46-50

**Lesson 5**

Sub topic: division of numbers

Content: without remainders

Example

Divide 864 by 6

144

= 144

26

- 24

24

- 24

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

Divide 4824 by 12

402

12 4824

-48

002

- 0

24

-24

00

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

Evaluation activity

Mk Old edition Bk5 page 73 and 74 exercise 3N and 30

Remarks

**Lesson 6**

Subtopic : Division of numbers

Content: Division with remainder

Examples

i. Divide 12÷5

02 rem 2

5 12

5x2 10

2

12÷5 = 2 2/5

ii) 126 ÷ 2

031rem 2

4 126

4x0 0

12

4x3 12

-- 6

4x1 4

2

126 ÷ 4 = 312/4

Ref: New Mk bk 5 pg 58

Old MK bkpg 72-74

Understanding mtcbk 5 pg 57-63

**Lesson 7**

Sub topic: combined operation of numbers

Content: BODMAS

Example

Workout ½ of 10 + 15 ÷5

(½ of 10) + 15 ÷ 5

(½ x 10) + 15÷5

5 + (15 ÷ 5)

5 + 3 = 8

Ref

Mk New Edition bk 5 page 63

MK old edition pg 75

**Lesson8**

Sub topic: statistics

Content: definition of terms

1. Mode
2. Range
3. Median

Example

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

Find

1. Mode No Frequency

0 1

2 1

3 2

4 1

6 1

Mode = 3

Modal frequency is 2

1. Range = biggest – smallest

6 – 0 = 6

1. Median = 0, 2, 3, 3, 4, 6

3 + 3= 6

2 2

= **3**

Ref

New Mk pg 64-65

Old MK pg 76

**Lesson 9**

Sub topic: mean/ average

Content: average =

Example

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

Average =

= 6

3

= 2

Comparing averages and total

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

Average age of 12 is 9

Total age = (12 x 9) years

Total age = 108years

Ref

Mk Old edition bk5 page 76-79

New MK bk 5 pg 64-65

Remarks

**Lesson 10**

Sub topic: comparing numbers using symbols

Content: use >, < , =

375 \_\_\_\_\_\_\_\_\_752

5 + 6 \_\_\_\_\_\_\_\_\_6 + 5

¼ \_\_\_\_\_\_ 2/8

**Ref**

Teacher’s collection

New Mk pg 66

Remarks

**Lesson 11**

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

Ref

Mk new edition bk5 page 67

Remarks:

**Lesson 12**

Sub topic: bases

Content: grouping items in base five and ten

Example

In base tenIIIIIII means 7 ones

In base five IIIIIII means IIIII and II

= 1 group of fives 2ones

= 12five

Ref

Mk old Edition bk 5 page 81

New MK pg 69

Remarks:

**Lesson 13**

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

Content:

Example

423five = 4 2 3

Ones = 1

Fives = 5

Five fives (twenty fives) = 25

Reading bases in words

Ref

New MK pg 71

Old Mk 84

Remarks

**Lesson 14**

Sub topic: expanding in base five

Content: example

Expand 13five

13

Ones

Fives

= (1 x fives) + (3 x ones) = (1 x 51) + (3 x 50)

**Ref**

Old Mk pg 85

New MK pg 71

Remarks

**Lesson 15**

Sub topic: changing to base ten/ decimal base

Content: example

Change 14five to base ten

14five = (1 x fives) + (4 x ones)

= (1 x 51) + (4 x 50)= 5 + 4 = 9ten

Ref

Old MK pg 85

New Mk pg 71

Remarks

**Lesson 16**

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

= 56ten = 211five

Ref

OlfMkpg 86

New MK pg 73

Remarks

**Lesson 17**

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

Content: example

Add 3five + 4five

3five 7÷ 5 = 2 rem1

+4five

12five

Ref

Old MK pg 87

New Mk pg 73

Remarks

**Lesson 18**

Sub topic: subtraction in bases

Content: example

Subtract 123five – 24five

123five

-24five

44five

Ref:

Teacher’s collection

Remarks

**Lesson 19**

Sub topic: multiplication of bases

Content: example

Multiply: 421five x 3

421five **SDW/side work**

x 3five 6 ÷ 5 = 1 rem 1

2313five 13 ÷ 5 = 2 rem 3

**Note:** emphasize should be put on side work.

Ref

Old MK pg 88

New MK pg 74

Remarks:

**Lesson 20**

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

Ref:

Old Mk pg 89-91

**Lesson 21**

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

Content: example

2 + 3 = \_\_\_ (finite 5)

5 ÷ 5 = 1 rem 0 (finite 5)

= 0 (finite 5)

Dial method in addition of finite

Ref:

Old MK pg 92-94

Remarks

**Lesson 22**

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**

**Lesson 1**

**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

Ref

Old Mk pg 68-69

Remarks

**Lesson 2**

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

Old MK pg 70

**Lesson 3**

Sub topic: multiples of numbers

Content: definition of terms

1. A multiple is a product of two numbers

Example

1. M5 = {5, 10, 15, 20, 25, ..............}
2. M4 = {4, 8, 12, 16, ...................}

Ref

Old Mk pg 99

New MK pg 79

Remarks

**Lesson 4**

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

Content: listing method

Ladder method

Example

Find LCM of 4 and 6

M4 = {4, 8, 12, 16, 20, 24, 28, 32, 36, ...........}

M6 = {6, 12, 18, 24, 30, 36, .................}

Common multiples = {12, 24, 36, ……}

LCM = 12

**Note:** Common members must be identified.

Ladder method

|  |  |  |
| --- | --- | --- |
| ÷ | 4 | 6 |
| 2 | 2 | 3 |
| 2 | 1 | 3 |
| 3 | 1 | 1 |

2 x 2 x 3

4 x 3 = 12

Ref

New Mk pg 80

Old MK pg 100

Remarks

**Lesson 5**

Sub topic: **Factors of Numbers**

Content: definition

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

Example

Multiplication division

F12 1 x 12 = 12 12 ÷ 1 = 12

2 x 6 = 12 12 ÷ 2 = 6

3 x 4 = 12 12 ÷ 3 = 4

F12 = {1, 2, 3, 4, 6, 12} F12 = {1, 2, 3, 4, 6, 12}

Ref

New Mk pg 82

Old Mk pg 102

**Lesson six**

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 Ref

F12 = {1, 2, 3, 4, 6, 12} New Mk pg 82

F18 = {1, 2, 3, 6, 9, 18} Old Mk pg 102

CF = {1, 2, 3, 6} Remarks

GCF = 6

**Lesson seven**

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 4 = 1 x 4

F13 = {1, 13} 4 = 2 x 2

13 is a prime number F4 = {1, 2, 4}

4 is a composite number

Activity

New MK pg 83

Remarks

**Lesson eight**

Sub topic: prime factorization

Content: we use any prime numbers when prime factorizing

Example **Ladder method**

**Prime factorize**

|  |  |
| --- | --- |
| ÷ | 12 |
| 2 | 6 |
| 2 | 3 |
| 3 | 1 |

12

1 6

2 3

3 1

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

In set notation form 12 = 21, 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 = 23 x 31

**Ref**

New MK pg 84-85

Old MK pg 103-105

Remarks

Lesson nine

Sub topic: find GCF using prime factorization method

Find the GCF of 12 and 18 using prime factor and LCM

2 x 3 = 6

GCF = 6

|  |  |  |
| --- | --- | --- |
| ÷ | 12 | 18 |
| 2√ | 6 | 9 |
| 2 | 3 | 9 |
| 3√ | 1 | 3 |
| 3 | 1 | 1 |

**Note**: identify the common factors

|  |  |  |
| --- | --- | --- |
| ÷ | 12 | 18 |
| 2 | 6 | 9 |
| 3 | 2 | 3 |

LCM = product of union of factors

LCM = 2 x 2 x 3 x 3

LCM = 4 x 9

LCM = 36

**Ref**

New MK pg 86-87

Old MK pg 106-107

**Lesson ten**

Application of LCM

Content: examples

Find the least number of pens which can be shared among 3 or 4 pupils and the remainder is 1

2 3 4 = (2 x 2 x 3) + 1

2 3 2 = (4 x 3) + 1

3 3 1 = 12 + 1

1 1 = 13pens

Ref:

