

# MATHEMATICS

PRIMARY LEARNER'S BOOK

Year

3

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## FOREWORD

Dear Pupil,

Rwanda Basic Education Board is honoured to present to you this Mathematics book for Primary Three (P3) which serves as a guide to competence-based teaching and learning to ensure consistency and coherence in the learning of Mathematics subject. The Rwandan educational philosophy is to ensure that you achieve full potential at every level of education which will prepare you to be well integrated in society and exploit employment opportunities.

The government of Rwanda emphasizes the importance of supporting teaching and learning materials with the syllabus to facilitate your learning process. Many factors influence what you learn, how well you learn and the competences you acquire. Those factors include the instructional materials available among others. Special attention was paid to the activities that facilitate the learning process in which you can develop your ideas and make new discoveries during concrete activities carried out individually or with peers.

In competence-based curriculum, learning is considered as a process of active building and developing knowledge and meanings by the learner where concepts are mainly introduced by an activity, a situation or a scenario that helps the learner to construct knowledge, develop skills and acquire positive attitudes and values. For effective use of this textbook, your role is to:

- Work on given activities which lead to the development of skills;
- Share relevant information with other learners through presentations, discussions, group work and other active learning techniques such as role play, case studies, investigation and research in the library, on internet or outside;
- Participate and take responsibility for your own learning;
- Draw conclusions based on the findings from the learning activities.

I wish to sincerely extend my appreciation to the people who contributed towards the development of this textbook, particularly REB staff who organized the whole process from its beginning. Special gratitude goes to teachers, illustrators and designers who carefully worked to successful completion of this text book. Any comment or contribution would be welcome for the improvement of this textbook for the next edition.



**Dr. MBARUSHIMANA Nelson**  
Director General, REB



## ACKNOWLEDGEMENT

I wish to sincerely extend my special appreciation to people who played a major role in development and editing of this Mathematics book for Primary Three (P3). It would not have been successful without the participation of different partners that I would like to express my deep gratitude.

My thanks go to the Rwanda Basic Education Board leadership and staff who were involved and supervised the whole activity of in-house textbook Elaboration.

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**Joan MURUNGI**

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# WHOLE NUMBERS FROM 0 UP TO 2 000

## 1.0 Introductory activity 1



Mugarura planted many cabbages, but when harvesting, Mugarura did not know the number of the harvested cabbages and the remained ones in his plantation. What do you think Mugarura needs to know in Mathematics so that he can easily manage his harvest?



## 1.1 Read whole numbers from 0 up to 2000

### Activity 1.1.1

Look at the image and tell your friend what is being done



### Activity 1.1.2

Get number cards containing the following numbers:

1

2

3

4

5

6

7

8

9

0

Form different numbers between:

1) 1 000 and 1 030

2) 1 040 and 1 050

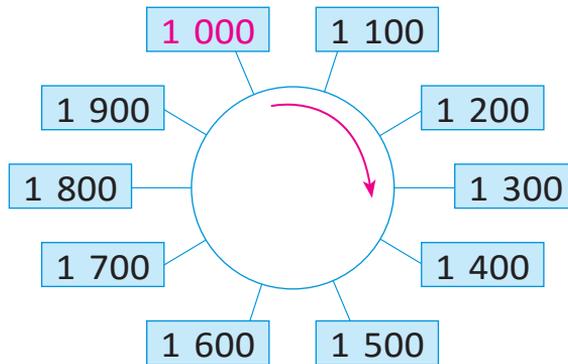
3) 1 060 and 1 070

4) 1 080 and 1 090

Each digit can be used only once.

### Activity 1.1.3

Read the following numbers, starting from the smallest to the biggest..



#### Self Assessment 1.1



Use the given cards and make 3 numbers between 1 000 and 2 000. Read the numbers to your friends

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



#### Pair assessment 1.1

In the box, there are small papers with numbers 1234; 1908; 1567; 1324; 1110. Everyone picks or chooses randomly one paper and read aloud the number on that paper.

## 1.2 Write whole numbers from 0 up to 2000

### Activity 1.2

Use the following number cards

to make the 4 numbers between 1000 and 2 000

- a) 

9	4	7	1
---	---	---	---
- b) 

6	1	8	7
---	---	---	---
- c) 

8	9	1	2
---	---	---	---
- d) 

9	1	5	7
---	---	---	---

Write those 4 numbers in words and read them aloud to your friends. Each digit can be used only once.

### Application activity 1.1

Fill in the missing numbers on the number lines below. Read them and write them in words.

a)



b)



c)



### Self Assessment 1.2

Find all numbers between:

a) 1 990 and 2 000

b) 1 240 and 1 250

c) 1 590 and 1 600

d) 1 920 and 1 930

Write them in figures and in words



### Pair assessment 1.2`

Make 4 numbers between 1 000 and 2 000, using the following number cards:

1

7

3

9

0

6

4

5

Write those 4 numbers in words and read them aloud to your friends. . **Note:** Each digit can be used only once.

## Application activity 1.2



- 1) Write the following in figures or in words
  - a) 1 924
  - b) One thousand three hundred nineteen:
  - c) One thousand eight hundred seventy-four:
  - d) 1 499
- 2) Form 6 numbers between 1 000 and 2 000, using the following number cards:

9	8	1	5
---	---	---	---

Read and use your notebook to write them in words and in figures.

- 3) Read the numbers in the table below; write in figures all numbers written in words and write in words all numbers written in figures.

(put these numbers in a table)

a	1 674: ___	d	Two thousand: ___
b	One thousand, nine hundred and five: ___	e	1 719: ___
c	1 395: ___	f	One thousand, three hundred forty seven: ___

## 1.3 Place value of digits of the numbers from 0 up to 2000

### Activity 1.3.1

Look at the following table of place values and fill in the blank with the correct number of thousands, hundreds, tens and ones.

Thousands (Th)	Hundreds (H)	Tens (T)	Ones (O)
1	4	5	6

In the number 1456, there are....Thousands, .... Hundreds,....Tens and ...Ones.

### Activity 1.3.2

Follow the example in activity 1 and write place values of each digit of the following number

a) 1 456

c) 1 699

e) 1 953

b) 1 239

d) 1 479

f) 1 974



### Self Assessment 1.3



Write down the numbers that are expanded below using place values.

- a) 1thousands, 9 tens, 5 ones and 7 hundreds
- b) 9 ones, 9 hundreds,1 thousands and 9 tens
- c) 6 hundreds, 9 ones, 4 tens and 1 thousands
- d) 9 tens, 3 hundreds, 1thousands and 5 ones
- e) 7 ones 5 tens 1thousands and 9 hundreds
- f) 9 tens, 1thousands, 5 ones and 2 hundreds

### Application activity 1.3.1



Use a table of place values and write each digit in the right place.

- a. 1456 = ...Thousands...Hunderds ...Tens...Ones.
- b. 1996 = ...Tens...Thousands...Ones...Hundreds.
- c. 1759 = ...Hundreds...Ones...Thousands... Tens.
- d. 1239 = ...Ones...Hundreds...Tens...Thousands.
- e. 1197 = ...Tens...Hundreds...Thousands...Ones.
- f. 1597 = ...Hundreds...Ones...Thousands... Tens.

### I have learnt:

- The value of thousands is given by the digit in the place value of thousands times 1 000
- The value of hundreds is given by the digit in the place value of hundreds times 100
- The value of tens is given by the digit in the place value of tens times 10
- The value of ones is given by the digit in the place value of ones times 1

### Activity 1.3.3

- a) Look at the expanded number and break down the number into ones, tens, hundreds and thousands.

$$1\ 675 = 1\ 000 + 600 + 70 + 5$$

$$1\ 675 = (1 \times 1\ 000) + (6 \times 100) + (7 \times 10) + (1 \times 5)$$

$$1\ 675 = \dots \text{thousands} \dots \text{hundreds} \dots \text{tens} \dots \text{ones}$$

- b) Write the number 1 874 into a sum of thousands, hundreds, tens, and ones. Fill in the blank with the correct digits.

$$1\ 874 = \dots \text{thousands} \dots \text{hundreds} \dots \text{tens} \dots \text{ones}$$

### Activity 1.3. 4

Use the table of place values and write the following numbers in expanded form. Show your working steps.

a)  $1\ 265 =$

c)  $1\ 645 =$

e)  $1\ 997 =$

b)  $1\ 799 =$

d)  $1\ 436 =$

f)  $1\ 956 =$



### Pair assessment 1.3`

Find out and write down the expanded number

a)  $(1 \times 1\ 000) + (9 \times 100) + (4 \times 10) + (5 \times 1) =$

b)  $1\ 000 + 900 + 50 + 9$  equals to...

c)  $1\ \text{thousands} + 9\ \text{hundreds} + 7\ \text{tens} + 3$  equals to...

### Application activity 1.3.2



1) Use the table of place values, state the place and the value of the underlined digits.

a) 1 456

b) 1 795

c) 1 324

d) 1 299

e) 1 179

f) 1 975

2) Find the number that was expanded into thousands (th), hundreds (H), tens (T) and ones (O).

a) 6 ones 1thousands 9 tens 9 hundreds =

b) 7ones 9tens 1thousands 9hundreds =

c) 9 tens 1thousands 9ones 7 hundreds=

d) 5 hundreds 4ones 8 tens 1thousands =

3) Use the table of place values to expand the following numbers into thousands (Th), hundreds (H), tens (T) and ones (O).

a) 1 765 =

b) 1 672 =

c) 1 956 =

d) 1 254 =

e) 1 564 =

f) 1 713 =

4) Find the number that was expanded into thousands (th), hundreds (H), tens (T) and ones (O).

a)  $(1 \times 1\,000) + (2 \times 100) + (3 \times 10) + (4 \times 1) =$

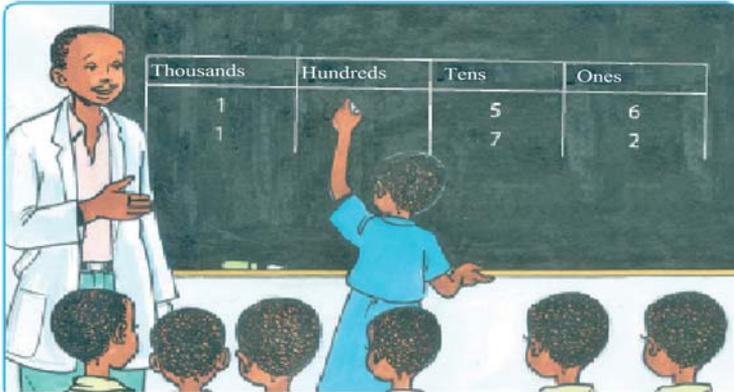
b)  $1\,000 + 300 + 70 + 1 =$

c)  $1\text{thousands} + 7\text{hundreds} + 9\text{tens} + 6\text{ones} =$

## 1. 4 Comparing two numbers less than or equal to 2000

### Activity 1.4.1

Look at the picture and explain what pupils are doing.



**Example:** 1872 is greater than 1356.

It is written as follow:  $1872 > 1356$

Thousands	Hundreds	Tens	Ones
1	3	5	6
1	8	7	2

### Activity 1.4.2

Follow the given example in activity 1.4.1 and compare numbers using  $<$ ,  $>$  or  $=$

a)  $1\ 356$    $1\ 536$

d)  $1\ 709$    $1\ 790$

b)  $1\ 905$    $1\ 805$

e)  $1\ 206$    $1\ 267$

c)  $1\ 037$    $1\ 037$

f)  $1\ 670$    $1\ 670$

### Activity 1.4.3

Compare the following numbers using  $<$ ,  $>$  or  $=$

a)  $1\ 329$    $1\ 408$

d)  $1\ 709$    $1\ 709$

b)  $1\ 736$    $1\ 763$

e)  $1\ 206$    $1\ 216$

c)  $1\ 429$    $1\ 249$

f)  $1\ 670$    $1\ 671$

## I have learnt

When comparing two numbers the following are the main steps:

1. We compare digits of 2 numbers starting from thousands to ones
2. If the digits in the thousands place value are equal, then we compare digits in hundreds .
3. If the digits in the hundreds place value are equal, then we compare digits in tens
4. If the digits in the tens place value are equal, then we compare digits in ones
5. Mathematically, we compare numbers using the following symbols:  $<$  (less than),  $>$  (greater than) and  $=$  (equal)

### Note:

The comparison signs  $<$  and  $>$  are always facing the greater number.

## Activity 1.4.4

Follow the example and use the number cards with 4 digit numbers to compare numbers. Use these signs:  $<$ ,  $>$  or  $=$  to compare the following:

**Example:**

1 674

$>$

1 235

a) 1 311  1 515

c) 1 140  1 834

b) 1 180  1 798

d) 1 084  1 084



Self Assessment 1.4



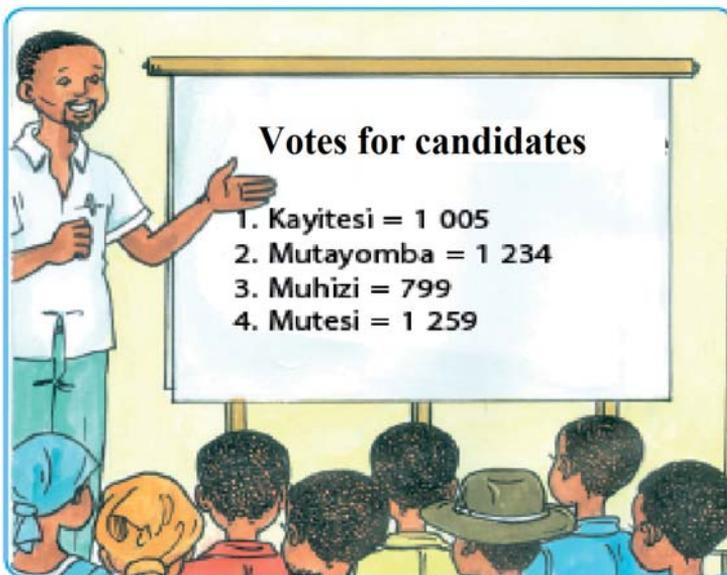
Look at the table below and compare number of people in our village.

Men	Women	Youth	Children
1 395	1 421	1 432	1 999

- Compare the numbers of women and men
- Compare the numbers of children and men
- Compare the numbers of women and children
- Compare the numbers of men and youth
- Compare the numbers of women and youth
- Compare the numbers children and youth.

### Activity 1.4.5

Look at the picture below and compare the numbers of votes of children representatives in a cell.



- Muhizi has.....votes
- Mutesi has.....votes
- Kayitesi has.....votes
- Mutayomba has.....votes
- Among the candidates, who got the least number of votes?
- Among the candidates, who got the highest number of votes?

g) Using  $<$ ,  $>$  or  $=$  compare the number of votes for the following candidates:

- Kayitesi and Mutayomba
- Kayitesi and Muhizi
- Kayitesi and Mutesi
- Mutayomba and Muhizi
- Mutayomba and Mutesi
- Muhizi and Mutesi

### Application activity 1.4

Using  $<$ ,  $>$  or  $=$  to compare the following numbers:

a) 1 905  1 905

d) 1 532  1 325

b) 1 714  1 797

e) 1 647  1 647

c) 1 926  1 673

f) 1 351  1 513

## 1.5 Arrange numbers from 0 to 2000.

### 1.5.1 Arrange numbers in ascending order

#### Activity 1.5.1

Follow the example and arrange in ascending order the numbers in (a) and in (b) .

#### Example:

Arrange numbers in ascending order (from the smallest to the biggest number)

1 649, 1 836, 1 598, 1 752

Thousands	Hundreds	Tens	Ones
1	6	4	9
1	8	3	6
1	5	9	8
1	7	5	2

Answer: 1 598, 1 649, 1 752, 1 836

a) 1 953, 1 395, 1 593

b) 1 613, 1 136, 1 479

## Application activity 1.5.1



Using different sheets of papers, write down 10 numbers (4 digit-numbers) between 1 000 and 2 000. Arrange them in ascending order.



### Pair assessment 1.5.1

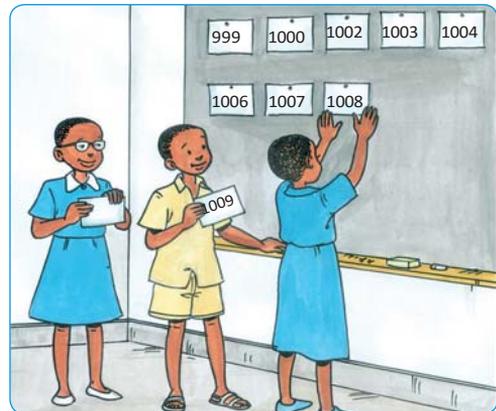
Using number cards, arrange the given numbers in ascending order. Follow the example on the image.

a) 1 596    1 569    1 965

1 956    1 659    1 695

b) 1 475    1 745    1 457

1 754    1 574    1 547



## 1.5.2 Arrange numbers in descending order

### Activity 1.5.2

Follow the example and arrange in descending order the numbers in (a) and in (b)

#### Example:

Arrange numbers in descending order (from the biggest to the smallest number)

1 987, 1 897, 1 789

Thousands	Hundreds	Tens	Ones
1	9	8	7
1	8	9	7
1	7	8	9

Answer: 1 987, 1 897, 1 789

a) 1 048, 1 840, 1 084

b) 1 613, 1 136, 1 479



### Self Assessment 1.5.2



Arrange the following numbers in descending order

1 769

1 976

1 679

1 796

1 967

1 697

1 919



### Pair assessment 1.5.2

Using different sheets of papers, write down 10 numbers (4 digit-numbers) between 1 000 and 2 000. Arrange them in descending order.

### I have learnt:

When ordering numbers, we use numeration table and then:

- First, we compare digits in the thousands place value
- Second, we compare digits in the hundreds place value
- Third, we compare digits in the tens place value
- Forth, we compare digits in the ones place
- Finally, we arrange numbers in ascending or descending order.

## 1.6 Addition of numbers whose sum does not exceed 2000

### 1.6.1 Addition without carrying where the sum does not exceed 2000

#### Activity 1.6.1

Follow the given example and work out the following:.

**Example:**  $1\ 324 + 675 =$

Thousands	Hundreds	Tens	Ones
1	3	2	4
↓	6	7	5
<b>1</b>	<b>9</b>	<b>9</b>	<b>9</b>

$$1\ 324 + 675 = 1\ 999$$

- a)  $1\ 156 + 823 =$                       d)  $972 + 1\ 017 =$   
b)  $1\ 543 + 456 =$                       e)  $675 + 1\ 323 =$   
c)  $1\ 235 + 704 =$                       f)  $794 + 1\ 002 =$



#### Pair assessment 1.6.1

Use the following number cards and cards with  $+$  and  $=$  and do the task below:

- A)  $1\ 124$   $1\ 005$   $1\ 234$   $1\ 252$   $1\ 542$   $1\ 321$   $1\ 213$   
B)  $471$   $982$   $625$   $717$   $437$   $678$   $785$   
C)  $1\ 998$   $1\ 859$   $1\ 999$   $1\ 595$   $1\ 979$   $1\ 987$   $1\ 969$

- Take one number card from A ;
- Take the card with addition sign  $+$  ;
- Take another number card from B which is opposite with the one you got from A

- Take the card with the sign  $=$ ;
- Then, select the correct answer from the cards in C.

### Example:

$$1\ 124 + 471 =$$

### I have learnt:

When adding numbers without carrying, we do the following:

- Add downwards in the table of place values
- The bigger number should be on top of the smaller number
- Start from the place value of ones on your right
- Then, add tens, hundreds and thousands in the same way.
- Finally, we write the sum.

The way of adding numbers downwards is called the standard written method.



### Self Assessment 1.6.1



Work out the following.

- |                     |                     |
|---------------------|---------------------|
| a) $1\ 234 + 763 =$ | d) $1\ 099 + 900 =$ |
| b) $567 + 134 =$    | e) $765 + 1\ 213 =$ |
| c) $990 + 1\ 009 =$ | f) $1\ 002 + 691 =$ |

### Application activity 1.6.1



Work out the following activities

- |             |             |             |             |             |
|-------------|-------------|-------------|-------------|-------------|
| a) $1\ 256$ | b) $1\ 523$ | c) $1\ 435$ | d) $1\ 124$ | e) $1\ 340$ |
| $+ 421$     | $+ 376$     | $+ 543$     | $+ 872$     | $+ 549$     |

## 1.6.2 Addition with carrying where the sum does not exceed 2000

### Activity 1.6.2

Follow the given example and work out the addition activities.

**Example:**  $1\ 425 + 575 = 2\ 000$

Thousands	Hundreds	Tens	Ones
1	1	1	5
1	4	2	5
+	5	7	
2	0	0	0

a)  $934 + 799 =$

c)  $999 + 1\ 001 =$

b)  $967 + 999 =$

d)  $1\ 099 + 897 =$



Pair assessment 1.6.2

Use the following number cards and cards with

$+$

and

$=$

and do the task below:

A)  $924$   $905$   $834$   $952$   $642$   $721$   $813$

B)  $897$   $997$   $789$   $879$   $858$   $999$   $979$

C)  $1\ 623$   $1\ 831$   $1\ 902$   $1\ 821$   $1\ 500$   $1\ 720$   $1\ 792$

- Take one number card from A ;
- Take the card with addition sign  $+$  ;
- Take the number card from B which is opposite with the one you got from A
- Take the card with the sign  $=$  ;
- Then, select the correct answer from the cards in C.

### Example :

924

+

897

=

1 821

### I have learnt:

When adding numbers with carrying, we do the following:

- Add downwards in the table of place values
- Start from the place value of ones on your right
- When the sum of two or more numbers is more than 9, write the ones and carry tens to the next digit of tens to the left;
- Then, add tens, hundreds and thousands in the same way.
- Finally, we write the sum.

The way of adding numbers downwards is called the standard written method.



### Self Assessment 1.6.2



Add the following numbers:

a)  $1\ 056 + 899 =$

d)  $972 + 969 =$

b)  $797 + 1\ 197 =$

e)  $675 + 979 =$

c)  $1\ 235 + 757 =$

f)  $1\ 239 + 476 =$

### Application activity 1.6.2



Add the following:

a)  $1\ 197$    b)  $1\ 093$    c)  $1\ 395$    d)  $1\ 541$    e)  $1\ 154$   
+  $654$    +  $379$    +  $499$    +  $379$    +  $779$

## 1.7 Word problems involving addition where the sum does not exceed 2000

### Example:

Last year Muhizi harvested 799 pineapples. This year he harvested 967 pineapples. Find the total number of pineapples he harvested in two years.

Given	Request	Steps and solution
The number of the harvested pineapples last year is 799	The total number of the harvested pineapples in two years	The total number of the harvested pineapples in two years is calculated as follow: $799 + 967 = 1\ 766$
The number of the harvested pineapples this year is 967		$\begin{array}{r} 1\ 1 \\ 967 \\ +\ 799 \\ \hline 1\ 766 \end{array}$



### Pair assessment 1.7

#### Work out the following problems:

- 1) In the city, there are 754 flats and 969 modern houses to be constructed. Find the total number of houses which were constructed in the city.
- 2) There are 1006 women and 979 men in the market. Find the total number of people in the market.
- 3) In a school, there are 997 girls and 967 boys. Find the number of pupils in the school.
- 4) Records of patients in the hospital were taken for one month as follows: women 799, children 356 and men 795. Find the total number of all patients who received medical care at that hospital.



- 1) In the entertainment hall, there are 976 women and 779 men. How many people are in that hall?
- 2) In our cell, there are 357 women, 656 children, 337 men and 731 youth. How many people are in our cell?
- 3) In the bank, there are customers in the following category: 969 women, 656 men and 245 youth. Find the total number of all customers.
- 4) In the sector, there are 675 modern houses, 199 flats and 992 low cost houses. How many houses are constructed in the sector?

## 1.8 Subtraction of numbers within the range of 2000

### 1.8.1 Subtraction without borrowing

#### Activity 1.8.1

Follow the given example and explain how the subtraction was carried out.

**Example:**  $1\ 999 - 1\ 675 = 324$

Thousands	Hundreds	Tens	Ones
1	9	9	9
- 1	6	7	5
0	3	2	4

#### Activity 1.8.2

Follow the example in the activity 1 and work out the following:.

a) $1\ 956 - 1\ 421 =$	c) $1\ 975$	d) $1\ 694$	e) $1\ 799$
b) $1\ 599 - 1\ 376 =$	$-\underline{1\ 543}$	$-\underline{1\ 372}$	$-\underline{1\ 249}$



## Pair assessment 1.7

Use the following number cards and cards with  $-$  and  $=$  and do the task below:

A)  $1\ 698$   $1\ 875$   $1\ 579$   $1\ 958$   $1\ 385$   $1\ 296$   $1\ 473$

B)  $1\ 416$   $1\ 352$   $1\ 156$   $1\ 327$   $1\ 274$   $276$   $1061$

C)  $412$   $631$   $282$   $111$   $1020$   $523$   $423$

- Take one number card from A ;
- Take the card with subtraction sign  $-$  ;
- Take the number card from B;
- Take the card with the sign  $=$  ;
- Then, select the correct answer from the cards in C.

### Example

$$1\ 698 - 1\ 416 = 282$$

#### I have learnt:

When subtracting numbers without borrowing, the following are the main steps:

- Use the table of place values, and arrange numbers in vertical order starting from the bigger ones
- Subtract downwards in the table of place values
- Start from the place of ones on your right
- Continue the process on tens, hundreds and thousands as we did for ones until the end
- Finally, we write the difference.



Subtract the following:

$$\text{a) } 1\ 995 - 763 =$$

$$\text{d) } 1\ 999 - 979 =$$

$$\text{b) } 1\ 567 - 1\ 341 =$$

$$\text{e) } 1\ 765 - 1\ 213 =$$

$$\text{c) } 1\ 990 - 1\ 090 =$$

$$\text{f) } 1\ 956 - 923 =$$

### Application activity 1.8.1



Work out the following:

$$\text{a) } \begin{array}{r} 1\ 543 \\ - 421 \\ \hline \end{array}$$

$$\text{b) } \begin{array}{r} 1\ 835 \\ - 704 \\ \hline \end{array}$$

$$\text{c) } \begin{array}{r} 1\ 972 \\ - 1\ 070 \\ \hline \end{array}$$

$$\text{d) } \begin{array}{r} 1\ 675 \\ - 1\ 323 \\ \hline \end{array}$$

$$\text{e) } \begin{array}{r} 1\ 979 \\ - 863 \\ \hline \end{array}$$

## 1.8.2 Subtraction with Borrowing

### Activity 1.8.3

Follow the given example and carry out the subtraction activities.

**Example:**  $1\ 282 - 967 = 315$

Thousands	Hundreds	Tens	Ones
0	12	7	12
<del>1</del>	2	<del>8</del>	2
— ↓	9	6	7
0	3	1	5

$$\text{a) } \begin{array}{r} 1\ 243 \\ - 979 \\ \hline \end{array}$$

$$\text{b) } \begin{array}{r} 1\ 613 \\ - 1\ 379 \\ \hline \end{array}$$

$$\text{c) } \begin{array}{r} 1\ 345 \\ - 769 \\ \hline \end{array}$$

$$\text{d) } \begin{array}{r} 1\ 524 \\ - 699 \\ \hline \end{array}$$

$$\text{e) } \begin{array}{r} 1\ 241 \\ - 979 \\ \hline \end{array}$$



## Pair assessment 1.8.2

Use the following number cards and cards with  $-$  and  $=$  and do the task below:

A)  $1\ 124$   $1\ 005$   $1\ 234$   $1\ 326$   $1\ 421$   $2\ 000$   $1\ 300$

B)  $1\ 099$   $987$   $978$   $879$   $786$   $1\ 979$   $1\ 299$

C)  $1$   $25$   $256$   $447$   $21$   $18$   $635$

- Take one number card from A ;
- Take the card with subtraction sign  $-$  ;
- Take the number card from B;
- Take the card with the sign  $=$  ;
- Then, select the correct answer from the cards in C.

### Example

$$1\ 124 - 1\ 099 = 25$$

## I have learnt:

When subtracting numbers with borrowing, the following are the main steps:

- Use the table of place values, and arrange numbers in vertical order starting from the bigger ones
- Start from the place of ones on your right
- Start by ones
- When the number of ones for the first number is less than the one for the second number, you borrow one tens equivalent to 10 ones.
- Add 10 ones borrowed to the number of ones for the first number and subtract;
- Go to tens: subtract the number of tens for the second number from the remained number of tens for the first number.
- Continue the process on tens, hundreds and thousands as we did for ones until the end.
- Finally, we write the difference



## Self Assessment 1.8.2



Subtract the following numbers:

- a)  $1\ 034 - 799 =$                       d)  $1\ 345 - 997 =$   
b)  $1\ 123 - 979 =$                       e)  $1\ 456 - 1\ 299 =$   
c)  $1\ 234 - 1\ 196 =$                       f)  $1\ 789 - 1\ 236 =$

## Application activity 1.8.2



Subtract the following numbers:

- a)  $\begin{array}{r} 1\ 567 \\ - 1\ 399 \\ \hline \end{array}$       b)  $\begin{array}{r} 1\ 679 \\ - 1\ 199 \\ \hline \end{array}$       c)  $\begin{array}{r} 1\ 799 \\ - 999 \\ \hline \end{array}$       d)  $\begin{array}{r} 1\ 009 \\ - 969 \\ \hline \end{array}$       e)  $\begin{array}{r} 1\ 234 \\ - 979 \\ \hline \end{array}$

## 1.9 Word problems involving subtraction in real life situations

### Activity 1.9

Discuss this worked example:

In my school, there are 1791 pupils. If there are 999 boys, find the number of girls in the school.

Given	Request	Steps and solution
The number of all students is 1791	The number of girls	<p>The number of girls is calculated as follows:  <math>1791 - 999 = 792</math> girls students.</p> <p><b>girls students</b></p> $  \begin{array}{r}  1791 \\  - 999 \\  \hline  792  \end{array}  $
The number of boys students is 999		

#### I have learnt:

When solving a word problem involving subtraction:

1. Underline what have been given in the problem
2. you identify what is requested
3. you solve the problem by subtracting the smallest number from the biggest number and then you write the difference.



#### Pair assessment 1.9

- 1) Kaneza planted 1 917 trees. After several days, 769 trees did not grow up because of the sunshine. How many trees remained ?
- 2) Mutoni had 1 231 cows. She gave 523 cows to her family members and friends. How many cows did Mutoni remain with?

- 3) In our sector, there are 1 163 people. If the number of women and children is 999, find the number of men and youth living in our sector.
- 4) A manufacturing company produced 1 721 sacks and 179 sacks among them were sold to Rukundo. Find the number of sacks remained in the company's store.



### Self Assessment 1.9



- 1) My school committed itself to plant 2 000 trees in one year. Up to now 1 099 trees are planted. How many trees are remaining in order to meet the target?
- 2) At the district hospital, there are 1 532 patients. If 799 patients were discharged, how many patients are still in the hospital?
- 3) The cooperative members made 1 911 bricks, and 975 bricks were used to build a poultry house.. Find the number of the remaining bricks.

In my school, there are 1 921 people, and 124 among them are school staff. The remaining people are pupils . Find the number of pupils in the school.

### Application activity 1.9



Study the table below and do the given activities

	1	2
A	1 234	1 623
B	396	245
C	695	309
D	319	299

1) Work out the following addition

- a)  $A_1 + B_1 =$       c)  $A_1 + D_1 =$       e)  $A_2 + C_2 =$   
 b)  $A_1 + C_1 =$       d)  $A_2 + B_2 =$       f)  $A_2 + D_2 =$

2) Carry out the following subtraction

a)  $A_1 - B_1 =$       c)  $A_1 - D_1 =$       e)  $A_2 - C_2 =$

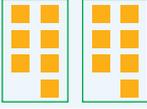
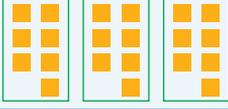
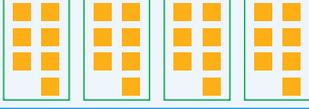
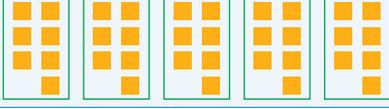
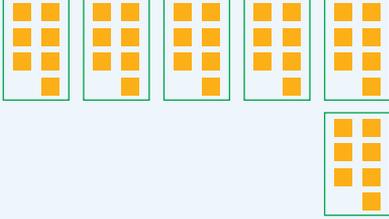
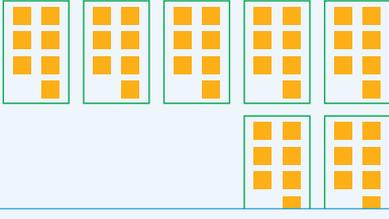
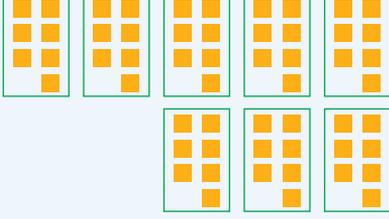
b)  $A_1 - C_1 =$       d)  $A_2 - B_2 =$       f)  $A_2 - D_2 =$

- 3) In our cell, there are 996 people who are allowed to vote. In our neighboring cell there are 999 people who are allowed to vote. Find the total number of voters who are allowed to vote in both cells?
- 4) During the last census, our cell had 1 964 citizens. If 1 324 citizens are children, how many adults were registered in our cell?

## 1.10 Multiplication table of 7 and multiples of 7 not exceeding 70

### Activity 1.10.1

- 1) Form different groups of the following counters: 7, 14, 21, 28, 35, 42, 49, 56, 63, 70.
- 2) Count the number of counters in each group and write the number of times there are 7 counters in each group.
- 3) By looking at the given table below, is there any relationship between addition and multiplication by 7?

$7$		$7 \times 1$
$7 + 7 = 14$		$7 \times 2$
$7 + 7 + 7 = 21$		$7 \times 3$
$7 + 7 + 7 + 7 = 28$		$7 \times 4$
$7 + 7 + 7 + 7 + 7 = 35$		$7 \times 5$
$7 + 7 + 7 + 7 + 7 + 7 = 42$		$7 \times 6$
$7 + 7 + 7 + 7 + 7 + 7 + 7 = 49$		$7 \times 7$
$7 + 7 + 7 + 7 + 7 + 7 + 7 + 7 = 56$		$7 \times 8$

$7 + 7 + 7 + 7 + 7 + 7 + 7$ $+ 7 + 7 = 63$		$7 \times 9$
---	--	--------------

$7 + 7 + 7 + 7 + 7 + 7 + 7$ $+ 7 + 7 + 7 = 70$		$7 \times 10$
---	--	---------------

**Application activity 1.10**

1. Fill in with the correct number

- |                            |                            |                            |
|----------------------------|----------------------------|----------------------------|
| a) $7 = 7 \times \square$  | e) $35 = 7 \times \square$ | h) $56 = 7 \times \square$ |
| b) $14 = 7 \times \square$ | f) $42 = 7 \times \square$ | i) $63 = 7 \times \square$ |
| c) $21 = 7 \times \square$ | g) $49 = 7 \times \square$ | j) $70 = 7 \times \square$ |
| d) $28 = 7 \times \square$ |                            |                            |

2. Find the multiples of 7

- |           |   |                        |            |   |                         |
|-----------|---|------------------------|------------|---|-------------------------|
| 7 times 1 | → | $7 \times 1 = \square$ | 7 times 6  | → | $7 \times 6 = \square$  |
| 7 times 2 | → | $7 \times 2 = \square$ | 7 times 7  | → | $7 \times 7 = \square$  |
| 7 times 3 | → | $7 \times 3 = \square$ | 7 times 8  | → | $7 \times 8 = \square$  |
| 7 times 4 | → | $7 \times 4 = \square$ | 7 times 9  | → | $7 \times 9 = \square$  |
| 7 times 5 | → | $7 \times 5 = \square$ | 7 times 10 | → | $7 \times 10 = \square$ |

3. Fill in with the correct number

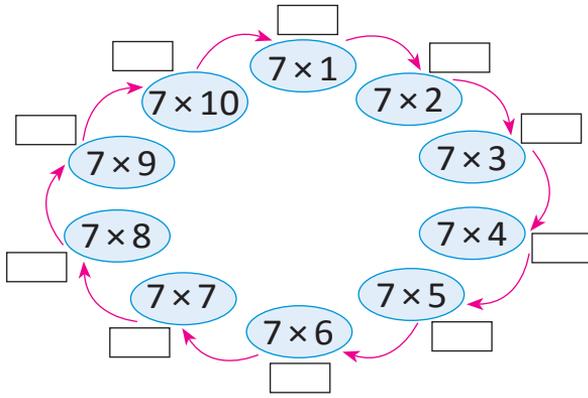
a)

↓	1	2	3	4	5	6	7	9	9	10
× 7	___	___	___	___	___	___	___	___	___	___

b)

↓	___	2	___	4	___	6	___	9	___	10
× 7	7	___	21	___	35	___	49	___	63	___

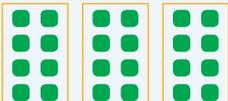
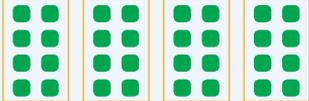
c)

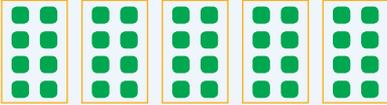
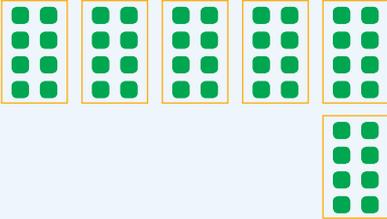
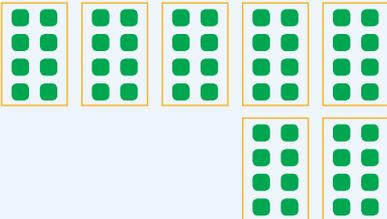
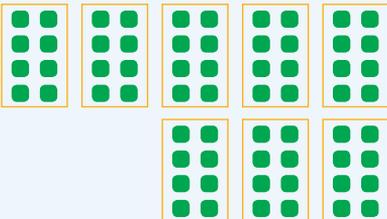
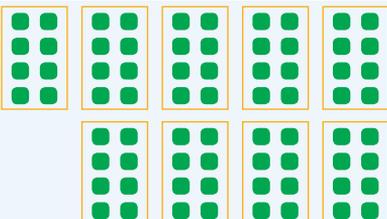
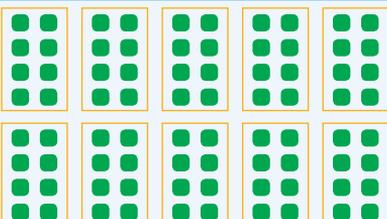


## 1.11 Multiplication table of 8 and multiples of 8 not exceeding 80

### Activity 1.11.1

- 1) Form different groups of the following counters: 8, 16, 24, 32, 40, 48, 56, 64, 72, 80.
- 2) Count the number of counters in each group and write the number of times there are 8 counters in each group.
- 3) By looking at the given table below, is there any relationship between addition and multiplication by 8?

8		$8 \times 1$
$8 + 8 = 16$		$8 \times 2$
$8 + 8 + 8 = 24$		$8 \times 3$
$8 + 8 + 8 + 8 = 32$		$8 \times 4$

$8 + 8 + 8 + 8 + 8 = 40$		$8 \times 5$
$8 + 8 + 8 + 8 + 8 + 8 = 48$		$8 \times 6$
$8 + 8 + 8 + 8 + 8 + 8 + 8 = 56$		$8 \times 7$
$8 + 8 + 8 + 8 + 8 + 8 + 8 + 8 = 64$		$8 \times 8$
$8 + 8 + 8 + 8 + 8 + 8 + 8 + 8 + 8 = 72$		$8 \times 9$
$8 + 8 + 8 + 8 + 8 + 8 + 8 + 8 + 8 + 8 = 80$		$8 \times 10$

## Application activity 1.11



1) Fill in with the correct number

- a)  $8 = 8 \times \square$       e)  $40 = 8 \times \square$       h)  $64 = 8 \times \square$   
 b)  $16 = 8 \times \square$       f)  $48 = 8 \times \square$       i)  $72 = 8 \times \square$   
 c)  $24 = 8 \times \square$       g)  $56 = 8 \times \square$       j)  $80 = 8 \times \square$   
 d)  $32 = 8 \times \square$

2) Find the multiples of 8

- 8 times 1  $\rightarrow 8 \times 1 =$       8 times 6  $\rightarrow 8 \times 6 =$   
 8 times 2  $\rightarrow 8 \times 2 =$       8 times 7  $\rightarrow 8 \times 7 =$   
 8 times 3  $\rightarrow 8 \times 3 =$       8 times 8  $\rightarrow 8 \times 8 =$   
 8 times 4  $\rightarrow 8 \times 4 =$       8 times 9  $\rightarrow 8 \times 9 =$   
 8 times 5  $\rightarrow 8 \times 5 =$       8 times 10  $\rightarrow 8 \times 10 =$

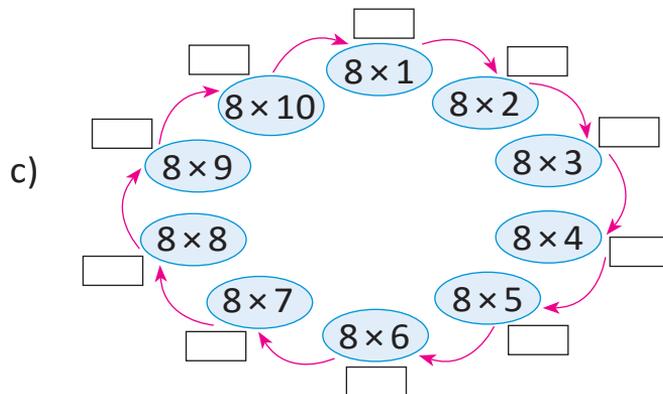
==3) Fill in with the correct number

a)

$\downarrow$	0	1	2	3	4	5	6	7	9	9	10
$\times 8$	—	—	—	—	—	—	—	—	—	—	—

b)

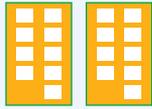
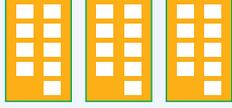
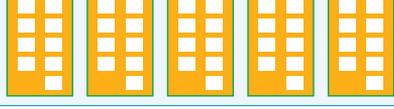
$\downarrow$	0	—	2	—	4	—	6	—	9	—	10
$\times 8$	—	8	—	24	—	40	—	56	—	72	—



## 1.12 Multiplication table of 9 and multiples of 9 not exceeding 90

### Activity 1.12

- 1) Form different groups of the following counters: 9, 18, 27, 36, 45, 54, 63, 72, 91, 90.
- 2) Count the number of counters in each group and write the number of times there are 9 counters in each group.
- 3) By looking at the given table below, is there any relationship between addition and multiplication by 9?

9		$9 \times 1$
$9 + 9 = 18$		$9 \times 2$
$9 + 9 + 9 = 27$		$9 \times 3$
$9 + 9 + 9 + 9 = 36$		$9 \times 4$
$9 + 9 + 9 + 9 + 9 = 45$		$9 \times 5$
$9 + 9 + 9 + 9 + 9 + 9 = 54$		$9 \times 6$
$9 + 9 + 9 + 9 + 9 + 9 + 9 = 63$		$9 \times 7$

$9 + 9 + 9 + 9 + 9$ $+ 9 + 9 + 9 = 72$		$9 \times 8$
$9 + 9 + 9 + 9 + 9 + 9 + 9$ $+ 9 + 9$ $= 81$		$9 \times 9$
$9 + 9 + 9 + 9 + 9 + 9 + 9$ $+ 9 + 9$ $+ 9 = 90$		$9 \times 10$

### Application activity 1.12

1) Fill in with the correct number

- |                            |                            |                            |
|----------------------------|----------------------------|----------------------------|
| a) $9 = 9 \times \square$  | e) $45 = 9 \times \square$ | h) $72 = 9 \times \square$ |
| b) $18 = 9 \times \square$ | f) $54 = 9 \times \square$ | i) $81 = 9 \times \square$ |
| c) $27 = 9 \times \square$ | g) $63 = 9 \times \square$ | j) $90 = 9 \times \square$ |
| d) $36 = 9 \times \square$ |                            |                            |

2) Find multiples of 9

- |             |                |              |                 |
|-------------|----------------|--------------|-----------------|
| 9 times 1 → | $9 \times 1 =$ | 9 times 6 →  | $9 \times 6 =$  |
| 9 times 2 → | $9 \times 2 =$ | 9 times 7 →  | $9 \times 7 =$  |
| 9 times 3 → | $9 \times 3 =$ | 9 times 8 →  | $9 \times 8 =$  |
| 9 times 4 → | $9 \times 4 =$ | 9 times 9 →  | $9 \times 9 =$  |
| 9 times 5 → | $9 \times 5 =$ | 9 times 10 → | $9 \times 10 =$ |

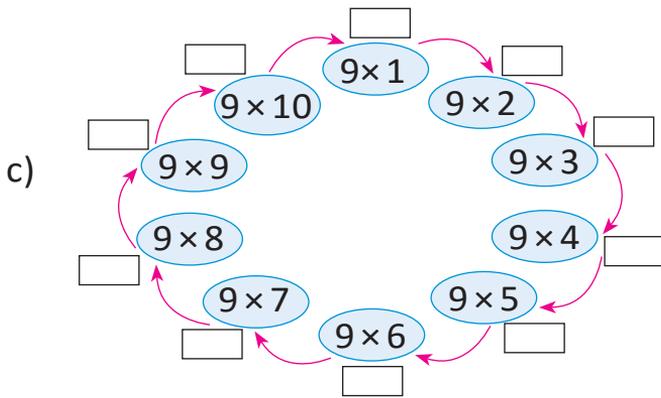
3) Fill in with the correct number

a)

$\overline{) 0 \quad \_ \quad 2 \quad \_ \quad 4 \quad \_ \quad 6 \quad \_ \quad 9 \quad \_ \quad 10}$
$\times 9$
$\_ \quad \_ \quad \_ \quad 27 \quad \_ \quad 45 \quad \_ \quad 63 \quad \_ \quad 81 \quad \_$

b)

$\overline{) \quad \_ \quad 1 \quad \_ \quad 3 \quad \_ \quad 5 \quad \_ \quad 7 \quad \_ \quad 9 \quad \_}$
$\times 9$
$0 \quad \_ \quad 18 \quad \_ \quad 36 \quad \_ \quad 54 \quad \_ \quad 72 \quad \_ \quad 90$



### 1.13 Multiply a two-digit or three-digit number by 7, 8 and 9 where the product does not exceed 2000

#### Activity 1.13

Follow the example and workout the given activities.

#### Example:

$$237 \times 7 = 1\,659$$

Thousand	Hundreds	Tens	Ones
	2	4	
	2	3	7
		x	7
1	6	5	9

$7 \times 7 = 49$ , we write 9 in the place value of ones and we carry 4 in the place value of tens.

$7 \times 3 = 21$ , we write  $1 + 4$  in the place value of tens and carry 2 in the place value of hundreds.

$7 \times 2 = 14$ , we write  $4 + 2$  in the place value of hundreds and carry 1 in the place value of thousands.

a)  $\begin{array}{r} 175 \\ \times 7 \\ \hline \end{array}$     b)  $\begin{array}{r} 189 \\ \times 8 \\ \hline \end{array}$     c)  $\begin{array}{r} 197 \\ \times 9 \\ \hline \end{array}$     d)  $\begin{array}{r} 186 \\ \times 7 \\ \hline \end{array}$     e)  $\begin{array}{r} 167 \\ \times 8 \\ \hline \end{array}$

f)  $\begin{array}{r} 169 \\ \times 7 \\ \hline \end{array}$     g)  $\begin{array}{r} 158 \\ \times 8 \\ \hline \end{array}$     h)  $\begin{array}{r} 148 \\ \times 9 \\ \hline \end{array}$     i)  $\begin{array}{r} 179 \\ \times 7 \\ \hline \end{array}$     j)  $\begin{array}{r} 186 \\ \times 9 \\ \hline \end{array}$

### I have learnt:

When multiplying numbers, start by multiplying the number with ones and then multiply it with tens and so on. If the product is a two-digits number, we write ones in the place value of ones and we carry tens in the place value of tens. We do the same for tens, and hundreds.



### Pair assessment 1.13

1. Find the product of the following numbers

a)  $\begin{array}{r} 245 \\ \times 7 \\ \hline \end{array}$     b)  $\begin{array}{r} 215 \\ \times 8 \\ \hline \end{array}$     c)  $\begin{array}{r} 200 \\ \times 9 \\ \hline \end{array}$     d)  $\begin{array}{r} 239 \\ \times 7 \\ \hline \end{array}$     e)  $\begin{array}{r} 189 \\ \times 8 \\ \hline \end{array}$



### Self Assessment 1.13

Follow the given example and find out the product of numbers

### Example

$$248 \times 8 = \begin{array}{r} 1600 \\ \hline \end{array} + \begin{array}{r} 320 \\ \hline \end{array} + \begin{array}{r} 64 \\ \hline \end{array} = 1984$$

$(200 \times 8) + (40 \times 8) + (8 \times 8)$

a)  $254 \times 7 =$

c)  $219 \times 9 =$

e)  $179 \times 8 =$

b)  $245 \times 8 =$

d)  $198 \times 7 =$

f)  $209 \times 9 =$

**Application activity 1.13** 

Find the product of the following numbers

a) 
$$\begin{array}{r} 274 \\ \times 5 \\ \hline \end{array}$$

b) 
$$\begin{array}{r} 612 \\ \times 3 \\ \hline \end{array}$$

c) 
$$\begin{array}{r} 176 \\ \times 8 \\ \hline \end{array}$$

d) 
$$\begin{array}{r} 199 \\ \times 9 \\ \hline \end{array}$$

e) 
$$\begin{array}{r} 129 \\ \times 6 \\ \hline \end{array}$$

**1.14 Multiply a 3-digit number by a 2-digit number where the product does not exceed 2000****Activity 1.14**

Follow the given example and find out the product of a 3-digit number by a 2-digit number.

**Example**

Housands	Hundreds	Tens	Ones
	1	2	3
	$\times$	1	2
	2	4	6
+ 1	2	3	
<b>1</b>	<b>4</b>	<b>7</b>	<b>6</b>

a) 
$$\begin{array}{r} 111 \\ \times 17 \\ \hline \end{array}$$

b) 
$$\begin{array}{r} 105 \\ \times 19 \\ \hline \end{array}$$

c) 
$$\begin{array}{r} 156 \\ \times 12 \\ \hline \end{array}$$

d) 
$$\begin{array}{r} 179 \\ \times 11 \\ \hline \end{array}$$

e) 
$$\begin{array}{r} 129 \\ \times 15 \\ \hline \end{array}$$

**Self Assessment 1.14** 

Find out the product of the following numbers.

a) 
$$\begin{array}{r} 146 \\ \times 13 \\ \hline \end{array}$$

b) 
$$\begin{array}{r} 162 \\ \times 12 \\ \hline \end{array}$$

c) 
$$\begin{array}{r} 139 \\ \times 14 \\ \hline \end{array}$$

d) 
$$\begin{array}{r} 152 \\ \times 13 \\ \hline \end{array}$$

e) 
$$\begin{array}{r} 124 \\ \times 15 \\ \hline \end{array}$$



## Pair assessment 1.14

Use the following number cards and cards with  $\times$  and  $=$  and do the task below:

A) 114 115 109 103 102 117 112

B) 14 13 12 11 15 16 17

C) 1 904 1 530 1 495 1 596 1 872 1 133 1 308

- Take one number card from A ;
- Take the card with multiplication sign  $\times$  ;
- Take the number card from B;
- Take the card with the sign  $=$  ;
- Then, select the correct answer from the cards in C.

### Example

$$114 \times 14 = 1\,596$$

#### I have learnt:

The following are steps to multiply three-digit by two-digit numbers.

**First step:** Multiply the ones digit of the bottom factor (multiplier) by the top factor (multiplicand) and write the result on the line below.

**Second step:** Multiply the digit in the tens place of the bottom factor by the top factor and write the result on the line below, but place a 0 in the ones place, since this part of the multiplication is a number of tens.

**Third step:** Add the products, starting from ones.

## Application activity 1.14

Observe carefully what is written in the table and do the given activities.

	1	2	3	4
A	116	113	111	110
B	19	18	17	16
C	15	14	13	12

a)  $A\ 1 \times B\ 4 =$

c)  $A\ 1 \times B\ 3 =$

e)  $A\ 1 \times C\ 3 =$

b)  $A\ 1 \times C\ 1 =$

d)  $A\ 1 \times C\ 2 =$

f)  $A\ 1 \times C\ 4 =$

## 1.15 Word problems involving multiplication of a 3-digit number by a 2-digit number where the product does not exceed 2000.

### Activity 1.15

Discuss this worked example:

In the meeting room, there are 19 rows of chairs and on each row there are 105 chairs. Find the total number of chairs in the room.

Given	Request	Steps and solution
The number of rows is 19	Total number of chairs in the meeting room	Total number of chairs is calculated as follow: $105 \times 19 = 1995$ chairs $\begin{array}{r} \phantom{105} \\ \phantom{105} +4 \\ \phantom{105} 105 \\ \phantom{105} \times 19 \\ \phantom{105} \hline \phantom{105} 945 \\ \phantom{105} +105 \\ \phantom{105} \hline \phantom{105} 1995 \end{array}$
The number of chairs on each row is 105		

## I have learnt:

When solving a word problem involving multiplication:

1. You underline what is given in the problem
2. You identify what is required
3. You solve the problem by arranging numbers to be multiplied in a vertical order and then multiply them starting with ones
4. Finally, you write the product of the two numbers.



### Pair assessment 1.14

- 1) My father harvested bananas and loaded them equally in 17 lorries. Find the number of the harvested bananas if each lorry transported 117 bananas.
- 2) The Hospital of our district has 19 rooms for patients and in each room there are 105 patients. Find the number of all patients hospitalized in the hospital.
- 3) In one ballot box there are 148 voting papers. Find the number of voting papers to be contained in 13 boxes.
- 4) Mubumbyi makes 165 bricks everyday. Find the number of bricks to be made in 12 days.



### Self Assessment 1.15

- 1) Pupils planted trees on 12 straight lines and they planted 162 trees on each line. How many trees were planted altogether?
- 2) Butera bought 135 notebooks for children in his cell. Every child received 14 notebooks. How many notebooks did Butera buy altogether?
- 3) A shopkeeper sells 124 soaps everyday. Find the number of soaps to be sold in 16 days .
- 4) In the school, there are 18 classrooms and each classroom contains 15 desks. How many have?

## 1.16 Multiply numbers by 100 and 1000 where the product does not exceed 2000

### Activity 1.16

Follow the given example and work out quick multiplication activities.

#### Example:

a)  $19 \times 100 = 1\ 900$

c)  $1 \times 1\ 000 = 1\ 000$

b)  $13 \times 100 = 1\ 300$

d)  $2 \times 1\ 000 = 2\ 000$

a)  $12 \times 100 =$

c)  $1 \times 1\ 000 =$

e)  $19 \times 100 =$

b)  $17 \times 100 =$

d)  $10 \times 100 =$

f)  $2 \times 1\ 000 =$

#### I have learnt:

Rules for the multiplication by 100 and 1000 are as follow.

- If we multiply a whole number by a 100, we write that number then we write two zeros at the end.
- If we multiply a whole number by a 1000, we write that number then we write three zeros at the end.

#### Application activity 1.16

Fill in with the correct number 100 or 1000.

a)  $\square \times 13 = 1\ 300$

e)  $\square \times 1 = 1\ 000$

b)  $16 \times \square = 1\ 600$

f)  $14 \times \square = 1\ 400$

c)  $10 \times \square = 1\ 000$

g)  $2 \times \square = 2\ 000$

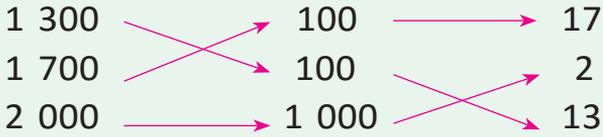
d)  $17 \times \square = 1\ 700$

h)  $20 \times \square = 2\ 000$



#### Self Assessment 1.14

Follow the given example and match the number with the correct factors.

**Example:**

- a) 700      1 000    15  
 b) 800      1 000    2  
 c) 2 000    100      1  
 d) 1 000    100      8  
 e) 1 500    100      7

## 1.17 Division without a remainder of a 4-digit number by a 1-digit number

### Activity 1.17.1

Fill in the missing numbers in the following table

	2	4	6	8	10	12	14	16	18	20
÷ 2	—	—	—	—	—	—	—	—	—	—
	3	6	9	12	15	18	21	24	27	30
÷ 3	—	—	—	—	—	—	—	—	—	—
	4	8	12	16	20	24	28	32	36	40
÷ 4	—	—	—	—	—	—	—	—	—	—
	5	10	15	20	25	30	35	40	45	50
÷ 5	—	—	—	—	—	—	—	—	—	—
	6	12	18	24	30	36	42	48	54	60
÷ 6	—	—	—	—	—	—	—	—	—	—
	7	14	21	28	35	42	49	56	63	70
÷ 7	—	—	—	—	—	—	—	—	—	—
	8	16	24	32	40	48	56	64	72	80
÷ 8	—	—	—	—	—	—	—	—	—	—

	9	18	27	36	45	54	63	72	81	90
÷ 9	___	___	___	___	___	___	___	___	___	___

### Activity 1.17.2

Follow this example and work out the following activities.

#### Example

$1\ 866 \div 6 = 311$

$1\ 484 \div 7 = 212$

$1\ 648 \div 8 = 206$

$$\begin{array}{r} 311 \\ 6 \overline{) 1866} \\ \underline{-18} \phantom{00} \\ 006 \phantom{00} \\ \underline{-6} \phantom{00} \\ 06 \phantom{00} \\ \underline{-6} \phantom{00} \\ 0 \phantom{00} \end{array}$$

$$\begin{array}{r} 212 \\ 7 \overline{) 1484} \\ \underline{-14} \phantom{00} \\ 008 \phantom{00} \\ \underline{-7} \phantom{00} \\ 14 \phantom{00} \\ \underline{-14} \phantom{00} \\ 0 \phantom{00} \end{array}$$

$$\begin{array}{r} 206 \\ 8 \overline{) 1648} \\ \underline{-16} \phantom{00} \\ 004 \phantom{00} \\ \underline{-0} \phantom{00} \\ 48 \phantom{00} \\ \underline{-48} \phantom{00} \\ 0 \phantom{00} \end{array}$$

a)  $1\ 236 \div 4 =$

c)  $1\ 648 \div 8 =$

e)  $1\ 768 \div 2 =$

b)  $1\ 575 \div 5 =$

d)  $1\ 989 \div 9 =$

f)  $1\ 326 \div 6 =$



#### Pair assessment 1.17

1. Use the following number cards and cards with  $\div$  and  $=$  and do the task below:

A)  $1\ 449$   $1\ 872$   $1\ 704$   $1\ 540$   $1\ 896$   $1\ 648$   $1\ 686$

B)  $7$   $9$   $8$   $5$   $6$   $4$   $3$

C)  $213$   $316$   $208$   $412$   $562$   $207$   $308$

- Take one number card from A ;
- Take the card with division sign  $\div$  ;
- Take the number card from B;
- Take the card with the sign  $=$  ;
- Then, select the correct answer from the cards in C.

## Example :

$$1\ 449 \div 7 = 207$$

2. Make your own number cards containing numbers between 1 000 and 2 000. Make cards with the following signs  $\div$  and  $=$ . Follow the instructions of the previous activity and do the same with your own numbers.

### I have learnt:

To divide a four-digit number by a one-digit number you do the following:

- Place the divisor and the dividend into the long division format (division bracket or any other division format).
- Examine the first digit of the dividend and if it is smaller than the divisor (it can't be divided by divisor to produce a whole number), then take the first two digits of the dividend and determine how many divisors it contains.
- Multiply the obtained number of divisors by the divisor and place the result below the two digits of the dividend starting from thousands, hundreds, tens and end up with ones.
- Subtract the obtained number from two digits of dividend starting from thousands, hundreds, tens and end up with ones. If the result is 0 the division is finished.

## Application activity 1.17



Study carefully the given table and work out the division activities

	1	2	3	4	5	6
A	1 064	1 998	2 000	1 872	1 267	1 872
B	9	8	7	6	5	8

Using the table above, divide the following.

- a) A 1 and B 2      c) A 3 and B 5      e) A 5 and B 3  
 b) A 2 and B 1      d) A 4 and B 4      f) A 4 and B 6

## 1.18 Word problems on division without remainder

### Activity 1.18:

Discuss this worked example:

96 pupils were divided into 8 groups with equal number of pupils. How many pupils are in each group?

Given	Request	Steps and solution
The number of all pupils is 96	The number of pupils in each group	The number of pupils in each group is calculated as follow $96 \div 8 = 12$ students $  \begin{array}{r}  12 \\  8 \overline{) 96} \\  \underline{-8} \phantom{0} \\  16 \\  \underline{-16} \\  0  \end{array}  $
The number of groups: 8		



### Pair assessment 1.18

- 1) 378 pupils were equally divided into 9 classrooms. How many pupils are in each classroom?
- 2) The district has 894 books to be equally distributed to 6 schools. How many books does each school receive?
- 3) Our sector has 1 985 mosquito nets to be equally distributed to 5 cells. How many mosquito nets does each cell receive?
- 4) A farmer harvested 1 359 sacks of Irish potatoes to be equally loaded in 9 lorries. How many sacks of Irish potatoes did each lorry carry??

### I have learnt:

When solving a word problem involving division:

1. You underline what has been given in the problem
2. You identify what is requested
3. You solve the problem by arranging numbers to be divided in a division format and then divide them from thousands, hundreds, tens and end up with ones
4. Finally, you write the quotient of the two numbers.



### Self Assessment 1.18



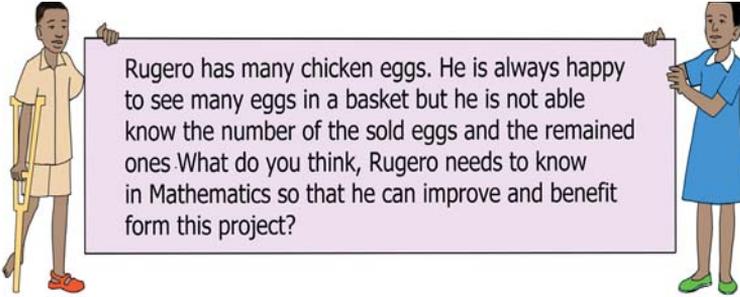
- 1) Keza has 1 768 eggs to be equally distributed in 8 boxes. How many eggs were put in each box? ?
- 2) Donors have 1 484 playing balls to be equally distributed to 7 districts. How many playing balls will be received by each district?
- 3) Mubumbyi made 1 888 bricks in 8 days. Find the number of bricks Mubumbyi makes everyday.

## 1.19 End of unit assessment

- 4) Divide equally 1 845 textbooks to 5 schools.
- 1) Write 1 987 in words.
- 2) Which number has been expanded to give: 9 ones 8tens 1 thousands 7 hundreds =
- 3) Find the number which has been expanded below:  
 $(1 \times 1\,000) + (7 \times 100) + (9 \times 10) + (8 \times 1) =$
- 4) What is the place value of the underlined digits  
a) 1 856    b) 1 787    c) 1 324    d) 1 258
- 5) Compare numbers using the following symbols: <, > or =  
a) 1 095  1 059    b) 1 741  1 876
- 6) Arrange the following numbers in ascending order (from the smallest to the biggest number)  
1 789, 1 879, 1 798, 1 897, 1 978, 1 987
- 7) Arrange the following numbers in descending order (from the biggest to the smallest number)  
1 978, 1 987, 1 789, 1 798, 1 879, 1 897
- 8) Find the sum of the following numbers:  
a)  $1\,434 + 563 =$     b)  $895 + 1\,009 =$
- 9) Find the difference of the following numbers:  
a)  $1\,785 - 762 =$     b)  $1\,967 - 1\,356 =$
- 10) Find the product of the following numbers  
a)  $\begin{array}{r} 156 \\ \times 8 \\ \hline \end{array}$     b)  $\begin{array}{r} 205 \\ \times 7 \\ \hline \end{array}$     c)  $\begin{array}{r} 209 \\ \times 9 \\ \hline \end{array}$     d)  $\begin{array}{r} 124 \\ \times 15 \\ \hline \end{array}$     e)  $\begin{array}{r} 147 \\ \times 13 \\ \hline \end{array}$
- 11) Find the quotient of the following number:  
a)  $1\,998 \div 9 =$     b)  $1\,875 \div 5 =$
- 12) In Bibare cell, there are 367 men, 445 women, 461 youth and 723 children. Find the number of all people in Bibare cell.
- 13) A school has 1 874 pupils.. Find the number of boys if the number of girls is 987.
- 14) A training center has 7 meeting rooms and in each room there are 275 trainees. Find the number of all trainees at the training center.
- 15) Equally divide 1 998 mosquito nets to 6 villages. How many mosquito nets does each village receive?

# WHOLE NUMBERS FROM 0 UP TO 5 000

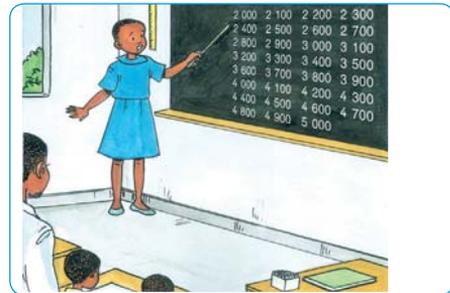
## 2.0 Introductory activity 2



## 2.1 Read whole numbers from 0 up to 5000

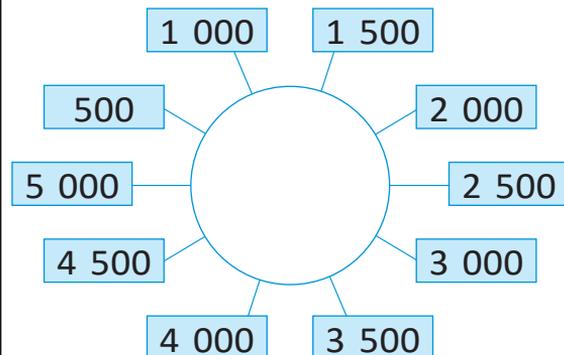
### Activity 2.1.1

- Look at the image and read the given numbers
- How many digits does each number have?



### Activity 2.1.2

- Read the numbers on the circle starting from the smallest to the biggest number.
- Look at the numbers on the circle and identify all 4 digit numbers
- Look at the numbers on the circle and identify all 3 digit numbers





Take number cards containing the following numbers:



Make different numbers between:

- |                    |                    |                    |
|--------------------|--------------------|--------------------|
| a) 2 000 and 2 500 | c) 3 000 and 3 500 | e) 4 000 and 4 500 |
| b) 2 500 and 3 000 | d) 3 500 and 4 000 | f) 4 500 and 5 000 |

Each digit can be used only once.

### Application activity 2.1



In the box, there are small papers with numbers 1 251; 2 437; 3 317. Everyone picks or chooses randomly one paper and reads aloud the number on that paper.

## 2.2 Write whole numbers from 0 up to 5000

### Activity 2.2.1

Make 5 numbers between 2 000 and 5 000, using the following number cards:



Write those 5 numbers in words and read them aloud to your friends . Each digit can be used only once.

### Activity 2.2.2

Find the missing numbers on the number lines. Read them and write them in words.

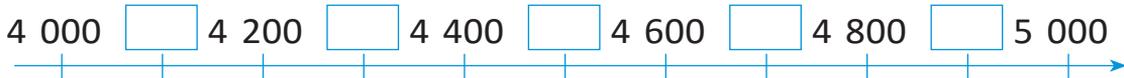
a)



b)



c)



### Activity 2.2.3

Make 5 numbers between 2 000 and 5 000, using the following number cards:

1

2

3

4

5

Write those 4 numbers in words and read them aloud to your friends .

**Note:** Each digit can be used only once.



### Self Assessment 2.2



Find all numbers between:

a) 2 015 and 2 020    b) 2 070 and 2 075    c) 4 065 and 4 070

Write them in figures and in words

### Application activity 2.2



1) Write the following in figures or in words

a) 4 924

b) Three thousand and eighteen:

c) Four thousand, eight hundred, seventy:

d) 2 949

e) 4 157

f) Two thousand, seven hundred, fifty four :

2) Form 6 numbers between 1 000 and 5 000, using the following number cards:

4	3	2	1
---	---	---	---

Read and use your notebook to write them in words and in figures.

3) Read and write numbers in the table below:

- Write in figures all numbers written in words
- Write in words all numbers written in figures

a	3 764: ___	d	Four thousand, nine hundred and eight: ___	g	2 273: ___
b	Two thousand, seven hundred and five: ___	e	4 936: ___	h	Three thousand , five hundred, thirty nine: ___
c	3 953: ___	f	Two thousand, three hundred and seven: ___	i	4 719: ___

## 2.3 Place value of digits in the numbers from 0 up to 5000

### Activity 2.3.1

Write the numbers in the place value table by showing thousands, hundreds, tens and ones.

**Example:** The number 2 456 is composed of 2 Thousands, 4 Hundreds, 5 Tens and 6 Ones.

Thousands (Th)	Hundreds (H)	Tens (T)	Ones (b)
2	4	5	6

- a) 3 546                      c) 4 969                      e) 4 935  
b) 2 932                      d) 2 794                      f) 3 794

### Activity 2.3.2

- a. Use a table of place values and write each digit in the right place.
- a. 2564 = ...Thousands...Hunderds ...Tens...Ones.  
b. 3968 = ...Tens...Thousands...Ones...Hundreds.  
c. 4975= ...Hundreds...Ones...Thousands... Tens.  
d. 2936 = ...Ones...Hundreds...Tens...Thousands.  
e. 3917 = ...Tens...Hundreds...Thousands...Ones.  
f. 4795 = ...Hundreds...Ones...Thousands... Tens.

### Activity 2.3.3

Write down the number that was expanded below:

- a) 2thousands, 7 tens, 5 ones and 9 hundreds  
b) 9 ones, 8 hundreds ,4 thousands and 1 tens  
c) 6 hundreds, 4 ones, 6 tens and 2 thousands  
d) 5 tens, 3 hundreds, 2thousands and 9 ones  
e) 7 ones 9 tens 3 thousands and 5 hundreds

### I have learnt:

- The value of thousands is given by the digit in the place value of thousands times 1 000
- The value of hundreds is given by the digit in the place value of hundreds times 100
- The value of tens is given by the digit in the place value of tens times 10
- The value of ones is given by the digit in the place value of ones times 1



### Self Assessment 2.3



Follow the example and expand the given numbers into thousands, hundreds, tens and ones.

### Example

a)  $4\ 765 = 4\ 000 + 700 + 60 + 5$

b)  $3\ 567 = (3 \times 1\ 000) + (5 \times 100) + (6 \times 10) + (7 \times 1)$

c)  $2\ 893 = 2\ \text{thousands}, 8\ \text{hundreds}, 9\ \text{tens}, 3\ \text{ones}$

a)  $4\ 652 =$

d)  $2\ 634 =$

g)  $3\ 916 =$

b)  $2\ 879 =$

e)  $4\ 971 =$

h)  $2\ 397 =$

c)  $3\ 574 =$

f)  $3\ 695 =$

i)  $4\ 645 =$



### Pair assessment 2.3

Find out the number that was expanded into thousands (Th), hundreds (H), tens (T) and ones (O).

a)  $(2 \times 1\ 000) + (6 \times 100) + (3 \times 10) + (9 \times 1) =$

b)  $4\ 000 + 300 + 70 + 9 =$

c) 3 thousands; 7 hundreds; 4 tens; 2 ones = c)

### Application activity 2.3



1. Use a table of place values, tell and write the place value and the value of each undelined digit

a) 3 564

c) 2 342

e) 2 917

b) 4 759

d) 4 925

f) 3 759

2. Find out the number that was expanded into thousands (Th), hundreds (H), tens (T) and ones (O).

a) 5 ones, 4 thousands, 7 tens, 9 hundreds

b) 7 ones, 4 tens, 3 thousands, 6 hundreds

c) 9 tens, 2 thousands, 6 ones, 7 hundreds

d) 5 hundreds, 8 ones, 2 tens, 3 thousands

e) 8 hundreds, 9 ones, 4 thousands, 7 tens

f) 7 ones, 2 thousands, 7 tens, 6 hundreds

3. Use the table of place value to expand the following numbers into thousands (Th), hundreds (H), tens (T) and ones (O).

a) 4 657 =

c) 3 965 =

e) 2 645 =

b) 2 726 =

d) 4 425 =

f) 3 371 =

4. Find the number that was expanded into thousands (th), hundreds (H), tens (T) and ones (O).

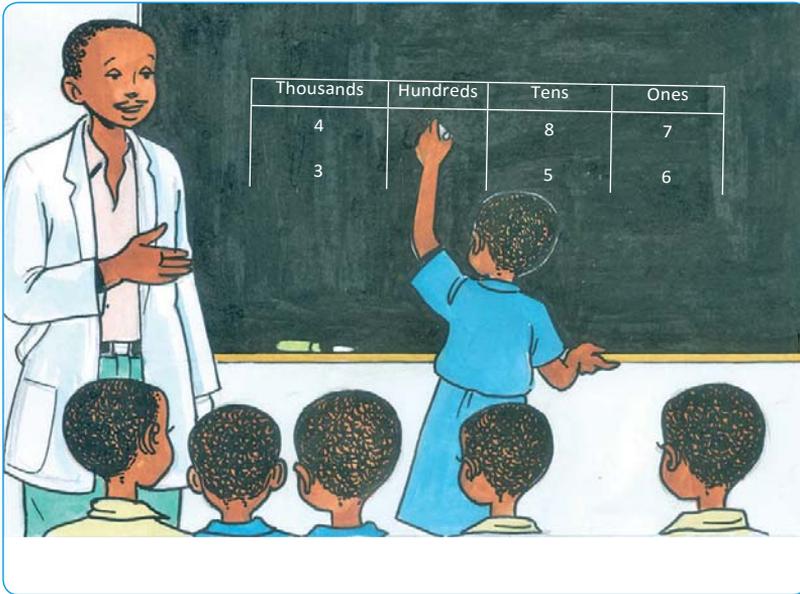
a)  $(2 \times 1\,000) + (6 \times 100) + (9 \times 10) + (4 \times 1) =$

b)  $4\,000 + 500 + 40 + 9 =$

c) 3 thousands + 4 hundreds + 7 tens + 5 ones

## 2.4 Comparing two numbers less than or equal to 5000

Look at the picture and explain what pupils are doing. Then compare the given numbers.



### Example:

Thousands	Hundreds	Tens	Ones
4	1	8	7
3	9	5	6

3956 is smaller than 4187. It is written as follow:  $3\ 956 < 4\ 187$

1)  $3\ 671 \square 4\ 738$

3)  $4\ 678 \square 2\ 104$

2)  $4\ 123 \square 3\ 214$

4)  $2\ 340 \square 3\ 340$

### I have learnt:

When comparing two numbers the following are the main steps:

1. We compare digits of 2 numbers starting from thousands to ones
2. If the digits in the thousands place value are equal, then we compare digits in hundreds.
3. If the digits in the hundreds place value are equal, then we compare digits in tens
4. If the digits in the tens place value are equal, then we compare digits in ones
5. Mathematically, we compare numbers using the following symbols:  $<$  (less than),  $>$  (greater than) and  $=$  (equal)

**Note:** The comparison signs  $<$  and  $>$  are always facing the greater number.



### Self Assessment 2.4



Look at the table below and compare number of people in Kamukina village.

Men	Women	Youth	Children
1 823	1 987	3 298	4 567

- a) Compare the numbers of women and men
- b) Compare the numbers of men and youth
- c) Compare the numbers of children and men
- d) Compare the numbers of men and children



## Pair assessment 2.4

Look at the picture and compare the numbers of citizens in different cells.

Cell	Men	Women
Umutuzo Cell	2 347	1 328
Amahoro Cell	4 230	4 031
Ubumwe cell	1 214	2 114
Umubano Cell	3 045	3 005

In the given cells, which one has :

1. A few number of men
2. A few number of women
3. A greater number of men
4. A greater number of women
5. Use the comparison signs  $<$  and  $>$  to compare :
  - The number of men in Umutuzo cell and the number of men in Amahoro cell
  - The number of men in Ubumwe cell and the number of men in Umubano cell
  - The number of men in Amahoro cell and the number of men in Umubano cell
  - The number of men in Umutuzo cell and the number of men in Ubumwe cell.

### Application activity 2.4



Use  $<$ ,  $>$  or  $=$  to compare the following numbers:

- a) 4 958  4 958
- b) 3 174  2 797
- c) 2 962  3 637

d) 4 253  2 352

e) 3 764  4 674

f) 2 315  4 135

g) 2 309  2 309

h) 3 247  3 274

## 2.5 Arrange numbers between 2000 and 5000 in ascending or descending order

### 2.5.1 Arrange numbers in ascending order

#### Activity 2.5.1

Follow the example and arrange in ascending order the given numbers.

Arrange numbers in ascending order ( from the smallest to the biggest number)

**Example:** 4 725, 3 257, 4 752

Thousands(Th)	Hundreds (H)	Tens (T)	Ones (O)
3	2	5	7
4	7	2	5
4	7	5	2

**Answer:** 4 752, 4 725, 3 257

1) 3 248, 2 348, 4 832      3) 4 334, 3 438, 4 833

2) 3 247, 4 237, 2 743      4) 2 437, 3 472, 4 327

## Activity 2.5.2

Follow the example on the picture and arrange the given numbers in ascending order



- 1) 2 345, 3 245, 4 245, 2 435, 3 425
- 2) 4 425, 2 534, 3 542, 4 524, 2 349
- 3) 4 329, 3 429, 2 934, 4 293, 3 942
- 4) 2 493, 4 939, 3 249, 4 328, 2 483

### I have learnt:

When ordering numbers, we use numeration table and then:

- First, we compare digits in the thousands place value
- Second, we compare digits in the hundreds place value
- Third, we compare digits in the tens place value
- Fourth, we compare digits in the ones place
- Finally, we arrange numbers in ascending order.



Arrange in ascending order (from the smallest to the biggest number) the given numbers on number cards.

2 456

3 271

1 937

4 010

4 101

### 2.5.2 Arrange numbers in descending order

#### Activity 2.5.3

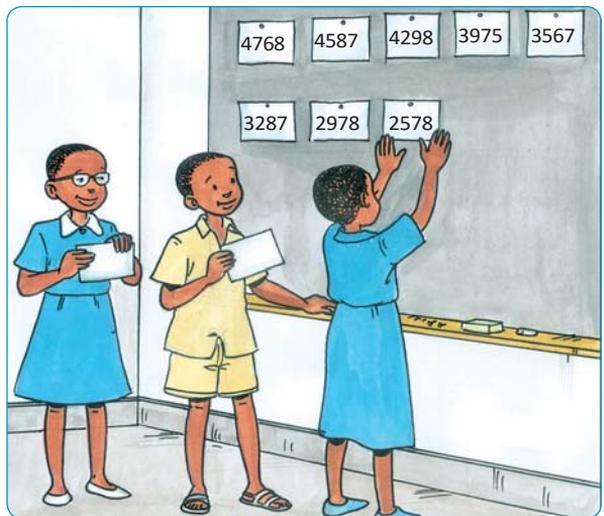
Imitate what children are doing in the picture. Use the number cards, and arrange in descending order the given numbers.

a) 4 321 3 214 2 431

4 231 3 412 2 312

b) 2 341 4 123 3 124

2 143 3 345 4 533



#### Activity 2.5.4

Follow the example and arrange in descending order the given numbers.

Arrange numbers in descending order (from biggest to the smallest number)

**Example:** 4 526, 4 735, 4 647

Thousands	Hundreds	Tens	Ones
4	7	3	5
4	6	4	7
4	5	2	6

**Answer:** 4 526, 4 647, 4 735

- 1) 2 543, 3 254, 4 352      3) 4 932, 2 439, 3 942  
2) 4 235, 2 435, 3 453      4) 3 294, 4 293, 3 492



**Pair assessment 2.5**

- 1) Arrange the following numbers in ascending order  
a) 2 938, 2 893, 3 892      b) 4 328, 3 428, 2 834  
2) Arrange the following numbers in descending order  
a) 4 369, 3 496, 4 693      b) 4 153, 4 315, 3 45

**Application activity 2.5**



1. Arrange the following numbers in ascending order  
a) 4 739, 4 973, 4 397  
b) 3 479, 4 749, 4 973  
c) 4 128, 4 182, 4 018, 4 108  
d) 4 107, 4 701, 4 170, 4 071  
2. Arrange the following numbers in descending order  
a) 2 643, 4 362, 3 263  
b) 3 647, 4 763, 4 367

- c) 2 974, 2 479, 2 947  
 d) 3 238, 3 823, 3 283, 3 832

## 2.6 Addition of numbers whose sum does not exceed 5000

### 2.6.1 Addition without carrying where the sum does not exceed 5000

#### Activity 2.6.1

Follow the given example and work out the addition activities.

**Example:**  $1\ 213 + 2\ 675 =$

Thousands	Hundreds	Tens	Ones
1	2	1	3
+ 2	6	7	5
3	8	8	8

- a)  $3\ 454$     b)  $2\ 523$     c)  $3\ 435$     d)  $4\ 017$     e)  $2\ 454$   
 $+ 1\ 421$      $+ 2\ 175$      $+ 1\ 543$      $+ 972$      $+ 2\ 452$

#### I have learnt:

When adding numbers without carrying, we do the following:

- Add downwards in the table of place values
- Start from the place value of ones on your right
- Then, add tens, hundreds and thousands in the same way.
- Finally, we write the sum.

The way of adding numbers downwards is called the standard written method



## Self Assessment 2.6.1



Work out the following

a)  $4\ 235 + 763 =$

b)  $2\ 567 + 1\ 421 =$

c)  $3\ 909 + 1\ 090 =$

d)  $2\ 990 + 2\ 009 =$

e)  $3\ 735 + 1\ 251 =$

f)  $4\ 056 + 823 =$



## Pair assessment 2.6.1

Use the following number cards and cards with



and



and do the task below:

A)  $2\ 524$   $3\ 521$   $3\ 274$   $4\ 215$   $2\ 425$   $3\ 156$   $4\ 123$

B)  $2\ 471$   $1\ 268$   $1\ 625$   $581$   $2\ 434$   $1\ 632$   $675$

C)  $4\ 798$   $4\ 788$   $4\ 796$   $4\ 995$   $4\ 859$   $4\ 789$   $4\ 899$

- Take one number card from A ;
- Take the card with addition sign  $+$  ;
- Take the number card from B;
- Take the card with the sign  $=$  ;
- Then, select the correct answer from the cards in C.

### Example:

$2\ 524 + 2\ 471 = 4\ 995$

## Application activity 2.6.1

Work out the following addition activities

a) 
$$\begin{array}{r} 3\ 543 \\ + 1\ 456 \\ \hline \end{array}$$
 b) 
$$\begin{array}{r} 2\ 235 \\ + 2\ 704 \\ \hline \end{array}$$
 c) 
$$\begin{array}{r} 3\ 972 \\ + 1\ 017 \\ \hline \end{array}$$
 d) 
$$\begin{array}{r} 4\ 675 \\ + 323 \\ \hline \end{array}$$
 e) 
$$\begin{array}{r} 2\ 454 \\ + 2\ 452 \\ \hline \end{array}$$

## 2.6.2 Addition with carrying where the sum does not exceed 5000

### Activity 2.6.2

Follow the given example and work out the addition activities.

**Example:**  $2\ 725 + 1\ 579 =$

Thousands	Hundreds	Tens	Ones
2	7	2	5
+ 1	5	7	9
4	3	0	4

a) 
$$\begin{array}{r} 2\ 897 \\ + 1\ 654 \\ \hline \end{array}$$
 b) 
$$\begin{array}{r} 3\ 093 \\ + 1\ 379 \\ \hline \end{array}$$
 c) 
$$\begin{array}{r} 1\ 395 \\ + 3\ 499 \\ \hline \end{array}$$
 d) 
$$\begin{array}{r} 1\ 024 \\ + 3\ 699 \\ \hline \end{array}$$
 e) 
$$\begin{array}{r} 1\ 154 \\ + 3\ 779 \\ \hline \end{array}$$

## I have learnt:

When adding numbers with carrying, we do the following:

- Add downwards in the table of place values
- Start from the place value of ones on your right
- When the sum of two or more numbers is more than 9, write the ones and carry tens to the next digit of tens to the left;
- Then, add tens, hundreds and thousands in the same way.
- Finally, we write the sum.

The way of adding numbers downwards is called the standard written method.



## Self Assessment 2.6.2



Carry out the following addition activities

a)  $2\ 943 + 1\ 979 =$

c)  $1\ 239 + 3\ 678 =$

b)  $3\ 967 + 797 =$

d)  $2\ 795 + 2\ 089 =$



## Pair assessment 2.6.2

Use the following number cards and cards with

+

and

=

and do the task below:

A)  $1\ 924$   $2\ 905$   $3\ 024$   $1\ 952$   $2\ 642$   $3\ 721$   $2\ 313$

B)  $2\ 789$   $1\ 978$   $1\ 879$   $2\ 897$   $2\ 198$   $1\ 089$   $2\ 679$

C)  $4\ 903$   $4\ 810$   $4\ 992$   $4\ 713$   $4\ 849$   $4\ 883$   $4\ 840$

- Take one number card from A ;
- Take the card with addition sign  $+$  ;
- Take the number card from B;
- Take the card with the sign  $=$  ;
- - Then, select the correct answer from the cards in C.

### Example :

$$1\ 924 + 2\ 789 = 4\ 713$$

### Application activity 2.6.2

Carry out the following addition activities

a)	$4\ 072$	b)	$3\ 235$	c)	$3\ 472$	d)	$3\ 765$	e)	$3\ 246$
	$+ 928$		$+ 757$		$+ 1\ 097$		$+ 997$		$+ 1\ 475$

## 2.7 Word problems involving addition whose sum does not exceed 5000

### Activity 2.7:

Discuss this worked

### Example:

A company printed 2 567 books during the day and 2 433 books during the night. Find the total number of books printed altogether. .

Given	Request	Steps and solution
The number of books printed during the day is 2 567	The total number of books printed the whole day.	The total number of books printed altogether is calculated as follow:  $2\ 567 + 2\ 433 = 5\ 000$ books $  \begin{array}{r}  1\ 1\ 1 \\  2\ 5\ 6\ 7 \\  +\ 2\ 4\ 3\ 3 \\  \hline  5\ 0\ 0\ 0  \end{array}  $
The number of books printed during night is 967		

### I have learnt:

When solving a word problem involving addition:

- you underline what have been given in the problem
- you identify what is requested
- you solve the problem by adding numbers and then you write the sum.



### Pair assessment 2.7

Work out the following problems:

1. A company makes 2 345 iron sheets before noon and 2 649 iron sheets after noon. Find the number of all iron sheets the company makes per day.
2. Our cell planted 1 897 trees last year and 3 098 trees this year. Find the total number of trees planted in two years.

3. The Aschool of our sector has 3 785 girls and 1 215 boys. How many pupils are in the school?
4. In the basketball stadium, there are 2 178 women fans and 2 789 men fans. Find the number of all fans in the stadium.



### Self Assessment 1.9



1. In the hospital, there are 2 679 patients, 1 829 cleaners, 245 nurses and 79 doctors. Find the total number of people in the hospital.
2. In the train there are 2 189 men, 1 689 women and 789 children. Find the total number of people in train.
3. In the meeting room there are 3 978 men and 978 women. How many people are in the meeting room altogether?
4. Last year Butera harvested 3 197 cabbages and this year he harvested 1 789 cabbages. How many cabbages did Butera harvest in two years?

### Application activity 2.6.7



1. Our school has 1 765 seedlings of eucalyptus trees and 2 103 seedlings of fruit trees. Find the total number of seedlings.
2. In the morning prayers, 1 265 men, 1 620 women and 210 children were present. How many people are present in the morning prayers?
3. In the forest, there are 1 543 eucalyptus trees, 746 grevillea trees and 1 220 **bamboo**. Find the total number of trees in the forest.

## 2.8 Subtraction of numbers within the range of 5000

### 2.8.1 Subtraction without borrowing

#### Activity 2.8.1

Follow the given example and subtract the following:

**Example:**  $4\ 568 - 3\ 226 =$

	Thousands	Hundreds	Tens	Ones
	4	5	6	8
–	3	2	2	6
	<b>1</b>	<b>3</b>	<b>4</b>	<b>2</b>

a)  $4\ 956 - 3\ 124$     b)  $3\ 599 - 3\ 467$     c)  $2\ 975 - 1\ 453$     d)  $3\ 694 - 2\ 573$     e)  $4\ 799 - 3\ 429$

#### I have learnt:

When subtracting numbers without borrowing, the following are the main steps:

- Use the table of place values, and arrange numbers in vertical order starting from the bigger ones
- Subtract downwards in the table of place values
- Start from the place of ones on your right
- Continue the process on tens, hundreds and thousands as we did for ones until the end
- Finally, we write the difference.



## Self Assessment 2.8.1



Work out the following:

- a)  $4\ 795 - 2\ 563 =$     c)  $2\ 897 - 1\ 794 =$     e)  $2\ 765 - 1\ 312 =$   
 b)  $3\ 765 - 2\ 431 =$     d)  $4\ 965 - 3\ 941 =$     f)  $3\ 956 - 2\ 932 =$



## Pair assessment 1.14

Use the following number cards and cards with  $-$  and  $=$  and do the task below:

- A)  $4\ 967$     $3\ 857$     $2\ 957$     $4\ 985$     $3\ 758$     $2\ 896$     $4\ 738$   
 B)  $3\ 624$     $2\ 523$     $1\ 915$     $3\ 712$     $2\ 715$     $1\ 465$     $2\ 617$   
 C)  $2\ 121$     $1\ 043$     $1\ 343$     $1\ 334$     $1\ 273$     $1\ 431$     $1\ 042$

- Take one number card from A ;
- Take the card with subtraction sign  $-$  ;
- Take the number card from B ;
- Take the card with the sign  $=$  ;
- Then, select the correct answer from the cards in C.

### Example

$$4\ 967 - 3\ 624 = 1\ 343$$

## Application activity 2.8.1

Work out the following:

$$\begin{array}{r} \text{a) } 2\ 543 \\ - 1\ 412 \\ \hline \end{array} \quad \begin{array}{r} \text{b) } 4\ 745 \\ - 3\ 230 \\ \hline \end{array} \quad \begin{array}{r} \text{c) } 3\ 729 \\ - 2\ 517 \\ \hline \end{array} \quad \begin{array}{r} \text{d) } 2\ 765 \\ - 1\ 523 \\ \hline \end{array} \quad \begin{array}{r} \text{e) } 3\ 599 \\ - 3\ 429 \\ \hline \end{array}$$

## 2.8.2 Subtraction with borrowing

### Activity 2.8.2

Follow the given example and Subtract the following:.

**Example:**  $4\ 755 - 2\ 967 =$

Thousands	Hundreds	Tens	Ones
	16	14	
3	6	4	15
<del>4</del>	<del>7</del>	<del>5</del>	5
- 2	9	6	7
1	7	8	8

$$\begin{array}{r} \text{a) } 4\ 243 \\ - 2\ 798 \\ \hline \end{array} \quad \begin{array}{r} \text{b) } 3\ 613 \\ - 2\ 379 \\ \hline \end{array} \quad \begin{array}{r} \text{c) } 2\ 345 \\ - 1\ 769 \\ \hline \end{array} \quad \begin{array}{r} \text{d) } 3\ 524 \\ - 2\ 659 \\ \hline \end{array} \quad \begin{array}{r} \text{e) } 4\ 241 \\ - 1\ 879 \\ \hline \end{array}$$

## I have learnt:

When subtracting numbers with borrowing, the following are the main steps:

- Use the table of place values, and arrange numbers in vertical order starting from the bigger ones
- Subtract downwards in the table of place values
- Start from the place of ones on your right
- Start by ones
- When the number of ones for the first number is less than the one for the second number, you borrow one tens equivalent to 10 ones.
- Add 10 ones borrowed to the number of ones for the first number and subtract;
- Go to tens: subtract the number of tens for the second number from the remained number of tens for the first number.
- Continue the process on tens, hundreds and thousands as we did for ones until the end.
- Finally, we write the difference.



### Self Assessment 2.8.2



Carry out the following subtraction activities

a)  $4\ 571 - 3\ 796 =$

b)  $3\ 423 - 2\ 975 =$

c)  $4\ 234 - 3\ 596 =$

d)  $2\ 345 - 1\ 687 =$

e)  $4\ 567 - 2\ 789 =$

f)  $3\ 567 - 1\ 678 =$



## Pair assessment 2.8.2

Use the following number cards and cards with  $-$  and  $=$  and do the task below:

- A)  $4\ 123$   $3\ 105$   $4\ 234$   $2\ 346$   $4\ 241$   $5\ 000$   $4\ 000$   
B)  $2\ 079$   $1\ 987$   $3\ 978$   $1\ 879$   $3\ 786$   $4\ 976$   $3\ 298$   
C)  $1\ 118$   $467$   $702$   $24$   $2\ 044$   $455$   $256$

- Take one number card from A ;
- Take the card with subtraction sign  $-$  ;
- Take the number card from B ;
- Take the card with the sign  $=$  ;
- Then, select the correct answer from the cards in C.

### Example

$$4\ 123 - 2\ 079 = 2\ 044$$

### Application activity 2.8.2

Subtract the following:

- a)  $\begin{array}{r} 4\ 678 \\ - 2\ 789 \\ \hline \end{array}$     b)  $\begin{array}{r} 2\ 785 \\ - 1\ 806 \\ \hline \end{array}$     c)  $\begin{array}{r} 4\ 009 \\ - 3\ 967 \\ \hline \end{array}$     d)  $\begin{array}{r} 3\ 234 \\ - 2\ 567 \\ \hline \end{array}$     e)  $\begin{array}{r} 4\ 341 \\ - 1\ 779 \\ \hline \end{array}$

## 2.9 Word problems involving subtraction in real life situations

### Activity 2.9

Discuss this worked example:

#### Example:

In our cell, there are 4 352 citizens and 3 974 among them have medical insurance. Find the number of citizens without medical insurance.

Given	Request	Steps and solution
The number of all citizens is 4 352	The number of citizens without medical insurance	Citizens with medical insurance
The number of citizens without medical insurance is 3 974		$4\ 352 - 3\ 974 = 378$

#### I have learnt:

When solving a word problem involving subtraction:

1. you underline what has been given in the problem
2. you identify what is required
3. you solve the problem by subtracting the smallest number from the biggest number and then you write the difference



#### Pair assessment 2.9

1. Keza made 3 567 bricks. While drying up them, 987 bricks got broken . How many bricks did Keza remain with?
2. Our school headmaster bought 4 123 textbooks and he gave 1 456 textbooks to pupils and teachers. How many textbooks did he remain with?

- Umurerwa harvested 3 214 avocados and stored them for ripening. After being ripe, 789 avocados were damaged. Find the number of undamaged avocados.
- Kamukina cell has 4 132 citizens and 1 968 among them are in the second category of Ubudehe. Find the number of citizens who are in other categories..



### Self Assessment 2.9



- In our cell, there are 4 356 houses and among them 2789 are flats. Find the number of simple houses found in our cell.
- Tunga's chicken laid 3 456 eggs and 987 eggs got broken. . How many eggs did he remain with ?
- our sector planted 4 321 trees during Umuganda day and 3 567 trees did not grow up. . How many trees remained?.

### Exercise: 2.9



Study carefully the table and do the following: .

	1	2	3	4
A	4 254	3 672	2 675	4 734
B	2 697	2 825	1 796	2 976
C	659	1 098	2 978	199
D	591	1 279	1 597	167

Carry out the following addition

a)  $A_1 + C_1 =$       c)  $A_2 + C_2 =$       e)  $A_3 + C_4 =$

b)  $A_1 + D_1 =$       d)  $A_2 + D_2 =$       f)  $A_3 + D_3 =$

Carry out the following subtraction

a)  $A_1 - B_1 =$       c)  $A_1 - D_1 =$       e)  $A_2 - B_2 =$

b)  $A_1 - C_1 =$       d)  $A_1 - D_3 =$       f)  $A_2 - C_2 =$

## 2.10 Multiply a 3-digit number by a 2-digit number where the product does not exceed 5 000

### Activity 2.10

Follow the given example and find out the product of a 3-digit number by a 2-digit number.

#### Example:

Thousands	Hundreds	Tens	Ones
	1	9	8
	×	2	4
	7	9	2
<b>+ 3</b>	<b>9</b>	<b>6</b>	
4	7	5	2

a) 
$$\begin{array}{r} 295 \\ \times 15 \\ \hline \end{array}$$

b) 
$$\begin{array}{r} 198 \\ \times 19 \\ \hline \end{array}$$

c) 
$$\begin{array}{r} 356 \\ \times 12 \\ \hline \end{array}$$

d) 
$$\begin{array}{r} 139 \\ \times 34 \\ \hline \end{array}$$

e) 
$$\begin{array}{r} 108 \\ \times 45 \\ \hline \end{array}$$

f) 
$$\begin{array}{r} 209 \\ \times 23 \\ \hline \end{array}$$

g) 
$$\begin{array}{r} 247 \\ \times 19 \\ \hline \end{array}$$

h) 
$$\begin{array}{r} 169 \\ \times 24 \\ \hline \end{array}$$

## I have learnt:

The following are steps to multiply three-digit by two-digit numbers.