Teacher’s collection

**Lesson eleven**

Sub topic: square numbers

Content: example

Find the square of 4

Find the area of the square

42 = 4 x 4 = 16

A = 6 x 6

= 36sq units

6

**Ref**

New MK pg 88

Old Mk pg 108

Remarks

**Lesson twelve**

Sub topic: square roots

Content: definition of terms

A square root is a number that is multiplied by itself to get a square number

Example

Find the square root of 36

|  |  |
| --- | --- |
| ÷ | 36 |
| 2 | 18 |
| 2 | 9 |
| 3 | 3 |
| 3 | 1 |

(2 x 2√) x (3√ x 3)

2 x 3 = 6

36

**2**

2 18

2 6

**3**

3 3

3 1

(2 x 2) x 93 x 3)

2 x 3 = 6

**Ref**

New Mk pg 89

Old Mk pg 108-109

Remarks

**Lesson thirteen**

Sub topic: application of square roots

Content: example

If X2 = 9 Find X 9

3 3

3 1

X = 3

The area of a square is 16cm2. Find the length of one side of the square

S x S = Area

S2 = 16cm2 2 16

2 8

S = 2 x 2 2 4

S = 4cm 2 2

1

**Lesson 14**

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

**Lesson 15**

Sub topic: number patterns

Content: example

Fill in the missing numbers

1. 25, 24, 21, 16, \_\_\_, \_\_\_

25 24 21 16 9 0

-1 -3 -5 -7 -9

1. 1, 3, 6, 10, 15, \_\_\_

1 3 6 10 15 21 28

+2 +3 +4 +5 +6 +7

**2.**Example: find the sum of the missing numbers

1, 4, 9, \_\_\_, 25, 36, \_\_\_, 64

1 4 9 16 25 36 49 64

+3 +5 +7 +9 +11 +13 +15

Sum = 16 + 49 = 65

**Ref**

Old MK pg 113-114

New Mk pg 91-92

Remarks

**Lesson 16**

Sub topic: completing puzzles

Content: magic square

Example

Complete the magic square below

|  |  |  |
| --- | --- | --- |
| 8 | a | B |
| d | 5 | C |
| 4 | e | 2 |

Magic sum = 8 + 5 + 2 = 15

Ref

Understanding mtcpg 89-91

Remarks

**Topic: Fractions**

**Lesson one**

Sub topic: types of fractions

Content:

1. Proper fractions (numerator is less than the denominator ½ )
2. Improper fractions (denominator is less than the numerator 4/3 )
3. Mixed fraction (vulgar fractions) includes a whole number and a proper fraction)
4. Decimal fractions (numbers with a point)
5. Expressing improper fraction as mixed fraction
6. Expressing mixed fraction as improper fraction

Example

Express as a mixed number

Express as a mixed number

**Ref**

Old Mk pg 116-117

New Mk pgpg 115-116

Remarks:

**Lesson two**

Sub topic: equivalent fractions

Content: examples

½ ,2/4, 3/6 , 4/8

Ref:

New MK pg 117

Old MK pg 120

Remarks

**Lesson three**

N D

2 12 24

2 6 12

3 3 6

**1 2**

12 = 1

24 2

Use only common factors /divisor

Sub topic: reducing fractions

Content: example

Reduce to its lowest terms

GCF = 12

Ref

New Mk pg 118

Old Mk pg 121

Remarks:........

**Lesson four**

Sub topic: ordering fractions

Content: using ascending and descending order

Examples : arrange in ascending order

LCM = 12

In ascending order ¼ ,1/3 , ½

In descending order ½ ,1/3 , ¼

Ref

New MK pg 119

Old Mk pg 125

Remark:...........

**Lesson five**

Sub topic: comparing fraction using symbols

Content: >, <, or =

Examples which is greater 1/3 or ¼

LCM of 3 and 4 = 12

= 4(greater) = 3 (less)

Ref

New MK pg 120

Old Mk pg 126

Remarks:...........

**Lesson six**

Sub topic: Addition of fractions

Content: different denominations

Examples: Add

**Ref**

New Mk pg 121

Old MK pg 127

Remarks:..................

**Lesson seven**

Sub topic: Addition of whole numbers and fractions

Content: Examples:

LCD = 4 5

= 5 ¾

5 rem 3

Ref:

New Mk pg 122

Old MK pg 128

Remarks

**Lesson eight**

Sub topic: Addition of mixed numbers

Content: examples

½ + 3 ¼

3 + (½ + ¼)

**Ref**

New MK pg 123

OlfMk p 129-131

Remarks:.....

**Lesson 9**

Sub topic: Word problems involving addition of fractions

Content: example

John filled ½ of a tank in the morning and 2/5 in the afternoon. What fraction of the tank was filled with water?

of the tank

**Ref**

New MK pg125

Old MK pg 131-132

Remarks

**Lesson 10**

Sub topic: Subtraction of fractions

Content: different denominators

Examples: Subtract LCM is 6

**Ref**

New MK pg 126-127

Old MK pg 133

Remarks:.............

**Lesson 11**

Sub topic: Subtraction of fraction from whole numbers

Content: Examples

Subtract 5 – ¾

**Ref:**

New Mk pg 126

Old MK pg 117-118

Remarks:...............

**Lesson 12**

Sub topic: Subtraction of mixed fractions

Content: Examples

**Ref**

New MK pg 126

Old MK pg 133

**Lesson 13**

Sub topic: Word problems in subtraction of fractions

Content: examples

A baby was given 5/6litres of milk and drunk only 7/12litres. How much milk remained?

Ref

New Mk pg 127

Old MK pg 134

Remarks:..........

**Lesson 14**

Sub topic: Combined addition and subtraction

Content: example

Workout:

**Ref**

New Mk pg 128

Old Mk pg 135 – 136

Remarks

**Lesson 15**

Sub topic: Multiplication of whole and fractions

Content: using repeated addition (number line)

Using factor

Example multiply 4 x ½ = 2

4/1 x ½

2x 1 ½ ½ ½ ½

1 x 2 = 2

0 ½ 1 1 ½ 2 2 ½ 3 3 ½ 4

**Ref**

New Mk pg 129

Old Mk pg 137

Understanding mtcpg 119

Lesson 16

Sub topic: Multiplication of fractions by a whole

Using “of”

Example simplify: ½ of 16

½ x 16 = 8

**Ref**

Understanding mtcpg 119-120

New MK pg 129-130

Old Mk pg 137-138

Remarks:............

**Lesson 18**

Sub topic: multiplication of unit fraction

Content: example

½ x ¾

1 x 3 = 3

2 x 4 8

Application of fractions

What is ¼ of 1hour?

1hr = 60min

1hr =1 x 60min

4 4

= 15 min.

Ref

New MK pg 131

Old MK pg 138

**Lesson 18**

Sub topic: multiplication of mixed fraction by mixed fraction

Examples

1 ½ x 1 ¼

**Ref**

Old Mk pg 138

Remarks

**Lesson 19**

Sub topic: division of fractions

Content: reciprocals of whole numbers

Example

Find the reciprocal of

1. 2 Let the reciprocal be k

2 x k = 1

1. ¼ Let the reciprocal be y
2. Let the reciprocal be x

Note: reciprocal is used instead of upside down

**Ref**

New Mk pg 131

Old MK pg 141

Remarks:

**Lesson 20**

Sub topic: Division of wholes by fraction

Content: examples

Workout using reciprocal

Using the LCM

**Ref**

New Mk pg 135

Old Mk pg 142

Remark:.....

**Lesson 21**

Subtopic: Word problems

Content: examples

1. How many ¼ loaves of bread can be got from 3 loaves of bread?
2. Using LCM and LCM = 4

**Ref**

New MK pg 136

Old MK pg 144

Remark........

**Lesson 32**

Sub topic: Division of fractions by whole numbers and vice versa

Content: example

1. Divide
2. Divide

**Ref**

New Mk pg 137-139

Note: give examples on division of mixed fraction and whole number and vice versa

Remarks

**Lesson 23**

Sub topic: division of a fraction by fraction

Content: example

Divide

Old MK pg 144

Teacher’s collection

Remarks

**Lesson 24**

Sub topic: Division of mixed numbers

Content: example

Workout:

Ref

Teacher’s collection (see bk6)

**TERM II**

**Topical breakdown**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Theme** | **Topic** | **Sub-topic** | **Duration** | **Learning outcome** |
| Numeracy | Fractions | * Converting fractions into decimals and vice versa * Place values of decimals upto hundredths * Finding values of digits in decimals. * Reading and writing decimals in figures and vice versa. * Ordering decimals using a number line / LCM. * Addition and subtraction of decimal numbers * Word problems involving addition and subtraction of decimals. | 2 week | The learner is able to solve problems involving decimals related to real life situations. |
| Geometry | Lines, angles, and geometrical figures | * Construction of; * Parallel lines * Perpendicular lines * Angles * Drawing angles * Measuring angles * Constructing angles (90, 60, 120 only) * Constructing simple shapes using pencils, ruler and a pair of compasses. * Square, rectangle, and equilateral triangle * Lines of folding symmetry * Rectangles * Square * Kites and other shapes * Circles * Construction of hexagons only in a circle | 2 weeks | The learner is able to recognize and construct various geometric figures and relate them to other fields such as architectural drawings. |
| Integration of graphs and data handling | Data handling | * Draw graphs, (bar, picto and line graphs) * Recognize scales on; * On bar graphs * Picto graphs * Line graphs * Interpreting information on graphs * Working out the average of the data. | 2weeks | The learner is able to interpret and solve problems related to graphs |
|  | Time | * Telling time on the 12 hour clock only. * Converting hours to minutes and vice versa. * Finding duration in the same time zone. * Finding time, distance and speed. * Solving word problems involving time, distance and speed. * Operation on time (addition and subtraction) * Hours and minutes * Weeks and days | 2weeks | The learner is able to apply the knowledge of time in real life situations. |

**TOPIC: FRACTIONS**

**Lesson 1**

Sub topic: decimals

Content: place values in figures and words

Examples: what is the place value of each digit in 0.75?

0.75 = 0 . 7 5 6

Thousandths

Hundredths

Tenths

Ones (1)

REF

Mk New edition Bk5 page 67

**Lesson 2**

Sub topic: values of digits in decimals

Content: find the value of each digit in 67.253

67.253

Thousandths

Hundredths

Tenths

Ones (1) = (7 x 1) = 7

Tens (10) = (6 x 10) = 60

Ref

Mk New Edition Bk5 page 68

Old Mk Bk5 page 46

Remarks:........

**Lesson 3**

Sub topic: writing decimal fractions in words

Content:

Examples

1. Write 0.75 in words

0.75 =

Seventy five hundredths

1. Write 23.137 in words

23 and

Twenty three and one hundred thirty seven thousandths

Ref

Old MK pg 46

New MK pg69

Remarks

**Lesson 4**

Sub topic: writing decimal fraction in figures

Content: Write sixty three and twenty five hundredths in figures  
36 and

63+ 0.25

63.00

+0.25

63.25

Activity

New Mk Bk5 page 70

Old mk Bk5 page 47

Remarks

**Lesson 5**

Sub topic: Expanding decimals

Content: using values

1. Using values

Examples

Expand 6.25

6.25 = 6 + 0.2 + 0.05

ii) Using powers

6.25 = (6 x 1) + (2 x 10-1) + (5 x 10-2)

Ref

Old MK pg 48-49

New MK pg 36

Remarks:

**Lesson 6**

Sub topic: Rounding off decimals

Content: round off

0.625 to the nearest tenth

0.625

+ .0

0.6

Round off to the nearest hundredths

10.269

+ 10

10. 27

Ref

Old Mk Maths Bk5 pg 56

Remarks

**Lesson 7**

Sub topic: decimal fractions

Content: Expressing common fractions as decimals

Example (i) (ii) (iii)

Note: Zero before a decimal point is used to keep the place for the whole number

Ref

Exercise 6:29 and also exercise 5z page 145/ 146 old edition bk5

Remarks

**Lesson 8**

Sub topic: expressing mixed fractions as decimals

Content: examples

Ref

Exercise 6:30 page 142 New Mk Bk5

Exercise 5z page 147 Old Mk Bk5

Remarks

**Lesson 9**

Sub topic: converting decimals to common fractions

Content: examples

Convert 0.5 to a common fraction

Ref

Exercise 6:31 page 143 New Mk Bk5

**Lesson 10**

Sub topic: comparing decimals using symbols

Content: using symbols >, < and =

Compare 0.3\_\_\_\_\_\_\_\_\_0.5

0.0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9

0.3 > 0.5

**Ref**

Exercise 3:32 page 145 New Mk Bk5

Exercise from teacher’s collection

Remarks

**Lesson 11**

Sub topic: Ordering decimals

Content: example

Arrange 0.1, 1.1, 0.11 from smallest to greatest and vice versa

0.1, 0.11, 1.1 ascending order

1.1, 0.11, 0.1 descending order

**Ref**

Exercise 6:33 page 145-146 New Mk Bk5

Exercise 5z page 149 Old Mk Bk5

Remarks

**Lesson 12**

Sub topic: addition of decimal fractions

Content: example

Add: 0.45 + 13.2 + 5.2

0.45

13.2

+5.2

18.85

Ref

Exercise 6:34

New Mk pg 77

Remarks

**Lesson 13**

Sub topic: subtraction of decimal fractions

Content: example

Subtract 13.69 from 97.4

97.4 – 13.69

97.40

-13.69

83.71

Ref

Exercise 6:34

New Mk Bk5pg 79

Remarks

**Lesson 14**

Sub topic: Addition and subtraction of decimals

Content: example

13.75 – 27 + 91.25

BODMAS

13.75 + 91.25 – 27

13.75

+91.25

105.00

-27.00

78.00

Activity

New MK pg81 / old Mk pg 150

**Lesson 15**

Sub topic: multiplication of decimals by 10, 100 and 1000

Content: examples

6.25 x 10 6.25 x 100

**Ref**

Exercise 5z page 151 Old Mk Bk5

Remarks

**Lesson 16**

Sub topic: multiplication of decimals by decimals

Example: multiply 0.06 x 0.6=

Ref

Exercise 5z page 152 Old Mk Bk5

Remarks

**Lesson 17**

Sub topic: application of decimals in multiplication

Example: One rope measures 4.75metres. How long in metres will 2.5 ropes be if they are joined together?

1 rope measures 4.75m. 2.5ropes measures?

4.75m x 2.5 =

475

+25

2375

+9500

11875

Ref

Exercise 5z page 153 to 154 old edition bk5

Remarks

**Lesson 18**

Sub topic: Division of decimals

Content: examples

Divide: 0.12 ÷0.6 =

Division of decimals by whole number and vice versa

Ref:

Old Mk pg 155

**Lesson 19**

Sub topic: Application of division of decimals

A tailor uses 1.8m to make a pair of shorts. How many pairs of shorts will he make from 12.6m?

Let the number of pairs be y

Ref :

Exercise 5z page 156 Old Edition Mk Bk5

**GEOMETRY**

**Lesson one**

Sub topic: parallel lines

Content: definition

These are lines that are equal distance apart and don’t meet when extended in both directions

Drawing parallel lines

Using a ruler

Using ruler and set squares

Ref

Old MK pg 228

New Mk pg94

Remarks: ...........

**Lesson two**

Sub topic: intersecting and transversal lines

Content: naming points of intersection lines EF and GH are transversal lines

A

C

B

D

e f

g h

F

E

a b

g d

Ref

New MK pg95

Old Mk pg 231

Remarks:

**Lesson three**

Sub topic: perpendicular lines

Content: definition of perpendicular lines

Naming perpendicular lines from given figures

Drawing or construction of bar lines using pairs of compasses and ruler with pencil only.

K

M L N

N

B

D

A

KL and ND are perpendicular lines to MN and AB respectively.

Ref

New Mk pg95-96

**Lesson four**

Sub topic: polygons

Content: naming polygons

Types of triangles

* Equivalent triangles
* Isosceles triangle
* Right angled triangle

Types of quadrilaterals

* Rectangle
* Square
* Trapezium
* Rhombus
* Kite

Other regular polygons up to 12 sided polygons

Drawing polygons using ruler and pencils (sketches)

**Types of polygons**

|  |  |
| --- | --- |
| **Name** | **No of sides** |
| Pentagon | 5 |
| Hexagon | 6 |
| Septagon / heptagon | 7 |
| Octagon | 8 |
| Nonagon | 9 |
| Decagon | 10 |
| Nuodecagon | 11 |
| Duodecagon | 12 |

Ref:

Old mkbk 5 page 202 exercise 8d

Remarks: ...................