**First step:** Multiply the ones digit of the bottom factor (multiplier) by the top factor (multiplicand) and write the result on the line below.

**Second step:** Multiply the digit in the tens place of the bottom factor by the top factor and write the result on the line below, but place a 0 in the ones place, since this part of the multiplication is a number of tens.

**Third step:** Add the products, starting from ones.



### Pair assessment 2.10

Use the following number cards and cards with  $\times$  and  $=$  and do the task below:

- A) 

237	159	368	193	219	317	412
-----	-----	-----	-----	-----	-----	-----
- B) 

21	29	13	25	18	15	12
----	----	----	----	----	----	----
- C) 

4 784	3 942	4 977	4 755	4 825	4 944	4 611
-------	-------	-------	-------	-------	-------	-------

- Take one number card from A ;
- Take the card with multiplication sign  $\times$  ;
- Take the number card from B;
- Take the card with the sign  $=$  ;
- Then, select the correct answer from the cards in C.

## Example

237

×

21

=

4 977

## Application activity 2.10



Study carefully the table and do the following:

	1	2	3	4
A	156	176	241	354
B	29	18	31	15
C	19	24	13	26
D	109	208	317	367

## 2.11 Word problems involving the multiplication of a 3-digit number by a 2-digit number where the product does not exceed 5000

### Activity 2.11

Discuss this worked example:

#### Example:

In the church, there are 297 benches and each bench has 16 seats. Find the total number of people in the church.

Given	Request	Steps and solution
<p>The number of all benches is 297</p> <p>The number of people to seat on each bench is 16</p>	The number of people to seat on all benches	<p>The number of people to seat on all benches is calculated as follow:</p> <p><math>297 \times 16 = 4752</math> people.</p> $  \begin{array}{r}  297 \\  \times 16 \\  \hline  1782 \\  + 297 \downarrow \\  \hline  4752  \end{array}  $ <p style="text-align: right;"><del>+4</del> +5</p>

Multiplying 297 by 6 ones:

$6 \times 7 = 42$ , we write 2 in the place value of ones and we carry 4 in the place value of tens.

$6 \times 9 = 54$ , we add 4 to 54, we write 8 in the place value of tens and carry 5 in the place value of hundreds.

$6 \times 2 = 12$ , we add 5 to 12 and we write 7 in the place value of hundreds and carry 1 in the place value of thousands.

Multiplying 297 by 6 ones, we have the following number:  
1 782

Multiplying 297 by 1:

- $1 \times 7 = 7$
- $1 \times 9 = 9$
- $1 \times 2 = 2$

Multiplying 297 by 1 tens, we have the following number: 2970

Finally, we add two numbers 1 782 and 2970 to get the product 4752

### I have learnt that:

When solving a word problem involving multiplication:

1. you underline what have been given in the problem
2. you identify what is requested
3. you solve the problem by arranging numbers to be multiplied in a vertical order and then multiply them starting with ones
4. Finally, you write the product of the two numbers.



### Pair assessment 2.11

1. Gahire planted pineapples on 316 straight lines. Find the total number of pineapples Gahire planted if each line had 15 pineapples.
2. Muhongerwa has 159 trays of eggs. If on each tray there are 30 eggs, find the total number of eggs.



### Self Assessment 2.11



1. In the room, there are 28 rows and each row has 189 chairs. Find the total number of chairs in the room.
2. Soldiers make 245 straight lines and on each line there are 19 soldiers. Find the total number of soldiers .

## 2.12 Multiply numbers by 100 and 1000 where the product does not exceed 5000

### Activity 2.12

Follow the given example and work out quick multiplication..

#### Example:

a)  $29 \times 100 = 2\ 900$

b)  $45 \times 100 = 4\ 500$

a)  $5 \times 1\ 000 =$

b)  $4 \times 1\ 000 =$

#### I have learnt:

Rules for the multiplication by 100 and 1000 are as follow.

- If we multiply a whole number by a 100, we write that number then we write two zeros at the end.
- If we multiply a whole number by a 1000, we write that number then we write three zeros at the end.



#### Self Assessment 2.12



Do quick multiplication of the following numbers

a)  $42 \times 100 =$

c)  $2 \times 1\ 000 =$

e)  $49 \times 100 =$

b)  $37 \times 100 =$

d)  $36 \times 100 =$

f)  $1 \times 1\ 000 =$



#### Pair assessment 2.12

- Stand in front of two buckets
- The first bucket contains number cards with 10 different numbers,
- The second bucket contains number cards with different multiples of 10.

- One student picks one card in the first bucket and his friend finds the product of the picked number by 100 or 1000 in the second bucket.

### Application activity 2.12

Fill in with the correct number 100 or 1000.

a)  $\square \times 3 = 3\ 000$

e)  $\square \times 4 = 4\ 000$

b)  $46 \times \square = 4\ 600$

f)  $35 \times \square = 3\ 500$

c)  $5 \times \square = 5\ 000$

g)  $3 \times \square = 3\ 000$

d)  $28 \times \square = 2\ 800$

h)  $2 \times \square = 2\ 000$

## 2.13 Division without a remainder of a 4-digit number by a 1-digit number not exceeding 5000.

### Activity 2.13

Follow the given example and work out the following..

#### Example:

a)  $3\ 321 \div 9 = 369$

$$\begin{array}{r} 369 \\ 9 \overline{) 3321} \\ \underline{-27} \phantom{00} \\ 62 \phantom{00} \\ \underline{-54} \phantom{00} \\ 81 \phantom{00} \\ \underline{-81} \phantom{00} \\ 0 \end{array}$$

b)  $4\ 896 \div 8 = 612$

$$\begin{array}{r} 612 \\ 8 \overline{) 4896} \\ \underline{-48} \phantom{00} \\ 009 \phantom{00} \\ \underline{-8} \phantom{00} \\ 16 \phantom{00} \\ \underline{-16} \phantom{00} \\ 0 \end{array}$$

c)  $4\ 963 \div 7 = 709$

$$\begin{array}{r} 709 \\ 7 \overline{) 4963} \\ \underline{-49} \phantom{00} \\ 006 \phantom{00} \\ \underline{-0} \phantom{00} \\ 63 \phantom{00} \\ \underline{-63} \phantom{00} \\ 0 \end{array}$$

a)  $3\ 975 \div 3 =$

c)  $4\ 985 \div 5 =$

b)  $4\ 648 \div 4 =$

d)  $2\ 706 \div 6 =$



## Pair assessment 2.13

1. Use the following number cards and cards with  $\div$  and  $=$  and do the task below:

A)  $4\ 095$   $4\ 563$   $4\ 956$   $4\ 864$   $3\ 966$   $4\ 868$   $4\ 896$

B)  $5$   $9$   $7$   $8$   $6$   $4$   $3$

C)  $1\ 632$   $608$   $708$   $819$   $1\ 217$   $661$   $507$

- Take one number card from A ;
- Take the card with division sign  $\div$  ;
- Take the number card from B;
- Take the card with the sign  $=$  ;
- Then, select the correct answer from the cards in C.

### Example

$$4\ 095 \div 5 = 819$$

### I have learnt that:

To divide a four-digit number by a one-digit number you do the following:

- Place the divisor and the dividend into the long division format (division bracket or any other division format).
- Check the first digit of the dividend and if it is smaller than the divisor (it can't be divided by divisor to produce a whole number), then take the first two digits of the dividend and find out how many divisors it contains.
- Multiply the obtained number of divisors by the divisor and place the result below the two digits of the dividend starting from thousands, hundreds, tens and end up with ones.
- Subtract the obtained number from two digits of dividend starting from thousands, hundreds, tens and end up with ones. Since the result is 0 the division is finished.



### Self Assessment 2.13



Carry out the following division activities

a)  $4\ 985 \div 5 =$

c)  $2\ 736 \div 9 =$

b)  $3\ 872 \div 8 =$

d)  $4\ 963 \div 7 =$

### Application activity 2.12



1. Study carefully the given table and work out the following:

	1	2	3	4	5
A	4 765	4 698	3 584	2 976	4 563
B	5	6	7	8	9

Match the letters with numbers in the table and divide

- a) A 1 by B 1      c) A 3 by B 3      e) A 5 by B 5  
 b) A 2 by B 2      d) A 4 by B 4      f) A 4 by B 2

2. Find the missing number.

- a)  $\_ \div 5 = 153$     b)  $\_ \div 4 = 124$       c)  $\_ \div 6 = 496$

## 2.14 Word problems of division without remainder

### Activity 2.14

Discuss this workd example:

#### Example:

Divide equally 4 875 mosquito nets to 5 villages.  
 How many mosquito nets each village will get?

Given	Request	steps and solution
<p>The number of all mosquito nets is 4 875</p> <p>The number of villages to equally share mosquito nets is 5</p>	<p>The number of mosquito nets to be given to each village</p>	<p>The number of mosquito nets to each village is calculated as follow <math>4\ 875 \div 5 = 975</math> mosquito nets</p> $  \begin{array}{r}  975 \\  \hline  5 \overline{) 4875} \\  \underline{-45} \phantom{00} \\  037 \\  \underline{-35} \phantom{00} \\  025 \\  \underline{-25} \phantom{00} \\  00  \end{array}  $ <p>Each village will get 975 mosquito nets</p>

### I have learnt that:

When solving a word problem involving division:

1. you underline what has been given in the problem
2. you identify what is requested
3. you solve the problem by arranging numbers to be divided in a division format and then divide them from thousands, hundreds, tens and end up with ones
4. Finally, you write the quotient of the two numbers.



### Pair assessment 2.14

1. 9 schools equally shared 4 581 Mathematics books. How many books did each get?.
2. 7 health centers received 4 991 beds from donors. How many beds did each health center get?
3. 4 986 coffee seedlings are equally shared by 9 sectors. How many seedlings did each sector get? Find the number of coffee seedlings to be received by each sector.
4. Mbabazi harvested 3 795 pineapples in 5 seasons and in every season, Mbabazi harvested the same number of pineapples. How many pineapples were harvested in each season?



### Self Assessment 2.14

1. 8 schools in our district received 3 848 desks from donors to be shared equally. How many desks were given to each school?
2. Divide equally 2 598 iron sheets to 6 carpenters. How many iron sheets does every carpenter get?
3. A businessman distributed 4 764 cabbages to 4 army barracks. How many cabbages did each barracks get?

4. Uwamahoro sells 4 365 sacks of cements in 3 months. How many sacks of cement does she sell every month?

## 2.15 End of unit assessment

- Write 4 978 in words
- Find the number which has been expanded.
  - 7 ones 5 tens 4 thousands 9 hundreds
  - 9 ones 3 thousands 6tens 7hundreds
- Find the number which has been expanded.  
a)  $(4 \times 1\,000) + (8 \times 100) + (7 \times 10) + (5 \times 1) =$
- Find the place value of the undelined digits
  - 3 586
  - 2 789
  - 4 362
  - 3 978
- Compare numbers using the following symbols:  $<$ ,  $>$  and  $=$ 
  - 4 659  4 695
  - 4 871  4 867
- Arrange the following numbers in ascending order (from the smallest to the biggest)  
4 879, 4 897, 4 798, 4 789, 4 987, 4 978
- Arrange the following numbers in descending order (from the biggest to the smallest )  
3 687, 3 678, 3 768, 3 786, 3 867, 3 876
- Find the sum of the following numbers:
  - $3\,154 + 1\,659 =$
  - $3\,876 + 1\,112 =$
- Find the difference of the following numbers:
  - $4\,587 - 3\,267 =$
  - $3\,967 - 2\,563 =$
- Find the product of the following numbers
  - $\begin{array}{r} 412 \\ \times 12 \\ \hline \end{array}$
  - $\begin{array}{r} 105 \\ \times 47 \\ \hline \end{array}$
  - $\begin{array}{r} 209 \\ \times 19 \\ \hline \end{array}$
  - $\begin{array}{r} 124 \\ \times 35 \\ \hline \end{array}$
  - $\begin{array}{r} 137 \\ \times 36 \\ \hline \end{array}$

11. Find the quotient of the following number:

a)  $4\,959 \div 9 =$       b)  $3\,785 \div 5 =$       c)  $2\,988 \div 6 =$

12. In Nyakabanda cell there are 879 women, 839 men and 3 267 children. How many people are in that cell?

13. 4 789 people attended trainings. If there were 2 097 women, find the number of men who attended the training.

14. At the village there are 276 families and every family planted 18 trees. Find the number of trees which were planted.

15. Equally divide 4 298 sacks of cement to 7 businessmen.



# WHOLE NUMBERS FROM 0 UP TO 10 000

## 3.0 Introductory activity



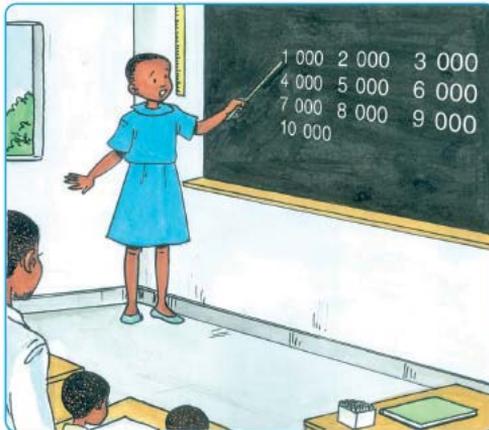
Gakire is a farmer and he harvested many sacks of maize and beans. He sells milk from his cows and eggs from his chickens but he is not able to count and make correct calculations in order to manage well his production. What advice can you give him so that he can improve his way of managing his production.



## 3.1 Read whole numbers from 0 up to 10 000

### Activity 3.1.1

Look at image and read the given numbers



### Pair assessment 3.1

Sit in 4 straight lines in front of a box containing sheets of papers with 4-digits numbers. Everyone picks one sheet of paper and reads aloud the number on it.

### Application activity 3.1

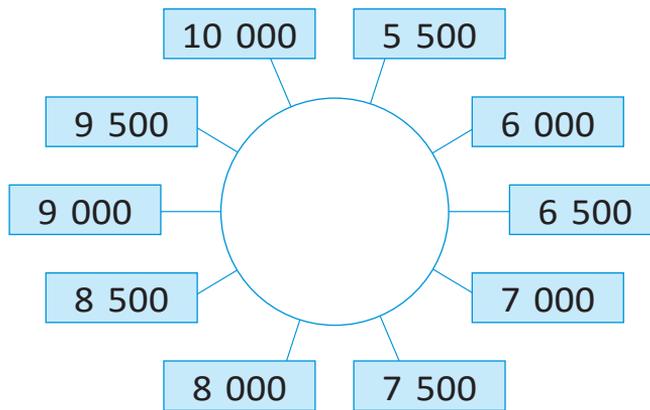


Use the following number cards to make numbers between 5000 and 10 000 and read them to your friends.



### Activity 3.1.2

Read the numbers on the circle starting from the smallest to the biggest number.



### Self Assessment 3.1



Take number cards containing the following numbers:



Make different numbers between:

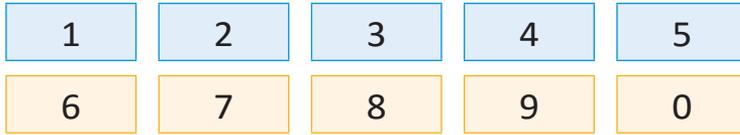
- 1) 5 000 and 5 100
- 2) 5 500 and 5 600
- 3) 6 200 and 6 300
- 4) 7 400 and 7 500
- 5) 8 600 and 8 700
- 6) 9 800 and 9 900

Note: Each digit can be used only once.

### 3.2 Write whole numbers from 0 up to 10 000

#### Activity 3.2.1

Form 3 numbers between 5 000 and 10 000, using the following number cards:



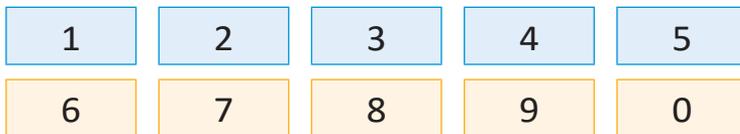
Write those 3 numbers in words and read them aloud to your friends.

Note: Each digit can be used only once.



#### Pair assessment 3.2

Form 5 numbers between 5 000 and 10 000, using the following number cards:



Write those 5 numbers in words and read them aloud to your friends.

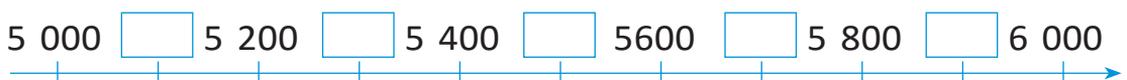
Note: Each digit can be used only once.

#### Application activity 3.2



Find the missing numbers on the number lines. Read them and write them in words.

a)



b)



c)



### Activity 3.2.2

Form 5 numbers between 2 000 and 5 000, using the following number cards:



Write those 4 numbers in words and read them aloud to your friends. **Note:** Each digit can be used only once.



### Self Assessment 3.2



Find all numbers between the following numbers and write them in figures and in words:

- 1) 5 017 and 5 020      3) 7 050 and 7 055      5) 9 121 and 9 123  
2) 6 031 and 6 033      4) 8 097 and 8 00      6) 9 266 and 9 269

### Exercise 3.2



1. Write the following in figures or in words

a) 9249

b) Six thousand, eight hundred nineteen:

2. Form 6 numbers between 5 000 and 10 000, using the following number cards. Read and write them in figures and in words:



8

2

3

4

3. Fill in the missing numbers on the following number line



4. Read the numbers in the table below:

- Write in figures all numbers written in words,
- Write in words all numbers written in figures.

a	9 794: ...	d	Six thousand, eight hundred and five:....	g	6 732: ...
b	Seven thousand, three hundred and five :....	e	5 936 ...	h	Eight thousand , seven hundred and nine:....
c	8 935: ...	f	Nine thousand, five hundred, fifty seven:....	i	8 719: ...

### 3.3 Place value of digits in the numbers from 0 up to 10 000

#### Activity 3.3.1

- Follow the given example and write numbers in the place value table by showing thousands, hundreds, tens and ones.

#### Example:

the number 5 465 is composed with 5Thousands, 4 Hundreds,6Tens and 5Ones.

Thousand (Th)	Hundreds (H)	Tens (T)	Ones (O)
5	4	6	5

a) 5 465

c) 7 968

e) 9 539

b) 6 392

d) 8 974

f) 6 749

2. Use a table of place values and write each digit in the right place.

a. 8 654 = ...Thousands...Hunderds ...Tens...Ones.

b. 6 974 = ...Tens...Thousands...Ones...Hundreds.

c. 7 935= ...Hundreds...Ones...Thousands... Tens.

d. 5 923 = ...Ones...Hundreds...Tens...Thousands.

e. 6 179 = ...Tens...Hundreds...Thousands...Ones.

f. 9 756 = ...Hundreds...Ones...Thousands... Tens.

3. Write down the number that was expanded.

a) 6 thousands, 7 tens, 5 ones and 3 hundreds

b) 9 ones, 6 hundreds ,7 thousands and 1 tens

c) 7 hundreds, 4 ones, 6 tens and 5 thousands

d) 5 tens, 8 hundreds, 8 thousands and 9 ones

e) 7 ones 9 tens 9 thousands and 9 hundreds

f) 9 tens, 7 thousands, 4 ones and 4 hun

### I have learnt that:

- The value of thousands is given by the digit in the place value of thousands times 1 000
- The value of hundreds is given by the digit in the place value of hundreds times 100
- The value of tens is given by the digit in the place value of tens times 10

The value of ones is given by the digit in the place value of ones times 1

### Activity 3.3.2

Follow the example and expand the given numbers into thousands, hundreds, tens and ones.

#### Example:

1)  $8\ 745 = 8\ 000 + 700 + 40 + 5$

2)  $9\ 537 = (9 \times 1\ 000) + (5 \times 100) + (3 \times 10) + (7 \times 1)$

3)  $7\ 853 = 7\ \text{thousands} + 8\ \text{hundreds} + 5\ \text{tens} + 3\ \text{ones}$

a)  $6\ 248 =$

d)  $7\ 649 =$

g)  $9\ 761 =$

b)  $5\ 879 =$

e)  $6\ 719 =$

h)  $7\ 367 =$

c)  $7\ 574 =$

f)  $8\ 659 =$

i)  $8\ 625 =$



### Pair assessment 3.3

Find the number that was expanded to give the following:

a)  $(8 \times 1\,000) + (5 \times 100) + (4 \times 10) + (7 \times 1) =$

b)  $9\,000 + 800 + 70 + 6 =$

c) 7 thousands + 2 hundreds + 5 tens =

### Application activity 3.3



1. Use a table of place values, to write the place value of the undelined digit

a) 9 465

c) 7 237

e) 5 871

b) 8 957

d) 6 958

f) 6 597

2. Find out the number that was expanded.

a) 8 ones, 5 thousands, 7 tens, 9 hundreds

b) 3 ones, 6 tens, 3 thousands, 1 hundreds

c) 3 tens, 7 thousands, 6 ones, 7 hundreds

d) 5 hundreds, 8 ones, 7 tens, 2 thousands

e) 8 hundreds, 2 ones, 9 thousands, 7 tens

f) 3 ones, 8 thousands, 7 tens, 6 hundreds

3. Use the table of place value to expand the following numbers into thousands (Th), hundreds (H), tens (T) and ones (O).

a)  $8\,567 =$

c)  $9\,615 =$

e)  $6\,435 =$

b)  $7\,526 =$

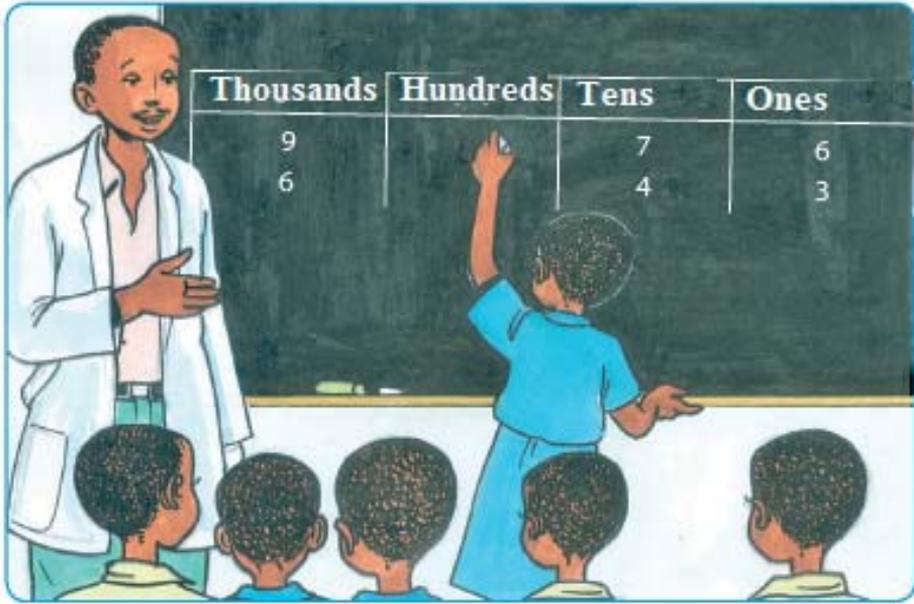
d)  $6\,452 =$

f)  $7\,361 =$

### 3.4 Comparing two numbers less than or equal to 10 000

#### Activity 3.4.1

Look at the picture and explain what pupils are doing. Then compare the given numbers.



#### Example:

Thousands (Th)	Hundreds (H)	Tens (T)	Ones (O)
9	8	7	6
6	5	4	3

**6543** is smaller than **9876**. It is written as follows  $6\ 543 < 9\ 876$

- a)  $7\ 456$    $8\ 336$       b)  $9\ 576$    $9\ 321$

### I have learnt that:

When comparing two numbers the following are the main steps:

1. We compare digits of 2 numbers starting from thousands to ones
2. If the digits in the thousands place value are equal, then we compare digits in hundreds .
3. If the digits in the hundreds place value are equal, then we compare digits in tens
4. If the digits in the tens place value are equal, then we compare digits in ones
5. Mathematically, we compare numbers using the following symbols:  $<$  (less than),  $>$  (greater than) and  $=$  (equal)

**Note:** The comparison signs  $<$  and  $>$  are always facing the greater number.

### Activity 3.4.2

Follow the example and use the given number cards and cards with comparison signs to compare numbers.

**Example:**

7 649

$<$

8 295

a)

7 649

6 930

7 850

$<$

$>$

$=$

b)

5 315

6 479

8 295

### Activity 3.4.3

Compare numbers using the following:  $<$ ,  $>$  and  $=$

a) 9 723  9 327

d) 8 617  6 817

b) 6 472  6 742

e) 5 241  7 514

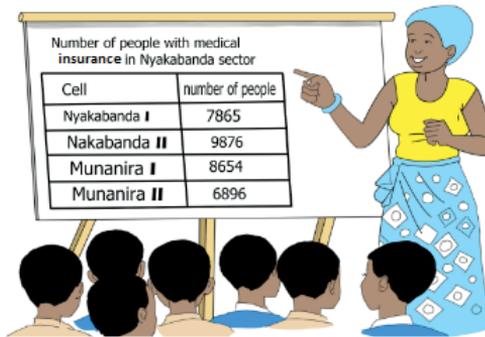
c) 7 215  7 152

f) 6 072  6 072



### Pair assessment 3.4

Look at the picture and compare number of people with medical insurance in Nyakabanda sector.



#### 1. Questions

- Which cell has least number of people with health insurance?
- Which cell has a biggest number of people with health insurance?

#### 2. Use $<$ , $>$ or $=$ to compare the following:

- The number of people with health insurance in Nyakabanda I and Nyakabanda II.
- The number of people with health insurance in Nyakabanda I and Munanira I
- The number of people with health insurance in Nyakabanda I and Munanira II
- The number of people with health insurance in Nyakabanda II and Munanira I
- The number of people with health insurance in Nyakabanda II and Munanira II.
- The number of people with health insurance in Nyakabanda I and Nyakabanda II
- The number of people with health insurance in Munanira I and Munanira II.



### Self Assessment 3.4



Use  $<$ ,  $>$  or  $=$  to compare numbers of patients at King Fiasal Hospital every week.

Men	Women	Children
1 678	2 087	6 167

- compare number of men and women
- compare number of women and children
- compare number of men and children

### Application activity 3.4



Compare the following numbers using  $<$ ,  $>$  and  $=$

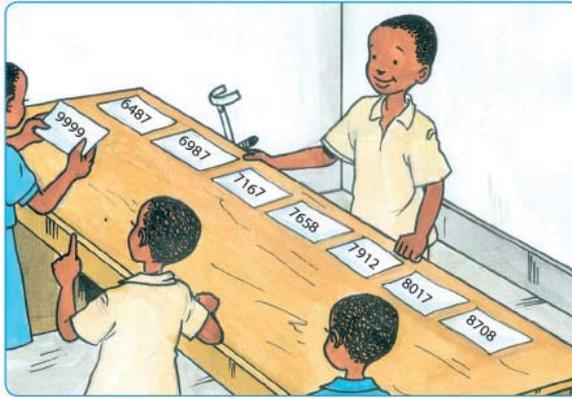
- 8 459  8 459
- 7 384  7 249
- 9 628  9 657
- 5 493  5 234
- 6 734  6 734
- 7 835  8 435
- 5 919  9 919
- 6 828  8 821
- 7 732  7 732
- 8 643  6 643

## 3.5 Arrange numbers between 2000 and 10 000 in ascending or descending order

### 3.5.1 Arrange numbers in ascending order

#### Activity 3.5.1

Follow the example on the picture and arrange the given numbers in ascending order



- 1) 6 439, 9 825, 7 564, 8 943, 9 754
- 2) 5 482, 6 357, 7 845, 8 015, 6 497
- 3) 5 739, 9 384, 8 049, 7 193, 7 496
- 4) 9 437, 8 391, 6 427, 7 409, 8 274

#### I have learnt:

When ordering numbers, we use numeration table and then:

- First, we compare digits in the thousands place value
- Second, we compare digits in the hundreds place value
- Third, we compare digits in the tens place value
- Fourth, we compare digits in the ones place
- Finally, we arrange numbers in ascending order.

### Activity 3.5.2

Follow the example and arrange the given numbers in ascending order.

**Example:** arrange numbers in ascending order (from the smallest to the biggest number).

**Example:** 6 572, 7 852, 5 792, 7 562

Thousands (Th)	Hundreds(H)	Tens (c)	Ones (O)
5	7	9	2
6	5	7	2
7	5	6	2
7	8	5	2

Answer: 5 792, 6 572, 7 562, 7 852

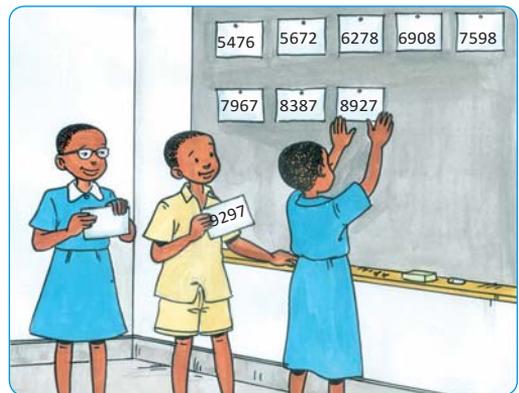
- 1) 7 804, 6 218, 5 386      2) 7 358, 6 804, 5 748

### 3.5.2 Arrange numbers in descending order

### Activity 3.5.3

Imitate what children are doing on the picture. Use the number cards, and arrange in descending order the given numbers.

- 1) 5 734, 9 354, 6 507  
2) 6 709, 9 675, 5 084  
3) 6 901, 8 654, 5 789  
4) 6 057, 8 765, 5 293



### I have learnt:

When ordering numbers, we use numeration table and then:

- First, we compare digits in the thousands place value
- Second, we compare digits in the hundreds place value
- Third, we compare digits in the tens place value
- Forth, we compare digits in the ones place
- Finally, we arrange numbers in descending order.

### Activity 3.5.4

Arrange numbers in descending order (from biggest the to the smallest number)

**Example:** 9 126, 8 965, 5 869, 6 739, 7 629, 8 469

Thousands (Th)	Hundreds (H)	Tens (T)	Ones (O)
5	7	3	5
5	6	4	7
4	5	2	6
4	4	5	2

Answer: 9 126 > 8 965 > 8 469 > 7 629 > 6 739 > 5 869

1) 7 483, 8 534, 5 192

3) 8 976, 7 456, 6 012

2) 7 345, 9 567, 6 978

4) 7 105, 9 271, 6 823



### Self Assessment 3.5



Arrange the following numbers in descending order (from the biggest to the smallest number)

a) 6 015, 7 247, 8 156, 9 375

b) 7 245, 7 254, 7 524, 7 542

### Application activity 3.5



1. Arrange the following numbers in ascending order

a) 9 876, 7 869, 8 687

b) 5 678, 7 856, 7 658

c) 7 654, 5 746, 6 475

d) 7 896, 7 689, 7 869

2. Arrange the following numbers in descending order

a) 5 923, 9 325, 5 392

b) 6 541, 5 146, 6 154

c) 6 789, 7 698, 9 876

d) 8 279, 8 972, 8 72

## 3.6 Addition of numbers whose sum does not exceed 10 000

### 3.6.1 Addition without carrying

#### Activity 3.6.1

Follow the given example and work out the addition activities.

**Example:**  $5\ 432 + 4\ 567 = 9\ 999$

Thousands (Th)	Hundreds (H)	Tens (T)	Ones (O)
5	4	3	2
+ 4	5	6	7
<b>9</b>	<b>9</b>	<b>9</b>	<b>9</b>

a) 6 543    b) 4 567    c) 5 123    d) 9 217    e) 8 012

+ 2 310

+ 3 421

+ 3 754

+ 682

+ 987

### I have learnt:

When adding numbers without carrying, we do the following:

- Add downwards in the table of place values
- Start from the place value of ones on your right
- Then, add tens, hundreds and thousands in the same way.
- Finally, we write the sum.

The way of adding numbers downwards is called the standard written method.



### Self Assessment 3.6.2



Work out the following addition activities

- a)  $4\ 125 + 3\ 873 =$       c)  $5\ 234 + 4\ 543 =$       e)  $5\ 715 + 4\ 054 =$   
b)  $3\ 756 + 132 =$       d)  $3\ 256 + 732 =$       f)  $4\ 650 + 4\ 239 =$



### Pair assessment 3.6.1

Use the following number cards and cards with



and



and do the task below:

- A)  $4\ 567$   $5\ 678$   $6\ 123$   $7\ 345$   $8\ 012$   $9\ 456$   $4\ 567$   
B)  $5\ 231$   $4\ 321$   $2\ 874$   $1\ 643$   $1\ 986$   $442$   $4\ 302$   
C)  $9\ 898$   $8\ 997$   $9\ 798$   $8\ 988$   $9\ 999$   $9\ 998$   $8\ 869$

- Take one number card from A ;
- Take the card with addition sign  $+$  ;
- Take the number card from B ;
- Take the card with the sign  $=$  ;

- Then, select the correct answer from the cards in C.

### Example:

$$4\ 567 + 5\ 231 = 9\ 798$$

### Application activity 3.6.1



Work out the following

- a)  $5643 + 256 =$                       c)  $4572 + 4316 =$   
 b)  $7215 + 2784 =$                       d)  $4567 + 421 =$

### 3.6.2 Addition with carrying

#### Activity 3.6.2

**Example:**  $7\ 698 + 1\ 479 = 9\ 177$

Thousands (Th)	Hundreds (H)	Tens (T)	Ones (O)
7	6	9	8
+ 1	4	7	9
<b>9</b>	<b>1</b>	<b>7</b>	<b>7</b>

- a)  $\begin{array}{r} 4\ 989 \\ + 3\ 465 \end{array}$     b)  $\begin{array}{r} 5\ 345 \\ + 2\ 987 \end{array}$     c)  $\begin{array}{r} 6\ 578 \\ + 2\ 456 \end{array}$     d)  $\begin{array}{r} 8\ 123 \\ + 1\ 098 \end{array}$     e)  $\begin{array}{r} 7\ 145 \\ + 1\ 879 \end{array}$

### I have learnt that:

When adding numbers with carrying, we do the following:

- Add downwards in the table of place values
- Start from the place value of ones on your right
- When the sum of two or more numbers is more than 9, write the ones and carry tens to the next digit of tens to the left;
- Then, add tens, hundreds and thousands in the same way.
- Finally, we write the sum.



### Pair assessment 3.6.2

Use the following number cards and cards with  $+$  and  $=$  and do the task below:

- A) 

3 294	6 095	5 324	4 852	2 698	7 689	8 437
-------	-------	-------	-------	-------	-------	-------
- B) 

5 789	2 987	3 678	4 897	6 574	1 567	1 389
-------	-------	-------	-------	-------	-------	-------
- C) 

9 826	9 272	9 083	9 749	9 256	9 082	9 002
-------	-------	-------	-------	-------	-------	-------

- Take one number card from A ;
- Take the card with addition sign  $+$  ;
- Take the number card from B;
- Take the card with the sign  $=$  ;
- Then, select the correct answer from the cards in C.

## Example :

$$3\ 294 + 5\ 789 = 9\ 083$$



### Self Assessment 3.6.2



Carry out the following addition activities

a)  $1\ 943 + 7\ 689 =$

d)  $4\ 239 + 4\ 876 =$

b)  $2\ 976 + 6\ 387 =$

e)  $5\ 795 + 3\ 498 =$

c)  $3\ 987 + 5\ 679 =$

f)  $6\ 467 + 2\ 944 =$

### Application activity 3.6.2



Add the following

a) 
$$\begin{array}{r} 7\ 568 \\ + 1\ 928 \\ \hline \end{array}$$

b) 
$$\begin{array}{r} 8\ 532 \\ + 987 \\ \hline \end{array}$$

c) 
$$\begin{array}{r} 9\ 274 \\ + 389 \\ \hline \end{array}$$

d) 
$$\begin{array}{r} 6\ 765 \\ + 2\ 579 \\ \hline \end{array}$$

e) 
$$\begin{array}{r} 4\ 723 \\ + 5\ 187 \\ \hline \end{array}$$

## 3.7 Word problems involving addition where the sum does not exceed 10 000

### Activity 3.7

Discuss this solved Example:

#### Example:

On Monday, a cooperative planted 4 567 cabbage seedlings and on Tuesday, 3 978 seedlings were planted. How many seedlings did the cooperative plant in two days?

Given	Request	
<p>The number of planted seedling on Monday is 4 567</p> <p>The number of planted seedlings on Tuesday is 3 978</p>	<p>The total number of planted seedlings in two days.</p>	<p>The total number of planted seedlings in two days is calculated as follow:</p> $4\ 567 + 3\ 978 = 8\ 545$ <p>Seedlings</p> $\begin{array}{r} 1\ 11 \\ 4\ 567 \\ + 3\ 978 \\ \hline 8\ 545 \end{array}$

### I have learnt that:

When solving a word problem involving addition:

- you underline what have been given in the problem
- you identify what is requested
- you solve the problem by adding numbers and then you write the sum.



### Pair assessment 3.7

Work out the following problems:

1. This year, the numbers of vaccinated children in huye district are the following: 5 321 boys and 3 789 girls. How many children received vaccination?
2. In 2018, Gatsibo planted 3 657 coffee seedlings. In 2019, it planted 5 794 coffee seedlings. Find the total seedlings which were planted in two years.
3. Girinka Munyarwanda program, distributed 5 423 cows in one district, 3 798 cows in another district. How many cows were distributed in two districts?

4. In the university, there are 4653 boy students and 4978 girl students. How many students are in the university?



### Self Assessment 3.7



1. 7543 men and 1978 women watched a football match between Gasabo and Kicukiro district. How many people watched the match altogether?
2. During the last census, 4987 families were registered in Kamurehe sector, and 4678 families in Kabuye. How many families were registered in the two sectors?
3. A printing company distributed 3576 Mathematics books in Karongi district and 5879 Mathematics books in Ngororero district. How many books did the two districts receive altogether??
4. A manufacturing company made 4653 boxes of soaps last month and 4978 boxes of soaps this month. Find the total number of boxes are in the company's warehouse.

## 3.8 Subtraction of numbers within the range of 10 000

### 3.8.1 Subtraction without borrowing

#### Activity 3.8.1

Subtract the following:

**Example:**  $6\ 789 - 5\ 676 = 1\ 113$

Thousands (Th)	Hundreds (H)	Tens (T)	Ones (O)
6	7	8	9
- 5	6	7	6
1	1	1	3

a)  $\begin{array}{r} 8\ 569 \\ - 5\ 417 \\ \hline \end{array}$     b)  $\begin{array}{r} 9\ 738 \\ - 6\ 315 \\ \hline \end{array}$     c)  $\begin{array}{r} 7\ 686 \\ - 5\ 452 \\ \hline \end{array}$     d)  $\begin{array}{r} 8\ 679 \\ - 7\ 543 \\ \hline \end{array}$     e)  $\begin{array}{r} 6974 \\ - 6432 \\ \hline \end{array}$



Pair assessment 3.8.1

Use the following number cards and cards with  $-$  and  $=$  and do the task below:

- A)  $9\ 876$     $8\ 567$     $7\ 456$     $6\ 345$     $9\ 234$     $8\ 456$     $7\ 986$   
 B)  $7\ 645$     $5\ 435$     $4\ 142$     $4\ 203$     $6\ 023$     $5\ 031$     $3\ 654$   
 C)  $2\ 142$     $4\ 332$     $3\ 425$     $2\ 231$     $3\ 314$     $3\ 211$     $3\ 132$

- Take one number card from A ;
- Take the card with subtraction sign  $-$  ;
- Take the number card from B which is next to the one you got from A;
- Take the card with the sign  $=$  ;
- Then, select the correct answer from the cards in C.

**Example**

$9\ 876$   $-$   $7\ 645$   $=$   $2\ 231$

### I have learnt:

When subtracting numbers without borrowing, the following are the main steps:

- Use the table of place values, and arrange numbers in vertical order starting from the bigger ones
- Subtract downwards in the table of place values
- Start from the place of ones on your right
- Continue the process on tens, hundreds and thousands as we did for ones until the end
- Finally, we write the difference.



### Self Assessment 3.8.1



Work out the following:

a)  $9\ 745 - 5\ 203 =$

d)  $6\ 789 - 5\ 456 =$

b)  $7\ 256 - 4\ 032 =$

e)  $5\ 876 - 4\ 674 =$

c)  $8\ 769 - 3\ 539 =$

f)  $9\ 863 - 4\ 730 =$

### Application activity 3.8.1



Work out the following exercises

a) 
$$\begin{array}{r} 8\ 589 \\ - 5\ 046 \\ \hline \end{array}$$

b) 
$$\begin{array}{r} 7\ 953 \\ - 5\ 720 \\ \hline \end{array}$$

c) 
$$\begin{array}{r} 6\ 789 \\ - 5\ 417 \\ \hline \end{array}$$

d) 
$$\begin{array}{r} 5\ 765 \\ - 3\ 612 \\ \hline \end{array}$$

## 3.8.2 Subtraction with borrowing

### Activity 3.8.2

Subtract the following:

**Example**

$$9\ 531 - 6\ 789 = 2\ 742$$

Thousands (Th)	Hundreds(H)	Tens (T)	Ones (0)
	14	12	11
8	4	2	
<del>9</del>	<del>5</del>	<del>3</del>	1
- 6	7	8	9
2	7	4	2

a) 
$$\begin{array}{r} 7\ 234 \\ - 5\ 897 \\ \hline \end{array}$$
    b) 
$$\begin{array}{r} 6\ 013 \\ - 5\ 739 \\ \hline \end{array}$$
    c) 
$$\begin{array}{r} 9\ 543 \\ - 8\ 796 \\ \hline \end{array}$$
    d) 
$$\begin{array}{r} 8\ 250 \\ - 6\ 592 \\ \hline \end{array}$$
    e) 
$$\begin{array}{r} 5\ 123 \\ - 2\ 768 \\ \hline \end{array}$$

**Pair assessment 3.8.2**

Use the following number cards and cards with  $-$  and  $=$  and do the task below:

- A) 5 321 6 024 7 431 8 143 9 012 6 503 8 432
- B) 2 789 4 658 5 865 6 759 8 945 3 967 6 579
- C) 2 536 1 853 1 384 1 366 2 532 67 1 566

- Take one number card from A ;
- Take the card with subtraction sign  $-$  ;
- Take the number card from B which is next to the one you got from A;
- Take the card with the sign  $=$  ;
- Then, select the correct answer from the cards in C.

## Example

$$\boxed{5\ 321} - \boxed{2\ 789} = \boxed{2\ 532}$$

### I have learnt that:

When subtracting numbers with borrowing, the following are the main steps:

- Use the table of place values, and arrange numbers in vertical order starting from the bigger ones
- Subtract downwards in the table of place values
- Start from the place of ones on your right
- Start by ones
- When the number of ones for the first number is less than the one for the second number, you borrow one tens equivalent to 10 ones.
- Add 10 ones borrowed to the number of ones for the first number and subtract;
- Go to tens: subtract the number of tens for the second number from the remained number of tens for the first number.
- Continue the process on tens , hundreds and thousands as we did for ones until the end.
- Finally, we write the difference.



Subtract:

a)  $9\ 013 - 7\ 457 =$

d)  $6\ 543 - 4\ 675 =$

b)  $8\ 234 - 6\ 957 =$

e)  $5\ 376 - 389 =$

c)  $7\ 432 - 5\ 678 =$

f)  $5\ 021 - 2\ 658 =$

### Application activity 3.8.2



Carry out the following subtraction activities

a)  $6\ 120 - 3\ 249 =$

c)  $8\ 105 - 5\ 258 =$

b)  $7\ 432 - 4\ 567 =$

d)  $9\ 043 - 6\ 398 =$

## 3.9 Word problems involving subtraction in real life situations

### Activity 3.9

#### Example

Discuss this worked example

Our Province organized a poem writing competition and 9768 pupils were registered. If 8 989 pupils were eliminated during the first selection, find the number of pupils allowed to continue the competition.

Given	Request	Steps and solution
The number of all registered pupils is 9768	The number of pupils to continue competition	The number of pupils to continue the competition is calculated as follow: $9\ 768 - 8\ 989 = 779$ students

The number of eliminated pupils is 8 989

$$\begin{array}{r} 8\ 16\ 15\ 18 \\ \cancel{9}\ \cancel{7}\ \cancel{6}\ 8 \\ - \quad 8\ 9\ 8\ 9 \\ \hline \cancel{0}\ 7\ 7\ 9 \end{array}$$



### Pair assessment 3.9

1. In a refugee camp, there are 9 732 refugees. If 7 986 refugees received donations. Find the number of refugees who didn't receive donations.
2. In the school there are 9 321 pupils. If 5 867 are girls, How many boys are in the school?
3. In a cell, there are 6 830 families and 5 987 among them received mosquito nets. Find the number of families which did not receive mosquito nets.

### I have learnt:

When solving a word problem involving subtraction:

1. you underline what has been given in the problem
2. you identify what is requested
3. you solve the problem by subtracting the smallest number from the biggest number and then you write the difference



### Self Assessment 3.9

1. Gisa harvests 7 120 cabbages and sells 6 987 cabbages. How many cabbages does he remain with?
2. Last year, our sector registered 9 123 children to be vaccinated and 879 among them have not received all vaccinations. Find the number of children who received all vaccinations.

3. At the district, 7 345 people contested for the post of inspector of schools. If 789 people were selected , how many people were not selected?
4. Last year, our sector planted 9 351 seedlings of trees and only 7 984 seedlings grew up. Find the number of all seedlings which did not grow up..

### Application activity 3.9

Study carefully the table and do the the following:

	1	2	3
A	5 674	6 987	7 486
B	3 789	2 678	1 947
C	4 098	1 979	1 287

Work out the following:

- a)  $A_1 + B_1 =$
- b)  $A_1 + C_1 =$
- c)  $A_2 + B_2 =$
- d)  $A_2 + C_2 =$
- e)  $A_3 + B_3 =$
- f)  $A_3 + C_3 =$

Work out the following

- a)  $A_1 - B_1 =$
- b)  $A_1 - C_1 =$
- c)  $C_1 - B_1 =$
- d)  $A_2 - B_2 =$
- e)  $A_2 - C_2 =$
- f)  $B_2 - C_2 =$

### 3.10 Multiply a 3-digit number by a 2-digit number where the product does not exceed 10 000

#### Activity 3.10

Follow the given example and find out the product of a 3-digit number by a 2-digit number.

**Example:**  $325 \times 29 = 9\,425$

Thousands	Hundreds	Tens	Ones
	3	2	5
	×	2	9
1			
2	9	2	5
+ 6	5	0	
9	4	2	5

#### Multiplying 325 by 9 ones

$9 \times 5 = 45$ , we write 5 in the place value of ones and we carry 4 in the place value of tens.

$9 \times 2 = 18$ , we add 4 to 18, we write 2 in the place value of tens and carry 2 in the place value of hundreds.

$9 \times 3 = 27$ , we add 2 to 27 and we write 9 in the place value of hundreds and carry 2 in the place value of thousands.

Multiplying 325 by 9 ones, we have the following number: 2 925

#### Multiplying 325 by 2 tens

$2 \times 5 = 10$ , we write 0 in the place value of tens and we carry 1 in the place value of hundreds.

$2 \times 2 = 4$ , we add 1 to 4, we write 5 in the place value of hundreds.

$2 \times 3 = 6$ , we write 6 in the place value of thousands.

Multiplying 325 by 2 tens, we have the following number: 6 500

Finally, we add two numbers 2 925 and 6 500 to get the product 9 425

a)  $\begin{array}{r} 295 \\ \times 15 \\ \hline \end{array}$       b)  $\begin{array}{r} 198 \\ \times 19 \\ \hline \end{array}$       c)  $\begin{array}{r} 356 \\ \times 12 \\ \hline \end{array}$       d)  $\begin{array}{r} 139 \\ \times 34 \\ \hline \end{array}$       e)  $\begin{array}{r} 108 \\ \times 45 \\ \hline \end{array}$

f)  $\begin{array}{r} 265 \\ \times 35 \\ \hline \end{array}$       g)  $\begin{array}{r} 425 \\ \times 16 \\ \hline \end{array}$       h)  $\begin{array}{r} 444 \\ \times 22 \\ \hline \end{array}$       i)  $\begin{array}{r} 502 \\ \times 22 \\ \hline \end{array}$       j)  $\begin{array}{r} 636 \\ \times 13 \\ \hline \end{array}$

### I have learnt that:

The following are steps to multiply three-digit by two-digit numbers.