**Lesson five**

Subtopic: lines of symmetry

Content: defining

Lines of symmetry divide figure into two equal or congruent parts

Drawing and counting the lines of symmetry of i.e. triangles, quadrilaterals e.g.

Nb: child draw and labels

Ref

Old MK pg 231

New mk math bk 5 page 184-185

Remarks: ...........

**Lesson six**

Sub topic: construction of circles

Content: parts of a circle of different radii and diameter

Drawing circles of radius 3cm

Sub topic: constructing and equilateral triangle in a circle

Content: pupils will use a pair of compasses and a pencil to construct circles equilateral triangles and inscribe

Ref

New Mk pg 186-187

Old Mk pg 250

**Lesson seven**

Sub topic: Constructing an equilateral triangle without a circle

Example:

Construct an equilateral triangle of side 4cm

**Lesson eight**

Sub topic: constructing a regular hexagon

Content: pupil will use a pair of compasses and a pencil to construct a regular hexagon in a circle.

Ref

Old Mk pg 251

New MK pg 188

**Lesson nine**

Sub topic: constructing square in a circlewith and without a circle

Content: pupils will construct squares using different radii

Ref

Old MK mtc book 5 pg 252

**Lesson ten**

Subtopic constructing a rectangle

Content: construction of a rectangle using a pair of compasses

Ref:

Trs’ collection

**Lesson 11**

Sub topic: angles and rotation

Content: definition

Angles is the amount of turning, rotation or opening

Rotation (clockwise or anticlockwise turn through 3600)

Turn clockwise / anticlockwise more through a given angle

Pupils will find the angles that make up turns, half a turn, and a quarter of a turn.

Revolution (a complete turn throughout 3600)

Ref

New MK pg 180-190

Old Mk pg 245-246

Remarks: ............

**Lesson 12**

Sub topic: angles on a compass

Content: pupils will find the different angles between the compass directions

Pupils draw a compass direction

SE

SW

NE

NW

E

W

S

N

450 450

450 450

450 450

450 450

E

W

S

N

900 900

900 900

Ref

New MK pg 191

Old MK pg 247

**Lesson 13**

Sub topic: the clockwise and anticlockwise turns

Content: pupils will find the angles made when one turn clockwise and anticlockwise from the given direction

E

W

S

N

E

W

S

N

Clockwise turn anticlockwise turn

Examples: Through what angle does Sara turn from North to North East direction in a clockwise direction. Ref

New MK pg 192

**Lesson 14**

Sub topic: types of angles

Content: pupils will be guided to name the different types of angles and give examples of such angles

Acute angle, right angle, obtuse angle, straight angle, reflex angle

Acute angle obtuse angles right angle reflex angle

900

00 A 900 900 c 1800 900 1800d3600

Straight angles

1800

1800

Example

Name the types of angles written below

1. 450 b) 2000

Acute angle reflex angle

Ref

New Mk bk 5 pg97

Remarks:

**Lesson 15**

Sub topic: measuring angles using a protractor

Content: pupils will measure different angles using outer scale and inner scale on a protractor with the guidance of the teacher.

Ref

New Mk pg 195

Old MK pg 237

Remarks: .....

**Lesson 16**

Sub topic: constructing angles using pair of compasses.

Content: pupils will different angles using paid of compasses, pencil e.g. construct angles of 900, 1200 , 600

900

Ref:

New mk math bk 5 pg98

Old MK pg 237

**Lesson 17**

Sub topic: supplementary angles and complementary angles

Example: what is the supplement of 450

Let the supbe m

M + 450 = 1800

M + 450 – 450 = 1800 – 450

M + 0 = 1350

M = 1350

Complementary angles

Examples: find the complement of 400

Let the comp < be Y

Y

400

Y + 40 = 90

Y + 40 – 40 = 90 – 40

Y + 0 = 50

Y = 500

Ref

New MK pg102

Old Mk pg 240

Remarks: ................

**Lesson 18**

Sub topic: application of complementary and supplementary angles

Content: find complement of 300

Let the complement be N

N + 300 = 900

N + 300 – 300 = 900 – 300

N + 0 = 600

N = 600

The complement of x is 500. Find the value of x

X + 500= 900

X + 500 – 500 = 900 – 500

X + 0 = 400

X = 400

The supplement of an angle is 720. What is the angle   
let the angle be x

X + 720 = 1800

X + 720 – 720 = 1800 – 720

X + 0 = 1080

X = 1080

Ref

New Mk pg100

Remarks:

**Lesson 19**

Sub topic: finding angles marked with letters on a triangle

Content: examples find the value of a

a + 300 + 900 = 1800

a

300

a + 1200 = 1800

a + 1200 – 1200 = 1800 – 1200

a + 0 = 600

a = 600

**Ref**

New mkmathsbk 5 pg 240

**Topic: DATA HANDLING**

**Lesion one**

Sub topic: pictograph interpretation

Content: Pupils will study the given pictograph and workout numbers about the graphs

|  |  |
| --- | --- |
| Musa |  |
| Mark |  |
| Jack |  |

Key represents 20 oranges

1. How many oranges did Musa get?

1 picture represents 20 oranges

3 pictures represent 20 x 3 = 60 oranges

1. How many more oranges did Jack get than Mark?

Jackgot 4 x 20 = 80 oranges

80 oranges – 40 oranges = 40 oranges

Jack got 40 more oranges than Mark

Ref

New Mk: Maths book 5 pg113-114

Curriculum pg 97-98

**Lesson 2:**

Sub topic: drawing pictographs

Content: drawing pictographs using the given information and scale

Example

If represents 10 balls. Draw similar pictures to represent 30 balls

Ref

New MK bk 5 pg 115

**Lesson 3:**

Sub topic: reading and interpretation of tables

Content: pupils will read and interpret given information then answer questions that follow

Example: Draw the table)

1. How many eggs were collected on Tuesday?

10 eggs

1. How many eggs were collected in a week?

40 + 10 + 25 + 17 + 53 = 78 + 67 = 145 eggs

1. Find the average number of collected eggs.
2. Range

Range = highest – lowest

Range = 53 – 10 = 43 eggs

1. Median

10 17 25 40 53

25

Ref

New Mk MathsBk 5 pg115

Remarks: ...........

**Lesson 5**

Sub topic: bar graphs – interpretation

Content: pupils will study given bar graphs and answer the questions that follow

Evaluation activity

New mkmathsbk 5 page 116

Curriculum pg 97-98

**Lesson 6:**

Sub topic: drawing bar graphs from tables

Content: pupils will use given tables and scale to draw bar graphs and answer questions that follow

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Number of pupils | 10 | 15 | 5 | 20 | 25 | 10 |
| Types of food | Irish | Millet | Posho | Cassava | Matooke | Yams |

25

20

15

10

5

0

Irish Millet Posho Cassava Matooke Yams

Types of food

Ref

New MK mathsbk 5 pg116-120

Remarks: .............

**Lesson 7**

Sub topic: recording information from a bar graph to a table

Content: pupils will study given bar graphs and record given information on a table

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Class | P.1 | P.2 | P.3 | P.4 | P.5 | P.6 | P.7 |
| Number of pupils | 15 | 20 | 10 | 25 | 20 | 15 | 5 |

25

20

15

10

5

0

P.1 P.2 P.3 P.4 P.5 P.6 P.7

Ref

New Mk MathsBk 5 Pg 116-120

Teacher guides pupils through example on page 230 and evaluate them

Remarks:

**Lesson 8**

Sub topic: bar line graphs (interpretation)

Content: pupils will study given bar line graphs and answer the questions that follow

Evaluation activity

New Mk Bk 5 Pg124-127

Remarks: .........................

**Lesson 9**

Sub topic: drawing bar line graphs

Content: pupils will study given tables and use information to draw bar line graphs

Evaluation activity

Teacher’s guidance (do as in bar graph) as in lesson 6 and 7

New Mk Mathsbk 5pg 121-123 exercise 8:16

Remarks

**TOPIC: TIME**

**Lesson 1**

Sub topic: telling time using am and pm (12hour clock system)

Content:

Example

What is the time in

1. The morning 3.00am
2. The afternoon 3.00pm

Ref

New MK maths bk5 pg129-133

Curriculum pg 98-99

Remarks:..............

**Lesson 2**

Sub topic: Addition and subtraction of time

Content:

Examples

Add hrs min side work

6 25 25 65 = 1.05

+2 40 40 60

9 05 65

Subtract hr min

34 10 60 + 10 = 70

- 22 55 - 55

11 15 15

11hours and 15mins

Ref

Tr’s collection

Understanding mtcpg 228-229

**Lesson 3**

Sub topic: finding duration of time

Content

Mugole started walking from home at 7.15am and reached town at 9:15am. How long did it take him?

Reached 9 15am

Started -7 15am

He took 2 00

Namata started crying at 7.15am and stopped at 8.00am. How long did it take her?

8 00am 60

-7 15am -15

:45 45 She took 45 minutes

Ref

New mkmaths bk5 pg136

Old mkmaths bk5 pg 219

Remarks:...............

**Lesson 4**

Sub topic: finding distance

Content:

Example

Find the distance a driver covers in 2hours at a speed of 90km/hr

Distance = speed x time

Distance = 90km/hr x 2hrs

Distance = 180km

Ref

New MK maths bk5 pg138-139

Remarks:..................

**Lesson 5**

Sub topic: finding time

Content: time = distance

Speed

Example

Calculate the time taken by a car travelling at 60km/hr to cover a distance of 480km

Ref

New MK maths bk5 pg140

Remarks:..............

**Lesson 6**

Sub topic: finding speed

Content

Example

What is the average speed of a cyclist travelling a distance of 150km in 3hours?

Ref

New MK maths bk5 pg141

Remarks:

**MATHEMATICS P.5 LESSON NOTES TERM III**

**Topical breakdown**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Theme | Topic | Sub-topic | Duration | Learning outcome |
| Measurements | Money | * Recognition of money * Simple rates * Buying and selling (shopping bill) * Table * Listing * Find profits and losses * Cost price and selling price | 1 ½ | The learner is able to solve practical problems related to utilization of Ugandan currency in everyday life. |
|  | Length, Mass, Capacity | * Conversion of length into cm/ km to ma and vice versa. * Calculating perimeter and area of figures i.e. squares, triangles and rectangles only. * Perimeter of a square, triangle and rectangle * Conversion of mass; kg to grams and vice versa. * Solving mathematical problems involving mass. (addition and subtraction) * Conversion of units in capacity. * Solving problems in measurement of capacity. * Addition and subtraction of capacity. | 2 ½ weeks | The learner is able to recognize and use standard instruments and units for measuring length, mass and capacity. |
| Numeracy | Integers | * Drawing numberlines and identifying positive and negative integers * Arranging integers * Comparing integers using symbols ≤,≥ * Addition and subtraction of integers * Mathematical statements and interpreting numberlines. * Solving word problems involving integers. | 2 weeks | The learner is able to solve mathematical problems and puzzles using the knowledge of integers. |
|  | Algebra | * Forming algebraic expressions * Collecting like terms * Substitution * Solving equations by (subtracting , adding) * Word problems involving addition and subtraction. * Solving by dividing * Solving by multiplying * Word problems involving division and multiplication * Solving equations involving mixed equations. * Solving equations involving square roots * Application of algebra in (perimeter, area and volume) | 2 weeks | The learner is able to solve mathematical problems and puzzles using the knowledge of algebra. |

**TOPIC: MONEY**

**Lesson 1**

Sub topic: money

Content: denominations

Types of money

Coins, e.g. 50, 100, 200, 500

Notes e.g. 1000, 2000, 5000, 10000, 20000, 50000

Examples

Peter had 3notes of 1000/= each. How much money did he have?

1 note = 1000/=

3 notes = (3 x 1000)/=

3notes = 3000/=

NB: do also calculations on a number of coins and notes of different denominations

REF

Teacher’s collections

**Lesson 2**

Sub topic: buying and selling

Content: using price list

Example

1 book costs 200/= what is the cost of 5 similar books?

1book = 200/=

5books = (5 x 200)/=

5books = 1000/=

Ref

New MK mathsbk 5 pg143

Old Mk pp 222

**Lesson 3**

Sub topic: buying and selling

Content: more simple rates

Examples

Find the cost of 12 similar books

5books cost 1000/=

1bk costs

1bk = 200/=

12bks costs (200 x 12)

12bks costs 2400/=

Ref

New MK pg 239

Old MK pg 222

**Lesson 4**

Sub topic: shopping bills and change

Content:

Examples

Kiyaga had 10,000/= he bought 2kg of sugar at shs.1600 per kg, 3bars of sopa at 1000/= each bar, ½ kg of salt at 400/= @ kg

1. How much did he spend altogether?
2. How much did he spend altogether?
3. What was his balance

10,000

* 6400

3600/=

|  |  |  |
| --- | --- | --- |
| Item | Method | Amount |
| 2kg of sugar at 1600/= @ | 2 x 1600/= | 3200/= |
| 3bars of soap at 1000/=@ | 3 x 1000/= | 3000/= |
| ½ kg of salt at 400/=@ | ½ x 400/= | 200/= |
| Total | | 6400/= |

Ref

New mkmaths bk5 pg145-146

Old MK pg 223

**Lesson 5**

Sub topic: completing bill tables

Content:

Examples

A father gave the shopping list below to his children

|  |  |  |  |
| --- | --- | --- | --- |
| **Item** | **Quantity** | **Unit cost** | **Total** |
| Blue band | ½ kg | Shs. 4600 each kg | Shs.2300 |
| Bread | .......loaves | Shs. 800 each loaf | Shs.2400 |
| Tea leaves | ¼ kg | Shs.........@kg | Shs.1500 |
| Sugar | 4kg | Shs.1800 @ kg | Shs............ |
|  |  | Total | Shs............. |

Complete the shopping bill

Show all the calculations and fill in later and add

Bread tea leaves sugar

800/= can buy 1 loaf ¼ kg cost 1500/= 1kg cost 1800/=

1/= buys 1/800 x 2400/= 1kg costs 1500 ÷ ¼ 4kg = 1800/=

2400/= buy 3 loaves 1kg cost 1500 x 4 x 4

= 6000/= 7200/=

Ref

New mkmathsbk 5 pg145-146

Old MK pg 224

Remarks: .......

**Lesson 6**

Sub topic: transport fare

Content:

Example

A taxi driver charges shs5000 for a trip from Kampala to Jinja per person

How much will 7 people pay for the trip?

1person pays shs.5000/=

7 people pay = 5000 x 7

= 35000/=

Ref

New MK pg 243

Old Mk pg 225-226

**Lesson 7**

Content: profit and loss

Examples

Andrew bought a goat at 20,000/= and sold it at shs.25000/=. What profit did he make?

Profit = selling price – cost price

Profit = 25000 – 20000

Profit = 5000/=

Matovu bought a goat at 30,000/= and sold it at shs20000/= how much was his loss?

Loss = buying price – selling price

Loss = 30000 – 20000

Loss = 10000/=

Ref

New mkmaths bk5 pg147-149

Curriculum pg 100

**Lesson 8**

Sub topic: finding cost price using profit and selling price

Content:

Examples

Nambi sold a radio set at 50000/= she made a profit of 10000/=. What was his cost price?

Selling price = 50000/=

Profit = 10000

Cost price = selling price – profit

Cost price = 50000 – 10000

Cost price = 40000/=

Ref

New MK mathsbk 5 pg152

**Lesson 9**

Sub topic: finding cost price using loss

Content:

Examples

Oketch sold a goat at 15,000 and made a loss of 3000. How much did he buy the goat?

Selling price = 15000

Loss = 3000

Buying price = selling price + loss

Buying price = 15000 + 3000

Buying price = 18000/=

Ref

New mkmathsbk 5 pg151

Remarks:...............

**Lesson 10**

Sub topic: finding selling using profit and cost price

Content

Examples

A trader bought a shirt at 7500/= and sold it making a profit of shs.3500. what was his selling price?

Buying price shs.7500

Profit = 3500

Selling price = buying price + profit

Selling = 7500 + 3500

Selling price = 11000/=

Ref

New MK maths bk5 pg150-152

Remarks: ................

**Lesson 11**

Sub topic: finding selling price using loss

Content:

Examples

A pupil bought a ball at 15000/= and sold it at a loss of 3000/=. What was the selling price of the ball?

Buying price = 15000/=

Loss = 3000/=

Selling price = buying price – loss

Selling price = 15000 – 3000

Selling price = 12000/=

Ref

New MK mathsbk 5 pg150-152

Remarks:.............