**First step:** Multiply the ones digit of the bottom factor (multiplier) by the top factor (multiplicand) and write the result on the line below.

**Second step:** Multiply the digit in the tens place of the bottom factor by the top factor and write the result on the line below, but place a 0 in the ones place, since this part of the multiplication is a number of tens.

**Third step:** Add the products, starting from ones.



### Pair assessment 3.10

Use the following number cards and cards with  $\times$  and  $=$  and do the task below:

- A) 

378	529	638	439	297	907	412
-----	-----	-----	-----	-----	-----	-----
- B) 

25	18	15	21	29	11	24
----	----	----	----	----	----	----
- C) 

9 977	9 219	9 888	9 450	8 613	9 522	9 570
-------	-------	-------	-------	-------	-------	-------

- Take one number card from A ;
- Take the card with multiplication sign  $\times$  ;
- Take the number card from B which is next to the one you got from A;
- Take the card with the sign  $=$  ;
- Then, select the correct answer from the cards in C.

### Example

$$378 \times 25 = 9\,450$$



#### Self Assessment 3.10



Find the product of the following numbers

- a)  $789 \times 12$       b)  $697 \times 13$       c)  $874 \times 11$       d)  $527 \times 15$       e)  $472 \times 16$

#### Application activity 3.10



Study the table and do the following:.

	1	2	3
A	567	356	489
B	17	28	15
C	19	16	25

Relace each letter with the correct number and find the product of the following

- a)  $A 1 \times B 1 =$       c)  $A 2 \times B 2 =$       e)  $A 3 \times B 3 =$   
 b)  $A 1 \times B 3 =$       d)  $A 2 \times C 2 =$       f)  $B 2 \times C 3 =$

### 3.11 Word problems of multiplication of a 3-digit number by a 2-digit number where the product does not exceed 5 000

#### Activity 3.11

**Example** Discuss this worked example

A coffee plantation has trees on 357 row and on each row there are 28 trees. Find the total number of trees in the coffee plantation.

Given	Request	Steps and solution
<p>The number of rows in the plantation is 357</p> <p>The number of trees on each row is 28</p>	<p>The number of all trees in the coffee plantation</p>	<p>The number of all trees in the plantation is calculated as follow:</p> <p><math>357 \times 28 = 9\,996</math> trees</p> $\begin{array}{r} 357 \\ \times 28 \\ \hline 2\,856 \\ + 714 \downarrow \\ \hline 9\,996 \end{array}$



#### Pair assessment 3.11

- 416 sectors were given cows and each sector received 23 cows. Find the total number of cows received by 416 sectors.
- In the hall, there are 798 rows of chairs and on each row there are 12 people. Find the total number of people in the hall.

3. Find the number of pupils to be in 29 schools if in each school there are 287 pupils.
4. A cooperative has 479 hens and each hen produces 18 chicks every year. Find the total number of chicks produced by all hens every year.

### I have learnt that :

- When solving a word problem involving multiplication:
- you underline what has been given in the problem
- you identify what is required
- you solve the problem by arranging numbers to be multiplied in a vertical order and then multiply them starting with ones
- Finally, you write the product of the two numbers.



### Self Assessment 3.11



1. A cooperative has 278 hens to lay eggs. If each hen lays 29 eggs every month, . Find the total number of eggs laid.
2. Find the number of boxes of mineral water to be produced by a factory in 27 days if 367 boxes are produced everyday.
3. Uwamahoro planted cabbages on 549 rows. Find the number of cabbages she planted if there are 18 cabbages on each row.
4. In Kimironko market there are 589 tables. Find the total number of sellers to be in the market if each table is occupied by 5 sellers.

## 3.12 Multiply numbers by 100 and 1000 with the product not exceeding 10000

### Activity 3.12.1

Study the given example and explain how it is done.

### Example

$$1) \quad 75 \times 100 = 7\,500$$

$$2) \quad 5 \times 1\,000 = 5\,000$$

### Activity 3.12.2

Work out the following numbers:

$$1) \quad 8 \times 1\,000 =$$

$$3) \quad 67 \times 100 =$$

$$2) \quad 9 \times 1\,000 =$$

$$4) \quad 5 \times 1\,000 =$$

### Activity 3.12.3

- Stand in front of two buckets
- The first bucket contains number cards with 10 different numbers,
- The second bucket contains number cards with different multiples of 10.
- One student picks one card in the first bucket and his friend finds the product of the picked number by 100 or 1000 in the second bucket.

### I have learnt:

Rules for the multiplication by 100 and 1000 are as follow.

- If we multiply a whole number by a 100, we write that number, then we write two zeros at the end.
- If we multiply a whole number by a 1000, we write that number, then we write three zeros at the end.



### Self Assessment 3.12



Do quick multiplication of the following numbers

a)  $99 \times 100 =$

d)  $78 \times 100 =$

b)  $7 \times 1\,000 =$

e)  $57 \times 100 =$

c)  $6 \times 1\,000 =$

f)  $9 \times 1\,000 =$

### Application activity 3.12



Fill in with the correct number 100 or 1000.

a)  $\square \times 3 = 3\,000$

e)  $\square \times 7 = 7\,000$

b)  $69 \times \square = 6\,900$

f)  $76 \times \square = 7\,600$

c)  $8 \times \square = 8\,000$

g)  $6 \times \square = 6\,000$

d)  $87 \times \square = 8\,700$

h)  $5 \times \square = 5\,000$

### 3.13 Division without a remainder of a 4-digit number by a 1-digit number

#### Activity 3.13

#### Example

Follow the given example and work out the following activities.

a)  $9\ 819 \div 9 = 1091$

$$\begin{array}{r} 1091 \\ 9 \overline{) 9819} \\ \underline{-9} \phantom{00} \\ 08 \phantom{00} \\ \underline{-0} \phantom{00} \\ 81 \phantom{00} \\ \underline{-81} \phantom{00} \\ 009 \phantom{00} \\ \underline{-9} \phantom{00} \\ 0 \phantom{00} \end{array}$$

b)  $8\ 712 \div 8 = 1089$

$$\begin{array}{r} 1089 \\ 8 \overline{) 8712} \\ \underline{-8} \phantom{00} \\ 07 \phantom{00} \\ \underline{-0} \phantom{00} \\ 71 \phantom{00} \\ \underline{-64} \phantom{00} \\ 072 \phantom{00} \\ \underline{-72} \phantom{00} \\ 0 \phantom{00} \end{array}$$

- 1)  $7\ 496 \div 8 =$
- 2)  $6\ 327 \div 9 =$
- 3)  $7\ 049 \div 7 =$

### I have learnt:

To divide a four-digit number by a one-digit number you do the following:

- Place the divisor and the dividend into the long division format (division bracket or any other division format).
- Check the first digit of the dividend and if it is smaller than the divisor (it can't be divided by divisor to produce a whole number), then take the first two digits of the dividend and find out how many divisors it contains.
- Multiply the obtained number of divisors by the divisor and place the result below the two digits of the dividend starting from thousands, hundreds, tens and end up with ones.
- Subtract the obtained number from two digits of dividend starting from thousands, hundreds, tens and end up with ones. If the result is 0, that is the end of the working.



### Self Assessment 3.13



1. Use the following number cards and cards with  $\div$  and  $=$  and do the task below:

- A) 

8 984	6 576	8 952	8 172	7 985	8 491	9 879
-------	-------	-------	-------	-------	-------	-------
- B) 

8	4	6	9	5	7	3
---	---	---	---	---	---	---
- C) 

908	1 213	1 597	1 492	1 644	3 293	1 123
-----	-------	-------	-------	-------	-------	-------

- Take one number card from A ;
- Take the card with division sign  $\div$  ;
- Take the number card from B which is next to the number you got from A;

- Take the card with the sign  $=$ ;
- Then, select the correct answer from the cards in C.

### Example

$$8\ 984 \div 8 = 1\ 123$$



### Self Assessment 3.13



Work out the following:

- a)  $9\ 549 \div 9 =$                       c)  $7\ 952 \div 7 =$                       e)  $6\ 585 \div 5 =$   
 b)  $8\ 728 \div 8 =$                       d)  $6\ 906 \div 6 =$                       f)  $8\ 976 \div 4 =$

### Application activity 3.13



Observe carefully the given table and work out the division activities

	1	2	3	4	5	6	7	8
A	9 878	7 839	5 692	8 965	7 656	6 398	7 296	9 963
B	2	3	4	5	6	7	8	9

Match the letters with numbers in the table and carry out division

- a) A 1 by B 1                      c) A 3 by B 3                      e) A 5 by B 5  
 b) A 2 by B 2                      d) A 4 by B 4                      f) A 6 by B 6

### 3.14 Word problems of division without remainder

#### Activity 3.14

#### Example:

Divide equally 9 872 books among 8 schools. How many books did each school get?

Given	Request	Steps and solution
Number of books is 9 872 Number of schools to get books is 8	The number of books to be given to each school	The number of books to each school is $9\ 872 \div 8 = 1\ 234$ <b>books</b> Each school will get 1 234 books



#### Pair assessment 3.14

- 7 districts received 9 891 cows from donors. How many cows did each district receive?
- 7 992 voting cards were equally distributed to 8 voting centers. Find the number of voting cards to be received by each center.
- Equally distribute 5 490 notebooks into 9 boxes. Find the number of notebooks in each box.
- Kaneza made 9 896 bricks to be used in constructing 4 equal houses. Find the number of bricks to be used for each house.

### I have learnt:

When solving word problems involving division:

- you underline what has been given in the problem
- you identify what is requested
- you solve the problem by arranging numbers to be divided in a division format and then divide them from thousands, hundreds, tens and end up with ones
- Finally, you write the quotient of the two numbers.



### Self Assessment 3.14



1. Ihogoza harvested 5 496 pineapples and loaded them in 8 lorries. Find the number of pineapples to be loaded in each lorry.
2. At the end of lower Secondary, 7 895 students were equally sent to 5 schools to continue their studies. Find the number of students received by each school.
3. Equally distribute 8 793 sacks of chemical fertilizer to 9 districts. How many sacks will be received by each district.
4. Equally divide 6 797 laptops to 7 districts and find the number of laptops to be distributed to each district.

### Application activity 3.14



1. Kagabo sold 8 750 bottles of cooking oil in 5 days. How many bottles did he sell every day?
2. Equally share 9 400 fruit seedlings to 4 cells. How many seedlings does each cell receive?

### 3.15 End of unit assessment 3

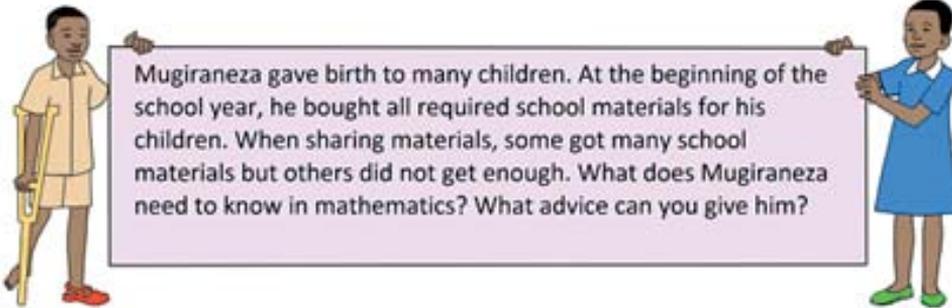
- Write 9 678 in words
- Find the number which have been expanded below:
  - 8 ones 9 tens 7 thousands 6 hundreds
  - 5 ones 8 thousands 4 tens 3 hundreds
- Find out the number which has been expanded.  
 $5\,000 + 900 + 60 + 8 =$
- Find out the place value of the undelined digits
  - 8 759
  - 7 645
  - 6 975
  - 9 542
- Compare numbers using the following symbols:  $<$ ,  $>$  and  $=$ 
  - 8 189  8 819
  - 7 689  7 689
  - 6 583  6 538
  - 9 587  9 578
- Arrange the following numbers in ascending order (from the smallest to the biggest number)  
7 365, 7 356, 5 746, 4 784, 8 497, 6 479
- Arrange the following numbers in descending order (from the biggest to the smallest number)  
5 708, 6 718, 4 738, 9 786, 6 827, 8 710
- Find the sum of the following numbers:
  - $6\,574 + 2\,695 =$
  - $7\,865 + 1\,879 =$
- Find the difference of the following numbers:
  - $7\,856 - 5\,976 =$
  - $8\,761 - 6\,819 =$
- Find the product of the following numbers
  - 198
  - 265
  - 349
  - 573
  - 497

$\times 49$	$\times 37$	$\times 28$	$\times 16$	$\times 17$
-------------	-------------	-------------	-------------	-------------
- Find the quotient of the following number:
  - $7\,985 \div 5 =$
  - $8\,526 \div 6 =$

12. Kaneza bought 8 759 sacks and he sold 5 784 sacks. How many sacks did he remain with?
13. In our school library there are 968 Mathematics books. If 378 books are borrowed by pupils , how many books remained? .
14. If one lorry carries 300 sacks of cement, how many sacks will be carried by 24 lorries?
15. Equally distribute 981 mangoes in 9 baskets and find out the number of mangoes to be in each basket.



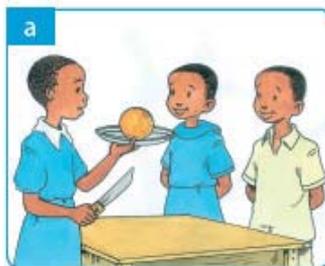
## 4.0 Introductory activity 4



## 4.1 Reading and writing fractions not exceeding a whole and having a denominator less than or equal to 10.

## Activity 4.1.1

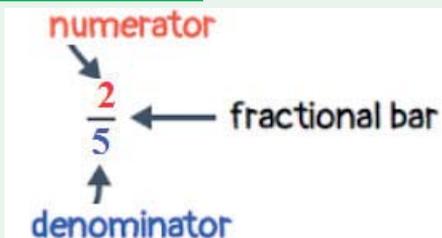
Look at the activities represented by each drawing, discuss and write it



## I have learnt that

- A fraction is a part of a whole
- Each fraction is composed by two parts: Numerator and denominator

### Example:



- When reading fractions, start from the numerator then end with denominator.
- The numerator means the number of available parts.
- The fraction bar is a line segment that separates the numerator from the denominator in a fraction.
- The denominator means the number of equal parts divided from a whole.

### Example:

Fraction	Names	Fraction	Names
$\frac{1}{2}$	A half	$\frac{2}{3}$	Two third
$\frac{1}{3}$	A third	$\frac{1}{7}$	A seventh
$\frac{1}{4}$	A qaurter	$\frac{3}{4}$	Three quarters
$\frac{1}{5}$	A fifth	$\frac{4}{5}$	Four quarters
$\frac{1}{6}$	A sixth	$\frac{3}{7}$	Three sevenths
$\frac{1}{8}$	An eighth	$\frac{4}{9}$	Four ninths.
$\frac{1}{10}$	A tenth	$\frac{5}{8}$	Five eighths.

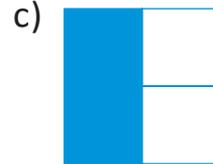
## Activity 4.1.2

1. Fold a paper into two equal parts
2. Read and write the fraction of each part in words and in figures.
3. Fold a paper into three equal parts, shade two of them then read and write in words or in figures the shaded fraction and unshaded fraction.
4. Show the numerator and the denominator of written fractions.



### Pair assessment 4.1

Write in words and in figures the colored fraction



### Application activity 4.1



1. Write a fraction represented by the following color:

- a) Red    c) Black  
b) Blue    d) Yellow



2. Look at this image and answer the questions



**Questions:** Write the fraction represented by:

1. Girls
2. Boys
3. Disabled Children
4. Children wearing glasses
5. Children wearing shorts, sweater and sport shoes
6. Children drinking juice
7. Children wearing skirts and red shoes
8. Children wearing trousers, red shoes, shirts and hats
9. Children playing volleyball

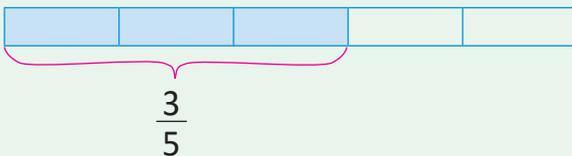
**4.2 Shading fractions not exceeding a whole and having a denominator less than or equal to 10**

**Activity 4.2.1**

Study the example and explain what has been done.

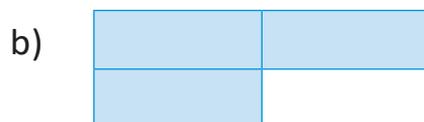
**Example:**  $\frac{3}{5}$  of this image is shaded

$\frac{2}{5}$  of this image is unshaded



**Activity 4.2.2**

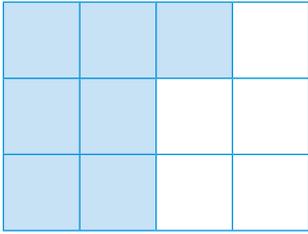
Write the shaded and non shaded parts of these images.



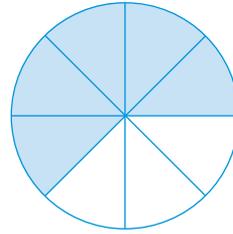
### Activity 4.2.3

Write the shaded fractions in words or in figures

a)



b)



#### I have learnt that:

- When drawing a fraction shade or put a color in the parts equal to the numerator.
- When writing a drawn fraction, the number of colored or shaded parts becomes the numerator.
- The number of all parts of a fraction colored/shaded parts and uncolored/unshaded become the denominator.

#### Application activity 4.2

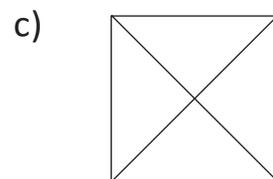
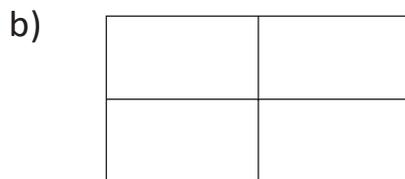
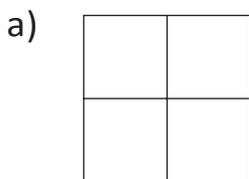


1. Read, write in words, draw and shade the following fractions.

a)  $\frac{4}{5}$       c)  $\frac{3}{8}$       e)  $\frac{6}{7}$

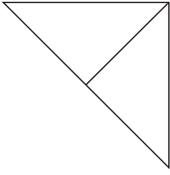
b)  $\frac{2}{3}$       d)  $\frac{7}{9}$       f)  $\frac{4}{10}$

2. Shade  $\frac{3}{4}$  of these images.

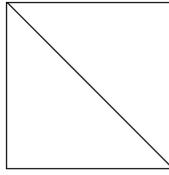


3. Shade  $\frac{1}{2}$  of these images.

a)



b)



c)



4. Write in words and in figures the fraction represented by each shaded fraction in the diagrams below:

a)



b)



c)



5. Read, write in figures, draw and shade these fractions:

a) Nine tenths:

d) Five tenths:

b) Seven eighths:

e) Seven tenths:

c) Seven ninths:

f) Five eighths:

### 4.3 Comparing fractions having common denominators less than or equal to 10 but not exceeding a whole

#### Activity 4.3.1

Using given example, compare the following fractions

**Example:** Use  $<$ ,  $>$  or  $=$  to compare the following fractions

a)  $\frac{1}{3} < \frac{2}{3}$

b)  $\frac{2}{4} < \frac{1}{4}$

c)  $\frac{2}{3} = \frac{2}{3}$

a)  $\frac{3}{8}$    $\frac{1}{8}$

c)  $\frac{1}{2}$    $\frac{1}{2}$

e)  $\frac{4}{6}$    $\frac{5}{6}$

b)  $\frac{5}{9}$    $\frac{2}{9}$

d)  $\frac{5}{5}$    $\frac{5}{5}$

f)  $\frac{1}{4}$    $\frac{4}{4}$

### I have learnt:

- When comparing fractions having common denominators, compare the numerators only then put the right comparison symbol/sign
- When the numerator of the first fraction is equals to the numerator of the second, you have to know that those fractions are equal.



### Pair assessment 4.3

Use  $<$ ,  $>$  or  $=$  to compare these fractions

- a)  $\frac{1}{3}$    $\frac{2}{3}$     d)  $\frac{2}{5}$    $\frac{3}{5}$     g)  $\frac{1}{6}$    $\frac{4}{6}$   
b)  $\frac{1}{4}$    $\frac{3}{4}$     e)  $\frac{4}{7}$    $\frac{1}{7}$     h)  $\frac{4}{10}$    $\frac{7}{10}$   
c)  $\frac{4}{5}$    $\frac{2}{5}$     f)  $\frac{5}{6}$    $\frac{5}{6}$     i)  $\frac{7}{9}$    $\frac{8}{9}$

### 4.4. Ordering fractions having common denominators less than or equal to 10 but not exceeding a whole

#### 4.4.1 Ordering fractions having common denominators less than or equal to 10 from the smallest to the greatest

#### Activity 4.4.1

Look at the example and explain what has been done.

#### Example:

$$\frac{5}{6}, \frac{3}{6}, \frac{2}{6}, \frac{1}{6}, \frac{6}{6}, \frac{4}{6} \longrightarrow \frac{1}{6}, \frac{2}{6}, \frac{3}{6}, \frac{4}{6}, \frac{5}{6}, \frac{6}{6}$$

#### Application activity 4.4.1

Arrange these fractions from the lowest to the greatest

- a)  $\frac{5}{10}, \frac{3}{10}, \frac{2}{10}, \frac{1}{10}, \frac{6}{10}$     c)  $\frac{4}{10}, \frac{8}{10}, \frac{10}{10}, \frac{7}{10}, \frac{9}{10}$

b)  $\frac{2}{9}, \frac{1}{9}, \frac{6}{9}, \frac{4}{9}, \frac{5}{9}$

d)  $\frac{6}{8}, \frac{3}{8}, \frac{5}{8}, \frac{1}{8}, \frac{2}{8}$

I have learnt that:

When ordering fractions having common denominators less than or equal to 10 from the lowest to the greatest, the lowest fraction is a fraction which has the lowest numerator while the greatest fraction is a fraction which has the greatest numerator.

#### 4.4.2 Ordering fractions having common denominators less than or equal to 10 from the greatest to the lowest

##### Activity 4.4.2

Use the given example to arrange these fractions from the greatest to the lowest.

**Example:**

$$\frac{5}{7}, \frac{3}{7}, \frac{2}{7}, \frac{7}{7}, \frac{6}{7}, \frac{4}{7} \longrightarrow \frac{7}{7}, \frac{6}{7}, \frac{5}{7}, \frac{4}{7}, \frac{3}{7}, \frac{2}{7}$$

a)  $\frac{5}{6}, \frac{3}{6}, \frac{2}{6}, \frac{1}{6}, \frac{6}{6}$

c)  $\frac{2}{5}, \frac{1}{5}, \frac{3}{5}, \frac{4}{5}, \frac{5}{5}$

b)  $\frac{4}{4}, \frac{3}{4}, \frac{2}{4}, \frac{1}{4}$

d)  $\frac{3}{3}, \frac{1}{3}, \frac{2}{3}$

I have learnt that:

When ordering fractions having common denominators less than or equal to 10 from the greatest to the lowest, the greatest fraction is that one having a bigger numerator while the smallest fraction is that one having a small numerator.



6. Arrange these fractions from the smallest to the biggest .

a)  $\frac{3}{7}, \frac{2}{7}, \frac{7}{7}, \frac{6}{7}, \frac{4}{7}$

c)  $\frac{8}{9}, \frac{1}{9}, \frac{6}{9}, \frac{9}{9}, \frac{5}{9}$

b)  $\frac{10}{10}, \frac{2}{10}, \frac{8}{10}, \frac{6}{10}, \frac{9}{10}$

d)  $\frac{2}{5}, \frac{1}{5}, \frac{3}{5}, \frac{4}{5}, \frac{5}{5}$

7. Arrange from the greatest fraction to the lowest.

a)  $\frac{3}{8}, \frac{2}{8}, \frac{7}{8}, \frac{6}{8}, \frac{4}{8}$

c)  $\frac{3}{4}, \frac{1}{4}, \frac{2}{4}, \frac{4}{4}$

b)  $\frac{5}{6}, \frac{2}{6}, \frac{4}{6}, \frac{6}{6}, \frac{1}{6}$

d)  $\frac{2}{3}, \frac{1}{3}, \frac{3}{3}$

## 4.5 Addition of fractions not exceeding a whole and having common denominator not exceeding 10

### Activity 4.5.1

Use the given example to find the sum of these fractions.

**Example:** Add the following fractions

a)  $\frac{5}{9} + \frac{2}{9} =$

$$\frac{5}{9} + \frac{2}{9} = \frac{5+2}{9} = \frac{7}{9}$$

b)  $\frac{4}{10} + \frac{5}{10} =$

$$\frac{4}{10} + \frac{5}{10} = \frac{4+5}{10} = \frac{9}{10}$$

Find the sum of the following fractions.

**I have learnt:**

When adding fractions having common denominators, add the numerators then rewrite unchanged denominator.

a)  $\frac{4}{8} + \frac{2}{8} + \frac{1}{8} =$

c)  $\frac{3}{9} + \frac{1}{9} + \frac{5}{9} =$

b)  $\frac{2}{10} + \frac{5}{10} + \frac{1}{10} =$

d)  $\frac{2}{7} + \frac{1}{7} + \frac{3}{7} =$

## 4.6 Word problems involving addition of fractions having common denominators less than or equal to 10

### Activity 4.6

Use the given example to work out these word problems

..

#### Example:

Kalisa planted  $\frac{1}{8}$  of trees of his garden while his workers planted  $\frac{5}{8}$  of it. Find the fraction representing the garden which was planted

Data	Request	Steps and solution
Fraction planted by Kalisa: $\frac{1}{8}$ . Fraction planted by Kalisa's workers: $\frac{5}{8}$ .	Fraction of the garden which was planted	Fraction of planted garden: $\frac{1}{8} + \frac{5}{8} = \frac{1+5}{8} = \frac{6}{8}$



#### Pair assessment 4.6

1. Mutesi did  $\frac{3}{5}$  of her homework after class, The following day she did  $\frac{1}{5}$ . What fraction of homework did she do altogether?
2.  $\frac{3}{10}$  of Mutunzi's cattle are milking cows. Last days he added  $\frac{6}{10}$  milking cows. What fraction of milking cows did he have altogether?

3. A cooperative harvested  $\frac{2}{6}$  of its garden of cabbages on Wednesday and  $\frac{3}{6}$  on Thursday. What fraction of the garden did the cooperative harvest?
- 4) A shopkeeper sold  $\frac{2}{10}$  of a sack of sugar to one customer and  $\frac{7}{10}$  to another customer. What fraction of sugar did he sell?

### I have learnt that:

When solving word problems involving addition of fractions having common denominators respect the following steps:

- Mention what you were given
- Mention what you were asked for
- Write the given fractions from word problem then rewrite the denominator and add the numerators.



### Self Assessment 4.6



1. A weaver weaved  $\frac{2}{7}$  of a basket on Monday  $\frac{3}{7}$ , on Tuesday and  $\frac{1}{7}$  on Wednesday. What fraction of a basket did he weave in three days?
2. Uwera gave  $\frac{5}{10}$  of bread in the morning and  $\frac{3}{10}$  in the evening to children. What fraction of bread did they eat altogether?
3. Pupils of Primary Three slashed  $\frac{4}{9}$  of our school compound. if  $\frac{2}{9}$  of the same garden was slashed by Primary Two pupils, what fraction of the compound was slashed?
4. A tourist covered  $\frac{3}{8}$  of his journey before noon and  $\frac{4}{8}$  of it in the afternoon. What fraction of the journey did he cover?

## 4.7 Subtraction of fractions not exceeding a whole and having common denominators less than or equal to 10

### Activity 4.7.1

Use the given model example to find the difference of these fractions.

#### Example

$$\text{a) } \frac{8}{10} - \frac{6}{10} =$$

$$\frac{8}{10} - \frac{6}{10} = \frac{8-6}{10} = \frac{2}{10}$$

$$\text{b) } \frac{8}{9} - \frac{3}{9} =$$

$$\frac{8}{9} - \frac{3}{9} = \frac{8-3}{9} = \frac{5}{9}$$

$$\text{a) } \frac{7}{9} - \frac{4}{9} =$$

$$\text{c) } \frac{5}{6} - \frac{4}{6} =$$

$$\text{e) } \frac{4}{5} - \frac{2}{5} =$$

$$\text{b) } \frac{8}{9} - \frac{7}{9} =$$

$$\text{d) } \frac{5}{8} - \frac{4}{8} =$$

$$\text{f) } \frac{10}{10} - \frac{8}{10} =$$

#### I have learnt that :

When subtracting fractions having common denominators, subtract the numerators only and rewrite unchanged denominator.



#### Self Assessment 4.7



$$\text{a) } \frac{9}{10} - \frac{4}{10} - \frac{3}{10} =$$

$$\text{c) } \frac{7}{9} - \frac{2}{9} - \frac{3}{9} =$$

$$\text{b) } \frac{8}{8} - \frac{1}{8} - \frac{6}{8} =$$

$$\text{d) } \frac{6}{7} - \frac{3}{7} - \frac{2}{7} =$$

## 4.8 Word problems involving Subtraction of fractions having common denominator less than or equal to 10

### Activity 4.8

Discuss the worked example:

#### Example:

$\frac{3}{4}$  of Gisa's cattle are cows. If he gave  $\frac{1}{4}$  of them to his cousin, what fraction of cows did he remain with ?

Given	Request	Steps and solution
Fraction of cows : $\frac{3}{4}$ Fraction of given cows : $\frac{1}{4}$	Fraction of remained cows	Fraction of remained cows: $\frac{3}{4} - \frac{1}{4} = \frac{3-1}{4} = \frac{2}{4}$



#### Pair assessment 4.8

1. Mutoni has  $\frac{9}{10}$  of a sugar cane. If she ate  $\frac{3}{10}$  of it . What fraction of sugar cane did she remain with?
2. Karabo had  $\frac{8}{9}$  of a garden. If she sells  $\frac{4}{9}$  of that garden to Gahima, what fraction of the garden can she remain with?
3. Our teacher had  $\frac{9}{10}$  of the pieces of chalk in his chalk box. Last week he used  $\frac{3}{10}$  of them. What fraction of pieces chalk remained?

### I have learnt that:

When solving word problems involving subtraction of fractions having common denominators respect the following steps:

- Mention what you are given
- Mention what you are requested for
- Write the given fractions from word problem then rewrite the denominator and subtract the numerators.



### Self Assessment 4.8



1. My father planted  $\frac{6}{7}$  of the trees in our garden. If  $\frac{3}{7}$  of them grew well, find the fraction of trees which did not grow.
2. Butera has  $\frac{4}{5}$  of a sack of maize flour. If he has sold  $\frac{3}{5}$  of it, what fraction of maize flour does he remain with?
3. Kariza washed  $\frac{7}{8}$  of his clothes. If  $\frac{5}{8}$  of them dried up, what fraction of clothes which did not dry up?

## 4.9 Finding the complement of a fraction for forming a unit fraction

### Activity 4.9.1

Look at the example and explain what has been done.

**Example:** Find the complement of  $\frac{5}{9}$

$$\frac{5}{9} + \square = \frac{9}{9} \rightarrow \frac{9}{9} - \frac{5}{9} = \frac{9-5}{9} = \frac{4}{9}$$

The complement of  $\frac{5}{9}$  is  $\frac{4}{9}$

The sum of both is  $\frac{9}{9}$  which is equal to 1.

### Activity 4.9.2

Find the complement of each of the following fractions:

a)  $\frac{4}{7}$       c)  $\frac{3}{5}$       e)  $\frac{2}{6}$       g)  $\frac{1}{6}$       i)  $\frac{2}{10}$       k)  $\frac{7}{10}$

b)  $\frac{6}{9}$       d)  $\frac{5}{8}$       f)  $\frac{3}{5}$       h)  $\frac{4}{5}$       j)  $\frac{2}{3}$       l)  $\frac{7}{9}$

#### I have learnt that:

When finding the complement of a fraction to form 1 whole, form a unit fraction basing on the denominator of the given fraction then subtract the given fraction from the formed unit fraction.



#### Pair assessment 4.9

Complete to form the correct fraction

a)  $\frac{\square}{7} + \frac{3}{7} = \frac{7}{7}$

c)  $\frac{6}{8} + \frac{\square}{8} = \frac{8}{8}$

b)  $\frac{4}{9} + \frac{\square}{9} = \frac{9}{9}$

d)  $\frac{\square}{10} + \frac{1}{10} = \frac{10}{10}$

### 4.10 Fraction of a whole number

#### Activity 4.10

Study the example and workout the following:

#### Example:

a)  $\frac{1}{2}$  of 16 =

$$\frac{1}{2} \text{ of } 16 = \frac{1 \times 16}{2}$$

$$= \frac{16}{2} = 8$$

b)  $\frac{2}{3}$  of 9 =

$$\frac{2}{3} \text{ of } 9 = \frac{2 \times 9}{3}$$

$$= \frac{18}{3} = 6$$

a)  $\frac{2}{3}$  of 45 =

c)  $\frac{3}{7}$  of 14 =

e)  $\frac{3}{10}$  of 70 =

b)  $\frac{4}{5}$  of 15 =

d)  $\frac{5}{8}$  of 40 =

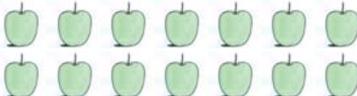
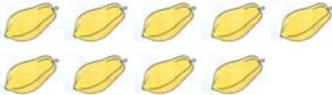
f)  $\frac{4}{7}$  of 35 =

**I have learnt that:**

When finding the value of a fraction of a whole number, multiply that whole number by the numerator of the given fraction and divide their product by the denominator of the given fraction.

**Self Assessment 4.10**

Study the images, read and write the requested number

	$\frac{1}{2}$ of these oranges are ____
	$\frac{5}{6}$ of these tomatoes ____
	$\frac{3}{7}$ of these apples ____
	$\frac{7}{8}$ of these jugs are ____
	$\frac{5}{9}$ of these pawpaw are ____
	$\frac{7}{10}$ of these cabbages are ____



### Pair assessment 4.10

Find the value of the following fractions of whole numbers:

a)  $\frac{1}{8}$  of 64 =

c)  $\frac{7}{10}$  of 50 =

e)  $\frac{9}{10}$  bya 30 =

b)  $\frac{5}{9}$  of 54 =

d)  $\frac{1}{10}$  of 70 =

f)  $\frac{7}{8}$  bya 56 =

## 4.11 Word problem involving fraction of a whole number

### Activity 4.11

Discuss this worked example:

#### Example

Uwase has 60 cows, she needs to sell  $\frac{3}{4}$  of them.

1. How many cows will she sell?
2. How many cows will she remain with?

Given	Request	Steps and solution
Number of cows = 60	Number of cows to be sold	Number of cows to be sold: $\frac{60 \times 3}{4} = 45$ cows
Fraction of cows to be sold $\frac{3}{4}$	Number of remained cows	Number of remained cows: $60 - 45 = 15$ cows



### Pair assessment 4.11

1. Muhongerwa has 200 bananas,  $\frac{3}{4}$  of them are ripe. Find the number of bananas which are not ripe.
2. In the store there are 120 sacks of cement. If  $\frac{5}{8}$  of them have been used when building the house, how many sacks of cement remained in the store?

3. In the hall there are 126 participants and  $\frac{2}{3}$  of them have come with laptops. Find the number of participants who came with laptops and those who came without laptops.

### I have learnt that:

When solving word problems involving fraction of a whole number:

- Mention what you are given
- Mention what you are asked for

Write the fractions and whole number given in word problem then multiply the numerator of the fraction with the whole number and divide their product by the denominator of the fraction.



### Self Assessment 4.11



1. In our village there 240 houses.  $\frac{5}{6}$  of them are covered with iron sheets . Find the number of houses without iron sheets
2. In a classroom, there are 45 pupils.  $\frac{2}{3}$  of them are boys, how many boys and girls are there in that classroom.
3. In the transportation company there are 84 cars. If  $\frac{4}{7}$  of them operate in the provinces. Find the numbers of cars which work in provinces.

## 4.12 Importance of fractions

### Activity 4.12.1

Look at each picture: what are people doing? How can you share objects? Is it better to get equal shares? do you prefer to have more than others?



### I have learnt that:

- People use fractions when sharing different things.
- People can share their things equally
- People can share their things unequally

### Activity 4.12.2

Tell your friends things your family members share at home.

### Activity 4.12.3

Discuss the importance of fractions and identify different examples of events where fractions are used.

## 4.13 End of unit assessment 4

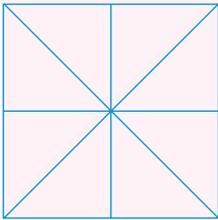
1. Write in words or in figures the fractions represented by shaded parts



2. Draw and shade the following fractions

a)  $\frac{5}{8}$    b)  $\frac{2}{5}$    c)  $\frac{4}{6}$    d)  $\frac{3}{7}$    e)  $\frac{4}{9}$

3. shade  $\frac{5}{8}$  of this image



4. Use  $<$ ,  $>$  or  $=$  to compare the fractions below:

a)  $\frac{5}{7}$    $\frac{6}{7}$    c)  $\frac{5}{9}$    $\frac{8}{9}$    e)  $\frac{1}{5}$    $\frac{3}{5}$

b)  $\frac{4}{6}$    $\frac{2}{6}$    d)  $\frac{3}{4}$    $\frac{3}{4}$    f)  $\frac{1}{8}$    $\frac{8}{8}$

5. Arrange the following fractions from the smallest to the biggest

a)  $\frac{3}{8}$ ,  $\frac{2}{8}$ ,  $\frac{7}{8}$ ,  $\frac{6}{8}$ ,  $\frac{4}{8}$ ,  $\frac{1}{8}$ ,  $\frac{5}{8}$ ,  $\frac{8}{8}$

b)  $\frac{2}{5}$ ,  $\frac{1}{5}$ ,  $\frac{3}{5}$ ,  $\frac{4}{5}$ ,  $\frac{5}{5}$

6. Arrange the following fractions from the greatest to the lowest

a)  $\frac{3}{7}, \frac{2}{7}, \frac{7}{7}, \frac{6}{7}, \frac{4}{7}, \frac{1}{7}, \frac{5}{7}$

b)  $\frac{2}{6}, \frac{1}{6}, \frac{3}{6}, \frac{5}{6}, \frac{4}{6}$

7. Find the complement of each of the following fractions to form a unit fraction.

a)  $\frac{4}{7}$    b)  $\frac{3}{8}$    c)  $\frac{5}{9}$    d)  $\frac{4}{10}$

8. Add the following fractions

a)  $\frac{3}{7} + \frac{2}{7} =$    b)  $\frac{4}{9} + \frac{2}{9} =$    c)  $\frac{2}{5} + \frac{1}{5} =$

9. Subtract the following fractions

a)  $\frac{8}{9} - \frac{5}{9} =$    b)  $\frac{9}{10} - \frac{3}{10} =$    c)  $\frac{6}{7} - \frac{4}{7} =$

10. Find the value of each fraction of the given whole numbers

a)  $\frac{3}{4}$  bya 100   b)  $\frac{7}{8}$  bya 64   c)  $\frac{5}{6}$  bya 60

11. Gwiza ate  $\frac{2}{5}$  of her bread in the morning and  $\frac{1}{5}$  in the evening. What fraction of bread did she eat altogether?

12. Gatare uses  $\frac{5}{7}$  of his water from the tank for making bricks. What fraction of water did he remain in the tank?

13. Mutoni harvested  $\frac{5}{6}$  of her 360 cabbages. How many cabbages did she harvest and how many cabbages remained in the garden?

14. Friday Shema read  $\frac{3}{8}$  of a book. He also read  $\frac{4}{8}$  of it on Saturday. What fraction of the book did he read altogether?

15.  $\frac{7}{8}$  of 960 pupils paid school fees

- How many pupils paid school fees?
- How many pupils did not pay school fees?



# UNIT 5

# THE RELATIONSHIP BETWEEN LENGTH MEASUREMENTS

## 5.0 Introductory activity:



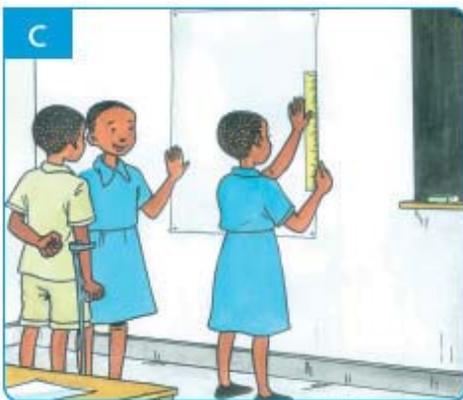
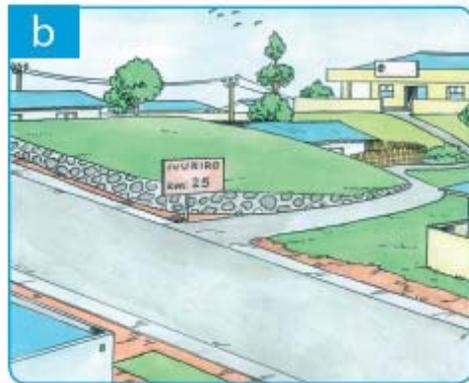
Gahire has a farm of cattle. He went to borrow money from the bank wishing to use his farm as mortgage. Reaching there he fails to give the size of his farm to the loan manager because he did not know the length and the width of his farm. Which advise can you give to Gahire so that he can never face such problem?



## 5.1 Length measurements

### Activity 5.1.1

Look at the following images and identify the tools used for measuring the length of objects, people and places.



### Activity 5.1.2

Measure the following using a meter ruler.

- The length and the width of your chalk board
- The length and the width of the door of your classroom
- The length and the width of the teacher's bookshelf

### Activity 5.1.3

Measure the following using a meter ruler.

- The length and the width of a mathematics book
- The length and the width of a big notebook
- The length of a pen

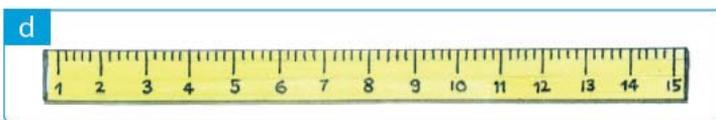
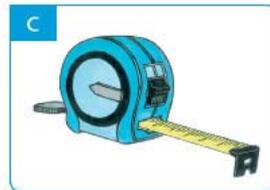
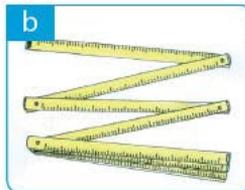
### Activity 5.1.4

Identify the unit of length measurements used when you want to know the following:

- The distance between two towns
- The length of the road from Kigali to Rubavu
- The perimeter of a plot
- The height of a mountain
- The length of a cupboard
- The length and the width of a book
- The length of a cloth.

### Activity 5.1.5

Study and describe each image



### I have learnt that:

Length measurements are

- 1) Kilometer (km)
- 2) Hectometer (hm)
- 3) Decameter (dam)
- 4) Meter (m)
- 5) Decimeter (dm)
- 6) centimeter (cm)
- 7) Milimeter(mm)

- Meter (m) is the standard unit of length measurements
- Kilometer (km), hectometer (hm) and decameter (dam) are units greater than meter (m)
- Decimeter (dm), centimeter (cm) and millimeter (mm) are units less than a meter (m).
- When measuring the length, width, base, height and altitude of places, use some of the following tools:
  - Decameter
  - Meter ruler
  - Ruler
  - Ropes
  - Folding meter
  - Tape measure

### Activity 5.1.6

Identify the tools that can be used for measuring the length of the following:

- a) A flat
- b) A dress
- c) A plot
- d) A garden
- e) A cupboard
- f) School uniforms

### Application activity 4.4.1

Complete with the right word: **meter, km, hm, dam, 10, dm, cm, mm, decameter**

- is the standard unit of length measurements
- Length measurements follow the rule of -----times
- , -----and ----- are length measurements greater than meter (m).
- Length measurements less than meter (m) are-----, ----- and -----
- We use a ----- to measure the perimeter of a house.

## 5.2. The relationship between length measurements

### Activity 5.2

Study the conversion table of length measurements and compare them

km	hm	dam	m	dm	cm	mm
1	0	<del>0</del>	<del>0</del>			
			1	0	<del>0</del>	<del>0</del>

#### I have learnt that:

Length measurements are ten times from the lowest unit to the greatest unit or ten times from the greatest unit to the lowest unit.

## 5.3 Converting length measurements

### 5.3.1 Converting length measurements from the greatest unit to the lowest unit

#### Activity 5.3.1

Study the conversion table of length measurements and workout the following exercises.

Length measurements greater than meter			Standard unit of length measurements	Length measurements smaller than meter		
km	hm	dam	m	dm	cm	mm
1	0					
	1	0				
		1	0			
			1	0		
				1	0	
					1	0

$$1 \text{ km} = 10 \text{ hm}$$

$$1 \text{ dam} = 10 \text{ m}$$

$$1 \text{ dm} = 10 \text{ cm}$$

$$1 \text{ hm} = 10 \text{ dam}$$

$$1 \text{ m} = 10 \text{ dm}$$

$$1 \text{ cm} = 10 \text{ mm}$$



#### Pair assessment 5.3

- $8 \text{ km} = \text{-----hm}$
- $7 \text{ km} = \text{-----dam}$
- $2 \text{ hm} = \text{-----dam}$
- $4 \text{ hm} = \text{-----m}$

## 5.3.2 Converting length measurements from the lowest unit to the greatest unit

### Activity 5.3.2

Study the conversion table of length measurements and workout the following exercises.

Length measurements greater than meter			Standard unit of length measurements	Length measurements smaller than meter		
km	hm	dam	m	dm	cm	mm
1	<del>0</del>					
	1	<del>0</del>				
		1	<del>0</del>			
			1	<del>0</del>		
				1	<del>0</del>	
					1	<del>0</del>

$$10 \text{ hm} = 1 \text{ km}$$

$$10\text{m} = 1 \text{ dam}$$

$$10 \text{ cm} = 1 \text{ dm}$$

$$10 \text{ dam} = 1 \text{ hm}$$

$$10 \text{ dm} = 1 \text{ m}$$

$$10 \text{ mm} = 1 \text{ cm}$$



### Self Assessment 5.3

a)  $90 \text{ hm} = \underline{\hspace{2cm}} \text{ km}$

c)  $60 \text{ dam} = \underline{\hspace{2cm}} \text{ hm}$

b)  $800 \text{ dam} = \underline{\hspace{2cm}} \text{ km}$

d)  $500 \text{ m} = \underline{\hspace{2cm}} \text{ hm}$

### I have learnt that:

- We convert length measurements using the conversion table.
- Add zero (0) when converting from the greatest unit to the lowest unit.
- Take away zero when converting from the lowest unit to the greatest unit.
- Adding and taking away zero (0) is only done for numbers end with zero.

### Application activity 5.3



Work out the following:

- a) 450 m = \_\_\_\_\_ dam                      f) 234 dam = \_\_\_\_\_ m  
 b) 13 hm = \_\_\_\_\_ m                      g) 8 km 7 m = \_\_\_\_\_ m  
 c) 56 dam = \_\_\_\_\_ dm                    h) 4 dm 7 mm = \_\_\_\_\_ mm  
 d) 3500 mm = \_\_\_\_\_ dm                i) 6 m 8 dm = \_\_\_\_\_ dm  
 e) 4300 dm = \_\_\_\_\_ m                 j) 9 dam 4 cm = \_\_\_\_\_ cm

## 5.4 Comparing length measurements

### Activity 5.4

Look at the model example then use  $>$ ,  $<$  or  $=$  to compare the following length measurements

#### Example:

- a) 20 dam  $<$  20 hm  
 b) 450 m  $<$  9 km  
 c) 7 dm  $>$  58 cm

km	hm	dam	m	dm	cm	mm
	2	0				
2	0	0				
	4	5	0			
9	0	0	0			
				7	0	
				5	8	

- a) 234 m  23 hm                      d) 87dam  8700 dm  
 b) 3 km  30 hm                      e) 256 cm  25 dm  
 c) 49 dm  9 m                         f) 57 mm  5 cm

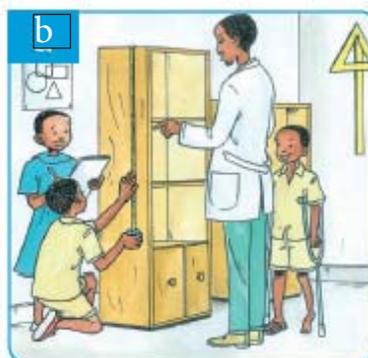
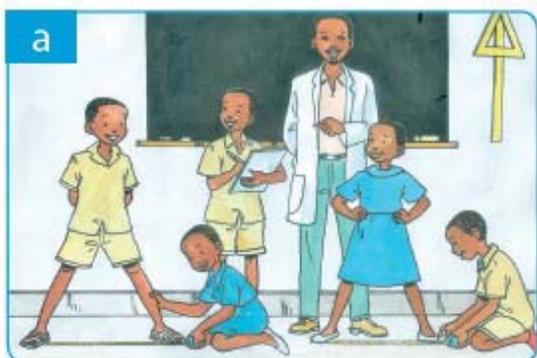
I have learnt that:

When comparing the length measurements, first convert the given units to be compared into the lowest given unit then compare the numbers using  $<$ ,  $>$  or  $=$

## 5.5 Comparing length measurements by measuring different objects.

### Activity 5.5.1

Look at these pictures: what are people doing? What are they using? Can you do the same?