**Theme : MEASUREMENT**

**Topic: Length, Mass, Capacity**

Sub topic: length (distance from one point to another

Content

Estimate in cm and mm

Pupils will measure objects / lines in centimetres and milimetres and record the answers (group activity)

Ref

New MK mathsbk 5 151 and 152

Old MK pg 198

Remarks:

**Lesson 2**

Subtopic: conversion of metric units

Content: expressing cm to mm and vice versa

Examples

How many mm are 8cm

1cm = 10mm

8cm = (8 x 10)mm

8cm = 80mm

Convert 120mm to cm

10mm = 1cm

Ref

New MK mathsbkpg 157

Remarks: ...........

**Lesson 3**

Sub topic: conversion of metres to cm and vice versa

Content

Examples 1

Change 5m to cm

5m = 100cm

5m = (5 x 100)cm

5m = 500cm

Example 2: Express 1.5m to cm

1m = 100cm

Example 3:

Change 200cm to m

100cm = 1m

1 cm=(1 ) m

100

200cm = 2m

Ref

New MK mathsbk 5 pg 157

Old Mk pp 198

Remarks:

**Lesson 4**

Sub topic: Addition of m and cm

Content

Examples

Add

a) m cm b) M cm

8 45 2 73

+ 1 55 + 3 13

Ref:

Understanding MTC bk 5 pg 144-145

Trs’ collection

**Lesson 5**

Subtopic: Subtraction of m and cm

Content :

Examples: subtract

a) M cm b) M cm

4 93 9 45

- 2 22 - 3 65

Ref:

Understanding mtcbk 5 pg 142-146

**Lesson 6**

Sub topic: expressing km to m

Content

Example

Express 2km as metres

1km = 1000m

2km = (2 x 1000)m

2km = 2000m

Change 15km to m

1km = 1000m

15km = (15 x 1000)m

15km = 15000m

Convert 0.5km to m

1km = 1000m

= 5 x 100m

= 500m

Ref

New mkmathsbk 5 pg158 / Old Mk pp 199

**Lesson 7**

Sub topic: converting metres to km

Content:

Examples

Change 5000m to km

1000m = 1km

Change 16500m to km

Ref

New mkmathsbk 5 pg 156

Old MK pp 199

Remarks:

**Lesson 8**

Sub topic: comparing units of measures

Content: using>, < or =

Examples

60mm\_\_\_\_20cm

1cm = 10mm

20cm = (20 x 10)mm

20cm = 200mm

60mm < 200mm

60mm < 20cm

Do comparison examples with m and cm and vice vasa, km and m and vice vasa

Ref

New Mk MathsBk 5 Pg 156

**Lesson 9**

Sub topic: perimeter

Content: finding perimeter of polygons

Regular figures are polygons with all sides equal

Perimeter is the distance around the figure

**Example**

Find the perimeter of the equilateral triangle below

P = s + s + s

5cm

P = 5 + 5 + 5

P = 15cm

Do examples of squares, pentagon, octagons, heptagons etc

Square

P = s + s + s + s

4cm

P = 4 + 4 + 4 + 4

P = 8cm + 8cm

P = 16cm

Ref

New Mk mathsbk 5 pg159-161

Old edition Mk pp 203-204

Curriculum pg 101-102

**Lesson 10:**

Sub topic: finding sides using perimeter

Content:

The perimeter of a square is 12cm. what is the length of each side?

A square has 4sides

S

Each side = 3cm

The perimeter of a square is 40cm find the length of each side

A square has four sides

P = s + s + s + s

P = 4s

S = 10cm

The perimeter of a regular pentagon is 20cm. how long is one of its sides?

A pentagon has 5 sides

P = s + s + s + s + s

4cm = s

One side = 4cm

Ref

Old MK pp 205-206

New MK pp 284

**Lesson 11**

Sub topic: finding one side of a rectangle using perimeter

Content:

Examples

The perimeter of a rectangle is 22cm and its length is 7cm find its width.

P= 2(L + W) 22 – 14 = 14 – 14 + 2W

P=22cm

7cm

W

22=2(7 + W) 8 = 0 + 2W

22 = 14+2w

The perimeter of a rectangle is 40m if its width is 9m find its length

L

P = 40m

9m

P = L + W + L + W 40 – 18 = 2L + 18 - 18

40 = L + 9 + L + 9 22 = 2L + 0

40 = L + L + 9 + 9

40 = 2L + 18

Ref

New MK pg 284

Old Mk pg 205-206

Remarks: ............

**Lesson 12**

Sub topic: perimeter of irregular shapes

Content:

Examples

5cm

9cm

3cm

A

7cm

B

Find the missing sides

Side A Side B

A = (9 – 7)cm B = 5cm + 3cm

A = 2cm B = 8cm

Find the perimeter of the figure

P = S + S + S +S + S + S

P = 7cm + 3cm + 2cm + 5cm + 9cm + 8cm

P = 34cm

Find the perimeter of the scalene triangle below

P = S + S + S

10cm

6cm

3cm

P = 6cm + 3cm + 10cm

P = 19cm

Example 3

Consider

Trapezium

Pentagons

Hexagons

Ref

Teacher’s collections and refer to Bk 4

**Lesson 13**

Sub topic: area of a rectangle

Content

Example

Find the area of the rectangle below

6m

4m

A = L x W

A = 6m x 4m

A = 24m2.

The area of a rectangle is 40dm2 and its width is 8dm. find the length

L x W = 40dm2

8 x L = 40dm2

Ref

Exercise 11:7 pg162-163 Mk new edition / Exercise 8h pg 208 old edition

**Lesson 14**

Sub topic: area of a square

6cm

Find the area of a square

A = S x S

A = 6 x 6

A = 36cm2.

The area of a square is 36cm2 find its sides

S x S = A

S2 = A

Ref

New Mk mathsBk 5 pg 160 7.9 and pg 281 exercise 12.17

Old MK pg 207

**Lesson 15**

Sub topic: area of a triangle

Content:

Examples

Find the area of the triangles below

A

6cm

B 4cm 5cm D

A

7cm

B 10cm D

A

4cm

B 3cm

Ref

New MK maths bk5 pg164

Old mk bk5 page 209-210

**Lesson 16**

Sub topic: word problems involving area of triangles

Content:

Examples

The base of a triangle is 4cm and its area is 28cm2. Find its height

h

4cm

Ref

New mk math bk5 pg 163

**Lesson 17**

Sub topic: area of combined figures

Content:

Find the area of the figures below

8cm

12cm

6cm A B

6cm B

4cm

A

8cm

6cm

A = L x W

A = 8cm x 6cm

A = 48cm2

Total area = 48cm2 + 12cm2

Total area = 60cm2

Ref

New mkmaths bk5 pg 164-165

Old Mk pp 210-211

**Lesson 18**

Sub topic: area of shaded and unshaded regions

Content

Examples

Area of big rectangle – area of small rectangle

5cm

8cm

= (L x W) – (L x W)

= (10x 6)cm2 – (8 x 5)cm2

6cm

= 60cm2 – 40cm2

10cm

=20cm2

Ref

Old mkmaths bk5 pg 212 to 213 exercise 8k

New MK pp 166-167

**Lesson 19**

Sub topic: volume

Content: definition (volume) amount of space inside a container, cubes and cuboids

Examples

Find the volume of the cuboid

Volume shaded area

5cm

3cm

4cm

V = L x W x H A = L x W

V = (5 x 4 x 3)cm3 A= (4 x 3)cm2

V = 60cm3 A = 12cm2

Find the volume of the cube below

V = S x S x S

2cm

V = 2 x 2 x 2

V = 8cm3

Ref

New MK pp 168-171

Trs’ collection

**Lesson 20**

Sub topic: application of volume

Content:

Examples

Find the missing side of the cuboid given the volume = 50cm3.