### I have learnt that:

- When comparing the length of different objects, first measure them then compare their length basing on the numbers.
- You should know the tallest and the shortest after comparing them.

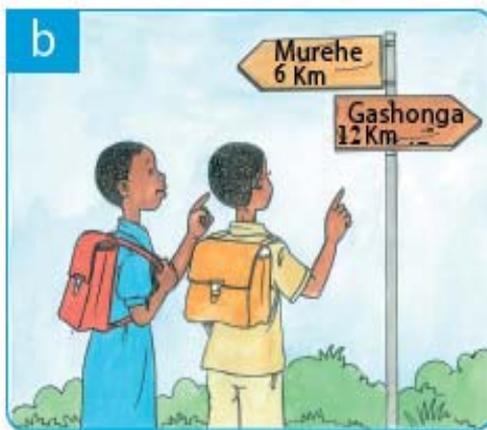
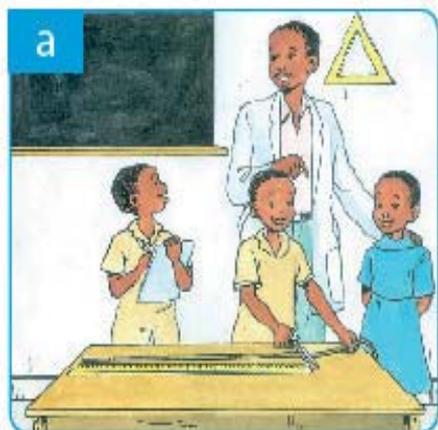
### Activity 5.5.2

- The perimeter of our playground is 300 m. The perimeter of Amahoro stadium is 400 m. Compare both playgrounds and determine the biggest and the smallest.
- Measure the length and the width of your classroom. Compare their dimensions.

## 5.6 Comparing length of an object referring to the number of times and the distance

### Activity 5.6.1

Observe and describe these images.



### Activity 5.6.2

Compare and answer the following:

- How many times are there on a road of 20km compared to a road of 4km?
- Muhoza walked 30 km while his brother Shema walked 5 km.

Who walked the long distance? How many times is there in the Muhoza's distance compared to Shema's distance

#### I have learnt that:

To know whether the length of a place is greater than the length of another place, divide the length of the greatest length by that of the lowest length.

### Activity 5.6.3

- Throw the ball with your hands then estimate the length between you and the ball, measure that length and find out whether estimated length is equal to the measured length.
- Observe your playground and estimate its perimeter. Measure the perimeter of that playground and find out whether estimated perimeter is equal to the measured perimeter.

#### Application activity 5.6



- Use  $>$ ,  $<$  or  $=$  to compare the following
  - 3 km 5 m  30 hm c) 575 dm  57 m
  - 4 hm 7 m  407 m d) 49 dam  9 hm
- How many times is there in the road of 45 km compared to another road of 9 km??

## 5.7 Ordering length measurements

### 5.7.1 Ordering length measurements from the smallest to the biggest.

#### Activity 5.7.1

Look at the example then arrange the following from the smallest to the biggest.

#### Example:

5 Km 7 dam, 786 dam, 57 hm  $\rightarrow$  5 km 7 dam, 57 hm, dam 786

km	hm	dam	m	dm	cm	mm
5	0	7				
5	7	0				
7	8	6				

- a) 125 m, 2 hm, 8 dam                      d) 765 dm, 98 m, 6 dam  
b) 34 cm, 245 mm, 5 dm                    e) 54 dam, 8 km, 256 m  
c) 9 km, 75 hm, 8759 m                    f) 356 cm, 7 m, 49 dm

#### I have learnt that:

Respect the following steps:

- Convert all given units into the same lowest given unit
- Arrange the units from the lowest to the greatest basing on their numbers

## 5.7.2 Arranging length measurements from the biggest to the smallest.

### Activity 5.7.2

Look at the example then arrange the following from the biggest to the smallest..

#### Example:

45 hm, 295 dam, 846m  $\rightarrow$  45 hm, 295 dam, 846 m

km	hm	dam	m	dm	cm	mm
4	5	0	0			
2	9	5	0			
8	4	6	0			

- a) 785 m, 9 hm, 54 dam                      d) 237 dam, 8 km, 56 hm  
b) 247 m, 79 dam, 76 hm                    e) 797 dm, 8 dam, 92m  
c) 39 cm, 91 mm, 49 dm                    f) 59 dam, 9 km, 4 hm

#### I have learnt that:

Respect the following steps:

- Convert all given units into the same lowest given unit
- Arrange the units from the greatest to the lowest basing on their numbers

#### Application activity 5.7

1. Arrange the following from the smallest to the biggest.
- a) 7 m, 985 mm, 565 cm                      c) 324 cm, 765 mm, 8 m  
b) 897 dm, 79 m, 9 dam                      d) 98 mm, 987 dm, 87 cm

2. Arrange the following from the biggest to the smallest.

- a) 6 km, 9124 m, 698 dam      c) 7 dam, 987 dm, 3 695 cm  
b) 74 hm, 9 km, 768 dam      d) 76 m, 4 897 cm, 915 dm

## 5.8 Addition of length measurements

### Activity 5.8

Use the conversion table of length measurements and the model example to work out the following exercises

**Example:**  $8 \text{ km} + 18 \text{ dam} = 8 \text{ 180 m}$

km	hm	dam	m	dm	cm	mm
8	0	0	0			
+ ↓	1	8	0			
<b>8</b>	<b>1</b>	<b>8</b>	<b>0</b>			

- a)  $9 \text{ km} + 789 \text{ m} = \text{_____ m}$       d)  $5 \text{ m} + 500 \text{ cm} = \text{_____ dam}$   
b)  $56 \text{ hm} + 238 \text{ m} = \text{_____ m}$       e)  $375 \text{ dm} + 2 \text{ m } 5 \text{ dm} = \text{_____ dam}$   
c)  $475 \text{ dam} + 250 \text{ m} = \text{_____ km}$       f)  $35 \text{ cm} + 9 \text{ m} = \text{_____ cm}$

### I have learnt that:

When adding length measurements respect the following steps:

- Draw conversion table of length measurements
- Convert all given units into the required unit
- Add the numbers of the converted units



### Pair assessment 5.8

Use conversion table of length measurements then complete the missing units

a)  $145 \text{ m} + 2\,855 \text{ m} = 3\_\_\_$

d)  $76 \text{ dam} + 240 \text{ m} = 1\_\_\_$

b)  $39 \text{ hm} + 610 \text{ dam} = 10 \_\_\_$

e)  $63 \text{ dm} + 37 \text{ cm} = 667 \_\_\_$

c)  $74 \text{ hm} + 260 \text{ dam} = 10\text{----}$

f)  $27 \text{ cm} + \text{m } 6 = 6270 \_\_\_$



### Self Assessment 5.8

a)  $47 \text{ hm} + 930 \text{ dam} = \_\_\_ \text{ km}$

b)  $3 \text{ m } 8 \text{ cm} + 25 \text{ dm} = \_\_\_ \text{ cm}$

c)  $45 \text{ m} + 5500 \text{ cm} = \_\_\_ \text{ hm}$

## 5.9 Word problems involving addition of length measurements

### Activity 5.9

Discuss this worked example:

#### Example:

As part of tourism, Muhoza walked 7 km on Monday, 80hm on Tuesday and 400 dam on Wednesday. How many km did she cover altogether?

Given	Request	Steps and solution
Distance covered on Monday= 7 km	Number of km covered	Number of km covered
Distance covered on Tuesday= 80hm		$7 \text{ km} + 80 \text{ hm} + 400 \text{ dam} = \mathbf{19 \text{ km}}$
Distance covered on Wednesday= 400 dam		



### Pair assessment 5.9

3. A driver covered 359 km on Monday, 4360 hm on Tuesday and 405 km on Wednesday. How many km did he cover altogether?
1. Mutesi has 175 m of cloth while his brother Gasana has 1250 dm. How many meters of cloth do they have altogether?
2. Mukiza bought a rope of 150 m; reaching home he realized that his rope is short compared to the length needed. He went back and bought 2500 dm. Find the total length of both ropes.

### I have learnt:

When working out word problems involving addition of length measurements:

- Mention what you were given
- Mention what you asked for
- Draw conversion table of length measurements
- Convert the given units into the smallest unit or required unit
- Find the solution by adding the converted units



### Self Assessment 5.9



1. A cyclist covered 900 m from his home to the market. . Reaching there, he covered more 11 hm when transporting a passenger to his home. . Find the total distance he covered in hm.
2. During the competition, athletes covered 21km in morning and 1200 dam in the evening. How many hm did they cover altogether?

## Application activity 5.9



1. The distance from Kigali to Huye is km 125 while that of Huye to Rusizi is 1670 hm. Find the total distance from Kigali to Rusizi.
2. Kaneza has a garden of 95m of the length while that of his sister located aside measures 105 m. Find the total length of both gardens.

## 5.10 Subtraction of length measurements

### Activity 5.10

Use the conversion table of length measurements and the model example to work out the following exercises

**Example:**  $425 \text{ dam} - 3 \text{ km} = 125 \text{ dam}$

km	hm	dam	m	dm	cm	mm
4	2	5				
- 3	0	0				
<b>1</b>	<b>2</b>	<b>5</b>				

- a)  $5 \text{ hm} - 298 \text{ m} = \text{-----m}$
- b)  $9 \text{ km} - 832 \text{ dam} = \text{-----dam}$
- c)  $74 \text{ dm} - 490 \text{ cm} = \text{----- dm}$
- d)  $75 \text{ cm} - 579 \text{ mm} = \text{-----mm}$
- e)  $753 \text{ dam} - 69 \text{ hm} = \text{----- m}$
- f)  $835 \text{ dm} - 7 \text{ dam} = \text{-----dm}$

### I have learnt that:

When subtracting length measurements respect these steps:

- Draw the conversion table
- Convert the given units into the required unit
- Subtract the converted units



### Pair assessment 5.10

Use the conversion table of length measurements to complete the missing unit in the following example:

a)  $5 \text{ km} - 28 \text{ hm} = 220 \text{ \_\_\_}$

d)  $415 \text{ dam} - 3 \text{ \_\_\_} = \text{m } 1 \text{ } 150$

b)  $9 \text{ hm} - 73 \text{ dam} = 170 \text{ \_\_\_}$

e)  $64 \text{ dam} - 440 \text{ m} = 2 \text{ \_\_\_}$  f)

c)  $724\text{----} - \text{dm } 62 = \text{cm } 104$

$36 \text{ m} - 973 \text{ cm} = 2 \text{ } 62 \text{ \_\_\_}$

## 5.11 Word problems involving subtraction of length measurements

### Activity 5.11

Discuss the worked example:

#### Example:

Road workers want to repair a road of 56 km. How many km did they remain with if so far they finished to repair 4600 dam?

Data	Request	Steps and solution
1) Length of the road= 56km	Length of the road remained to be covered	Length of the road remained to be covered: $56 \text{ km} - 4600 \text{ dam} = \mathbf{10 \text{ km}}$
2) Length of repaired road= 4600 dam		



### Pair assessment 5.11

- Gisa went to the running competition of 42 km. He felt tired after running 2900 dam. How many hm did he remain with to complete the race?
- Road contractors got a job of tarmacking the road of 987 dam. If they were suspended after completing 5870 m, how many km were left to be completed?

### I have learnt that:

When working out word problems involving subtraction of length measurements respect the following steps:

- Mention what you were given
- Mention what you were asked for
- Draw the conversion table
- Convert the given units into the requested unit
- Subtract the converted units



### Self Assessment 5.11



1. Kariza bought a piece of cloth measuring 175 m. If she sold 9 dm of it, how many meters did she remain with?
2. The height of Muhizi is 186 cm while that of Kaneza is 169 cm. Who is taller than other? By how many cm?

### Application activity 5.11



1. Gisa had 12 dm of a cloth and uses 20 m of it to make face masks. How many m did he remain with?
2. Ishimwe and Mugisha played long jump. Ishimwe jumped 3 m while his friend Mugisha jumped 25 dm. Who jumped long length? By how many cm ?

## 5.12 Multiplication of length measurements by a whole number

### Activity 5.12

Use conversion table of length measurements and the model example to work out the following exercises

**Example:**  $125 \text{ m} \times 4 = 5 \text{ hm}$

km	hm	dam	m	dm	cm	mm
	1	2	5			
	×		4			
	5	0	0			

+1 +2

- a)  $2 \text{ m } 3 \text{ cm} \times 3 = \underline{\hspace{1cm}} \text{ cm}$       c)  $5 \text{ hm } 4 \text{ dam} \times 2 = \underline{\hspace{1cm}} \text{ m}$   
b)  $42 \text{ dam} \times 5 = \underline{\hspace{1cm}} \text{ hm}$       d)  $81 \text{ m} \times 5 = \underline{\hspace{1cm}} \text{ dm}$

**I have learnt that:**

When multiplying the length measurements with a whole number, multiply as usual then convert their product into the required unit.

### Application activity 5.12

Use the conversion table of length measurements to complete the missing unit in the following example:

- a)  $375 \text{ m} \times 2 = 75 \underline{\hspace{1cm}}$        $4 \text{ m } 8 \times 5 = \underline{\hspace{1cm}} 24$   
b)  $72 \text{ m } 3 \text{ dm} \times 3 = 2 \text{ } 169 \underline{\hspace{1cm}}$       e)  $4 \text{ m } 2 \text{ cm} \times 6 = 2 \text{ } 412 \underline{\hspace{1cm}}$   
c)  $45 \text{ hm} \times 4 = 18 \underline{\hspace{1cm}}$  d)  $\underline{\hspace{1cm}} \text{ dam}$       f)  $215 \text{ dm} \times 8 = 172 \underline{\hspace{1cm}}$

## 5.13 Word problems involving multiplication of length measurements by a whole number

### Activity 5.13

Discuss this worked example:

**Example:** 4 shopkeepers sold 25 m of piece of cloth each. How many pieces of cloth did they sell altogether in hm?

Data	Request	Steps and solution
Number of shop keepers: <b>4</b> Length of piece of cloth sold by each shopkeeper: <b>25 m</b>	Total length of piece of cloth	Total length of piece of cloth: $25 \text{ m} \times 4 = 100 \text{ m}$ $= 1 \text{ hm}$



### Pair assessment 5.13

1. Find the length of 6 pieces of cloth if each piece measures 50 meters.
2. Shema, Keza and Mucyo have 3 rolls of electric wires measuring 30 m each. How many meter of electric wire did they have altogether?
3. Kazuba bought 56 pieces of cloth. If each piece of cloth measures 15 m. How many meters of cloth did she buy altogether?

### I have learnt that:

When working out word problems involving multiplication of length measurements with a whole number respect the following steps:

- Mention what you were given
- Mention what you were asked for
- Draw the conversion table
- Convert the given units into the required unit
- Multiply the converted units with a given whole number



### Self Assessment 5.13

1. Find the length of a flat of 8 floors if each floor measures 4 m of length?

- Mahoro wants to make one big piece of thread using 9 small pieces of thread each measuring 100 m of length. Find the total length of the thread.
- Road contractors make 7 km of road per day. How many km do they make in 29 days?

### Application activity 5.13

- After sharing equally a piece of cloth among 6 shopkeepers, each got 9 dam. Find the total length of that piece of cloth.
- Ngarambe bought pieces of cloth for making school uniforms of his 8 children. If he bought 5 m for each child, how many dam did he buy altogether?
- The tallest building in the world is made by 127 floors. If each floor measures 5 m, what is the total length of that building?

## 5.14 Dividing length measurement by a whole number

### Activity 5.14.1

Use conversion table of length measurements and the example given to work out the following exercises

**Example:**  $820 \text{ dam} \div 5 = 164 \text{ dam} = 1640 \text{ m}$

	km	hm	dam	m	dm	cm	mm
164							
5) 820	1	6	4	0			
-5							
32							
-30							
020							
-20							
00							

a)  $580 \text{ dm} \div 5 = \text{ \_\_\_ cm}$

d)  $480 \text{ cm} \div 8 = \text{ \_\_\_ dm}$

b)  $2\,400 \text{ dam} \div 6 = \text{ \_\_\_ km}$

e)  $1\,200 \text{ m} \div 3 = \text{ \_\_\_ hm}$

c)  $5\,400 \text{ mm} \div 9 = \text{ \_\_\_ dm}$

f)  $2\,000 \text{ dm} \div 4 = \text{ \_\_\_ dam}$

**I have learnt that:**

When dividing the length measurements with a whole number divide as usual then convert their quotient into the required unit.

**Activity 5.14.2:**

Use the conversion table of length measurements to complete the missing unit in the following example:

a)  $248 \text{ hm} \div 8 = 3\,100 \text{ \_\_\_}$

d)  $680 \text{ cm} \div 4 = 17 \text{ \_\_\_}$

b)  $485 \text{ dam} \div 5 = 970 \text{ \_\_\_}$

e)  $650 \text{ dm} \div 5 = 13 \text{ \_\_\_}$

c)  $2\,800 \text{ m} \div 7 = 4 \text{ \_\_\_}$

f)  $960 \text{ cm} \div 3 = 3\,200 \text{ \_\_\_}$

## 5.15 Word problems involving dividing length measurement by a whole number

**Activity 5.15**

Discuss this worked example:

**Example:** 8 tailors shared equally a piece of cloth measuring 96 m. Find the share of each tailor..

Data	Request	Steps and Solution
Number of tailors = 8	Length of each share	Length of each share $96 \text{ m} \div 8 = 12 \text{ m}$
Length of shared piece of cloth = 96 m		



### Pair assessment 5.15

1. shopkeepers who sell electric wires, shared equally a wire of 240m. Find the length of wire each got in dam.
2. 9 people shared equally a sugar cane of 18 dm.. How many cm of sugarcane did each get?

### I have learnt that:

When working out word problems involving division of length measurements with a whole number respect the following steps:

- Mention what you were given.
- Mention what you asked for.
- Draw the conversion table
- Convert the given units into the required unit. unit
- Divide the converted units with a given whole number.



### Self Assessment 5.15



1. Tunga wants to build a flat of 50 m of height. . If he wants to subdivide his flat into 10 equal floors, find the height of each floor.
2. Our Sector employed 8 workers for constructing a road of 8 hm. How many hm did each construct?

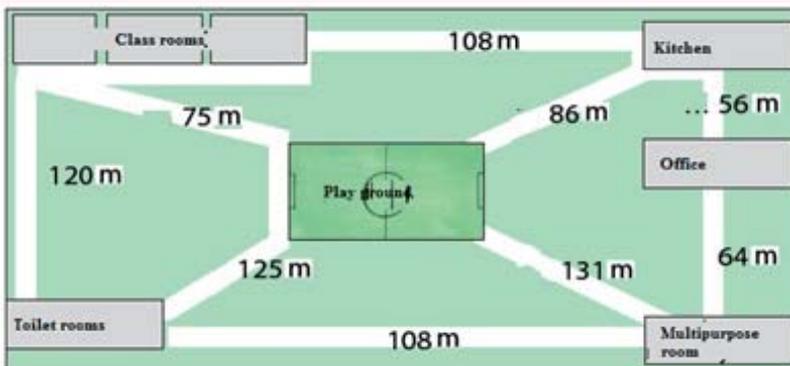
### Application activity 5.15



A shopkeeper cut equally 49m of cloth into 7 small pieces. Find the length of each piece.

## 5.16 End of unit assessment 5

- Convert the following units into the required unit.
  - $2 \text{ km } 6 \text{ m} = \text{ \_\_\_ m}$
  - $240 \text{ dm} = \text{ \_\_\_ m}$
  - $7 \text{ m } 8 \text{ mm} = \text{ \_\_\_ mm}$
  - $2 \text{ 400 dm} = \text{ \_\_\_ dam}$
- Use  $<$ ,  $>$  or  $=$  to compare the following.
  - $456 \text{ m} \square 8 \text{ hm}$
  - $8 \text{ km} \square 789 \text{ dam}$
  - $46 \text{ mm} \square 4 \text{ cm}$
  - $7 \text{ dam} \square 79 \text{ m}$
- Arrange the following from the lowest to the greatest  
 $259\text{m}$ ,  $2 \text{ hm } 9 \text{ m}$ ,  $29 \text{ dam } 5 \text{ m}$
- Arrange the following from the lowest to the greatest  
 $6 \text{ km } 8 \text{ dam}$ ,  $608 \text{ hm}$ ,  $68 \text{ dam}$
- Work out
  - $75 \text{ dam} \times 4 = \text{ \_\_\_ km}$
  - $590 \text{ m} \div 5 = \text{ \_\_\_ dm}$
  - $4 \text{ m } 8 \text{ cm} \times 5 = \text{ \_\_\_ dm}$
  - $6400 \text{ dm} \div 8 = \text{ \_\_\_ dam}$
- Study the following image and answer the question



### Question

- How many dm are there between the classrooms and the playground?
- How many dam are there between the classrooms and the toilets?

c) How many m are there between the classrooms and the offices?

d) How many m are there between the classrooms and the kitchen?

e) Kamana ran from the classroom to the kitchen, to the office, to the toilet and to the playground. He returned to the classroom through the same route.. How many meters did he cover altogether?

7. Read carefully the following and answer the questions that follow:

The recorded results of an organized running competition was as follows. Jabo was disqualified after running a distance of 8 km. Gatari was disqualified after running a distance of 897 dam. Kamanzi and Kagabo were disqualified after running a distance of 95 hm and 9759 m respectively

### Questions

a) Who covered many meters than others? How long was it?

b) Who covered few meters than others? How long was it?

c) Arrange them in order from the one who ran the longest distance to the one who ran the shortest distance.

d) Arrange them in order from the one who ran the shortest distance to the one who ran the longest distance.

8. Shimwa was given a target of running 50 km without stopping. After covering 487 dam, he failed to complete the target. How many meters were left for him to complete?

9. During break time Peter runs 500 m six times. How many km does he run in total?

10. Uwase makes a rope of 36m for jumping. She cut it into 9 equal pieces. Find the length of each piece of rope in cm



## 6.0 Introductory activity



Sano is a renowned farmer in our Sector. He sells all his harvest. He does not use a weighing machine to measure his harvest or what he has sold. What kind of advice can you give him for the smooth running of his project?



## 6.1 Mass measurements

## Activity 6.1.1

Look at the following images: what do you see? Which one is heavier??



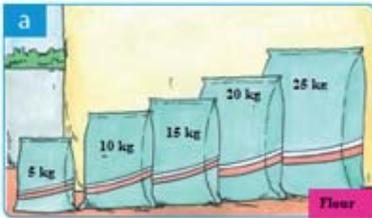
## Activity 6.1.2

Study and describe the following images



### Activity 6.1.3

Read, write the names and the weight of the objects from the images.



### Activity 6.1.4

Discuss about the importance of using weighing machines..

Talk about where mass measurements are used.

#### I have learnt that:

- **Gram (g)** is the standard unit of mass measurements.
- **Gram (g)** is used when you are weighing light objects like body lotion, medicine etc., ...
- **Kilogram (kg)** is the common unit of mass measurements.
- Instead of **kg** and **g** there are other mass measurements such as **hectogram (hg)** and decagram (dag)
- We use **beam balance, spring balance, Roberval balance**, when measuring the weight of different objects/items.
- Mass measurements are used in trade/business, factory, home, hospital, transport and entertainment

## 6.2 Relationship between mass measurements.

### Activity 6.2

Look at the conversion table of mass measurements and compare them

kg	hg	dag	g
1	0	<del>0</del>	
	1	0	
		1	0
		1	<del>0</del>
	1	0	<del>0</del>
1	<del>0</del>	<del>0</del>	<del>0</del>

$1\text{kg} = 10\text{hg}$ ;  $1\text{hg} = 10\text{dag}$ ;  $1\text{dag} = 10\text{g}$ ;  $100\text{g} = 1\text{hg}$ ;  $1000\text{g} = 1\text{kg}$

I have learnt that:

Mass measurements are ten times from the lowest unit to the greatest unit or ten times from the greatest unit to the lowest unit.

## 6.3 Writing mass measurements from kg to g

### Activity 6.3.1

Observe and describe this image

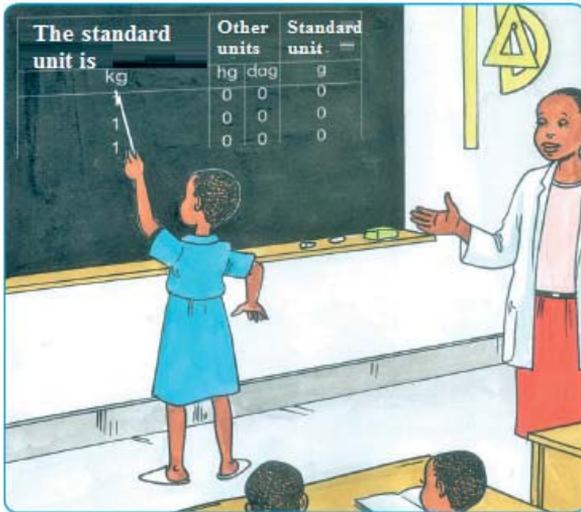




## 6.4 Converting mass measurements from kg up to g

### Activity 6.4.1

Study and describe this image



### Activity 6.4.2

Draw the conversion table of mass measurements and work out the following:

a)  $5 \text{ kg} = \text{ \_\_\_ dag}$

c)  $43 \text{ dag} = \text{ \_\_\_ g}$

b)  $12 \text{ hg} = \text{ \_\_\_ dag}$

d)  $4 \text{ hg} = \text{ \_\_\_ g}$

#### I have learnt that:

- We convert mass measurements using the conversion table.
- Add zero (0) when converting from the biggest unit to the smallest unit.
- Take away zero when converting from the smallest unit to the biggest unit.
- Adding and taking away zero (0) is only done for numbers ended by zeros.

## Application activity 6.4



a)  $145 \text{ dag} = \text{-----g}$

b)  $9 \text{ kg } 8 \text{ g} = \text{----- g}$

c)  $7800 \text{ g} = \text{----- hg}$

d)  $600 \text{ dag} = \text{----- kg}$

e)  $7 \text{ hg } 72 \text{ g} = \text{----- g}$

f)  $4 \text{ kg } 65 \text{ dag} = \text{g}$

## 6.5 Comparing mass measurements

### 6.5.1 Comparing mass measurements by lifting

#### Activity 6.5.1

Study and describe the following images



#### Activity 6.5.2

Lift the stones, bricks, school bags, boxes of chinks, boxes of notebooks and boxes of pens. Lift them one by one, estimate the weight of each and discuss about it.

#### Activity 6.5.3

Lift different objects/items compare their weight and put them in two groups. Put objects of the same weight in the first group and the objects of different weight in the second group then discuss about it.

## 6.5.2 Comparing mass measurements by weighing

### Activity 6.5.4

Study and describe these images



### Activity 6.5.5

Use a weighing balance to measure the weight of the following, write and compare their weight:

1. A full box of chalks and an empty box of chalks
2. 5 Mathematics books and 5 Kinyarwanda books
3. A full box of small stones and another full box of chalks

### Activity 6.5.6

Use a weighing balance to measure the weight of each pupil. Write the name and the weight of each pupil. Identify:

- a) Pupils with the same weight
- b) The heaviest pupil
- c) Lightest pupil

### 6.5.3 Comparing mass measurements using $<$ , $>$ or $=$

#### Activity 6.5.7

Use the conversion table of mass measurements to convert all given units of mass into the smallest unit then compare using  $<$ ,  $>$  or  $=$

a) 2 kg  2003 dag

d) 908 g  9 hg 8 g

b) 67 hg  670 g

e) 5 kg 7 dag  75 hg

c) 89 dag  8 kg

f) 135 dag  12 hg

#### I have learnt that:

- When comparing mass measurements convert the units in the smallest given unit
- Compare the converted units
- Then put one of these comparison signs  $<$ ,  $>$  or  $=$ .

#### Application activity 6.5

Compare these mass measurements using these signs  $<$ ,  $>$  or  $=$

a) 6 kg 9 g  69 hg

d) 479 g  4 hg 9 g

b) 78 hg  87 dag

e) 8 kg 6 dag  86 hg

c) 7 dag 9 g  9 hg 7 g

f) 12 hg  129 dag

## 6.6 Ordering mass measurements from kg to g

### 6.6.1 Ordering mass measurements from the smallest to the biggest

#### Activity 6.6.1

Study the example below and arrange the given mass measurements from the smallest to the biggest

**Example** 9 kg 8 dag, 895 dag, 79hg

→ 79 hg, 895 dag, 9 kg 8dag

kg	hg	dag	g
9	0	8	
8	9	5	
7	9	0	

- a) 45 dag, 79 hg, 530 g                      d) 76 hg, 4 kg, 576 dag  
b) 52 hg, 549 dag, 9 kg                    e) 345 dag, 8 kg, 56 hg  
c) 79 dag, 310 g, 48 hg                    f) 271 g, 54 dag, 9 kg

#### I have learnt that:

When ordering mass measurements from the smallest to the biggest respect the following:

- Convert all given units into the smallest unit.
- Arrange the converted units from the smallest to the biggest.

## 6.6.2 Ordering mass measurements from the biggest to the smallest.

### Activity 6.6.2

Study the example below and arrange the given mass measurements from the biggest to the smallest

**Example:** 789 dag, 85 hg, 497g → 85 hg, 789 dag, 497 g

kg	hg	dag	g
7	8	9	0
8	5	0	0
	4	9	7

a) 791 g, 7 kg, 65hg

c) 153 dag, 68 hg, 9kg

b) 24 dag, 869 g, 4kg

d) 64 dag, 5 kg, 245hg

#### I have learnt that:

When ordering mass measurements from the biggest to the smallest respect the following:

- Convert all given units into the smallest unit.
- Arrange the converted units from the smallest to the biggest.

#### Application activity 6.6

1. Arrange the following mass units from the smallest to the biggest

a) 54 dag, 84 g, 6 hg

c) 87 dag, 58 g, 7 hg

b) 27 hg, 45 dag, 9 kg

d) 96 dag, 97 g, 6 kg

2. Arrange the following mass units from the biggest to the smallest

a) 897 g, 57 hg, 5 kg

c) 538 g, 648 dag, 7 kg

b) 29 dag, 18 hg, 47 g

d) 68 hg, 291 g, 164 dag

## 6.7 Addition of mass measurements from kg up to g

### Activity 6.7

Use the conversion table and example below to answer the given exercises

**Example:**  $4 \text{ kg } 7 \text{ g} + 25 \text{ hg } 3 \text{ g} = 651 \text{ dag}$ .

kg	hg	dag	g
		+1	
4	0	0	7
+ 2	5	0	3
<b>6</b>	<b>5</b>	<b>1</b>	<del>0</del>

a)  $130 \text{ dag} + 7 \text{ hg} = \text{ \_\_\_ kg}$

c)  $85 \text{ dag} + 7 \text{ g } 150 = \text{ \_\_\_ hg}$

b)  $56 \text{ hg} + 40 \text{ dag} = \text{ kg \_\_\_}$

d)  $7 \text{ kg} + 3 \text{ hg} = \text{ \_\_\_ dag}$

#### I have learnt that:

When adding mass measurements respect the following steps:

- Draw conversion table of mass measurements
- Convert all given units into the required unit
- Add the numbers of the converted units

## Application activity 6.7



Use conversion table of mass measurements to complete the missing units

- a)  $52 \text{ g} + 75 \text{ dag} = 802 \text{ \_\_\_}$       d)  $195 \text{ dag} + 50 \text{ g} = 2 \text{ \_\_\_}$   
b)  $78 \text{ dag} + 220 \text{ g} = 1 \text{ \_\_\_}$       e)  $\text{dag } 73 + \text{g } 270 = \text{\_\_\_ } 10$   
c)  $6 \text{ kg} + 24 \text{ dag} = 624 \text{ \_\_\_}$       f)  $73 \text{ dag} + 270 \text{ g} = 10 \text{ \_\_\_}$

## 6.8 Word problems involving addition of mass measurements from kg up to g

### Activity 6.8

Discuss this worked example

#### Example:

Baho, Gaju, Teta and Gisa used a balance and recorded the following weight.

Baho: 36 kg	Gaju: 33 kg	Teta: 35kg	Gisa: 34 kg
-------------	-------------	------------	-------------

Find their total weight



#### Pair assessment 6.8

- Masabo bought 56 kg of sorghum flour, 195 kg of wheat flour, 189 kg of millet flour and 205 kg of soja bean flours. If he mixed all those flours how many kg of mixture of flours did he get?
- Butera harvested 987kg of coffee last year and 9130dag this year. Find the total number of kg he harvested in two years.

### I have learnt that:

When working out word problems involving addition of mass measurements from kg up to g:

- Mention what you have been given.
- Mention what you were asked for.
- Draw conversion table of mass measurements
- Convert the given units into the smallest unit or required unit
- Find the solution by adding the converted units



### Self Assessment 6.8



1. Uwamahoro sold 975 dag of rice on Monday and 9250 g on Tuesday. How many kg did she sell during those two days?
2. Kamariza took her sister to buy ground nuts. Reaching there, Kamariza bought 375 kg and her sister bought 2250 hg. How many Kg of ground nuts did they buy altogether?

### Application activity 6.8



1. A trader bought 1000 hg of beans, 50 kg of sugar, 50 kg of rice, 50 kg of salt and 7500 dag of ground nuts. Find the weight in kg of all products.
2. Nganji went to shop and bought 500g of salt, 10 hg of meat, 50 dag of sugar, 2 kg of tomatoes 300 dag of cassava flour and 10 hg of rice. Find the total weight in kg of all the products.

## 6.9 Subtraction of mass measurements from kg up to g

### Activity 6.9

Use the conversion table and the example given to answer the following:

**Example:**

**Example:**  $425 \text{ dag} - 3 \text{ kg} = 125 \text{ dag}$

kg	hg	dag	g
4	2	5	
- 3	0	0	
<b>1</b>	<b>2</b>	<b>5</b>	

- a)  $321 \text{ g} - 27 \text{ dag} = \text{----} \text{ g}$   
b)  $756 \text{ dag} - 5 \text{ kg} 7 \text{ hg} = \text{----} \text{ dag}$   
c)  $98 \text{ hg} - 95 \text{ dag} = \text{----} \text{ g}$   
d)  $7 \text{ kg} 6 \text{ dag} - 2860 \text{ g} = \text{----} \text{ hg}$   
e)  $498 \text{ dag} - 39 \text{ hg} = \text{----} \text{ g}$   
f)  $976 \text{ g} - 8 \text{ hg} 6 \text{ g} = \text{----} \text{ dag}$

**I have learnt that:**

When subtracting mass measurements respect these steps:

- Draw the conversion table
- Convert the given units into the required unit
- Subtract the converted units

## Application activity 6.9



Use the conversion table of mass measurements to complete the missing unit in the following.

a)  $825 \text{ dag} - 250 \text{ g} = 8\text{----}$

b)  $972 \text{ dag} - 9 \text{ kg} = 72\text{----}$

c)  $760 \text{ g} - 5 \text{ hg} = 26\text{----}$

d)  $673 \text{ dag} - 47 \text{ hg} = 203\text{----}$

## 6.10. Word problems involving subtraction of mass measurements from kg up to g

### Activity 6.10

Discuss this worked example:

#### Example:

When I was in Primary two, my weight was 32kg 800g. How many hg have I added on if I am now weighing 390 hg?

Data	Request	Steps and solution
My weight in primary two = 32kg 800g	Difference of weight between two academic years	Difference of weight between two academic years $390 \text{ hg} - 32\text{kg } 800\text{g} =$ <b>62 hg</b>
My weight in primary three = 390 hg		



#### Pair assessment 6.10

1. Manzi bought 65 kg of sugar. How many kg did he remain with if he sold 390 hg of it?
2. My family bought 50 kg of rice and gave 1200dag of it to our neighbors. How many kg of rice did my family remain with?

### I have learnt that:

When solving word problems involving subtraction of mass measurements respect the following steps:

1. Mention what you were given.
2. Mention what you were asked for.
3. Draw the conversion table
4. Convert the given units into the required unit
5. Subtract the converted units with a given whole number.



### Self Assessment 6.10



1. Keza weighs 39 kg and his weight is more than that of her sister Mugeni by 6 kg. Find the weight of Mugeni
2. Last year, the weight of Mariza was 98 kg and this year it is 65kg. . How many kg did she lose?

### Application activity 6.10



1. Usanase bought 100kg of sorghum. She sold 380hg of it in the morning and 4500g in the evening. How many kg did she remain with?
2. Kayitare was given 800hg of sugar and sold 5000dag of it. How much sugar did he remain with in kg?

## 6.11 Multiplication of mass measurements from kg up to g with a whole number

### Activity 6.11

Use the conversion table of mass measurements and the example to work out the following:

**Example:**  $2 \text{ kg } 5 \text{ dag} \times 4 = 82 \text{ hg}$

kg	hg	dag	g
2	0	5	
×		4	
<b>8</b>	<b>2</b>	<del>0</del>	

a)  $275 \text{ dag} \times 2 = \text{----hg}$

e)  $145 \text{ dag} \times 6 = \text{----- hg}$

b)  $125 \text{ g} \times 8 = \text{----- kg}$

f)  $34 \text{ dag} \times 7 = \text{----- g}$

c)  $225 \text{ g} \times 4 = \text{-----hg}$

g)  $45 \text{ dag} \times 6 = \text{----- hg}$

d)  $184 \text{ g} \times 5 = \text{----- dag}$

h)  $138 \text{ g} \times 5 = \text{----- dag}$

### I have learnt that:

When multiplying mass measurements with a whole number, multiply as usual then convert their product into the required unit



### Pair assessment 6.11

Use the conversion table of mass measurements to complete the missing unit in the following in questions

a)  $258 \text{ g} \times 5 = 129\text{----}$

f)  $4 \text{ kg } 3 \text{ dag} \times 3 = 1 \text{ } 209\text{----}$

b)  $265 \text{ dag} \times 8 = 212 \text{ ----}$

g)  $29 \text{ dag} \times 7 = 203\text{----}$

c)  $725 \text{ dag} \times 4 = 29\text{----}$

h)  $450 \text{ g} \times 8 = 36\text{----}$

d)  $815 \text{ g} \times 2 = 163\text{----}$

i)  $98 \text{ kg} \times 5 = 490\text{----}$

e)  $4 \text{ hg } 5 \text{ g} \times 6 = 243\text{----}$

j)  $185 \text{ hg} \times 6 = 111\text{----}$

## 6.12 Word problems involving multiplication of mass measurements from kg up to g with a whole number

### Activity 6.12

Discuss this worked example:

#### Example:

Nziza bought 8 boxes of soap. If each box weighs 25kg. Find the weight all boxes

Data	Request	Steps and solution
Number of boxes = 8	Total eight	Total eight
Weight of each box = 25kg		$25 \text{ kg} \times 8 = \mathbf{200\text{kg}}$



#### Pair assessment 6.12

1. A packet of salt weighs 500 g. Find the weight of 9 similar packets.
2. My family consumes 500g of rice every day. How many kg of rice do we consume in 8 days?

#### I have learnt that:

When working out word problems involving multiplication of mass measurements with a whole number respect the following steps:

- Mention what you were given.
- Mention what you were asked for.
- Draw the conversion table
- Convert the given units into the required unit
- Multiply the converted units with a given whole number



## Self Assessment 6.12



1. Mugabo bought 8 packets of flour. How many kg of flour did he buy if each packet weighs 5kg?
2. A rice machine grinds 1875kg every day. How many kg of rice does it grind in 4 days?

## Application activity 6.12



1. A sugar factory makes 2750kg of sugar every day. How many kg does it make in two days?
2. Muhizi harvested 9 sacks of rice weighing 100 kg each. How many kg of rice did he harvest altogether?

## 6.13 Dividing mass measurements from kg up to g with a whole number

### Activity 6.13

Use the conversion table of mass measurements and the example to work out the following:.

#### Example:

$$965 \text{ dag} \div 5 = \text{-----dag-----g}$$

$$965 \text{ dag} \div 5 = 193 \text{ dag} = 1930 \text{ g}$$

$$\begin{array}{r} 193 \\ 5 \overline{) 965} \\ \underline{-5} \phantom{0} \\ 46 \phantom{0} \\ \underline{-45} \phantom{0} \\ 15 \phantom{0} \\ \underline{-15} \\ 00 \end{array}$$

kg	hg	dag	g
1	9	3	0

a)  $840 \text{ hg} \div 4 = \text{----hg} = \text{---- kg}$

b)  $660 \text{ dag} \div 6 = \text{-----hg}$

c)  $620 \text{ g} \div 2 = \text{----- dag}$

d)  $550 \text{ dag} \div 5 = \text{----- g}$

### I have learnt that:

When dividing the mass measurements with a whole number, divide as usual then convert their quotient into the required unit.

### Application activity 6.13



Use the conversion table of mass measurements to complete with the missing unit in each exercise below:

a)  $2000 \text{ dag} \div 5 = 4 \text{ ----}$

d)  $4200 \text{ g} \div 7 = 6 \text{ ----}$

b)  $1477 \text{ g} \div 7 = 211 \text{ ----}$

e)  $6 \text{ hg } 8 \text{ g} \div 4 = 152 \text{ ----}$

c)  $2080 \text{ g} \div 8 = 26 \text{ ----}$

f)  $8 \text{ kg } 40 \text{ dag} \div 6 = 1 \text{ ----}$

## 6.14 Word problems involving division of mass measurements from kg up to g with a whole number

### Activity 6.14

Discuss the worked example:

#### Example:

A shopkeeper bought 100kg of rice and shared it equally into 4 small sacks. Find the weight of each small sack

Data	Request	Steps and solution
Quantity of rice = 100kg	Weight of each sack	Weight of each sack $100 \text{ kg} \div 4 = 25 \text{ kg}$
Number of sacks = 4		



### Pair assessment 6.14

1. I bought 75 kg of omo soap and I shared it equally into 5 small packets. Find the weight of each small packet.
2. 8 people bought 200 kg of sugar and shared them equally. Find the share of each.

### I have learnt that:

When solving word problems involving division of mass measurements with a whole number respect the following steps:

Determine the data

- Mention what you have been given.
- Mention what you are asked for.
- Convert the given units into the required unit
- Divide the converted units with a given whole number.



### Self Assessment 6.14



3. Share equally 9600 dag of irish potatoes among 8 farmers.
1. A cooperative shared 720 hg among its 9 members. Find the share of each member.
2. Put 9750g of beans into 5 equal packets. Find the weight of each packet in dag.
3. Share equally 240 hg of groundnuts among 8 people. How many kg did each get

### Application activity 6.14



1. Share 840 g of chemical fertilizers equally on 7 seedlings of trees.
2. Share equally 4000 hg of millet to 5 sectors.

3. How many packets of medicine each weighing 8g will you get from 8kg?
4. Share equally 1200dag of rice among 6 people. .

## 6.15. End of unit assessment 6

1. Convert in the unit as requested

a)  $8 \text{ kg } 250 \text{ g} = \text{----- dag}$

b)  $56 \text{ dag } 9 \text{ g} = \text{----- g}$

d)  $7800 \text{ g} = \text{----- hg}$

c)  $6 \text{ kg } 79 \text{ g} = \text{-----g}$

2. Use  $<$ ,  $>$  or  $=$  to compare the following mass measurements

a)  $74 \text{ hg } 59 \text{ g} \text{ .....} 745 \text{ dag}$

b)  $798 \text{ g} \text{ .....} 798 \text{ dag}$

3. Arrange the following mass units from the smallest to the biggest

$48 \text{ hg}$ ,  $487 \text{ g}$ ,  $487 \text{ dag}$

4. Arrange the following mass units from the biggest to the smallest

a)  $65 \text{ hg}$ ,  $56 \text{ dag}$ ,  $8 \text{ g}$ ,  $6 \text{ kg}$ ,  $8 \text{ g}$

b)  $75 \text{ hg}$ ,  $5 \text{ kg}$ ,  $7 \text{ hg}$ ,  $657 \text{ dag}$

5. Workout the following mass units

a)  $78 \text{ hg } 70 \text{ g} + 130 \text{ g} = \text{----- kg}$

b)  $245 \text{ dag} + 6 \text{ } 550 \text{ g} = \text{-----hg}$

c)  $87 \text{ dag} - 7 \text{ hg } 8 \text{ dag} = \text{----- dag}$

6. Work out the following word problems

a) Mugabe bought  $750 \text{ hg}$  of beans on Monday,  $6500 \text{ dag}$  on Tuesday and  $60 \text{ kg}$  on Wednesday. How many kg did he buy altogether?

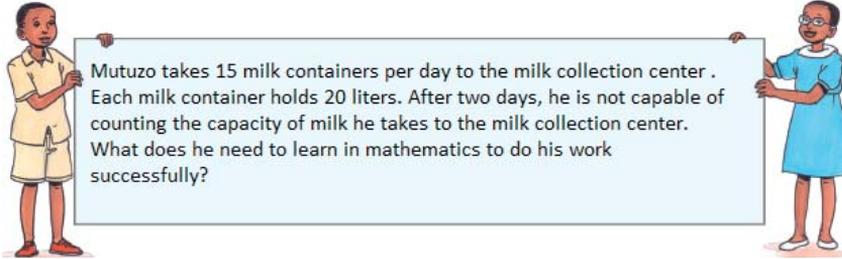
b) Ineza bought 7 packets of sugar each weighing  $5 \text{ kg}$ . How many hg did he buy altogether?

c) At the end of the year, a cooperative shared equally  $1000 \text{ hg}$  of rice among its 4 members. How many kg did each get?

d) Musinga took  $857 \text{ dag}$  of groundnuts at the market. How many kg remained if he sold  $6570 \text{ g}$ ?



## 7.0 Introductory activity 7:



## 7.1 Capacity measurements from liter (l) to milliliter (ml)

### Activity 7.1.1

Study and describe these images



### Activity 7.1.2

Use a bottle of 500 milliliters or 1 liter to measure and record the capacity of the following containers:

- A bucket of 10 liters
- A of jerrycan 20 liters

### Activity 7.1.3

Use a small jerrycan of 5 liters to measure and record the capacity of the following containers:

- A big jerrycan of 4 small jerrycan
- A drum of 20 jerrycans



Which capacity unit used when measuring the following containers?

- The capacity of medicine given to children
- The capacity of a jerrycan of water

**I have learnt that:**

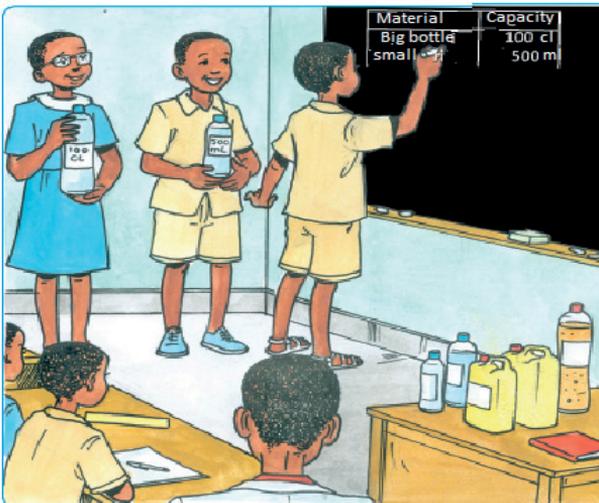
Capacity measurements include the following:

- Liter (l)
- Deciliter (dl)
- Centiliter (cl)
- Milliliter (ml)
- Liter (l) is the standard unit of capacity measurements
- The capacity measurements which are less than a liter are deciliter (dl), centiliter (cl) and milliliter (ml)

## 7.2. Reading and writing capacity measurements from liter (l) up to milliliter (ml)

### Activity 7.2.1

Study and describe this image



### Activity 7.2.2

Look at the conversion table of capacity:

- Read each capacity unit
- Write the capacity unit

Standard unit of capacity measurements	Capacity measurements which are less than a liter		
Liter (l)	Deciliter (dl)	Centilitro (cl)	Milliliter (ml)

### 7.3 Relationship of capacity measurements from liter (l) up to milliliter (ml)

#### Activity 7.3

Look at the conversion table of capacity measurements and describe the relationship among them.

l	dl	cl	ml
1	0		
	1	0	
		1	0

#### I have learnt that:

Capacity measurements are ten times from the lowest unit to the greatest unit or ten times from the greatest unit to the lowest unit.

#### Application activity 7.3

Fill in the blank spaces with the right word :( **Deciliter, centiliter, 10 liters, milliliter, a bottle of 1 liter, capacity measurements**)

- is the standard unit of capacity measurements
- , -----, -----are capacity measurements smaller

than liter.

- c. When measuring the capacity of water jerrycan, we use -----  
-----
- d. ----- help the business people to know the capacity of the liquids to buy or to sell.

## 7.4 Converting capacity measurements from liter (l) up to milliliter (ml)

### 7.4.1 Converting capacity measurements from the smallest unit up to the biggest unit

#### Activity 7.4.1

Study the conversion table of capacity measurements and use it to work out the following:

Standard unit of capacity measurements	Capacity measurements which are less than a liter.		
Liter (l)	Deciliter (dl)	Centiliter (cl)	Milliliter (ml)
1	0		
1	0	0	
1	0	0	0
	1	0	
	1	0	0
		1	0

I have learnt that

$$1\text{l} = 10\text{dl}$$

$$1\text{l} = 1000\text{ ml}$$

$$1\text{dl} = 100\text{ml}$$

$$1\text{l} = 100\text{ cl}$$

$$1\text{dl} = 10\text{ cl}$$



- a)  $8 \text{ l} = \text{-----dl}$       c)  $\text{cl } 5 = \text{ml } \underline{\quad}$       e)  $94 \text{ dl} = \text{-----cl}$   
 b)  $7\text{dl} = \text{-----cl}$       d)  $92 \text{ l} = \text{-----dl}$       f)  $39 \text{ cl} = \text{-----ml}$

## 7.4.2 Converting capacity measurements from the biggest unit up to the smallest unit

### Activity 7.4.2

Study the conversion table of capacity measurements and use it to work out the pair assessment.

Standard unit of capacity measurements	Capacity measurements which are less than a liter.		
Liter(l)	Deciliter (dl)	centiliter (cl)	Milliliter (ml)
1	<del>10</del>		
1	<del>10</del>	<del>100</del>	
1	<del>10</del>	<del>100</del>	<del>1000</del>
	1	<del>10</del>	
	1	<del>10</del>	<del>100</del>
		1	<del>100</del>

- a)  $10 \text{ dl} = 1 \text{ l}$   
 b)  $100 \text{ cl} = 1 \text{ l}$   
 c)  $1000 \text{ ml} = 1 \text{ l}$   
 d)  $10\text{cl} = 1 \text{ dl}$   
 e)  $100\text{ml} = 1 \text{ dl}$   
 f)  $10 \text{ ml} = 1 \text{ cl}$



### Pair assessment 7.4

a) 90 ml =----- cl

d) 60 dl =-----l

b) 800 dl =-----l

e) 500 ml =-----dl

c) 7000 ml =-----l

f) 400 dl =-----l

#### I have learnt that:

- When converting capacity measurements, draw and write the given numbers in the conversion table.
- Add zero (0) when converting from a big unit to a small unit

Remove a 0 when converting from a small unit to a bigger  
This is applicable only for numbers ended by zero (0)

#### Application activity 7.4



Convert from the requested unit

a) 400 cl =-----l

d) 3500 ml=-----cl

b) 130 dl =-----l

e) 4 dl 9 ml=-----ml

c) 56 dl 8 cl =-----ml

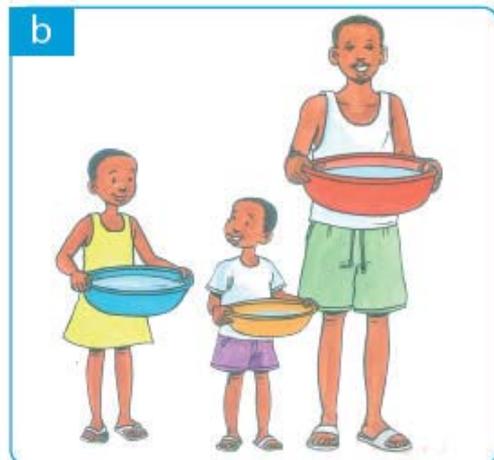
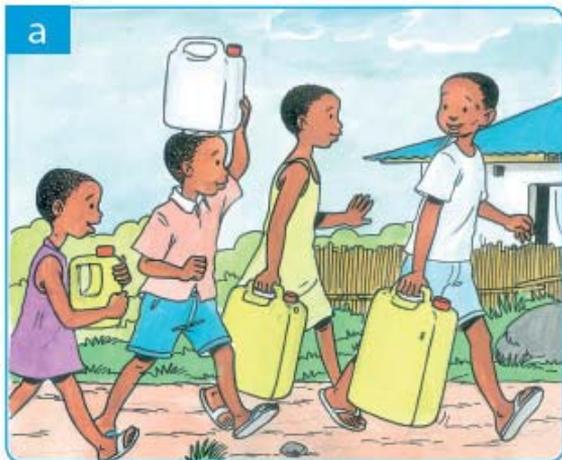
f) 2 l 9 ml =-----ml

## 7.5 Comparing capacity measurements from liter (l) up to milliliter (ml)

### 7.5.1 Comparing capacity measurements from l up to ml by lifting containers

#### Activity 7.5.1.1

Study and describe these images



### Activity 7.5.1.2

Lift different containers. Each pupil lifts a container, estimate and tells his/her friends the number of liters of water lifted. Record each estimated capacity and discuss about it.

### Activity 7.5.1.3

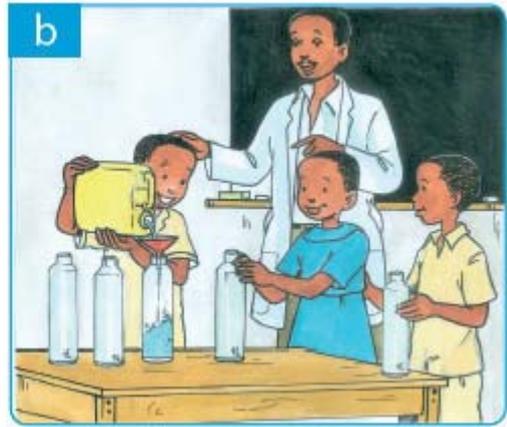
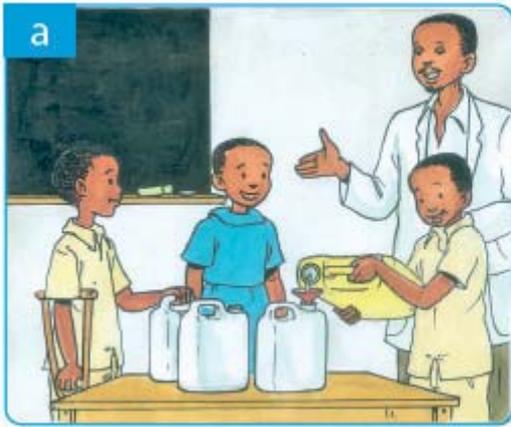
Estimate the number of full glasses you can get from the following:

- 500 ml of water
- 1 l of cooking oil
- 2 l of juice

## 7.5.2 Comparing capacity measurements by measuring the capacity of containers

### Activity 7.5.2.1

Study and describe the following images



### Activity 7.5.2

- Use a jug of one liter (1 l) and a bucket of water, measure, record and compare the capacity of the following containers:
  - The number of jugs of one liter (1 l) that can fill a small bucket
  - The number of jugs of one liter (1 l) that can fill a small jerrycan
- a) The number of jugs of one liter (1 l) that can fill a small basin
- b) Which container can hold little water?
- c) Which container can hold much water?

Give a reason for your answer

### 7.5.3 Comparing capacity measurements from l to ml using comparison symbols $<$ , $>$ or $=$

#### Activity 7.5.3

Use the conversion table to convert into the smallest measurements then use  $<$ ,  $>$  or  $=$  to compare them.

- a) 8l 7cl  25dl 3
- b) 67dl  670cl
- c) 98dl  9 l
- d) 900ml  9 dl
- e) 45cl 7ml  45 dl
- f) 593cl  94 dl

### I have learnt that:

- When comparing capacity measurements, convert into the smallest given unit
- Compare the given numbers

Put one of these comparison symbols (<, > or = )

### Application activity 7.5



Use >, < or = to compare the following units

a) 8 l 549ml  85 dl

d) 987 cl  9 l 7 cl

b) 96 dl  960 cl

e) 890 ml  8 dl 9 cl

c) 3dl 7ml  9 l

f) 12 l 8 dl  129 cl

## 7.6 Ordering capacity measurements from liter (l) up to milliliter (ml)

### 7.6.1 Ordering capacity measurements from the smallest to the biggest

#### Activity 7.6.1

Study example then arrange the following capacity measurements from the smallest to the biggest

**Example:** 6 l 9 dl, 89 dl, 465 cl → 465 cl, 6 l 9 dl, 89 dl

l	dl	cl	ml
6	9	0	
8	9	0	
4	6	5	

a) 54 dl, 97 l, 305 cl

c) 5 l, 94 dl, 9 cl 7 ml

b) 75 dl, 87 l, 854 cl

d) 697 cl, 4 dl 9 ml, 8l



Arrange the following capacity measurements from the smallest to the biggest

- a) 597 ml, 9 l, 9 dl                      b) 792 cl, 67 dl, 9 ml  
c) 3 cl, 89 dl, 57cl                      d) 5 l, 9 dl, 8 cl

### I have learnt that:

Respect the following steps:

- Convert all given units into the same smallest given unit
- Arrange the units from the smallest to the biggest basing on their numbers

## 7.6.2 Ordering capacity measurements from the biggest to the smallest

### Activity 7.6.2

Study the example then arrange the following capacity measurements from the biggest to the smallest

**Example:** 7 ml, 4 l 8 cl, 9 dl 4 cl → 4 l 8 cl, 9dl 4 cl, 7 ml

l	dl	cl	ml
	8	9	7
4	0	8	0
	9	4	0

- a) 978 dl, 9 l, 856 cl                      c) 589 cl, 59 dl, 5 l  
b) 68 cl, 49 dl, 8 l                      d) 746 ml, 8 dl, 67 cl



Arrange the following capacity measurements from the biggest to the smallest

a) 9 l, 21 dl, 935 ml

c) 2 l, 74 cl, 64 dl

b) 5 dl, 354 ml, 95 cl

d) 78 dl, 4 l, 987 ml

**I have learnt that:**

Respect the following steps:

- Convert all given units into the same smallest given unit
- Arrange the units from the lowest to the greatest basing on their numbers

**Application activity 7.6**



1. Arrange the following capacity units from the smallest to the biggest

a) 95 dl, 849 cl, 697 ml

c) 87 dl, 549 cl, 879 ml

b) 279 ml, 96 dl, 897 cl

d) 67 dl, 748 cl, 647 ml

2. Arrange the following capacity units from the biggest to the smallest

a) 48 cl, 95 dl, 975 ml

c) 958 ml, 86 dl, 7 l

b) 49 dl, 8 l, 875 cl

d) 98 dl, 971cl, 624ml

## 7.7 Addition of capacity measurements from liter (l) up to milliliter (ml)

### Activity 7.7

Use the conversion table of capacity measurements and the example to work out the following exercises.

**Example:**  $8\text{ l } 5\text{ ml} + 19\text{ dl } 4\text{ ml} = 9909\text{ ml}$

l	dl	cl	ml
8	0	0	5
+ 1	9	0	4
<b>9</b>	<b>9</b>	<b>0</b>	<b>9</b>

- a)  $45\text{ dl} + 3\text{ l} = \text{-----cl}$                       c)  $450\text{ cl} + 500\text{ ml} = \text{-----cl}$   
b)  $6\text{ l} + 3400\text{ ml} = \text{....ml}$                       d)  $6\text{ dl } 6\text{ ml} + 3\text{ l} = \text{-----ml}$



### Pair assessment 7.7

Workout the following units of capacity

- a)  $495\text{ dl} + 405\text{ cl} = \text{----- cl}$                       c)  $69\text{ dl} + 10\text{ ml} = \text{----- ml}$   
b)  $87\text{ cl} + 530\text{ ml} = \text{-----ml}$                       d)  $970\text{ml} + 83\text{ cl} = \text{-----ml}$

### I have learnt that:

When adding capacity measurements respect the following steps:

- Draw conversion table of capacity measurements
- Convert all given units into the required unit
- Add the numbers of the converted units



## Self Assessment 7.7



Use conversion table of capacity measurements then complete the missing units

- a)  $6 \text{ l} + 7 \text{ dl} = 67\text{-----}$       c)  $80 \text{ cl} + 32 \text{ dl} = 4\text{-----}$   
 b)  $77 \text{ cl} + 30 \text{ ml} = 8\text{-----}$       d)  $36 \text{ dl} + 40 \text{ cl} = 4\text{-----}$

## Application activity 7.7



Use conversion table of capacity measurements then complete the missing units

- a)  $6 \text{ l} + 5 \text{ dl} = 65\text{-----}$       c)  $5 \text{ l} + 8 \text{ dl} = 58\text{-----}$   
 b)  $845 \text{ cl} + 550 \text{ ml} = 9\text{-----}$       d)  $25 \text{ dl} + 750 \text{ cl} = 10\text{-----}$

## 7.8 Word problem involving addition of capacity measurements from liter (l) up to milliliter (ml)

### Activity 7.8

Discuss this worked example:

#### Example:

Muhizi bought 1 l of passion juice, 500 cl of pineapple juice, 10 dl of orange juice and 100 cl of water. How many liters of juice did he get after mixing all juice and water?

Data	Request	Steps and solution
<ul style="list-style-type: none"> <li>- 1 l of passion juice</li> <li>- 500 cl of pineapple juice</li> <li>- 10 dl of orange juice</li> <li>- 100 cl of water</li> </ul>	Number of liters of juice <i>l</i>	Number of liters of juice $1 \text{ l} + 500 \text{ cl} + 10 \text{ dl} + 100 \text{ cl} = 8 \text{ l}$



### Pair assessment 7.8

1. At home we milk 42 l of milk in the morning and 4800 cl in the evening. How many liters of milk do we get per day
2. Butera sold 450 dl of cooking oil on Monday and 5500 cl in the evening. How many liters of cooking oil did he sell altogether?

### I have learnt that:

When solving word problems involving addition of capacity measurements:

- Mention what you have been given.
- Mention what you are asked to answer.
- Draw conversion table of capacity measurements
- Convert the given units into the smallest unit or required unit
- Find the solution by adding the converted units



### Self Assessment 7.8

1. Uwera uses 75 l of water for watering vegetables in the morning and 550 dl in the evening. How much water does she use every day?
2. How much water do we use at home every day for the following activities?
  - Cooking = 200 dl
  - Mopping = 3000 cl
  - Washing kitchen utensils = 60 l
  - Bathing = 100 l

## Application activity 7.8



1. During the week end Gatoni used 200dl when washing her school uniform. Her sister Mutoni used 400 dl and their parents used 100 l. How much water did they use altogether?
2. A petrol station sold 658 l of fuel on Friday and 2 320 dl on Saturday. How many liters of fuel did it sell in two days?

## 7.9 Subtraction of capacity measurements from liter (l) up to milliliter (ml)

### Activity 7.9

Use the conversion table of capacity measurements and the example to work out the following exercises

**Example:**  $789 \text{ cl} - 7 \text{ l } 9 \text{ cl} = 80 \text{ cl} = 8 \text{ dl}$

l	dl	cl	ml
7	8	9	
- 7	0	9	
<del>0</del>	8	0	

- a)  $321 \text{ cl} - 3 \text{ dl} = \text{ \_\_\_ cl}$
- b)  $46 \text{ dl} - 2 \text{ l} = \text{ \_\_\_}$
- c)  $8 \text{ l} - 30 \text{ dl} = \text{ \_\_\_ cl}$
- d)  $47 \text{ cl } 8 \text{ ml} - 3 \text{ dl} = \text{ \_\_\_ ml}$



### Pair assessment 7.9

- a)  $89 \text{ dl} - 795 \text{ cl} = \text{ \_\_\_\_\_\_ ml}$
- b)  $37 \text{ l} - 295 \text{ dl} = \text{ \_\_\_\_\_\_ cl}$
- c)  $98 \text{ dl} - 7 \text{ cl } 80 = \text{ \_\_\_\_\_\_ dl}$
- d)  $7 \text{ l} - 58 \text{ dl} = \text{ \_\_\_\_\_\_ ml}$

### I have learnt that:

When subtracting capacity measurements respect these steps:

- Draw the conversion table
- Convert the given units into the required unit
- Subtract the converted units



### Self Assessment 7.9



a)  $72 \text{ dl} - 579 \text{ cl} = 141\text{-----}$

c)  $665 \text{ cl} - 6 \text{ l} = 65\text{-----}$

b)  $7 \text{ l} - 4 \text{ dl} = 66\text{-----}$

d)  $789 \text{ ml} - 7 \text{ dl} = 89\text{--}$

### Application activity 7.9



a)  $4 \text{ l} - 98 \text{ cl} = 302\text{-----}$

c)  $56 \text{ cl} - 5 \text{ dl} = 6\text{-----}$

b)  $6 \text{ dl} - 6 \text{ cl} = 54\text{-----}$

d)  $98 \text{ ml} - 6 \text{ cl} = 3\text{-----}$

## 7.10 Word problems involving subtraction of capacity measurements from liter (l) up to milliliter (ml)

### Activity 7.10

Discuss this worked example:

#### Example:

Uwera has 100 cl of juice. She gave 3 dl to her friend Bugingo. How much cl of juice did he remain with?

Data	Request	Steps and solution
Uwera's juice = 100 cl Capacity of juice given to Bugingo = 3 dl = 30cl	Remained capacity of juice	Remained capacity of juice $100 \text{ cl} - 30 \text{ dl} = 70 \text{ cl}$



### Pair assessment 7.10

1. 169 dl of water were removed from a jerrycan of 20 l of water. How many cl of water remained?
2. My family prepared 3000 dl of juice for our visitors. If we remained with 40 l of juice after the party, how many liters were consumed by our visitors?

### I have learnt that:

When solving word problems involving subtraction of capacity measurements respect the following steps:

- Mention what you are given.
- Mention what you are asked for.
- Draw the conversion table
- Convert the given units into the required unit
- Subtract the converted units



### Self Assessment 7.10



1. I fetched 60 l of water. How many liters of water did I remain with after washing my clothes with 375 dl?
2. Mugabo needs 225 l of water for making bricks. If he managed to get only 1750 dl, how many liters of water did he need to complete his work?

### Application activity 7.10



1. We use 145 l of water per day. If we have only 950 dl, how many liters of water do we need?
2. Hirwa fetched 750 dl of water. If he used 38l for watering plants, how many liters did he remain with?

## 7.11 Multiplication of capacity measurements from liter (l) up to milliliter (ml) with a whole number

### Activity 7.11

Use conversion table of capacity measurements and the example to work out the following exercises

**Example:**  $1\text{ l } 80\text{ cl} \times 5 = 90\text{ dl}$

l	dl	cl	ml
1	0		
+	8	<del>0</del>	
1	8		
×	5		
9	0		

$$1\text{ l } 80\text{ cl} \times 5 = 90\text{ dl}$$

a)  $895\text{ dl} \times 4 = \text{-----l}$       c)  $755\text{ ml} \times 8 = \text{-----cl}$

b)  $472\text{ cl} \times 5 = \text{-----cl}$       d)  $65\text{ dl} \times 6 = \text{-----l}$



### Pair assessment 7.11

a)  $654\text{ dl} \times 7 = \text{-----l}$       c)  $55\text{ l} \times 3 = \text{-----l}$

b)  $565\text{ cl} \times 2 = \text{-----cl}$       d)  $825\text{ ml} \times 8 = \text{-----dl}$

### I have learnt that:

When multiplying capacity measurements with a whole number, multiply as usual then convert their product into the require unit.



### Self Assessment 7.11

a)  $895\text{ dl} \times 4 = \text{-----l}$       c)  $755\text{ cl} \times 8 = \text{-----dl}$

b)  $472\text{ ml} \times 5 = \text{-----cl}$       d)  $65\text{ dl} \times 6 = \text{-----l}$

Workout the following

a)  $654 \text{ dl} \times 9 = \text{-----dl}$

b)  $565 \text{ cl} \times 8 = \text{-----dl}$

c)  $185 \text{ l} \times 4 = \text{-----l}$

d)  $125 \text{ dl} \times 8 = \text{-----l}$

### 7.12 Word problems involving multiplication of capacity measurements from liter (l) up to milliliter (ml) with a whole number

#### Activity 7.12

Discuss this worked example:

#### Example:

Gatesi drinks 2500 ml of water per day. How many liters does she drink in 2 days?

Data	Request	Steps and solution
Amount of water per day= 2500 ml Number of days = 2	Number of liters of water consumed in two days	Number of liters of water consumed in two days $2500 \text{ ml} \times 2 = 5000 \text{ ml} = 5\text{l}$



#### Pair assessment 7.12

1. Ireme fetched 4 times using a small jerrycan of 15 l. How many dl did she fetch?
2. Gashumba gets 32 l of milk from his cow per day. How many liters of milk did he get in 5 day?

### I have learnt that:

When solving word problems involving multiplication of capacity measurements with a whole number respect the following steps:

- Mention what you are given.
- Mention what you are asked for.
- Draw the conversion table
- Convert the given units into the required unit
- Multiply the converted units with a given whole number.



### Self Assessment 7.12



1. The family of 8 people each consumes 500 cl of milk per day. How many liters of milk do they consume altogether?
2. Uwineza's car uses 750 cl of fuel per day. How many liters of fuel does it use in 6 days?

### Application activity 7.12



1. How many liters of water does Uwingabire use in 65 days if she consumes 250 dl of water per day?
2. Each pupil drinks 3 small bottles of 50 cl of water per day. How many liters of water do 9 pupils drink in 2 days?



### Application activity 7.13



- a)  $6960 \text{ ml} \div 6 = 1160$ -----      c)  $48 \text{ cl } 8 \text{ ml} \div 8 = 61$ -----  
b)  $9 \text{ dl } 80 \text{ ml} \div 7 = 14$ -----      d)  $63 \text{ dl } 90 \text{ ml} \div 9 = 71$ -----

### 7.14 Word problems involving division of capacity measurements from liter (l) up to milliliter (ml) with a whole number

#### Activity 7.14

Discuss this worked example:

#### Example:

How many small jerrycan of 3 l of water can fill a drum of 225 l of water?

Data	Request	Steps and solution
Capacity of a small jerrycan = 3 l	Number of small jerrycan	Number of small jerrycan $225 \text{ l} \div 3 \text{ l} = 75 \text{ l}$
Capacity of a drum = 225l		



#### Pair assessment 7.14

1. How many small jerrycan of 5 l can you get from a big jerrycan of 500 dl?
2. Share equally 800 cl of juice among 8 children. How many liters will you give to each child?

### I have learnt that:

When solving word problems involving division of capacity measurements with a whole number respect the following steps:

- Mention what you are given.
- Mention what you are asked for.
- Draw the conversion table
- Convert the given units into the required unit
- Divide the converted units by a given whole number.



### Self Assessment 7.14



1. Share equally 450 dl of cooking oil among 9 families.
2. Muhoza uses 4 l of cooking oil in 8 days. If she uses the same quantity of cooking oil per day, how many cl of cooking oil does she use per day?

### Application activity 7.14



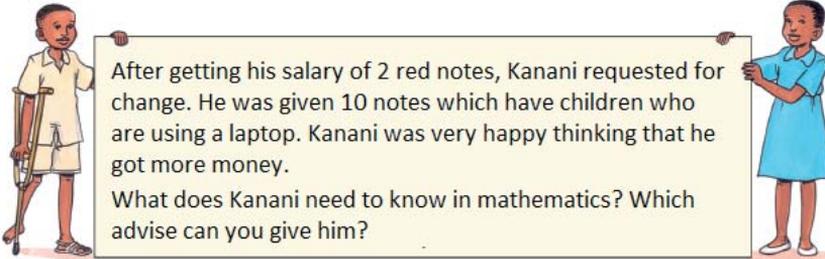
1. Share equally 900cl of water among 9 children.
2. Kamariza shared equally 56 dl of milk among her 7 children. Find the share of each child

## 7.15 End of unit assessment 7

- Convert into the required capacity unit
  - $4 \text{ l} = \text{-----dl}$
  - $65 \text{ dl} = \text{-----ml}$
  - $7500 \text{ ml} = \text{-----dl}$
  - $7 \text{ l } 79 \text{ cl} = \text{----- dl}$
- Use  $<$ ,  $>$  or  $=$  to compare the following capacity units
  - $79 \text{ dl}$                        $7908 \text{ ml}$                       c)  $9 \text{ l}$                        $79 \text{ dl}$
  - $27 \text{ dl}$                        $16 \text{ cl}$                       d)  $546 \text{ cl}$                        $7 \text{ l}$
- Arrange from the smallest unit to the biggest:  
 $20 \text{ dl}$ ,  $807 \text{ cl}$ ,  $9 \text{ l}$
- Arrange from the biggest unit to the smallest
  - $75 \text{ dl}$ ,  $7 \text{ l } 7 \text{ cl}$ ,  $3 \text{ dl } 6 \text{ ml}$
  - $46 \text{ dl}$ ,  $9 \text{ l } 15 \text{ cl}$ ,  $234 \text{ ml}$
- workout the following
  - $45 \text{ dl } 7 \text{ ml} + 367 \text{ cl} = \text{-----ml}$
  - $375 \text{ ml} \times 8 = \text{----- l}$
  - $5 \text{ l } 7 \text{ ml} + 43 \text{ dl} = \text{----- ml}$
  - $693 \text{ dl} \div 7 = \text{----- ml}$
- Word problems
  - I fetched  $69 \text{ l}$  and my brother fetched  $950 \text{ dl}$  of water. What was the difference of water we fetched in  $\text{cl}$ ?
  - A restaurant uses  $225 \text{ cl}$  of cooking oil per day. How many liters of cooking oil does it use in 8 days?
  - I poured  $67 \text{ l}$  of water in a drum. My brother poured  $1330 \text{ dl}$  in the same drum. How many liters of water did we pour altogether?
  - Share equally  $7500 \text{ cl}$  of fuel among 5 cars.
  - Ineza has 5 children. If each child drinks  $850 \text{ ml}$  of milk per day how many  $\text{cl}$  of milk do they drink per day?

# RWANDA CURRENCY FROM 1F UP 5000 F

## 8.0 Introductory activity



## 8.1 Characteristics and values of Rwandan currency from 1 F up to 5000 F

### Activity 8.1.1

Study and describe Rwandan coins



I have learnt that:

The characteristics of Rwandan coins are

Coin of 1 Rwandan Franc	
One side	Another side
<ul style="list-style-type: none"> <li>- Silver in color</li> <li>- Coat of arms</li> <li>- Value of the coin : Number 1</li> </ul>	<ul style="list-style-type: none"> <li>- Silver in color</li> <li>- wheat flower</li> </ul>

### Coin of 5 Rwandan Franc

One side	Another side
Bronze in color	Bronze in color
Coat of arms	Coffee tree
Value of the coin : Number 5	

### Coin of 10 Rwandan Franc

One side	Another side
Bronze in color	Bronze in color
Coat of arms	A banana sucker
Value of the coin: Number 10	

### Coin of 20 Rwandan Franc

One side	Another side
Sliver in color	Sliver in color
Coat of arm	A branch of tea plant
Value of the coin: Number 20	

### Coin of 50 Rwandan Franc

One side	Another side
Sliver in color	Sliver in color
Coat of arm	Maize cob
Value of the coin: Number 50	

### Coin of 100 Rwandan Franc

One side	Another side
Sliver color surrounding the bronze color.	Sliver color surrounding the bronze color
Coat of arm	Value of the coin: Number 100
Value of the coin: Number 100	

## Activity 8.1.2

Look at all Rwandan coins and identify a similar symbol shown to all Rwandan coins.

## Activity 8.8.3

Study and describe the following Rwandan notes



### I have learnt that

Rwandan notes are composed by 4 different notes having the following values 500F,1000F,2000F,5000F

- 500 F is the smallest note of Rwandan notes.
- 5000 F the biggest note of Rwandan notes.
- Rwandan notes are characterized by the following:

### Note of 500 Rwandan Franc

One side	Another side
<ul style="list-style-type: none"> <li>• Coat of arms</li> <li>• Light blue color</li> <li>• Two cows</li> </ul>	<ul style="list-style-type: none"> <li>• Coat of arm</li> <li>• Light blue color</li> <li>• Four children using a laptops</li> </ul>

### Note of 1000 Rwandan Franc

One side	Another side
Coat of arm Blue in color Rwanda National museum with a dove on it	<ul style="list-style-type: none"> <li>• Coat of arm</li> <li>• Blue in color</li> <li>• A monkey</li> </ul>

### Note of 2000 Rwandan Franc

One side	Another side
<ul style="list-style-type: none"> <li>• Coat of arm</li> <li>• A telecommunication tower built at Kalisimbi volcano.</li> <li>• Purple in color</li> <li>• Decorations having triangular and hexagonal shapes</li> <li>• Basket</li> </ul>	Coat of arm Dry coffee beans Decoration of Nyamuraza

### Note of 5000 Rwandan Franc

One side	Another side
Coat of arms Red in color Gorilla in bamboo trees	Coat of arms Red in color Decoration of inyegamo Baskets

### Activity 8.1.4

Look at all Rwandan notes and identify a similar symbol shown to all Rwandan notes.



Pair assessment 8.1

Look at Rwandan notes and coins and identify a similar symbol shown to all Rwandan notes and coins.

### Application activity 8.1

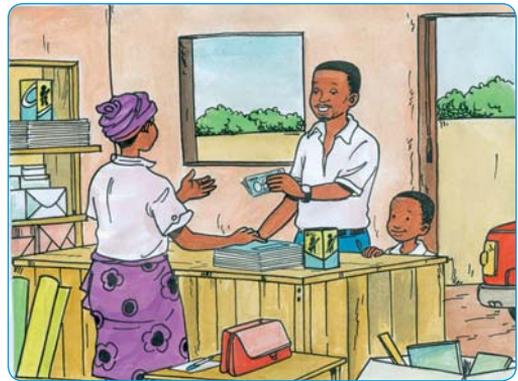


1. All Rwandan coins are in two different colors. Which colors are they?
2. Differentiate Rwandan coins and notes
3. Explain briefly the characteristics of Rwandan notes

## 8.2 Importance of money

### Activity 8.2.1

Study and describe these images



### Activity 8.2.2

Give the importance of money apart from the ones mentioned in the pictures above.



## Pair assessment 8.2

Make a list of things you can buy with 1,000frw

### I have learnt that:

We use money for buying food, drinks and clothes

We use money for paying different services such as medical insurance, security, hygiene, official documents and our employees.

We use money for buying houses, plots, domestic animals, cars and different equipment.

### Activity 8.2.3

Discuss about the following questions: Respect individual suggestions. Choose 5 best suggestions among others.

Questions

- a. What can you buy with 2,000Frw?
- b. What can you buy with 5 000Frw?



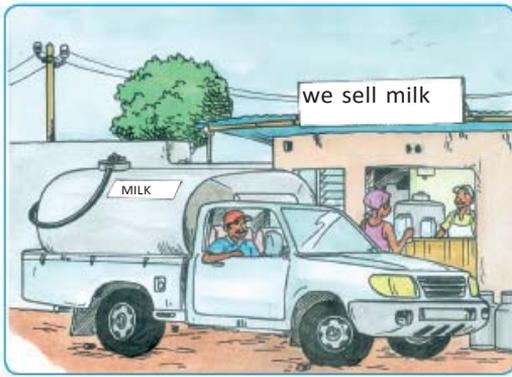
## Pair assessment 8.2

1. Give 2 examples of services that charge money
2. Explain the importance of money to your family

## 8.3 Sources of money

### Activity 8.3.1

Study and describe these images



### Pair assessment 8.3

Mention the sources of money apart from the ones shown above.

#### I have learnt that:

People get money from the following jobs:

- Farming
- Transport
- Office work
- Tourism
- Business
- Art and craft
- Livestock
- Competitions

#### Activity 8.3.2

Give different ways which indicate how your family gets money.



#### Self Assessment 8.3

What small projects that generate money can you do in order to support your family?

#### Activity 8.3.3

Talk about the ways of using money

### Application activity 8.3

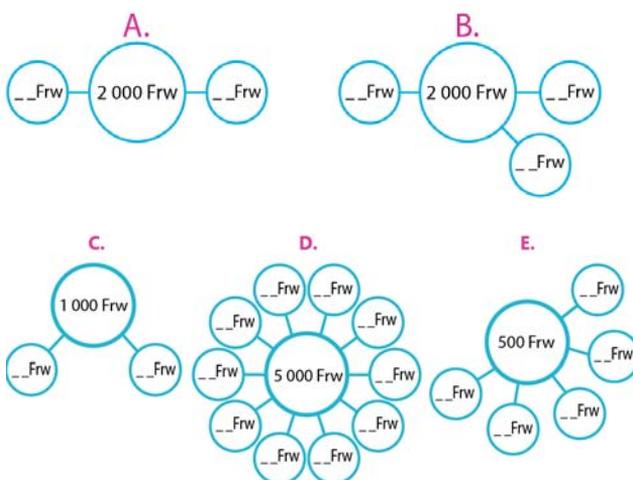


1. Give examples of activities that generates income for your family
2. List examples of bad ways that generate money and how to avoid them.

## 8.4 Changing Rwandan currency from 1 Frw up to 5000 Frw

### Activity 8.4

1. Use Rwandan coins and notes to work out the following:
  - a) A note of 1000 Frw = A note of -----Frw + A note of -----Frw
  - b) A note of 2 000Frw =A note of -----Frw + A note of -----Frw
  - c) A note of 2 000Frw =A note of -----Frw + A note of -----Frw
  - d) A note of 5 000Frw =A note of -----Frw + A note of -----Frw + A note of -----Frw
  - e) A note of 5 000Frw =A note of -----Frw + A note of -----Frw + A note of ----  
--Frw + A note of -----Frw + A note of -----Frw
2. Fill in the blank spaces with correct amount of money below:



3. Fill in the blank spaces with the correct amount of money below:

a)  $3\ 000\ \text{Frw} = 1\ 000\ \text{Frw} + 1\ 000\ \text{Frw} + \text{----- Frw}$

b)  $4\ 000\ \text{Frw} = 2\ 000\ \text{Frw} + 1\ 000\ \text{Frw} + 500\text{Frw} + \text{-----Frw}$

c)  $2\ 000\ \text{Frw} = 1\ 000\ \text{Frw} + \text{-----Frw} + 500\text{Frw}$

d)  $5\ 000\ \text{Frw} = 1\ 000\ \text{Frw} + 2\ 000\ \text{Frw} + \text{-----Frw} + 1\ 000\ \text{Frw}$

e)  $3\ 500\ \text{Frw} = 2\ 000\ \text{Frw} + \text{----- Frw} + 1\ 000\ \text{Frw}$

## 8.5 Word problems involving the change of Rwandan currency from 1 Frw up to 5000 Frw

### Activity 8.5

Discuss the worked example below:

#### Example:

Munezero got 3 notes of 1000 Frw each and 2 notes of 500 Frw each as salary. How much money did she get?

Data	Request	Steps and solution
3 notes of 1000Frw	Total amount of money	Total amount of money:
2 notes of 500 Frw		$3\ \text{notes} \times 1000\ \text{Frw} = 3\ 000\ \text{Frw}$ $2\ \text{notes} \times 500\ \text{Frw} = 1\ 000\ \text{Frw}$ $3\ 000\ \text{Frw} + 1000\ \text{Frw} = 4\ 000\ \text{Frw}$



#### Pair assessment 8.5.1

1. Rugira paid a sweater with 2 notes of 2000Frw and 2 notes of 500 Frw. How much did he buy the sweater?
2. I paid 2 notes of 1000Frw and 1 note of 500 Frw for a big notebook and a pen. How much did I buy them?

### I have learnt that:

When working out word problems involving the change of Rwandan currency from 1 Frw up to 5000 Frw, we respect the following steps:

- Mention what you are given.
- Mention what you are asked for.
- Multiply the number of notes or coins by their values
- Add all products



### Self Assessment 8.5



1. My aunt gave me 3 notes of 1000Frw and 1 note of 2000Frw. How much did she give me?
2. Mugabo paid Uwera 4 coins of 100Frw and 8 notes of 500Frw. How much did she pay her?

### Application activity 8.5



1. We bought a chicken with 2 notes of 2000Frw and 3 notes of 500Frw. How much did we pay?
2. Iranzi got 1 note of 2000Frw, 2 notes of 500Frw and 3 notes of 1000Frw. How much did he get?



### Pair assessment 8.5.2



How many notes or coins can you pay for buying the following without change?

- a) 1 kg of sugar at 1 200 Frw
- b) 2 bars of soap at 900 Frw
- c) 1 l of cooking oil at 1800 Frw
- d) A book of 4500 Frw

- e) A shirt of 2500 Frw
- f) Shoes at 3500 Frw

## 8.6 Word problems involving addition of Rwandan currency from 1 Frw up to 5000 Frw

### Activity 8.6

Discuss the worked example:

#### Example:

Tunga bought a book at 3500 Frw and a notebook at 1200Frw. How much did he pay altogether?

Data	Request	Steps and solution
The price of a book= 3 500Frw The price of a notebook = 1200Frw	Amount paid	Amount paid: $3500\text{Frw} + 1200\text{Frw} = 4700\text{Frw}$



#### Pair assessment 8.6

1. Rukundo bought a shirt at 1500Frw and got 500Frw as balance. How much money did he have at first??
2. Ishimwe bought a school bag at 3500 Frw and a pen at 900Frw. How much did he pay altogether?

### I have learnt that:

When working out word problems involving addition of Rwandan currency from 1 Frw up to 5000 Frw, we respect the following steps:

- Mention what you are given.
- Mention what you are asked for.
- Add the given data to get the answer



### Self Assessment 8.6



1. Mutabazi gave money for buying scholastic materials to his 4 children Ingabire, Gato, Mucyo and Bwiza as the following:
  - Ingabire got 750 Frw
  - Gato got 1450 Frw
  - Mucyo got 1150 Frw
  - Bwiza 950 Frw

How much did he give them altogether?

2. At my birthday, my father gave me a gift of a shirt of 1500Frw, a t-shirt of 500 Frw, a trouser of 2000Frw and shoes of 1000Frw. How much did he buy the whole gift

### Application activity 8.6



1. I bought paint at 2500 Frw and 1 l of petrol for mixing my paint at 970Frw. Find their total cost.
2. Uwamahoro gave me packet of biscuits of 1200Frw, sweets of 500Frw and the juice of 800Frw .How much did she pay?
3. Our neighbors Mbabazi and Mutoni promised us 3400 Frw and 1300Frw respectively. How much did they promise us?

## 8.7 Word problems involving subtraction of Rwandan currency from 1 Frw up to 5000 Frw

### Activity 8.7

Discuss this worked example:

#### Example

Uwingabire had 5000 Frw and bought 1 kg of meat at 2500Frw and 1 liter of cooking oil at 1900Frw. How much money did she remain with?

Data	Request	Steps and solution
1) Total amount of money= 5000Frw	Balance	Total expenses
2) Cost of 1kg of meat= 2500Frw		$2500\text{Frw} + 1900\text{Frw} = 4400\text{Frw}$
3) Cost of 1 liter of cooking oil= 1900Frw		Balance $5000\text{Frw} - 4400\text{Frw} = 600\text{Frw}$



#### Pair assessment 8.7

1. Kangabe went to the shop with 1000Frw. He bought 1 kg of salt at 400Frw and a bar of soap at 450 Frw. How much did she remain with?
2. Uwitonze has 4500Frw. She wants to buy a trouser at 5000Frw. How much does she need to buy the trouser?

### I have learnt that:

When solving word problems involving subtraction of Rwandan currency from 1 Frw up to 5000 Frw, we respect the following steps:

- Mention what you are given.
- Mention what you are asked for.
- Subtract the given data to get the answer



### Self Assessment 8.7



1. Kaneza went to buy a big bucket for storing water with 5000Frw. After buying it he was given 900Frw as change. How much did he buy that bucket?
2. I went for shopping with 4500Frw. How much did I remain with if I only used 3900 Frw?

### Application activity 8.7



1. A teacher went to buy chalks of 3750Frw and paid 5000Frw. Calculate his balance.
2. My parents were very happy because I was given 5 000Frw for being the first. I bought a mathematics book for 3900Frw. How much money did I remain with?

## 8.8 Word problems involving multiplication of Rwandan currency from 1 Frw up to 5000 Frw

### Activity 8.8

Discuss this worked example:

#### Example:

Kabayiza bought 56 eggs at 80 Frw each. How much did he pay altogether?

Data	Request	Steps and solution
Number of eggs= 56	Amount paid	Amount paid
Cost of one egg= 80Frw		$80 \text{ Frw} \times 56 = 4\,480 \text{ Frw}$



#### Pair assessment 8.8

- How much can you pay for each of the following food stuffs:
  - 4 kg of sugar at 1200 Frw per kg
  - 2 l of cooking oil at 1800 Frw per l
  - 8 bars of soap at 500Frw each bar
  - 2 bunches of bananas at 1700 Frw per bunch
  - 4 kg of rice at 1250 Frw per kg
- How much can you pay for 27 eggs if an egg is sold 85 Frw?

### I have learnt that:

When solving word problems involving multiplication of Rwandan currency from 1 Frw up to 5000 Frw, we respect the following steps:

- Mention what you are given.
- Mention what you are asked for.
- Multiply the given data to get the answer



### Self Assessment 8.8



1. My uncle bought 119 eggs at 80Frw per egg. How much did he pay altogether?
2. If 1 notebook is sold at 250Frw, find the cost of 8 similar notebooks.
3. I bought 3 liters of cooking oil at 1400Frw per liter. If I got a change of 800Frw, how much did I pay?

### Application activity 8.8



1. If 1 meter of a piece cloth is sold at 1600 Frw, what is the cost of 6 m similar pieces of cloth?
2. Gicanda bought 12 bottles of soda at 400 Frw each. How much did she pay altogether?
3. A group of 18 players bought one bottle of juice at 500Frw for each player. How much did they pay altogether?

## 8.9 Word problems involving division of Rwandan currency from 1 Frw up to 5000 Frw by a whole number

### Activity 8.9

Discuss this worked example:

#### Example:

Muhoza bought 8 kg of beans at 5000Frw. Find the cost of each kg of beans

Data	Request	Steps and solution
Number of kg= 8 kg	Cost of 1 kg	Cost of 1 kg
Total amount = 5000Frw		$5000\text{Frw} \div 8 = 625 \text{ Frw}$



#### Pair assessment 8.9

- Share equally 4800 Frw among 4 workers. Find the share of each worker.
- Gahima shared equally 4500Frw among his 5 children. Find the share of each child.

#### I have learnt that:

When solving word problems involving division of Rwandan currency from 1 Frw up to 5000 Frw, we respect the following steps:

- Mention what you are given.
- Mention what you asked for.
- Divide the given data to get the answer



## Self Assessment 8.9



1. I paid 4400 Frw for 4 notebooks. Find the cost of each notebook.
2. I paid 3900 Frw to 3 helpers. If they shared that money equally find the share of each helper.

## Application activity 8.9



1. Umuganwa bought 9 bottles of banana juice at 4500Frw. Find the cost of each bottle?
2. Karangwa sold 7 kg of rice at 4900Frw. At how much did he sell 1 kg?
3. Find the cost of 1 litre of milk if 15 similar litres of milk cost 2250 Frw.
4. 9 bottles of soda cost 2250 Frw. Find the cost of 1 similar soda.

## 8.10 Buying and selling

### Activity 8.10

Look at the items below and answer the following questions:



## Application activity 8.10



1. Find the price of 5 bottles of juice
2. How much can you pay for 3 l of cooking oil and 1 l of milk?
3. How much did Mahame pay if he bought 2 kg of sugar and 4 bars of soap?
4. I bought 1 small bucket of powdered soap and 4 kg of beans. If I got the balance of 1000Frw, how much did I pay altogether?
5. How much did we pay for 3 bottles of juice, 1 box of milk and 1 kg of sugar?

## 8.11 Importance of saving

### Activity 8.11.1

Read carefully the following story and answer questions that follow:

Hirwa was given mathematical questions by his parents and was promised to get 2000Frw if he passes them.

They corrected him and found out that he had passed without any mistake. His parents gave him 2000Frw because they were happy in the presence of his uncle and aunt who also gave him 1000Frw. Hirwa put the money into his small box.

After few days, he told his parents that he wants to buy two hens for laying eggs. They accepted and helped him to choose the best quality.

After one year he had a total of 12 hens and 8 cocks. His parents became ill and used all the money they had for treatment. At the beginning of academic year, Hirwa failed to get scholastic materials. He told his uncle to sell 6 cocks and use that money to buy his scholastic materials and to use the balance for buying food stuffs for his sick parents.

## Questions about the story

1. Hirwa started project with how many hens?
2. Where did he get money for buying those hens? How much were they?
3. How long did it take Hirwa to have 12 hens and 8 cocks?
4. What happened to Hirwa after failing to get scholastic materials?
5. Which support did Hirwa give to his sick parents?
6. Which lesson do you get from this story?
7. Have you ever heard of any similar story of this kind?? Tell that story to your friends.
8. What decision have you taken after reading and understanding this story?

### Activity 8.11.2

Let each one of you explain to your friends how your family practices the culture of saving in your homes.

#### I have learnt that:

Saving is a good culture because what you save helps you in the future. Saving help somebody to have an oriented vision.You save for the future focusing on your own development.

### Activity 8.11.3

Identify what you can do with 5000Frw in order to save for your future.

## 8.12. Small income generating projects

### Activity 8.12.1

Read carefully the list of Small projects that generate income below then choose the ones that generate more interest than others.

1. Picking the remained beans from your family's harvested farm, selling those beans at 3000Frw and using that money to buy hens for laying.
2. Keeping my reward of 2000Frw and using it to buy a rabbit for rearing.
3. Asking my parents to give a small piece of land for planting vegetables such as carrots or cabbages and selling the harvest at 4000Frw.
4. Making toys and selling them to my friends at 100Frw each.
5. Planting an avocado tree, harvest it and sell to get the money for buying scholastic materials.

### Activity 8. 12.2

Work together to find other small projects of your level that generate income which did not appear in the list mentioned above.

#### I have learnt that:

Everyone is able to carry out a small project that generates income which can help him to get his basic needs and development.



#### Pair assessment 8.12

Prepare a small project that generates income which you are going to carry out. Describe it and show what you are planning to get out of it.

1. Fill in the missing amount
  - a) 5 000 Frw = 2 000 Frw + -----Frw+ 2 notes of 500 Frw
  - b) 2 000 Frw = 10 Coins of 100 Frw +-----Frw

### 8.13 End of unit assessment 8

2. Study the following price list of Butera's shop and workout the questions that follow

Item	Price	Item	Price
Bread	1000 Frw	milk	1 l is 500Frw
Rice	1kg is 1100 Frw	Groundnuts	1 kg is 1300Frw
Sugar	1kg is 1200 Frw	cooking oil	1l is 2000 Frw
Beans	1kg is 500 Frw	Soap	500 Frw

- How much can you pay for 1 l of milk and 1 l of cooking oil altogether?
  - Munezero has 5000Frw, he needs to buy 6 kg of beans, 1l of cooking oil and 2 kg of sugar. How much does he need to complete his shopping?
  - Ireme bought 1 kg of rice, 1 kg of sugar and 2 kg of groundnuts. If he got 100F as change how much did he go with to the market??
  - How much can you pay if you buy one by one liquid item from the price list above? ite
- Share equally 4800Frw among 4 workers.
  - Muhoza went to the shop with 3500Frw. How much does she need if she wants to buy a dress of 5000 Frw?

## 9.0 Introductory activity



Gapasi prepares meals early before the time at which his employers go for lunch. He doesn't know when the month ends. He always asks for his payments either before or after compared to the time he started his job. What does Gapasi need to understand, what does he need to study in Mathematics?