V = L x W x h

5cm

h

3cm

60cm3 = 5cm x 3cm x h

Ref

New mk bk5 pg 287 exercise 12.22

**Lesson 21**

Sub topic: total surface area

Content:

Example

A cuboid has faces

TSA = 2(L x W) + 2(L x h) + 2(h x W)

4cm

2cm

3cm

TSA= 2(4 x 3) + 2(4 x 2) + 2(2 x 3)

TSA = 2 x 12cm2 + 2 x 8cm2 + 2 x 6cm2

TSA = 24cm2 + 16cm2 + 12cm2

TSA = 52cm2

Ref

Teacher’s collection

**Lesson 22**

Sub topic: capacity

Content: measuring in litres and millilitres

1L = 1000cm3 or 1000Ml

Examples

Express 5litres of water as

1. Cubic centimetres (b) as millilitres

1L = 1000cm3 1L = 1000ML

5L = (5 x 1000)cm3 5L = (5 x 1000)ML

5L = 5000cm3 5L = 5000ML

Ref

New mkbk 5 page 168 exercise 11:12

**Lesson 23**

Sub topic: comparing metric units

Content: comparing length to weight to capacity

Example

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Place value | Kilo | Hector | Deca | Basic | Deci | Centi | Milli |
| Meaning | 1000m | 100m | 10m | Metre gram litre | 1/10of m | 1/100 x m | 1/1000 x m |

Change 3000ML to Litres change 3litres to ML

1000ML = 1L 1L = 1000ML

3L = (3 x 1000)ML

3000ML = 3Litres 3L = 3000ML

Ref

New mk math bk5 pg 263 exercise 11.25

New mk math bk 5 page 263 exercise 11:24

**MASS**

**Lesson 24**

Sub topic: expressing grams to kilograms vice versa

Content:

Examples

Change 4000gm to kg

1000g = 1kg

4000g = 4kg

Example 2

Change 3kg to g

1kg = 1000g

3kg = (3x1000)g

3kg = 3000g

Ref

New mkmaths bk5 pg 262 exercise 11.23

**Lesson 25**

Subtopic: Addition of kg and g

Content

Example 1

a) kg g b) kg g

5 456 4 596

+ 2 204 + 2 405

Ref:

New Mk pp 263

Tr’s collection

Subtopic: Subtraction of kg and g

Example

a) kg g b) kg g

8 765 9 576

+ 3 273 + 3 623

Ref:

Tr’s collection

**Theme: INTEGERS**

**Lesson 1**

Sub topic: Definition

Content:

Integers are numbers represented using a numberline.

1. Integers – positive and negative numbers including a zero on a numberline.
2. Identifying positive integers

Positive integers have an arrowhead pointing to the right.

Negative integers have an arrowhead pointing to the left.

Examples

i)

+5

-8 -7 -6 -5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5 +6 +7 +8 +9

ii)

-4

-8 -7 -6 -5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5 +6 +7 +8 +9

Example: show +3 on a number line

+3

-8 -7 -6 -5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5 +6 +7 +8 +9

Ref

Exercise 5: New MK mtc bk5 pg 83-84

**Lesson 2**

Subtopic: Expressions using integers

Content

1. A boy who got no marks in a test is represented by = 0.
2. A profit of shs 300 - +300
3. 3 metres below the ground = -3m

Ref

Exercise: Class discussion 3 page 96 New MK bk5

Exercise: Class discussion 2 page 158 old MK bk5

Teachers’ collection

**Lesson 3**

Subtopic: Writing integers represented on a number line

Content:

c

b a

-8 -7 -6 -5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5 +6 +7 +8 +9

a = +5 b = -3 c = +4

Ref

New Mk bk5 pg 85

**Lesson 4**

Subtopic: Comparing integers

Content: comparing integers

Examples: i) Which is smaller -4 or +2?

-8 -7 -6 -5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5 +6 +7 +8 +9

The one on the left side is always smaller.

∴-4 is smaller than +2

ii) Use >, <, = to complete

+3 > -3

Ref

Exercise 6:2 pg86 New MK mtc bk5

Exercise 6e pg 169 old Mtc bk5

**Lesson 5**

Subtopic: ordering integers

Content: In ascending and descending order

Examples: Arrange -3, +1, -2, 0 and 3 in ascending/ descending orders

-8 -7 -6 -5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5 +6 +7 +8 +9

{-3, -2, 0, +1, +3}: ascending order

{+3, +1, 0, -2, -3}: descending order

**Ref:**

Exercise 6:4pg85-86

Exercise 6e pg 169 old mtc bk5

**Lesson 6**

Subtopic: solution sets

Content: Using >, <, >,<

Y > 0 (means Y are integers greater than or equal to 0)

-8 -7 -6 -5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5 +6 +7 +8 +9

Y = {0 +1, +2, +3, +4, +5, +6, ………..}

Ref

Exercise 5:3 pg99 New Mtc bk5

**Lesson 7**

Subtopic: Inverse of integers

Content: Pairs of inverse

-3 -2 -1 0 +1 +2 +3

The inverse of -1 is +1

The inverse of +1 is -1

Additive inverse

Example 1: +4 + -4 -4

+4

-8 -7 -6 -5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5 +6 +7 +8 +9

Note: The additive inverse is a number which gives 0 when added to a number.

Example 2: Calculations

What is the additive inverse of +4:

Let the inverse be x

x + 4 = 0

x + 4 – 4 = 0 – 4

x + 0 = -4

x = -4

Ref

Exercise 5:4 and 5:5 pages 100 – 102 New MK mtc bk5

Teachers’ collection: Use calculations to find the inverses of 1, -3, 2, +5, 3, -6, 4, x

**Lesson 8 (a)**

Subtopic: Addition of integers

Content: Using a numberline

Example: Add +5 + +3

+3

+5

-8 -7 -6 -5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5 +6 +7 +8 +9

+8

∴+5 + +3 = +8

Example 2

+4

-2

-8 -7 -6 -5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5 +6 +7 +8 +9

+2

∴-2 + 4 = +2

Ref

Exercise 5:6 and 5:7 and 5:8 pg 102 – 104 New MK mtc bk5

Exercise pg 96 OxfordpriMtc bk5 pg96

**Lesson 8 (b)** Addition of +ve and –ve integers on a number line.

Example: Add +4 + -2

-2

+4

-8 -7 -6 -5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5 +6 +7 +8 +9

+2

∴+4 + -2 = +2

Exercise 5:7 New Mk edition pg104

NB: Addition of –ve and +ve integers on a numberline

**Lesson 8 (c)**

Example: -5 + -3

-3

-5

-8 -7 -6 -5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5 +6 +7 +8 +9

-8

∴-5 + -3 = 8

Ref

New Mk (New edition) pg 104

**Lesson 8 (d)** Multiplication of integers (repeated addition)

Example 3 x +2

+2 +2 +2

-8 -7 -6 -5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5 +6 +7 +8 +9

∴3 x +2 = +6

2 x -4

-4 -4

-8 -7 -6 -5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5 +6 +7 +8 +9

∴ 2 x -4 = -8

Ref

Exercise 8 pg102 Oxford primary Mtc bk5

Trs’ collection

Subtraction of integers on a numberline

**Lesson 9a: Positive and positive**

Example: Subtract +6 - +2

= +6 – 2

-2

+6

-8 -7 -6 -5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5 +6 +7 +8 +9

+4

+6 - +2 = +4

Ref

Exercise 5:15 pg 105-108

**Lesson 9b: Negative and positive**

Example 1: -4 - +3 = -4 - +3

-3

-4

-8 -7 -6 -5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5 +6 +7 +8 +9

-7

-4 - +3 = -7

Ref

Exercise 5:9 and 5:10 pgs105 and 106 new Mtc bk5

**Lesson 10a: More subtraction of integers**

Content: Positive and negative

+

Example +3 - - 2 = +3 - - 2

= 3 + 2 +2

+3

-8 -7 -6 -5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5 +6 +7 +8 +9

+5

**Lesson 10b: Negative and negative**

Example: Subtract -3 - - 2 = -3 - - 2

= -3 + 2

+2

-3

-8 -7 -6 -5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5 +6 +7 +8 +9

-1

∴-3 - - 2 = -1

Ref

Exercise 5:11 and 5:12 pg 107 – 108 New Mk bk5

**Lesson 11**

Subtopic: Forming mathematical statements

Numberlines

Content: Write the mathematical statement shown on the numberline

b

a

-8 -7 -6 -5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5 +6 +7 +8 +9

c

a = +3, b = -5 and c -2

Statement: +3 + -5 = -2

Nb: Teach also situation when arrow starts from a –ve side and crosses zero to positive and vice versa

Ref

Exercise 5:13 pg109-110 New MK bk5

Exercise 6c pg106 old edition bk5

**Lesson 12a**

Subtopic: Addition of integers without using a numberline

Content: Addition

Note:

1. (+) + (+) = (+)
2. (-) + (-) = (-)
3. (-) + (+) = (-) if –ve figure is greater
4. (-) + (+) = (+) if +ve figure is greater

Example

Simplify: +7 + -3

= +7 -3

= +4

(b) -3 + -4 = -3 + -4

= -7

1. -7 + + 3

= -7 + 3

= -4

1. +3 + +4

+3 + 4

= +7

Ref: 5:15 pg111 New Mk bk5

**Lesson 12b**

Subtopic: Subtraction of integers without using a numberline

Content note

1. (+) - (+) = (-) if the 2nd figure is greater
2. (+) - (+) = (+) if the 2nd figure is greater
3. (-) - (-) = (+) if the 2nd figure is greater
4. (-) - (+) = (-)

Examples

1. i) +3 - +7 = 3 – 7 = -4 ii) +7 - +3 = 7 – 3 = +4
2. i) -3 - -7 = -3 + 7 = +4 ii) -7 - -3 = -7 + 3 = -4
3. i) -3 - +7 = -3 – 7 = -10 ii) -7 - +3 = -7 – 3 = -10
4. i) +7 - -3 = +7 +3 = +10 ii) +3 - -7 = +3 +7 = +10

Ref: Exercise 5:15 pg112 new MK bk5

**ALGEBRA**

**Lesson 1**

Sub topic: forming algebraic expressions

Content

Example

1. 4 boys visited my home and later other 2 boys. Later 5 of them left. Form an algebraic equation and simplify it

2 boys + 4 boys – 5 boys

2b + 4b – 5b

6b – 5b

= b

1. A number multiplied by 3 gives 15 let the number be represented by x

3x = 15

Ref

New MK pp 267-270

**Lesson 2**

Sub topic: simplifying algebraic expressions

Content

Examples

Write in short

q+ 7q + 4q = 12q 4b + 3b – t = 7b-t 10x – 3x + x

10x + x – 3x

11x – 3x = 8x

Ref: New MK pp 268

**Lesson 3**

Sub topic: collecting like terms and simplifying

Content:

Example : collect like terms and simplify

4b – 3b + 3t + t 7y – 8m + y + 10m – 6  
4b – 3b + 3t + t 7y + y + 10m – 8m – 6

B + 4t 8y + 2m – 6

Ref

New mkbk 5 pg 269 exercise 12.4

Old Mk pp 174-175

Remarks: ......................

**Lesson 4**

Sub topic: substitution

Example

If a = 1, b = 3 , c = 5

Find the value of 5c + 4b – 8a find the value of

(5 x 5) + (4 x 3) – (8 – 1)

25 + 12 – 8

37 – 8

29

abc = a x b x c

abc = 1 x 3 x 5

abc = 3 x 5

abc = 15

Ref

Exercise 12.6 pg 271 new mk bk5 new edition

MK old edition bk5 pp 177

**Lesson 5**

Sub topic: solving equations by subtracting

Content

Example

1. Find the value of a

16 + a = 20

16 – 16 + a = 20 – 6

0 + a = 4

a= 4

1. There are 50 pupils in a class 30 are boys. How many girls are there?

Let the number of girls be g

Boys + girls = 50

30 + g = 50

30 – 30 + g = 50 – 30

0 + g = 20

G = 20

Ref

New Mk Bk 5 Pg273 exercise 12.8

Old MK pp 179

**Lesson 7**

Sub topic: solving equations by adding

Content

Example

1. Solve n – 5 = 3

N – 5 + 5 = 3 + 5

N – 0 = 8

N = 8

1. A boy used 3 of his exercise books and remained with 4 books

How many books did he have at first?

B – 3 = 4

B – 3 + 3 = 4 + 3

B – 0 = 7

B = 7

He had 7 books

Ref

New mk bk5 pg 275 exercise 12.10

Old MK pp 180

Remarks: ........................

**Lesson 8**

Sub topic: solving equations by dividing

Content

Example

1. Solve 5a = 20

1. The length of a rectangle is 9cm. the width is Ycm. If its area is 72cm2 find its width.

L x W = area

9cm x y = 72cm2

Y = 8cm

Ref

New Mk Bk5 Pg276 exercise 12.11, 12.12

Old Mk pp 181

Remarks: .........................

**Lesson 10**

Sub topic: more equations involving dividing

Content

Solve x + x + x = 24 solve 2p + 5p = 14

3x = 24 7p = 14

X = 8 p = 2

Ref

New mk bk5 pg 277 exercise 12.13

Old MK pp 182-183

Remarks: ...........................

**Lesson 11**

Sub topic: solving equations involving mixed operations

Content

Example

Solve

1. 4a + 2a + 5 = 23 (b) 2x + 5 = 17

6a + 5 – 5 = 23 – 5 2x + 0 = 17 – 5

6a + 0 = 18 2x + 0 = 12

6a = 18 2x = 12

6 6 2 2

a = 3 x = 6

Ref

Newmk bk5 pg 278 exercise 12.14

**Lesson 12**

Sub topic: equations involving squares

Content: Applying square roots

Example

Solve b2 = 4

=

=

B = 2

Ref

New mkbk 5 pg 280 exercise 12.16

Old MK pp 187

Remarks: ..................

**Lesson 13:**

Sub topic: equations with fractions

Content:

Example

1. What number when divided by 4 gives 3?

Let the number be x

X = 4 x 3

X = 12

1. A man divided his money among his three children and each got 450/=. How much money did he give out?

Let the amount of money be represented by m

Ref

New MK pp 282-283

**Lesson 16**

Sub topic: equations involving two fractions

Content:

Example (involving use of LCM)

Find the value of the unknown

Ref

Exercise 7q pg 185 old mk edition bk5

Remarks: .........

**Lesson 17**

Sub topic: application of square roots in algebra

Content

Example (Word problems)

The area of a square is 16cm2. Find its side

|  |  |
| --- | --- |
| 2 | 16 |
| 2 | 8 |
| 2 | 4 |
| 2 | 2 |
|  | 1 |

A = 16cm2

=

Ref

Exercise 12.17 pg 281 new edition mkbk 5

Exercise 7x pg 191 old edition mk bk65

Remarks: ...........

**Lesson 18**

Sub topic: application of algebra (perimeter)

Content

Find the unknown side of a figure when perimeter is given

Example

The perimeter of a square is 36cm find its side in cm

Let side be s

s + s + s + s = 36cm

4s = 36cm

P = 36

The perimeter of a rectangle is 4cm. if its length is 15cm. calculate its width

Let the width be represented by w

2(L x W) = P

2(15cm + W) = 40cm

P = 40cm

(2 x 15cm) + (2 + W) = 40cm

30cm + 2W = 40 W

30 – 30 + 2W = 40 - 30cm

0 + 2W = 10cm

2W = 10cm

2 2

W = 5

Ref

Exercise 12.20 page 284 / 285 New Edition Mk Bk 5

Exercise 7z (ii) page 195 old edition mk bk5

**Lesson 19**

Sub topic: finding unknown side when given area (rectangle) 5cm

Content: rectangle

P = 40cm

A long the length a + 2 7cm

3x = 15cm (opposite sides of rectangle are equal)

3x = 15cm 3x

3 3

X = 5cm

Along the width

A + 2 = 7cm (2 opposite sides of a rectangle are equal)

A + 2 – 2 = 7 – 5

A + 0 = 5

A = 5cm

Find (i) x (ii) length (4x – 3) cm

2x

Ref 9cm

Teacher’s collections

**Lesson 20**

Sub topic: finding unknown sides when given area

Content

Example

The area of a rectangle is 32cm2 its length is 8cm. what is its width?

Let the width be represented by w

L x w = area

A = 32cm2

8cm x w = 32cm2

8cmW = 32cm W

8cm 8cm

W = 4cm

Ref

Exercise 12.21 pg 286 new edition mk bk5

**Lesson 21**

Sub topic: finding unknown sides of cuboids when given volume

Content: example

The volume of a box is 60cm3. Its length is 5cm and width is 4cm. find its height

Let h be height

L x W x h = volume

h

4cm

5cm

5cm x 4cm x h = 60cm3

20cm2h = 60cm3

20cm2 20cm2

H = 3cm

NB: do the same for unknown width and length

Ref

Exercise 12.22 pg 287 new edition MK bk 5

Exercise 7z (iii) pg 196 old edition MK bk 5