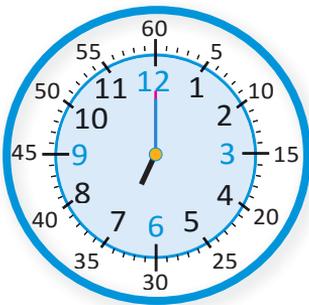
## 9.1 Reading and telling time shown on a clock face

## 9.1.1 Exact time

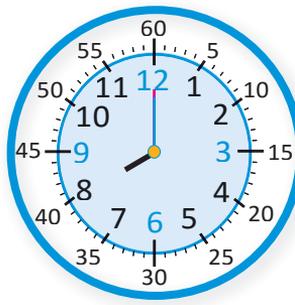
## Activity 9.1.1

Study the clock faces and tell the time shown:

a)



b)



c)



d)



## I have learnt that:

### 1. A clock face/analog clock

We talk about exact time when the short hand (hour hand) points to any number located on the clock face while both the minute hand and the second hands point to 12. We read that number and add the word **o'clock**.

### 2. Digital clock

The number representing hours is followed by a colon and that colon should be followed by two zeros.



### Pair assessment 9.1.1

Draw a digital and analog clocks showing the following time:

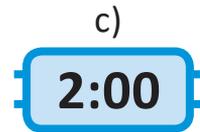
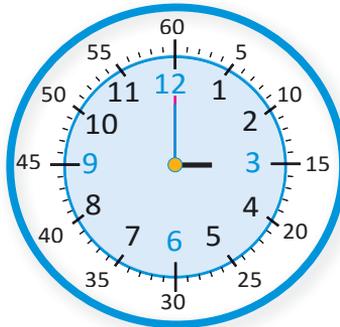
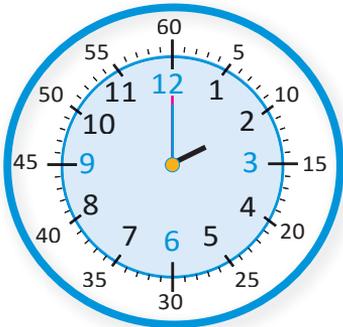
a) One o'clock

b) Eleven o'clock

### Application activity 9.1.1



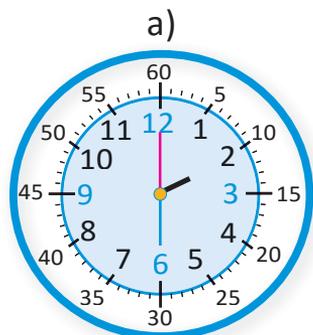
Study and tell the time shown by the following analog and digital clocks



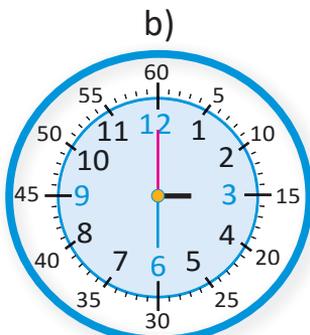
### 9.1.2 Half past or thirty minutes past an hour

#### Activity 9.1.2

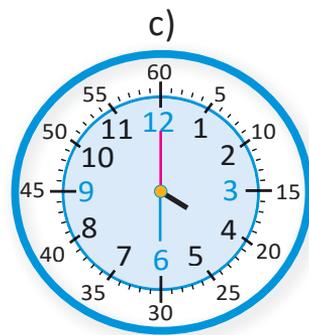
Study and tell the time shown by the following analog and digital clocks



d) **7:30**



e) **8:30**



f) **9:30**

### I have learnt that:

#### 1. Clock face /Analog clock

We talk about **half past** when the short hour hand is pointing between any two numbers located on the clock face while the minute hand points to number 6. We read **half past** the number which is located before the short hour hand.

#### 2. Digital clock

The number representing hours is followed by a colon and that colon should be followed by the number 30 representing minutes.



### Self Assessment 9.1.2



#### 1. Draw an analog clock showing the following time:

a) Half past twelve

b) Half past nine

#### 2. Draw digital clock showing the following time:

a) Half past five

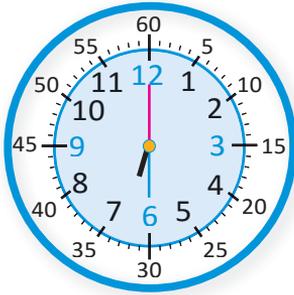
b) Half past one

### 9.1.3 A half to an hour.

#### Activity 9.1.3

Study and tell the time shown by the following analog and digital clocks

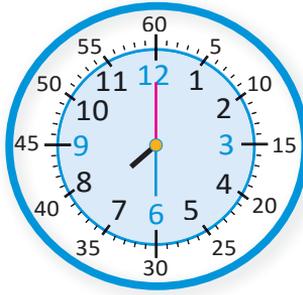
a)



d.

**6:30**

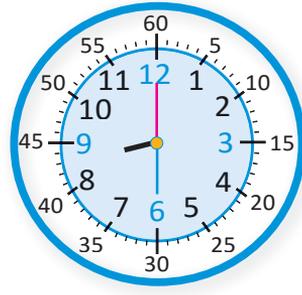
b)



e.

**7:30**

c)



f.

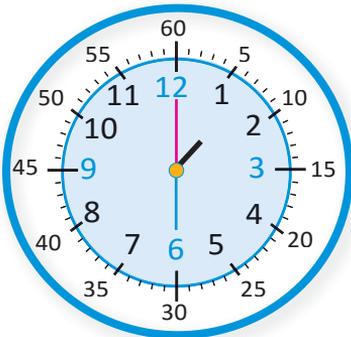
**8:30**



Pair assessment 9.1.3

Study and tell the time shown by the following analog and digital clocks

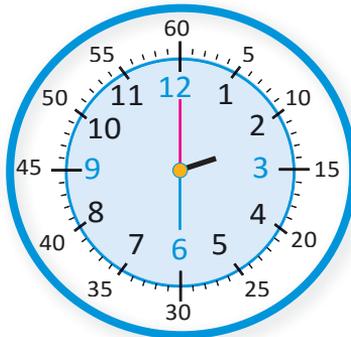
a)



d)

**1:30**

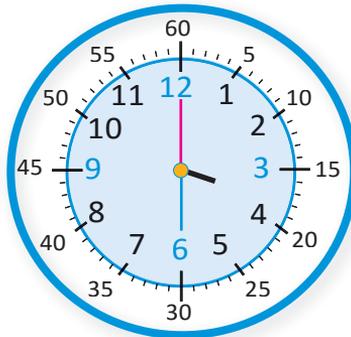
b)



e)

**2:30**

c)



f)

**3:30**

### Application activity 9.1.3



Draw an analog and a digital clock for the following:

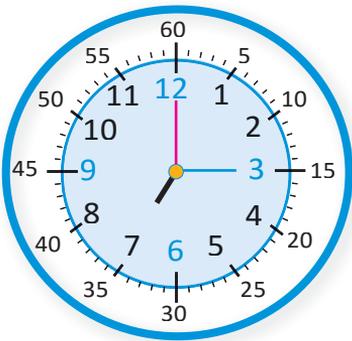
- a) Half past two      b) Six past two

### 9.1.4 Quarter past or fifteen minutes past an hour

#### Activity 9.1.4

Study and tell the time shown by the following analog and digital clocks

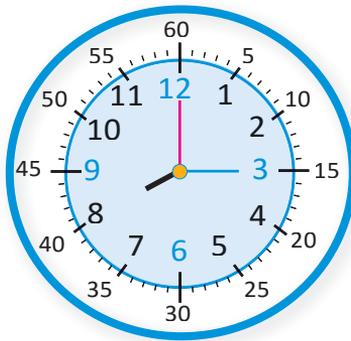
a)



d)

**7:15**

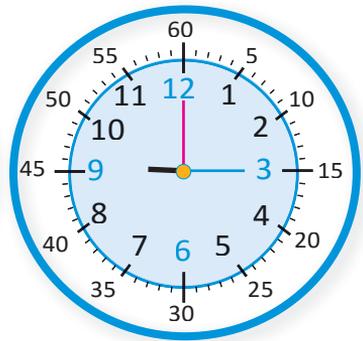
b)



e)

**8:15**

c)



f)

**9:15**

#### I have learnt that:

1. Clock face/ analog clock

We talk about **quarter past** when the short hour hand is pointing between any two numbers located in the clock face while the long minute hand points to number 3. We read **quarter past** the number which is located before the short hour hand.

2. Digital clock

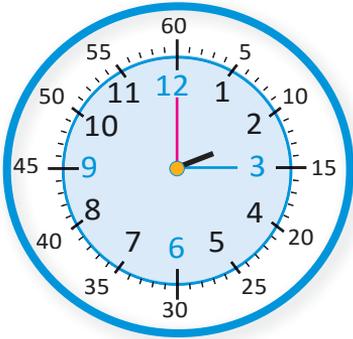
The number representing hours is followed by a colon and that colon should be followed by the number 15 representing minutes.



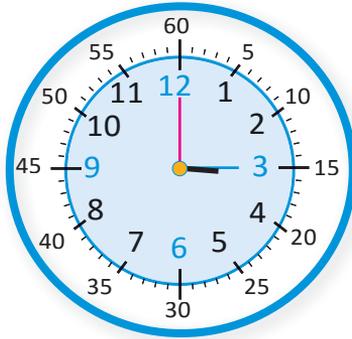
## Pair assessment 9.1.4

Study and tell the time shown by the following analog and digital clocks

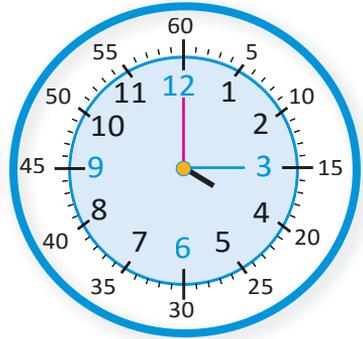
a)



b)



c)



d)

**2:15**

e)

**3:15**

f)

**4:15**



## Self Assessment 9.1.4



1. Draw a clock face /analog clock showing the following time
  - a) Quarter past one
  - b) Half past ten
2. Draw a digital clock showing the following time
  - a) Quarter past five
  - b) Quarter past one

## Application activity 9.1.4



Draw a clock face /analog clock and a digital clock showing the following time

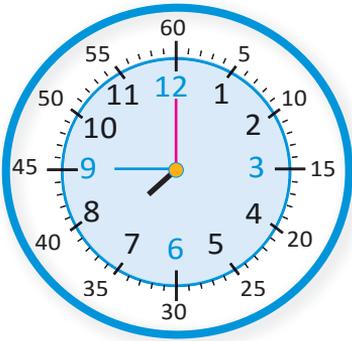
- |          |          |
|----------|----------|
| a) 8:00  | b) 10:30 |
| c) 11:15 | d) 6:30  |

## 9.1.5 A quarter to an hour

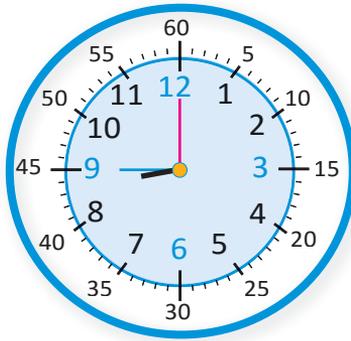
### Activity 9.1.5

Read and tell the time

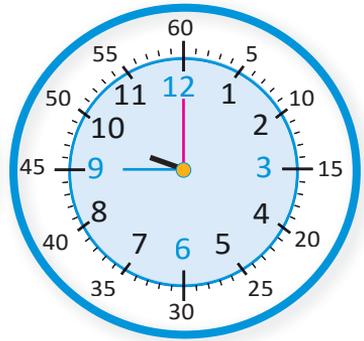
a)



b)



c)



d)

**7:45**

e)

**8:45**

f)

**9:45**

#### I have learnt that:

1. A clock face with hands

We use 15 minutes to an hour ( for example 15 minutes to 4 o'clock) if we see that it is only 15 minutes remaining to reach the following hour . So we can say that the time is 15 to four o'clock.

When it is 15 minutes to the hour, we can also use the word “a quarter to” followed by the coming hour. For example 10:45 means a quarter to eleven

2. A clock with numbers:

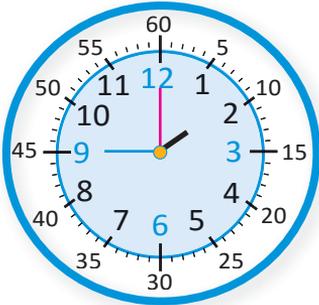
When it is 15 minutes to the hour, the number indicating minutes shows the hour we are leaving while the number for minutes indicates 45 minutes. For example 4:45 is read by a quarter to five.



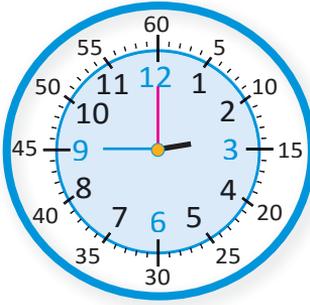
### Pair assessment 9.1.5

Read and tell the time as indicated on the clock.

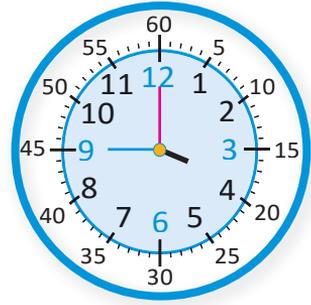
a)



b)



c)



d)

**2:45**

e)

**2:45**

f)

**3:45**

### Application activity 7.12



1. Draw a clock face with hands that indicate:
  - a) Fifteen minutes to 8 o'clock.
  - b) Fifteen minutes to 5 o'clock.
2. Read and tell the time in these clocks
  - a) 12:15
  - b) 7:15

## 9.2 Reading and writing the time shown on the clock face

### Activity 9.2

Read and write the time shown by the following digital clock

**12:00**

**8:30**

**10:45**

### I have learnt that:

When writing the time shown by a digital clock, we write the number of hours followed by a colon then the number of minutes.

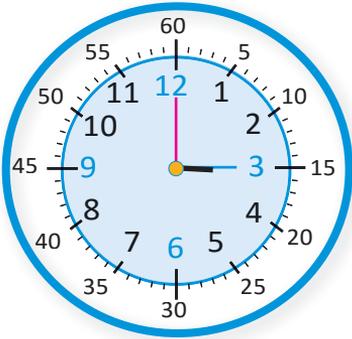
Numbers	Time in words	Digital clock
1	One o'clock during the day or night	<b>1:00</b>
2	Two o'clock during the day or night	<b>2:00</b>
3	Three o'clock during the day or night	<b>3:00</b>
4	Four o'clock during the day or night	<b>4:00</b>
5	Five o'clock during the day or night	<b>5:00</b>
6	Six o'clock during the day or night	<b>6:00</b>
7	Seven o'clock during the day or night	<b>7:00</b>
8	Eight o'clock during the day or night	<b>8:00</b>
9	Nine o'clock during the day or night	<b>9:00</b>
10	Ten o'clock during the day or night	<b>10:00</b>
11	Eleven o'clock during the day or night	<b>11:00</b>
12	Twelve o'clock during the day or night	<b>12:00</b>



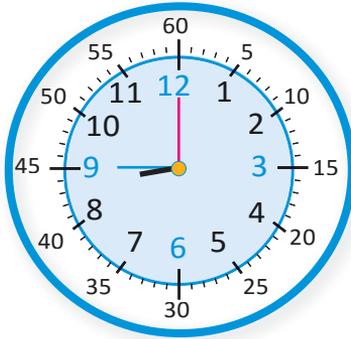
## Pair assessment 9.2

Study, tell and write in words or in figures the time shown by the following clock faces /analog and digital clocks

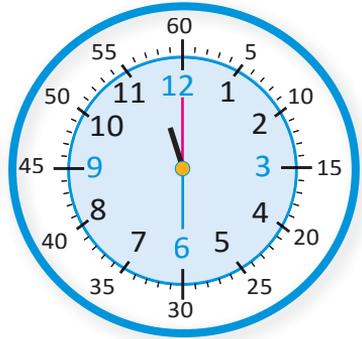
a)



b)



c)



d)



e)



f)



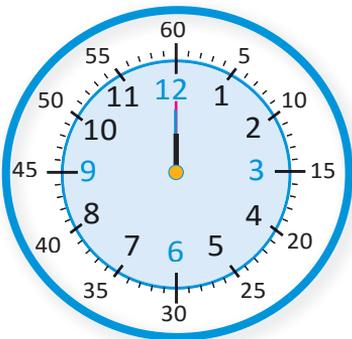
## Application activity 9.2



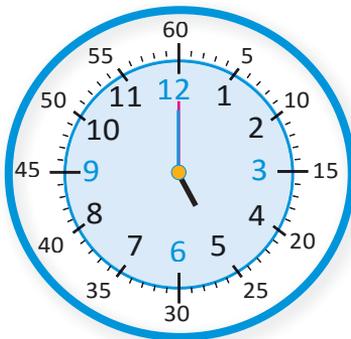
1. Write in words or in figures the time shown by the following clock faces

n'amasaha akurikira:

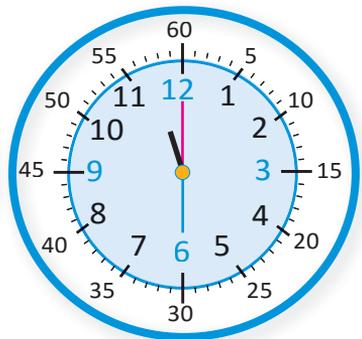
a)



b)



c)



2. Draw clock faces showing the following time:

- a) 10:45                      c) Quarter past one  
b) Half past two            d) 6:00

### 9.3 Use of a calendar

#### Activity 9.3.1

Study the calendar of 2018 and answer to the questions.

January 2018						
Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

#### Questions

- How many months are there in the year 2018? List them
- The first month of 2018:
  - On which day does it start with?
  - On which day does it end with?
  - How many days are there in January 2018?
- How many weeks are there in the whole year of 2018?
- How many days are there in the whole year of 2018?
- Write the dates below:
  - Your birthdays
  - Closing date of the first term of this year
  - Opening date of the second term of year

I have learnt that:

Months	Days
January	31
February	28/29
March	31
April	30
May	31
June	30

Months	Days
July	31
August	31
September	30
October	31
November	30
December	31

A year has 52 weeks. It also has 365 or 366

A week has 7 days. A day has 24 hours

### Activity 9.3.2

Draw a calendar of the first four months of this year

## 9.4 Ordinary year and a leap year

### Activity 9.4.1

Use a calendar to identify the days of February in the following years:

- 2018
- 2017
- 2016
- 2015
- Among all those years which years are divisible by 4

### I have learnt that:

- 2015, 2017 and 2018 are ordinary years
- The month of February for an ordinary year has 28 days.
- An ordinary year has 365 days
- The days of an ordinary year are not divisible by 4
- 2016 is a leap year
- The month of February for a leap year has 29 days
- A leap year has 366 days
- The days of a leap year are divisible by 4

### Activity 9.4.2

Study the following example and identify ordinary years between 2000 to 2018.

#### Example:

2018 is an ordinary year because it has 365 days. 2016 is a leap year because it has 366 days

$$2018 \div 4 = 504 \text{ Remainder is } 2$$

$$\begin{array}{r} 504 \\ 4 \overline{) 2018} \\ \underline{-20} \phantom{00} \\ 001 \phantom{00} \\ \underline{-0} \phantom{00} \\ 18 \phantom{00} \\ \underline{-16} \phantom{00} \\ 02 \end{array}$$

$$2016 \div 4 = 504$$

$$\begin{array}{r} 504 \\ 4 \overline{) 2016} \\ \underline{-20} \phantom{00} \\ 001 \phantom{00} \\ \underline{-0} \phantom{00} \\ 16 \phantom{00} \\ \underline{-16} \phantom{00} \\ 00 \end{array}$$

## Application activity 9.4



- Choose ordinary years in the following years :
  - 1990
  - 1992
  - 1994
  - 1995
  - 1993
  - 1991
- Choose leap years in the following years:
  - 1990
  - 1996
  - 1998
  - 1992
  - 1994
  - 1999
- Find out the leap years which are between 1998 and 2021

## 9.5 Converting years into months

### Activity 9.5.1

Study the example below and explain what have been done.

**Example:** How many months are there in 6 years?

**1 year** is equal to **12 months**

**6 years** are equal to  **$12 \times 6 = 72$  months**

I have learnt that:

When converting years to months you multiply the number of years by 12 (The months of the year)



### Pair assessment 9.5

- 9 years = -----Months
- 10 years = -----Months
- 15 years = -----Months
- 8 years = -----Months
- 7 years = -----Months
- 13 years = -----Months



- a) 2 years = -----Months                      d) 11 years = -----Months  
b) 3 years = -----Months                     e) 12 years = -----Months  
c) 4 years = -----Months                     f) 14 years = -----Months

## 9.6 Converting weeks into days

### Activity 9.6

Look at the example below and explain what has been done.

**Example:** 3 weeks = -----days

1 week = 7 days

3 weeks = 7 days  $\times$  3 = 21days

#### I have learnt that:

When converting weeks into days, multiply 7 days by the number of weeks



#### Pair assessment 9.6

- a) 9 weeks = -----days                      d) 20 weeks = -----days  
b) 11 weeks = -----days                    e) 8 weeks = -----days  
c) 15 weeks = -----days                    f) 5 weeks = -----days



### Self Assessment 9.6



- a) 19 weeks = -----days  
b) 31 weeks = -----days  
c) 45 weeks = -----days  
d) 80 weeks = -----days  
e) 38 weeks = -----days  
f) 45 weeks = -----days

### Application activity 9.6



- a) 24 weeks = -----days  
b) 19 weeks = -----days  
c) 55 weeks = -----days  
d) 40 weeks = -----days  
e) 82 weeks = -----days  
f) 56 weeks = -----days

## 9.7 Converting days to hours

### Activity 9.7

Study the example below and explain what has been done.

**Example:** 2 days = --- hours

1 day = 24 hours

2 days =  $24 \times 2 = 48$  hours

#### I have learnt that:

When converting days into hours, you multiply 24 hours by the number of days.



### Pair assessment 7.13

- a) 15 days = ----- hours  
b) 7 days = ----- hours  
c) 10 days = ----- hours  
d) 8 days = ----- hours  
e) 18 days = ----- hours  
f) 35 days = ----- hours



## Self Assessment 9.7



- a) 13 days = ----- hours                      d) 17 days = ----- hours  
 b) 6 days = ----- hours                      e) 35 days = ----- hours  
 c) 9 days = ----- hours                      f) 4 days = ----- hours

## Application activity 9.7



- a) 3 days = ----- hours                      d) 14 days = ----- hours  
 b) 4 days = ----- hours                      e) 16 days = ----- hours  
 c) 5 days = ----- hours

## 9.8 Planning activities

### 9.8.1 Planning daily activities

#### Activity 9.8. 1.1

Study the following daily activities of MUHOZA and compare them with yours

Time	Activities
6:00 in the morning	Waking up
6:00 – 6: 30 in the morning	Preparation for school
7: 00 in the morning	Going to school
7:30 – 12: 30 in the afternoon	Studying
12:30 – 1: 30 in the afternoon	Lunch
2:00 – 4: 30 in the afternoon	Studying
4:30 – 4: 50 in the evening	Writing the homework

4:50 – 5: 00 in the evening	Arranging books and note book
5:00 in the evening	Returning home
6: 00 in the evening	Bathing
7:00 in the evening	Revising the notes and doing the homework
8:00 in the evening	Supper
9:00 in the evening	Sleeping

### Activity 9.8.1.2

Use the daily activities of MUHOZA above and plan your daily activities of tomorrow.

## 9.8.2 Planning weekly activities

### Activity 9.8.2.1

Study the following weekly activities of MUGISHA and compare them with yours.

Time	Activities
Monday	<ul style="list-style-type: none"> <li>– Going to school</li> <li>- Doing homework</li> </ul>
Tuesday	<ul style="list-style-type: none"> <li>– Going to school</li> <li>- Watering flowers</li> <li>- Doing homework</li> </ul>
Wednesday	<ul style="list-style-type: none"> <li>– Going to school</li> <li>- Feeding chicken</li> <li>- Doing homework</li> </ul>

Thursday	<ul style="list-style-type: none"> <li>• Going to school</li> <li>• Helping my parents to clean our home</li> <li>• Doing homework</li> </ul>
Friday	<ul style="list-style-type: none"> <li>• Going to school</li> <li>• Reading story books</li> <li>• Doing homework</li> </ul>
Saturday	<ul style="list-style-type: none"> <li>• Helping my parents to wash clothes and to clean our home</li> <li>• Doing homework</li> </ul>
Sunday	<ul style="list-style-type: none"> <li>• Going to church</li> </ul>

### Activity 9.8.2.2

Use the above weekly activities for MUGISHA and plan your weekly activities of next week.

### 9.8.3 Planning monthly activities

#### Activity 9.8.3.1

Study the following monthly activities of KAMARIZA and compare them with yours.

Time	Activities
------	------------

First week	<ul style="list-style-type: none"> <li>• Studying</li> <li>• Doing home activities</li> <li>• Praying</li> </ul>
Second week	<ul style="list-style-type: none"> <li>• Studying</li> <li>• Doing home activities</li> <li>• Praying</li> <li>• Visiting friends</li> </ul>
Third week	<ul style="list-style-type: none"> <li>• Studying</li> <li>• Doing home activities</li> <li>• Praying</li> <li>• Playing competitions</li> </ul>
fourth week	<ul style="list-style-type: none"> <li>• Studying</li> <li>• Doing home activities</li> <li>• Praying</li> <li>• Visiting sick people</li> </ul>

### Activity 9.8.3.2

Refer to the monthly activities of KAMARIZA above and plan your monthly activities of next month.

#### I have learnt that:

Planning activities before doing them helps you to respect time.

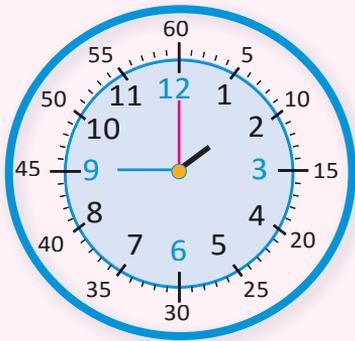
Respecting time helps to avoid losing time.

Planning activities helps you to perform your duties with objectives.

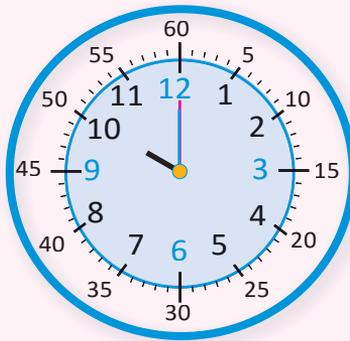
## 9.9 End of unit assessment 9

1. Read and write the time shown by the following clock faces and digital clocks

a)



b)



c)



d)



2. Work out the following:

a) 40 years = ----- months

b) 50 weeks = ----- days

c) 33 days = ----- hours

d) 19 years = ----- months

e) 29 days = ----- hours

3. Complete the following sentences

a) An ordinary year has ----- days, while a leap year has ----- days.

b) A month has ----- weeks while a year has ----- months

c) A week has ----- days while a day has ----- hours

d) A month which has less days among other months of the year is -----

4. Choose ordinary years among the following years

a) 2000

c) 2002

e) 2005

b) 2004

d) 2007

f) 2008

5. Circle the leap in the following years:

a) 2000

c) 2010

e) 2012

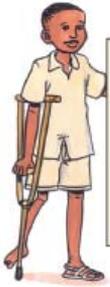
b) 2016

d) 2019

f) 2008

6. 6) Find the leap years which are between 2010 and 2030

## 10.0 Introductory activity 10



Sebisusa was trained in modern farming. However, he planted crops in a field which is not well prepared, as crops are not on straight lines, they are in disorder. What does he need to know in Mathematics?



## 10.1 Types of lines

### 10.1.1 Straight lines

#### Activity 10.1.1.1

Study the following lines. What are their characteristics?

a)



b)



c)



#### Activity 10.1.1.2

- Use a ruler to draw lines and draw the same lines you saw in the previous activity
- Draw the same lines without using a ruler.
- Compare lines you draw with a ruler and those you draw without a ruler.

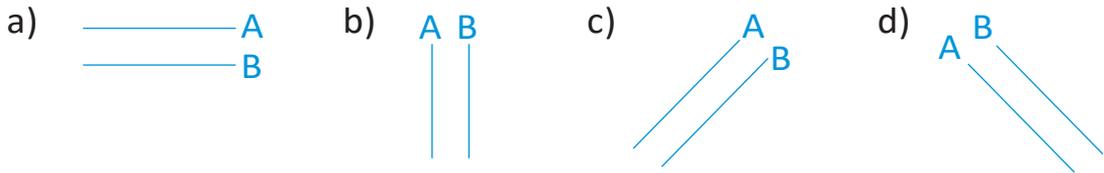
**I have learnt that:**

A straight line is a line which has one direction.

## 10.1.2 Parallel lines

### Activity 10.1.2

Study the following lines. What are their characteristics?



### Self Assessment 10.1.2



With a ruler, draw two parallel lines, make them very long and verify if they can meet. What is your conclusion?

#### I have learnt that:

- **Two parallel lines** cannot intersect (they cannot meet);
- The distance between two parallel lines does not change, these lines are equidistant.
- -Lines which are not parallel are called **intersecting lines**.



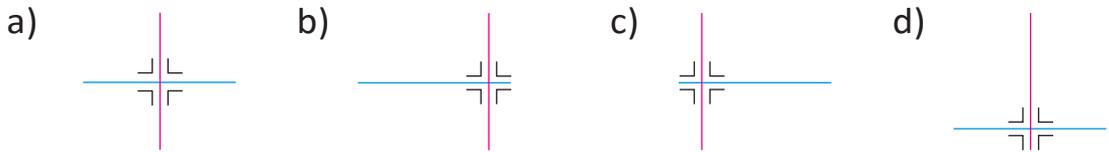
### Pair assessment 10.1.2

1. Use a ruler and draw different groups of 3 parallel lines.
2. Look at different objects located in your classroom. Which of them have parallel lines?
3. Tell your friends other objects with parallel lines you saw in your real life situations.

## 10.1.3 Intersecting lines with a right angle

### Activity 10.1.3

Study the following lines, describe them with their characteristics.



### Self Assessment 10.1.3



With the help of a ruler , draw two straight lines: one vertical line and one horizontal line which intersect to make a right angle. How many angles do they make?

#### I have learnt that:

- Intersecting lines meet at a point.
- They have different directions.
- One vertical line and one horizontal line intersect in one point where they make **4 right angles**.



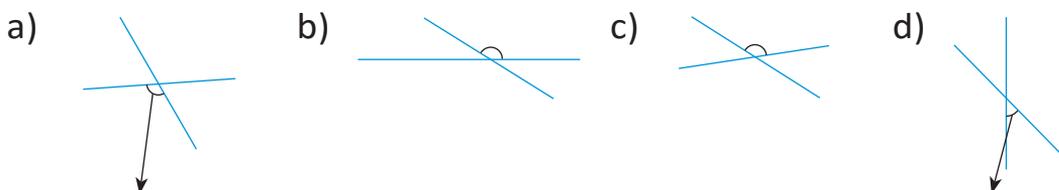
### Pair assessment 10.1.13

- Draw intersecting lines which make right angles between them
- Use rulers, sticks, and pens to draw two lines which intersect and make right angles.

## 10.1.4 Intersecting lines with acute and obtuse angles

### Activity 10.1.4

Study the following lines. What are their characteristics? How are angles formed by these lines?





Use a ruler, draw two straight oblique lines which intersect and form acute angles and obtuse angles. How many are they?

### I have learnt that:

- Intersecting lines have different directions;
- An oblique straight lines towards right and an oblique straight line towards left intersect in one point where they form 4 angles: **two acute angles and 2 obtuse angles.**



### Pair assessment 10.1.4

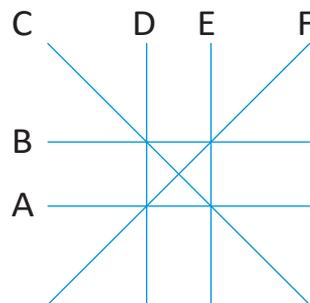
- Draw intersecting lines which form acute and obtuse angles.
- Use rulers,, sticks,, and pens to draw two oblique straight lines which intersect and make angles.

### Application activity 10.1.4



Study lines below and give names of lines as requested.

- A and B are ..... lines.
- A and C are ..... lines
- A and D are ..... lines
- A and F are ..... lines
- A and E are ..... lines
- B and D are ..... lines
- B and C are ..... lines
- B and E are ..... lines.



## 10.2 Types of angles

### 10.2.1 Right angle

#### Activity 10.2.1

Study the following picture. What do you see?



#### Self Assessment 10.2.1

Use a protractor and a ruler to draw a right angle.

#### I have learnt that:

- - A right angle is formed by two straight lines: the horizontal and the vertical lines.
- - A right angle measures 90 degrees.
- - We use a protractor to measure the value of an angle.



#### Pair assessment 10.2.1

- Draw 4 right angles.
- Find names of different objects which have a right angle: in your classroom or outside.

## 10.2.2 Acute angle

### Activity 10.2.2

Study the figure below, what do see?



### Self Assessment 10.2.2



Use a ruler and protractor to draw an acute angle.

### I have learnt that:

An acute angle is formed by two straight lines: one is vertical another is oblique. The value of an acute angle is less than 90 degrees.

### Application activity 10.2.2



- a. Draw 4 acute angles.
- a. Find names of different objects which have an acute angle: in your classroom or outside.

## 10.2.3 Obtuse angle

### Activity 10.2.3

Study the following figure. What do you see?



### Self Assessment 10.2.3



Use a ruler and protractor to draw an obtuse angle.

#### I have learnt that:

An obtuse angle is formed by two straight lines: one is vertical another is oblique, or one is horizontal, another is oblique.

The value of an obtuse angle is greater than 90 degrees. It is between 90 degrees and 180 degrees.

#### Application activity 10.2.3a



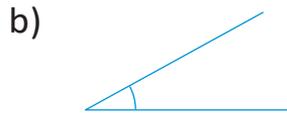
- Draw 4 obtuse angles.
- Find names of different objects which have an obtuse angle: in your classroom or outside.

### Application activity 10.2.3b

1. Study this picture. Show and give names of angles on it.



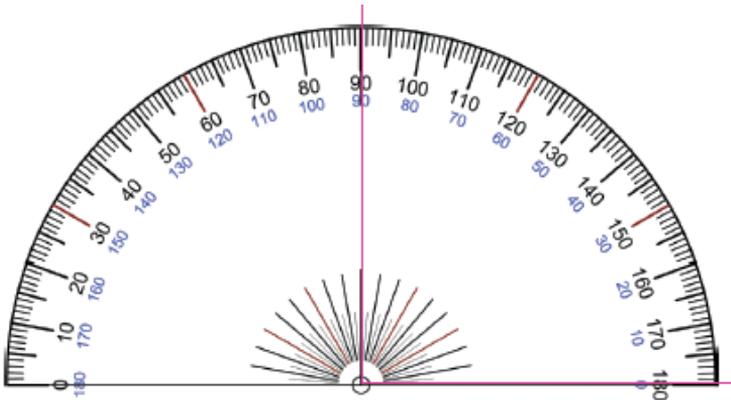
2. Give names of the following angles;



## 10.3 Use of a protractor to measure any angle

### Activity 10.3

Study the picture below. What do you see?



### I have learnt that:

The instrument used for measuring an angle is called a **protractor**.

#### When measuring an angle:

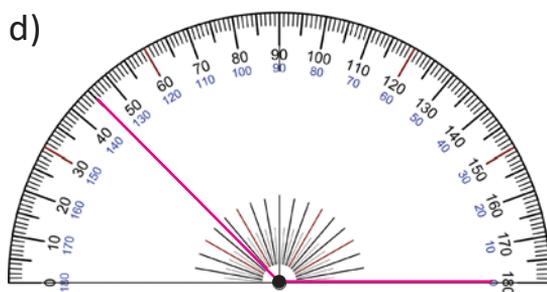
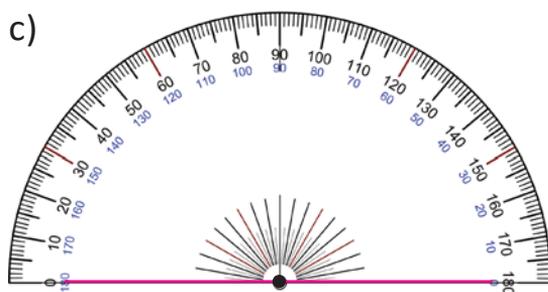
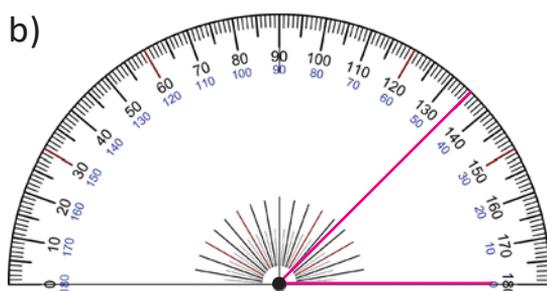
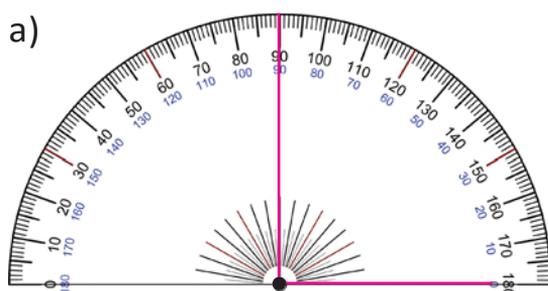
- Place the protractor so that its centre 0 is at the point of intersection of the two lines of that angle;
- Adjust the protractor so that the horizontal line on it (joining 0 degree and 180 degrees) runs along one of the lines of an angle;
- Measure the angle by counting the number of degrees from one line of the angle to the next line of that angle.



#### Self Assessment 10.3



Study the protractor below and give the value of the angle between two red lines





## Pair assessment 10.3

Use a protractor and a ruler to draw the following angles..

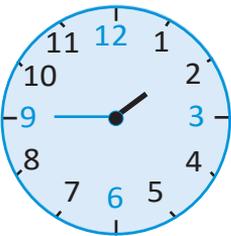
- a)  $75^\circ$                       c)  $125^\circ$                       e)  $76^\circ$   
b)  $90^\circ$                       d)  $150^\circ$                       f)  $35^\circ$

### Application activity 10.3

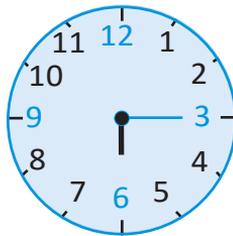


1. Use a protractor and measure the angle formed by the short hand and the long hand for the following clock faces. (You can use dotted lines to enlarge hands).

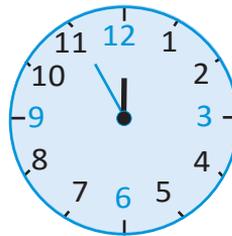
a)



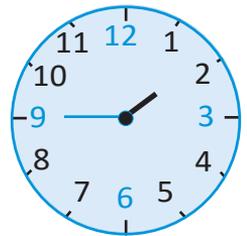
b)



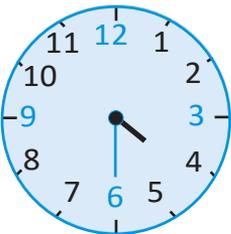
c)



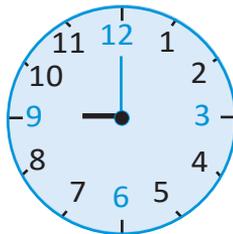
d)



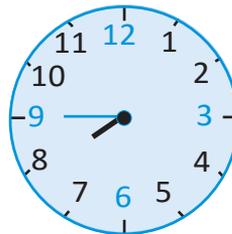
e)



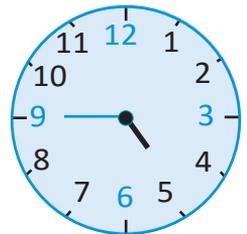
f)



g)



h)



2. Using a ruler a protractor and a pencil, draw the following angles by joining letters basing on the instructions given below. Name the angles formed. .

A•

•B

C•

•D

E•

•F

G•

•H

I•

•J

K•

•L

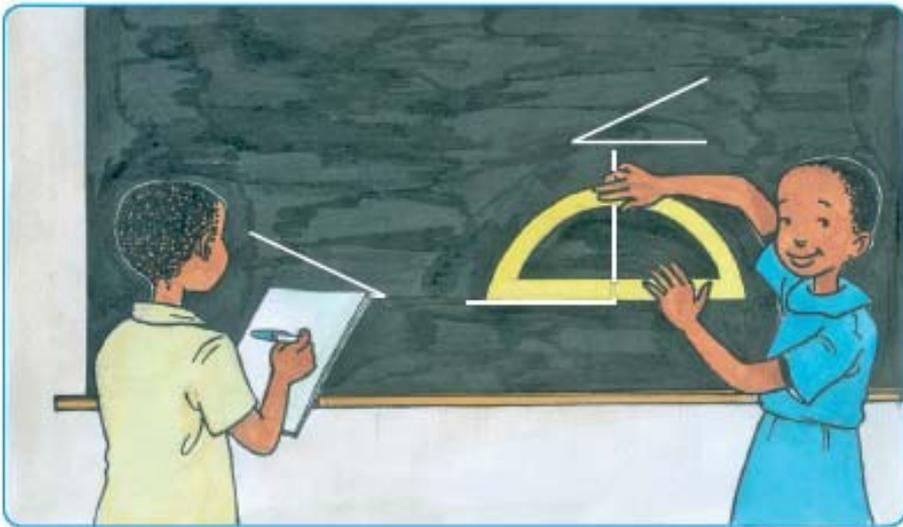
- a) Join B and A together with B and E
- b) Join J and K together with J and F
- c) Join G and B together with G and H
- d) Join I and J together with I and F.

## 10.4 Comparing angles

### 10.4.1 Acute angle and the right angle

#### Activity 10.4.1

Study the following figure, what do you see? What are the children doing?



Self Assessment 10.4.1



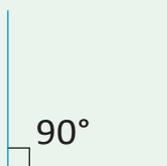
Draw an acute angle and a right angle. Measure them and compare their values.

### I have learnt that:

A right angle is greater than an acute angle.

**Example:**  $90^\circ > 45^\circ$

a) A right angle of  $90^\circ$



b) an acute angle of  $45^\circ$



### Pair assessment 10.4.1

Draw two right angles and two acute angles.

Use a protractor to measure them and then compare these angles.

### 10.4.2 A right angle and an obtuse angle

#### Activity 10.4.2

Study the figure, what do you see?



### Self Assessment 10.4.2.

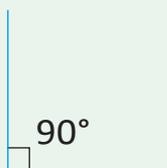
Draw a right angle and an obtuse angle. Measure them and compare their values.

**I have learnt that:**

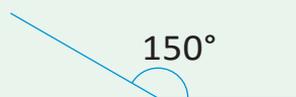
An obtuse angle is greater than a right angle.

**Example:**  $90^\circ < 150^\circ$

a) right angle of  $90^\circ$



b) obtuse angle of  $150^\circ$



**Pair assessment 10.4.2**

Use a protractor and draw two right angles and two obtuse angles. Compare these angles.

**10.4.3 An obtuse angle and an acute angle**

**Activity 10.4.3.1**

Study the picture below, what do you see,



**Activity 10.4.3.2**

Draw an acute angle and an obtuse angle. Measure and compare them.

**I have learnt that:**

An obtuse angle is greater than an acute.

**Example:**  $135^\circ > 55^\circ$

a) An obtuse angle of  $135^\circ$



b) an acute angle of  $55^\circ$



**Pair assessment 10.4.3**

Use a protractor and draw two acute angles and two obtuse angles. Compare these angles.



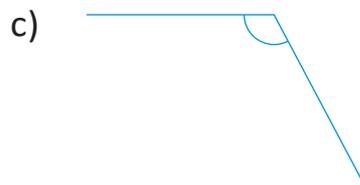
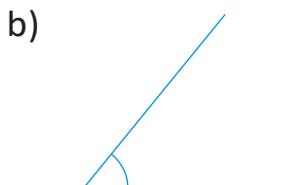
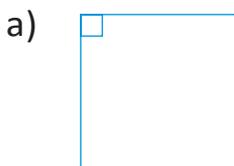
**Self Assessment 10.4.3**

Draw the following clock faces with hands, measure angles formed by the hour hand and the minute hand.

- a) The clock showing forty five minutes past three.
- b) 8:30
- c) The clock showing fifteen minutes past eleven.

**Application activity 10.4.3**

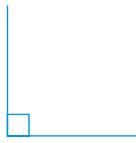
Measure the following angles and use  $>$ ,  $<$  or  $=$  to compare their values.



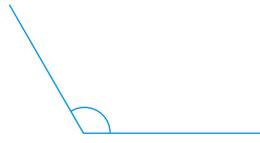
## 10.5 End of unit assessment 10

1. Use a protractor and find the value for the following angle:

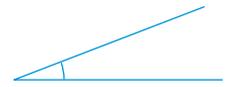
a)



b)



c)



2. Observe the following lines and give their names

a) A and B are .... lines

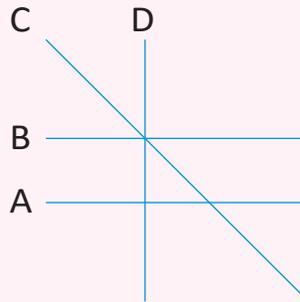
b) C and D are .... Lines

c) A and D are .... lines

d) B and D are .... lines

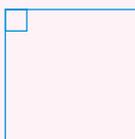
e) C and A are .... lines

f) B and C are .... lines

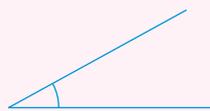


3. Give the name of these angles

a)



b)



c)



4. Use a ruler and a protractor to draw these angles:

a)  $56^\circ$

b)  $98^\circ$

c)  $170^\circ$

d)  $135^\circ$

5. Draw:

a. Intersecting lines forming a right angle.

b. Two parallel lines

c. Intersecting lines forming acute angles and obtuse angles

6. Answer YES or NO

a) A right angle is greater than an obtuse angle.

b) Two parallel straight lines cannot meet (cannot intersect);

c) A right angle is greater than an acute angle;

d) An obtuse angle is greater than an acute angle.

# SQUARE, RECTANGLE, TRIANGLE AND CIRCLE

## 11.0 Introductory activity



Before constructing a house, a mason asked Karisa to tell him the geometric figure and the perimeter of his land so that the mason may determine easily the needed materials. Karisa failed as he does not know any geometric figure. What does Karisa need to learn in Mathematics?

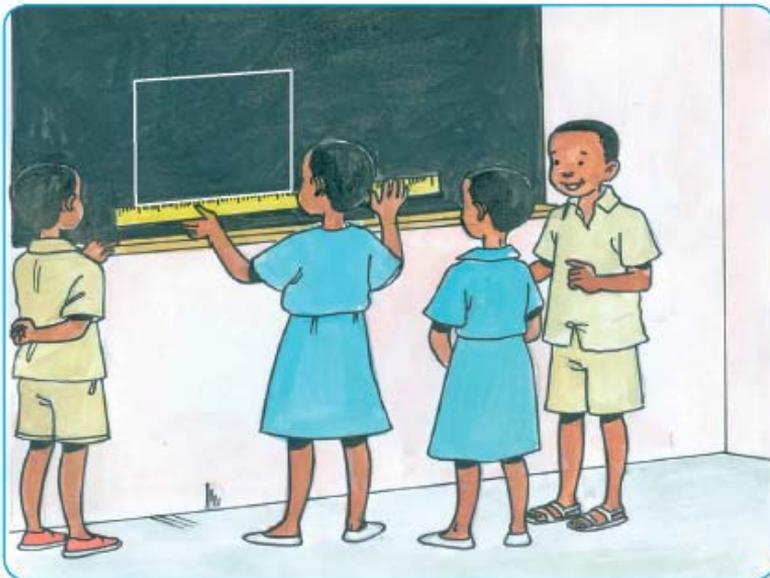


## 11.1 The square

### 11.1.1 Properties of a square

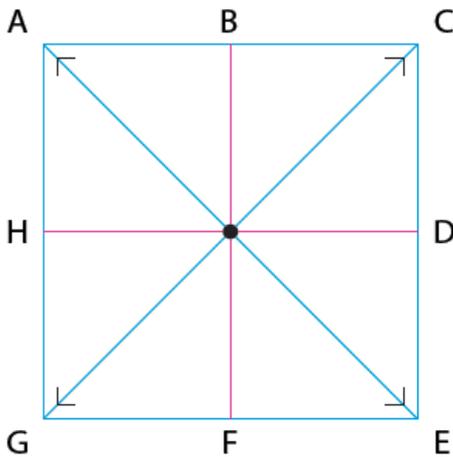
#### Activity 11.1.1.1

Study the figure below. What do you see? How are sides of the figure drawn?



### Activity 11.1.1.2

Study the following square. Mention the names of lines joining letters that you see on the square.



#### I have learnt that:

A square is a geometric figure with the following properties: :

- A square has 4 equal sides: (  $AC = CE = EG = AG$  )
- A square has 4 right angles;
- A square has 2 equal medians: (BF) and (HD)
- A square has 2 diagonals: (AE) and (CG)
- A square has 4 lines of symmetry
- The diagonals of a square bisect each other at a right angle
- The medians are straight lines cutting two parallel sides of a square in two equal parts.
- The diagonals are straight lines joining two parallel angles of a square.
- The Median and the diagonals meet in the centre point of a square.

### Activity 11.1.1.3

Draw a square of side 8cm. Within the square, draw:

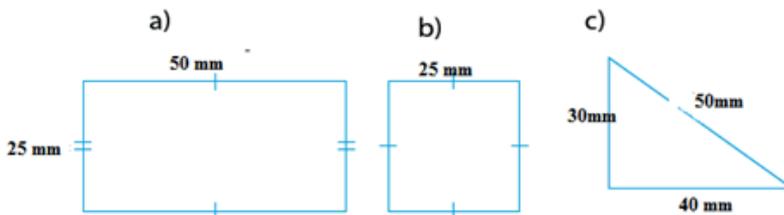
- Medians
- Diagonals.



#### Self Assessment 11.1.1



- Select the square among these geometric figures:



- Draw a square whose side equals to 4cm. Insert diagonals and medians.



#### Pair assessment 11.1.1

- Find in your classroom all objects with the form of a square.
- Take boxes or sheets of paper, fold them to make squares. Then cut squares and hang them in your classroom.

#### Application activity 11.1,1



- Give names of objects which have the form of a square.
- Observe this figure and answer the questions that follow:

	Give names of the following lines: a) RV: b) ZU: c) SW: d) TY:
--	--

## 11.1.2 Perimeter of a square

### Activity 11.1.2

- Draw a square whose side is 12cm in length.
- Surround this square with a rope.
- Measure the total length of this rope;
- Measure the length for all sides of the square and add them.
- Compare the length of the rope and the sum of lengths for all 4 sides
- Explain what you find.

#### I have learnt that:

- The perimeter of a square equals the sum of all 4 sides of the square;
- $\text{Perimeter} = \text{Side} + \text{side} + \text{side} + \text{side}.$
- The perimeter of a square equals four times of its side.
- $\text{Perimeter} = \text{Side} \times 4$
- The side = perimeter divided by 4.
- $\text{Side} = \text{Perimeter} : 4$

### Example:

1. Find the perimeter of a square whose side equals 75 cm.
2. Find the length of one side of a square whose perimeter is 900cm.

Given	Request	Formula and calculation
1) the side = 75cm	Perimeter	Perimeter = side $\times$ 4 Perimeter = 75 cm $\times$ 4 = 300 cm
2) Perimeter= 900cm	Side	Side = Perimeter $\div$ 4 Side = 900 cm $\div$ 4 = 225 cm



### Self Assessment 11.1.2



Find the the perimeter of a square which has:

- a) 125 cm of side
- b) 407 cm of side
- c) 602 cm of side
- d) 765 cm of side.



### Pair assessment 11.1.2

1. Find the length of the side of a square whose perimeter is:  
a) 640 cm    b) 196 cm    c) 312 cm    d) 676 cm
2. Find the perimeter of a squared piece of land whose length of one side is 80cm..
3. Find the length of the side of a square with the perimeter of 1,700m.

### Application activity 11.1.2



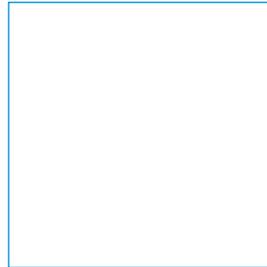
1. Find the perimeter of a squared window of side 145cm.
2. Find the length of a squared piece of land whose perimeter 160cm.
3. Find the perimeter of the following figure::

a)



25 cm

b)



35 cm

## 11.2 The rectangle

### 11.2.1 Properties of a rectangle

#### Activity 11.2.1.1

Study the picture below. What do you see? What are children doing?

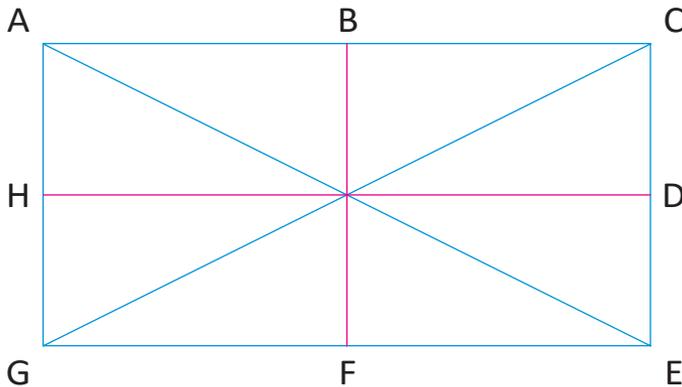


### Activity 11.2.1. 2

Draw a rectangle of width 12cm and length is 16cm. Study it and list down its properties. Are all its sides equal?

### Activity 11.2.1.3

Study this figure, what are other properties of a rectangle if you consider the lines you are seeing.



#### I have learnt that:

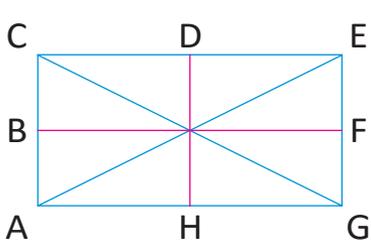
A rectangle is a geometric figure with the following properties::

- It has 4 sides such that that 2 parallel sides are equal: we have  $AC = GE$  and  $AG = CE$
- The long side is called the Length (L):  $AC$  and  $GE$  are the lengths for the rectangle  $ACEG$ ;
- The short side is called the width (W) of a rectangle:  $AG$  and  $CE$  are the width for the rectangle  $ACEG$ .
- A rectangle has 4 right angles;
- The rectangle has 2 diagonals of the same length:  $(AE)$  and  $(CG)$
- The rectangle has two medians: The first  $BF$  is equal to the width; the second  $HD$  is equal to the length.



## Pair assessment 11.2.1

Study the following rectangle and name these lines.



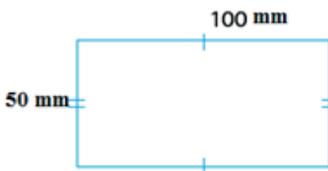
- a) AC is a \_\_\_ e) AE is a \_\_\_  
b) CG is a \_\_\_ f) HD is a \_\_\_  
c) AG is a \_\_\_ g) GE is a \_\_\_  
d) BF is a \_\_\_ h) FE is a \_\_\_



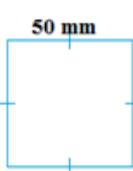
## Self Assessment 11.2.1

1. Draw a rectangle whose width is 5cm and length is 7cm. Put diagonals and medians.
2. Which figure is a rectangle below?

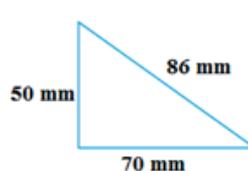
a)



b)



c)



## Application activity 11.2.1

1. Find different objects in your classroom which have the form of a rectangle.
2. Use sheets of paper or boxes and make rectangular objects. Hang them in your classroom.
3. List other objects which have the form of a rectangle.

## 11.2.2 Perimeter of a rectangle

### Activity 11.2.2

- Draw a rectangle whose length is 20cm and width is 10cm.
- Surround this rectangle with a rope, fix its length and cut it.
- Measure the total length of this rope;

- Measure the length for all sides of the rectangle and add them.
- Compare the length of the rope and the sum of lengths for all 4 sides of the rectangle.
- Explain what you find.

### I have learnt that:

- The perimeter of a rectangle equals the sum of all 4 sides;
- Perimeter = Side + side + side + side =  $L + W + L + W$
- The perimeter of a rectangle equals **(Length + Width) x 2**.
- **Perimeter =  $(L+W) \times 2$**

### Example:

Find the perimeter for a rectangle whose length is 74cm and width measures is 56cm

Given	Request	Formula and answer
Length= 74cm Width = 56 cm	Perimeter =?	Perimeter = $(L+ W) \times 2$ Perimeter: $(74\text{cm} + 56\text{cm}) \times 2 = 260\text{cm}$



### Pair assessment 11.2.2

Find the perimeter for a rectangle with:

- The length of 350cm and the width of 100cm.
- The length of 475cm and the width of 215cm.
- The length of 564cm and the width of 245cm
- The length of 368cm and the width of 162cm.



## Self Assessment 11.2.2



1. Find the perimeter of a rectangular piece of land of length 570cm and width is 450cm.
2. Find the perimeter for a rectangular door which has 750 cm of length and 250cm of width.

## Application activity 11.2.2



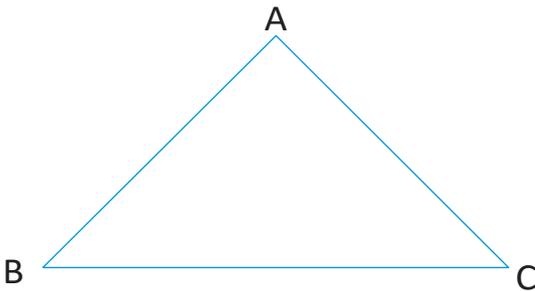
1. Find the perimeter for a rectangle with:
  - a) The length of 124 cm and the width of 98 cm.
  - b) The length of 259 cm and the width of 198 cm.
  - c) The length of 412 cm and the width of 395 cm
2. Find the perimeter of a rectangular plot with 63 m of length and 39m of width.
3. Calculate the perimeter for a rectangular table with 250cm of length and 150cm of width.

## 11.3 The triangle

### 11.3.1 Properties of a triangle

#### Activity 11.3.1.1

Study the figure below. What do you see? How many angles does it have?



**I have learnt that:**

A triangle is a geometric figure which has 3 sides and 3 angles.

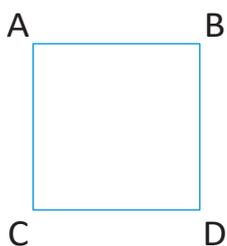
**Activity 11.3.1.2**

Consider the following figures, Which one is the triangle? Give a reason for your answer.

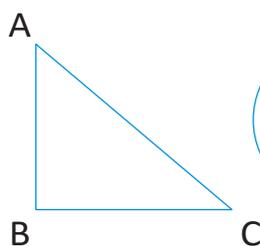
a)



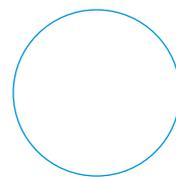
b)



c)



d)



**Activity 11.3.1.3**

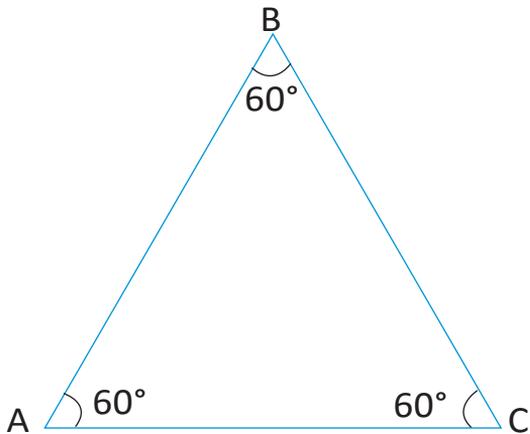
1. Find different objects in your classroom which have the form of a triangle.
2. Use sheets of paper or boxes and make triangular objects. Hang them in your classroom.
3. List other objects which have the form of a triangle.

**11.3.2 Types of triangles**

**11.3.2.1 Equilateral triangle**

**Activity 11.3.2.1a**

Look at this triangle, measure the length of its sides, the values of its angles and compare them. What do you notice?



I have learnt that:

**An equilateral triangle has:**

- Three equal sides:  $AB = BC = CA$
- Three equal angles : all angles measures 60 degrees.
- The sum of 3 angles of a triangle is 180 degrees:  $60^\circ \times 3 = 180^\circ$ .

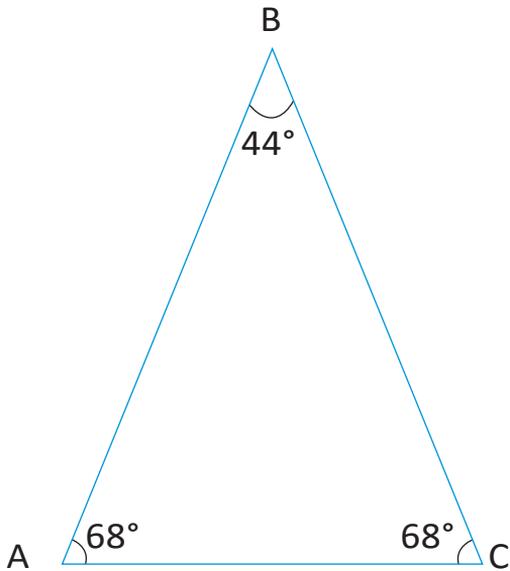
### Activity 11.3.2.1b

1. Find different objects in your classroom which have the form of an equilateral triangle.
2. Use sheets of paper or boxes and make equilateral triangular objects. Hang them in your classroom.
3. List other objects which have the form of an equilateral triangle.

### 11.3.2.2 Isosceles triangle

#### Activity 11.3.2.2a

Look at this triangle, measure the length of its sides, the values of its angles and compare them. What do you notice?



### I have learnt that:

**Isosceles** triangle has:

- Two sides equal:  $AB = BC$
- Two angles equal: The angle  $BAC =$  the angle  $ACB$  ( $\sphericalangle BAC = \sphericalangle ACB$ )
- The sum of 3 angles of an equilateral triangle is 180 degrees.

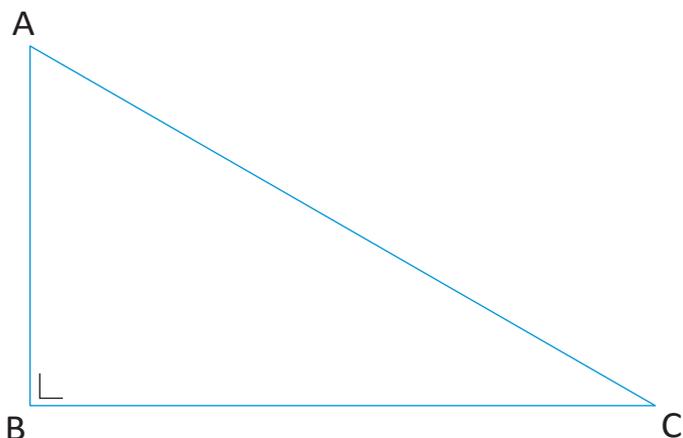
### Activity 11.3.2.2b

1. Find different objects in your classroom which have the form of an isosceles triangle.
2. Use sheets of paper or boxes and make isosceles triangular objects. Hang them in your classroom.
3. List other objects which have the form of an isosceles triangle.

### 11.3.2.3 A right angled triangle

### Activity 11.3.2.3a

Look at this triangle, measure the length of its sides, the values of its angles and compare them. What do you notice?



I have learnt that:

**A right angled triangle** has:

- - Three sides;
- - One right angle and two acute angles
- The sum of 3 angles of a right angled triangle is 180 degrees.

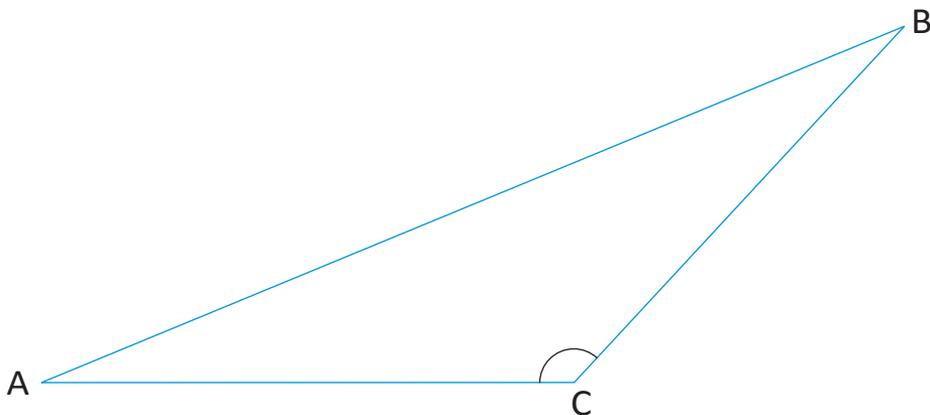
### Activity 11.3.2.3b

1. Find different objects in your classroom which have the form of a right angled triangle.
2. Use sheets of paper or boxes and make right angled triangular objects. Hang them in your classroom.
3. List other objects which have the form of a right angled triangle.

### 11.3.2.4 The scalene triangle

#### Activity 11.3.2.4a

Look at this triangle, measure the length of its sides, the values of its angles and compare them. What do you notice?



**I have learnt that:**

A scalene triangle has:

- Three sides of different lengths;
- Three angles of different values: one is obtuse and 2 others are acute angles.
- The sum of 3 angles of a scalene triangle is 180 degrees.

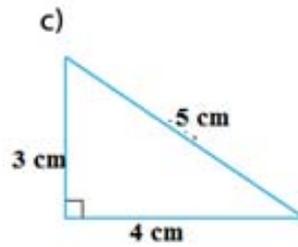
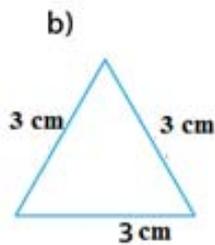
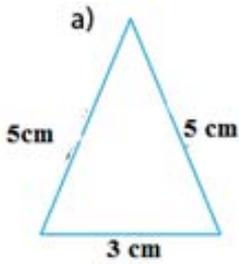
**Activity 11.3.2.4b**

- Find different objects in your classroom which have the form of a scalene triangle.
- Use sheets of paper or boxes and make objects with the form of a scalene triangle. Hang them in your classroom.
- List other objects which have the form of a scalene triangle.



**Pair assessment 11.3.2.4**

Name the following triangles



Self Assessment 11.3.2.4



Fill in the blank spaces.

- The sum of all angles of a triangle is equal to.... degrees.
- The equilateral triangle has ..... equal sides and ..... equal angles.
- Each angle of an equilateral triangle measures .....
- A triangle with two equal sides is called ..... triangle.
- A triangle with one right angle is called .....
- The isosceles triangle has ..... equal angles.

### 11.3.3 The perimeter of a triangle

#### Activity 11.3.3

Draw any triangle. Measure the length for all sides. Write down their measurements and add them.

Surround this triangle with a rope and measure its length

Compare the length of the rope and the sum of all 3 sides. What do you notice?

### I have learnt that:

- The perimeter of a triangle is equal to the sum of the lengths for its 3 sides;
- The perimeter of a triangle = First side + second side + third side
- The perimeter of an equilateral triangle equals three times the side, this means Perimeter = side  $\times$  3
- The side for an equilateral triangle is equal to the perimeter divided by three.

This means: Side = Perimeter : 3

### Example:

Find the perimeter for a triangle with sides equal 145 cm, 172 cm and 159 cm respectively.

Given	Request	Formula and answer
<ul style="list-style-type: none"><li>• The first side: 145cm</li><li>• The second side: 172 cm</li><li>• The third side: 159 cm</li></ul>	Perimeter=?	<ul style="list-style-type: none"><li>• Perimeter= First side + second side + third side</li><li>• Perimeter= 145 cm + 172 cm + 159 cm = 476 cm</li></ul>



### Pair assessment 11.3.3

Find the perimeter for triangles whose sides measure the following:

- a) 230 cm, 250 cm and 350 cm
- b) 150 cm, 150 cm and 150 cm

c) 270 dm, 270 dm and 110 dm

d) 75 cm, 59 cm and 68 cm.



### Self Assessment 11.3.3



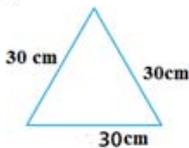
1. Find the perimeter for an equilateral triangle whose side measures 97 cm.
2. Find the perimeter of a triangular piece of land with equal sides of 195cm.

### Application activity 11.3.3

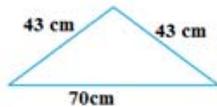


Calculate the perimeter of the triangles below

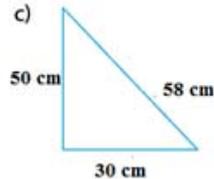
a)



b)



c)



## 11.4 The circle

### 11.4.1 Properties of a circle.

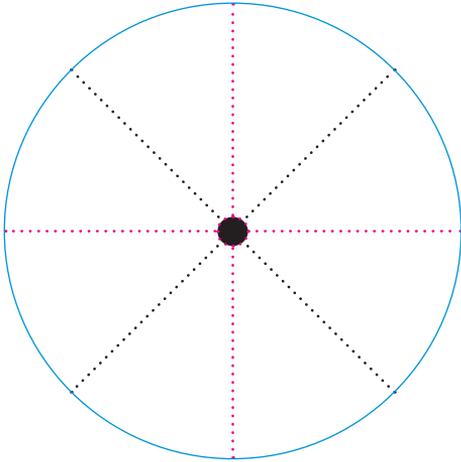
#### Activity 11.4.1

Look at the following figure. What are children doing? What are the properties of this geometric figure? How can you draw it?



### Activity 11.4.2

Look at this figure, What is its name? Identify its properties.

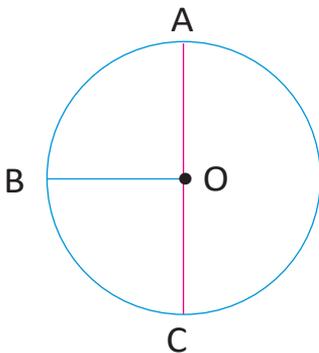


#### I have learnt that:

- A circle is the set of all equidistant points from the same point called center of the circle.
- All those points make a circle.
- The center of a circle is the central point such that the distance from the center to every part of the circle remains the same.

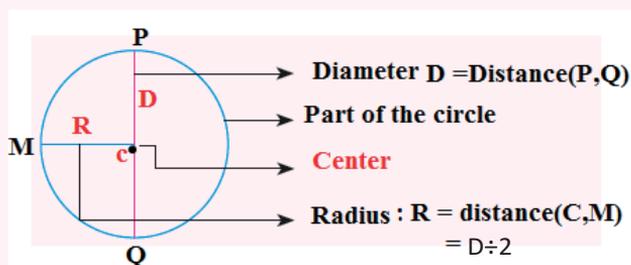
### Activity 11.4.3

Look at the line segments in the circle. How are they?



### I have learnt that:

- The radius (**R**): it is a straight line segment joining the center of a circle and any other point of this circle.
- The diameter (**D**): it is a straight line segment which passes through the center of a circle and joins two points of this circle. It divides the circle into two equal parts.
- The diameter is twice the radius.  $D = 2R$ .
- The radius is half of a diameter:  $R = D \div 2$
- To draw a circle, start from the center.
- The perimeter of the circle equals to the length of the curved line of the circle called circumference.



### Activity 11.4.4

Use a pair of compass to draw a circle of radius 10cm. Explain how you do it.



#### Self Assessment 11.4

1. Find different objects which have a circle located in your classroom.
2. Tell the names of objects which look like a circle.

3. Complete these sentences:

- a) The diameter is twice of ....'
- b) The radius is half of .....
- c) Two times the radius give .....
- d) The point in the centre of a circle is called .....
- e) The line which passes through the center and divide the circle into two equal parts is called....

**I have learnt that:**

- use a **pair of compass** to draw a circle;

When you want to draw a circle, do the following:

- Verify if the pair of compass is well fixed and the pencil is sharp



- Fix the pencil in the pair of compass;
- Choose the center C of the circle;
- Use a ruler to draw the radius of the circle: from the center C to a point P corresponding to the length of the radius ( $R = CP$ );
- Fix the pair of compass on the center and open it to the length of the radius R.
- Turn the pair of compass around C to make a complete round.



## Pair assessment 11.4

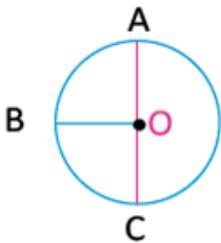
- Use a pair of compass to draw a circle, show the center, the radius and a diameter in that circle.
- Draw a circle and show the centre, a radius and a diameter on a sheet of paper or a manila paper and put it in the classroom as a decoration.

## Application activity 11.4



Study the circle and answer questions that follow:

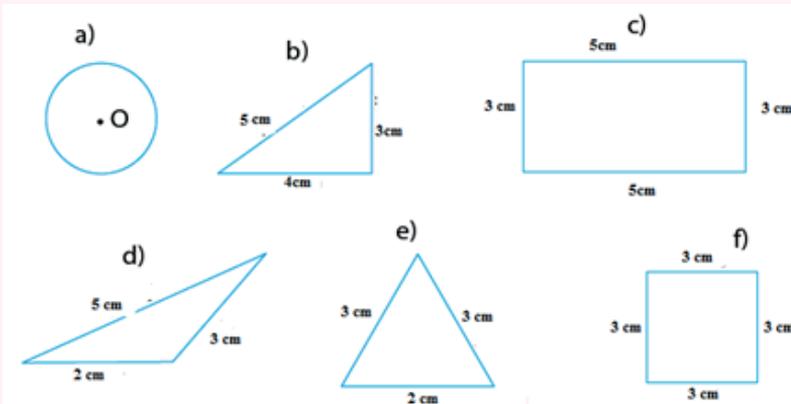
Name the following lines:



- OC is.....
- OB is .....
- AC is .....
- OA is .....

## 11.5 End of unit assessment 11

1. Look at the following geometric figures. Name them:.



2. Draw the following:

- Equilateral triangle with 16 cm of side.
- The square with 13 cm of side.
- A rectangle whose length is 20 cm and width is 10 cm.
- A circle which has 8cm of radius.

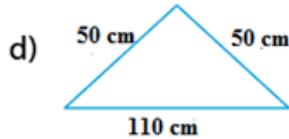
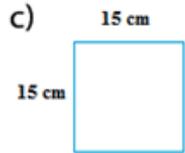
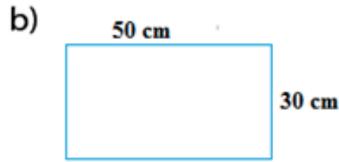
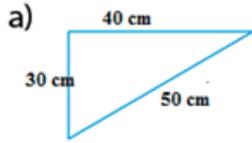
3. Find the perimeter of:

- The square with 135cm of side
- The rectangle which has 364 cm of length and 132 cm of width.
- A triangle whose sides are; 605cm, 235 cm and 385 cm respectively.

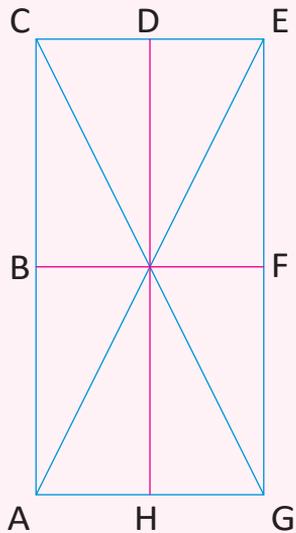
4. Answer YES or NO

- A square has obtuse angles
- A rectangle has right angles
- The radius is greater than the diameter of the same circle
- The center of a circle is a central point of that circle.
- Isosceles triangle has 3 equal sides.

5. Find the perimeter of the following geometric figures:

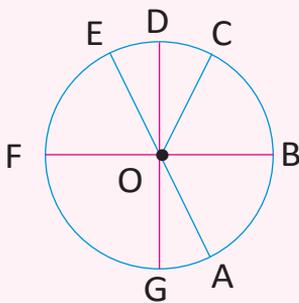


6. Study the following geometric figures with special line segments and answer the questions that follow:



a) Name the following lines and the figures formed:

- 1) AC is .....
- 2) CG is .....
- 3) AG is .....
- 4) BF is .....
- 5) AEG is .....
- 6) HD is .....
- 7) GECA is .....
- 8) CEA is .....



b) Name the following line::

- 1) AE is .....
- 2) OB is .....
- 3) FD is .....
- 4) OC is .....
- 5) OD is .....
- 6) OA is .....
- 7) OF is .....
- 8) OE is .....
- 9) DG is .....
- 10) OG is .....

## 12.0 Introductory activity



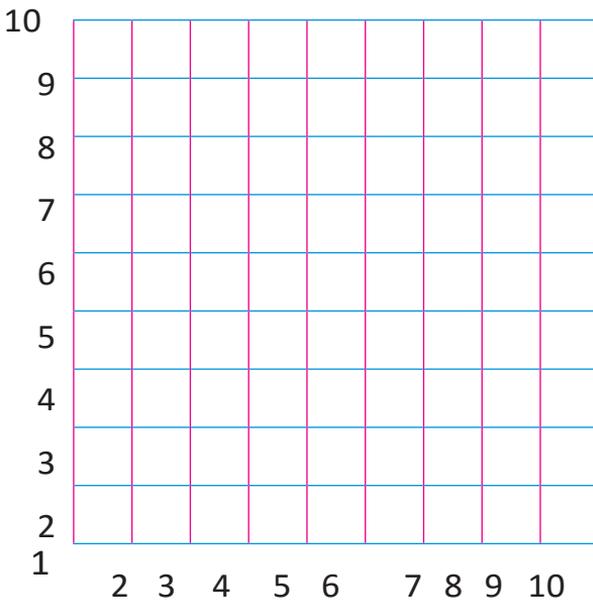
During the competition of drawing grids, the representative of our school drew only grids instead of representing geometrical shapes such as squares, rectangles and triangles on the grid. Explain what he was supposed to do and how he could do it.



## 12.1 Properties of a grid

### Activity 12.1

Study the grid below, re-draw it, count and name all lines on the grid.



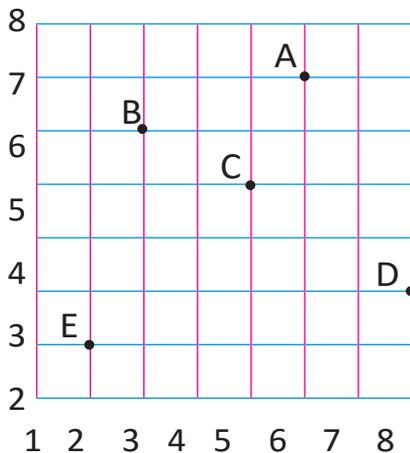
### I have learnt that:

1. A grid is made up with vertical lines (posts) and horizontal lines (crossing lines).
2. Numbering of vertical lines is done from left to right side.
3. Numbering horizontal lines is done from down to up.

## 12.2 Locating a point on a grid

### Activity 12.2.1

Study the grid and describe where the following points are located: A, B, C, D and E



### Example:

- Point A is located at the vertical line number 6 and horizontal line number 7  $\longrightarrow$  A(6,7)
- Point B is located at the vertical line number 3 and horizontal line number 6  $\longrightarrow$  B(3,6)

### I have learnt that:

Plotting of a point on a grid is shown by 2 numbers. The first number is showing the order of the vertical line and the second number is showing the order of the horizontal line where the point is located.

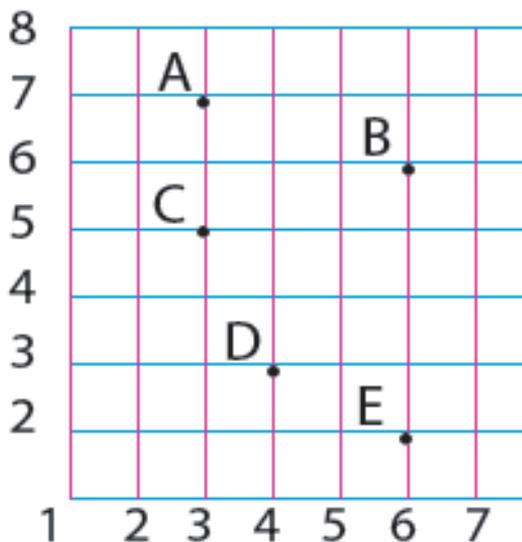


### Pair assessment 12.2

Draw a grid made by 6 vertical lines and 6 horizontal lines and plot the following points: A (2, 4)      B (4, 3)      C (3, 2)

### Activity 12.2.2

Study the grid and read the the given points from the grid.





### I have learnt that:

To draw a square on a grid you first plot the given 4 points to get the vertices of the square and then join those points using a ruler in order to get the square.



### Self Assessment 12.3.1

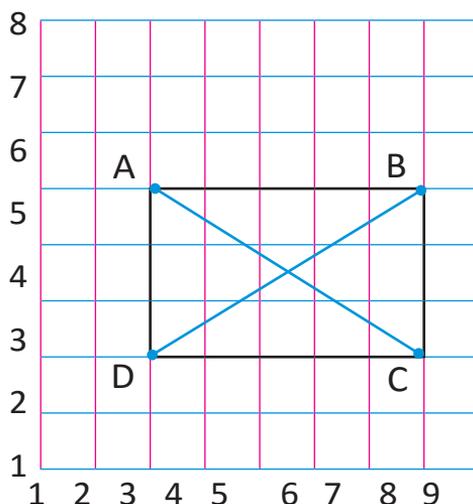


Draw a grid of your choice (use your own number of vertical and horizontal lines), draw a square on it and then plot the points or vertices of your square.

### 12.3.2 Rectangle on a grid

#### Activity 12.3.2.1

Study the grid and explain how it was constructed (number of vertical lines and number of horizontal lines). Measure the sides of the shape on the grid and name it.









### Self Assessment 12.3.3



- Draw a grid of 7 vertical lines and 7 horizontal lines
- Plot point A on the 6<sup>th</sup> horizontal line and 6<sup>th</sup> vertical line
- Plot point B on the 2<sup>nd</sup> horizontal line and 2<sup>nd</sup> vertical line
- Plot point C on the 7<sup>th</sup> vertical line and 2<sup>nd</sup> horizontal line.
- Join points C and B; B and A; C and A
- Which type of triangle do you have?



### Pair assessment 12.3.3

- Draw a grid of 10 vertical lines and 10 horizontal lines.
- Draw on it a triangle joining the following points: A (4, 6); B (2, 2); C (6, 2)

### Application activity 12.3.3



- Draw a grid of your choice (use your own number of vertical and horizontal lines)
- Draw on it the following shapes: rectangle, square, triangle
- Locate vertices of those shapes.

### Activity 12.3.3.3

Discuss and explain where you think a grid can be used in real life situation.

## 12.4 End of unit assessment 13

- 1) Study the following grid and mention the given points

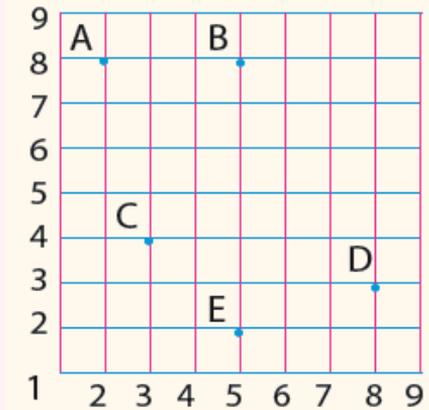
A (\_\_\_, \_\_\_)

B (\_\_\_, \_\_\_)

C (\_\_\_, \_\_\_)

D (\_\_\_, \_\_\_)

E (\_\_\_, \_\_\_)

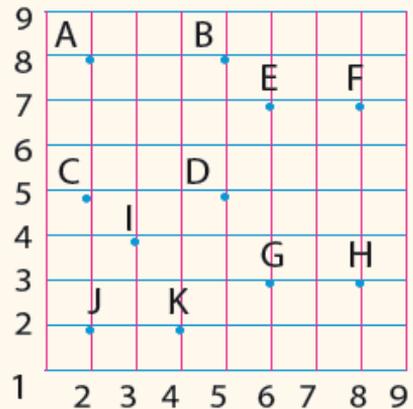


- 2) Find out different shapes after joining the following points

a) A, B, C and D

b) E, F, G and H

c) I, J and K



- 3) Draw a grid of 7 vertical lines and 7 horizontal lines and plot the following points : A (4, 3); B (2, 6); and C (5, 7). Join all points and name the shape you have formed.



# UNIT 13

## FINDING MISSING NUMBER IN ADDITION, SUBTRACTION, MULTIPLICATION AND DIVISION

### 13.0 Introductory activity



Mugenzi and Mugisha won the competition and they were requested to choose among the following prizes: 10 notebooks of 400 Frw each and 50 pens of 100 Frw each. Mugenzi's choice was pens while Mugisha's choice was notebooks. Who chose the most valuable prize? Explain.



### 13.1 Finding missing numbers in addition

#### Activity 13.1

Follow the given example and find the missing number in addition:

#### Example:

1)	$2 \bullet 5$	$5 + \bullet = 8 \longrightarrow 8 - 5 = 3$	$235$
	$+ 16 \bullet$	$\bullet + 6 = 9 \longrightarrow 9 - 6 = 3$	$+ 163$
	<hr style="width: 100%;"/>		<hr style="width: 100%;"/>
	398		398

2)	$\bullet 3 \bullet 5$	$5 + \bullet = 9 \longrightarrow 9 - 5 = 4$	$5325$
	$+ 1 \bullet 6 \bullet$	$\bullet + 6 = 7 \longrightarrow 7 - 6 = 1$	$+ 1264$
	<hr style="width: 100%;"/>	$3 + \bullet = 5 \longrightarrow 5 - 3 = 2$	<hr style="width: 100%;"/>
	6 579	$\bullet + 1 = 6 \longrightarrow 6 - 1 = 5$	6 589

a) 
$$\begin{array}{r} 63\bullet7 \\ + \bullet\bullet4\bullet \\ \hline 8749 \end{array}$$

b) 
$$\begin{array}{r} \bullet8\bullet5 \\ + \bullet1\bullet4 \\ \hline 8049 \end{array}$$

c) 
$$\begin{array}{r} 4\bullet8\bullet \\ + \bullet5\bullet1 \\ \hline 9898 \end{array}$$

#### I have learnt that:

To find the missing number in addition, you subtract the given number from the sum and the difference is the missing number in addition



### Pair assessment 13.1

Find the missing numbers in below:

$$\begin{array}{r} \text{a)} \quad 7 \bullet 8 \bullet \\ + \bullet 1 \bullet 2 \\ \hline 8 \ 796 \end{array}$$

$$\begin{array}{r} \text{b)} \quad 2 \bullet 43 \\ + 13 \bullet 6 \\ \hline \bullet 75 \bullet \end{array}$$

$$\begin{array}{r} \text{c)} \quad \bullet 467 \\ + 4 \bullet \bullet \bullet \\ \hline 6 \ 798 \end{array}$$



### Self Assessment 13.1

Find the missing numbers in below:

$$\begin{array}{r} \text{a)} \quad 6 \bullet 4 \bullet \\ + \bullet 4 \bullet 2 \\ \hline 9 \ 745 \end{array}$$

$$\begin{array}{r} \text{b)} \quad 4 \bullet 67 \\ + \bullet 4 \bullet \bullet \\ \hline 6 \ 798 \end{array}$$

$$\begin{array}{r} \text{c)} \quad \bullet 456 \\ + 4 \ 5 \bullet \bullet \\ \hline 7 \bullet 79 \end{array}$$

## 13.2 Finding missing number in subtraction

### Activity 13.2

Follow the given example and find the missing number in subtraction.

#### Example:

$$\begin{array}{r} \text{1)} \quad 6 \ 543 \\ - 3 \ 4 \bullet \bullet \\ \hline 3 \ 131 \end{array} \quad \begin{array}{l} 3 - \bullet = 1 \longrightarrow 3 - 1 = 2 \\ 4 - \bullet = 3 \longrightarrow 4 - 3 = 1 \end{array} \longrightarrow \begin{array}{r} 6 \ 543 \\ - 3 \ 4 \ 1 \ 1 \\ \hline 3 \ 132 \end{array}$$

$$\begin{array}{r} \text{1)} \quad 7 \bullet 3 \bullet \\ - 6 \ 211 \\ \hline 1 \ 320 \end{array} \quad \begin{array}{l} \bullet - 1 = 0 \longrightarrow 0 + 1 = 1 \\ \bullet - 2 = 3 \longrightarrow 3 + 2 = 5 \end{array} \longrightarrow \begin{array}{r} 7 \ 5 \ 3 \ 1 \\ - 6 \ 2 \ 1 \ 1 \\ \hline 1 \ 320 \end{array}$$

$$\begin{array}{r} \text{a)} \quad 9 \bullet 6 \bullet \\ - 8 \ 132 \\ \hline 1 \ 430 \end{array}$$

$$\begin{array}{r} \text{b)} \quad 4 \ 321 \\ - 2 \bullet 2 \bullet \\ \hline 2 \ 2 \bullet 1 \end{array}$$

$$\begin{array}{r} \text{c)} \quad 7 \ 767 \\ - 3 \bullet \bullet 5 \\ \hline 4 \ 322 \end{array}$$



## Pair assessment 13.2

Find the missing numbers in subtraction

$$\begin{array}{r} \text{a)} \quad 2 \ 130 \\ - 1 \ \bullet 2 \bullet \\ \hline 1 \ 010 \end{array}$$

$$\begin{array}{r} \text{b)} \quad 6 \ \bullet \bullet 1 \\ - 3 \ 420 \\ \hline 3 \ 201 \end{array}$$

$$\begin{array}{r} \text{c)} \quad \bullet \ 456 \\ - 4 \ \bullet \bullet 5 \\ \hline 4 \ 321 \end{array}$$

### I have learnt that:

To find the missing number in subtraction,

- You subtract the difference from the bigger number in case the missing number is the smaller number.
- You add the difference and the bigger number in case the missing number is the greater number.



## Self Assessment 113.2



Find the missing numbers in subtraction

$$\begin{array}{r} \text{a)} \quad 5 \ \bullet \ 5 \ \bullet \\ - 1 \ 321 \\ \hline 4 \ 635 \end{array}$$

$$\begin{array}{r} \text{b)} \quad 4 \ 5 \ 9 \ 7 \\ - 1 \ \bullet \ 8 \ \bullet \\ \hline 3 \ 2 \ 1 \ 5 \end{array}$$

$$\begin{array}{r} \text{c)} \quad 5 \ 9 \ \bullet \ \bullet \\ - 1 \ 6 \ 5 \ 3 \\ \hline 4 \ 3 \ 2 \ 1 \end{array}$$

### Application activity 13.2



Find the missing numbers in subtraction

$$\begin{array}{r} \text{a)} \quad 6 \ 6 \ 9 \ 4 \\ - 1 \ 3 \ \bullet \ \bullet \\ \hline 5 \ 3 \ 2 \ 0 \end{array}$$

$$\begin{array}{r} \text{b)} \quad 2 \ 7 \ 9 \ 9 \\ - \ \bullet \ \bullet \ \bullet \ \bullet \\ \hline 1 \ 5 \ 4 \ 0 \end{array}$$

$$\begin{array}{r} \text{c)} \quad \bullet \ \bullet \ \bullet \ \bullet \\ - 1 \ 4 \ 5 \ 2 \\ \hline 2 \ 3 \ 2 \ 1 \end{array}$$

## 13.3 Finding missing number in multiplication

### Activity 13.3

Follow the given example and find the missing number in multiplication:

**Example:**  $7 \times \bullet = 1638 \rightarrow 1638 \div 7 = 234 \rightarrow 7 \times 234 = 1638$

$$\begin{array}{r} 234 \\ 7 \overline{) 1638} \\ \underline{-14} \phantom{00} \\ 023 \phantom{0} \\ \underline{-21} \phantom{0} \\ 028 \phantom{0} \\ \underline{-28} \phantom{0} \\ 00 \end{array}$$

a)  $4 \times \bullet = 1000$

d)  $9 \times \bullet = 5076$

b)  $\bullet \times 5 = 8050$

e)  $8 \times \bullet = 6312$

c)  $\bullet \times 7 = 6615$

f)  $6 \times \bullet = 5922$

**I have learnt that:**

To find the missing number in multiplication, you divide the product by the multiplicand or multiplier .



### Pair assessment 13.3

Find the missing numbers below:

a) 
$$\begin{array}{r} \bullet \bullet \bullet \bullet \\ \times 9 \\ \hline 1386 \end{array}$$

b) 
$$\begin{array}{r} \bullet \bullet \bullet \bullet \\ \times 8 \\ \hline 2592 \end{array}$$

c) 
$$\begin{array}{r} \bullet \bullet \bullet \bullet \\ \times 9 \\ \hline 4059 \end{array}$$



### Self Assessment 13.3

Find the missing numbers in multiplication

a) 
$$\begin{array}{r} \bullet \bullet \bullet \bullet \\ \times 7 \\ \hline 4788 \end{array}$$

b) 
$$\begin{array}{r} \bullet \bullet \bullet \bullet \\ \times 6 \\ \hline 2952 \end{array}$$

c) 
$$\begin{array}{r} \bullet \bullet \bullet \bullet \\ \times 5 \\ \hline 9780 \end{array}$$

### Application activity 13.3



Find the missing numbers below:

$$\begin{array}{r} \bullet \bullet \bullet \bullet \\ \times 4 \\ \hline 9584 \end{array}$$

$$\begin{array}{r} \bullet \bullet \bullet \bullet \\ \times 3 \\ \hline 9867 \end{array}$$

$$\begin{array}{r} \bullet \bullet \bullet \bullet \\ \times 2 \\ \hline 9794 \end{array}$$

## 13.4 Finding missing numbers in division

### Activity 13.4

Follow the given example and find the missing numbers below:

#### Example:

$$\text{a) } 450 \div \bullet = 9 \longrightarrow 450 \div 9 = 50$$

$$\text{b) } \bullet \div 5 = 245 \longrightarrow 245 \times 5 = 1225$$

$$\text{a) } \bullet \div 5 = 350$$

$$\text{d) } 147 \div \bullet = 7$$

$$\text{g) } 9672 \div \bullet = 3$$

$$\text{b) } 360 \div \bullet = 4$$

$$\text{e) } \bullet \div 6 = 91$$

$$\text{h) } 9819 \div \bullet = 9$$

$$\text{c) } \bullet \div 8 = 120$$

$$\text{f) } 225 \div \bullet = 3$$

$$\text{i) } \bullet \div 586 = 9$$

#### I have learnt that:

To find the missing number in division,

- You multiply the quotient by the divisor in case the missing number is the dividend.
- You divide the dividend by the quotient in case the missing number is the divisor



#### Pair assessment 13.4

Find the missing numbers below:

$$\text{a) } 648 \div \bullet = 8$$

$$\text{b) } 729 \div \bullet = 9$$

$$\text{c) } 847 \div \bullet = 7$$



Find the missing numbers below:

a)  $\bullet \div 6 = 45$

b)  $\bullet \div 5 = 89$

c)  $\bullet \div 4 = 125$

### Application activity 13.4



Find the missing numbers below:

a)  $8795 \div \bullet = 5$

b)  $\bullet \div 9 = 818$

c)  $9534 \div \bullet = 6$

## 13.5 The concept of equation

### 13.5.1 Equations involving addition:

#### Activity 13.5.1.1

Follow the example and explain steps of finding the missing numbers

#### Example:

$$\text{a) } 100 + 25 = 90 + \bullet \quad \longrightarrow (100 + 25) - 90 = 35$$

$$\longrightarrow 100 + 25 = 90 + 35$$

$$\text{b) } 45 + \bullet = 40 + 60 \quad \longrightarrow (40 + 60) - 45 = 55$$

$$\longrightarrow 45 + 55 = 40 + 60$$

$$\text{c) } 75 + 30 = \bullet + 25 \quad \longrightarrow (75 + 30) - 25 = 80$$

$$\longrightarrow 75 + 30 = 80 + 25$$

$$\text{d) } \bullet + 90 = 270 + 80 \quad \longrightarrow (270 + 80) - 90 = 260$$

$$\longrightarrow 260 + 90 = 270 + 80$$

#### Activity 13.5.1.2

Follow the example given in activity 1 and find the missing number

a)  $80 + 30 = 50 + \bullet$

c)  $265 + 35 = 250 + \bullet$

b)  $150 + \bullet = 200 + 45$

d)  $479 + 51 = 350 + \bullet$



### Pair assessment 13.5.1

Find the missing numbers in the following numbers.

a)  $913 + 97 = 803 + \bullet$

c)  $\bullet + 597 = 987 + 519$

b)  $\bullet + 575 = 195 + 875$

d)  $825 + 795 = \bullet + 658$

### I have learnt that:

To find the missing number which verifies the equality in addition, you add two consecutive numbers of one side to get the sum. Subtract the number of the other side from the sum you got to get the missing number.



### Self Assessment 15.5.1

Find the missing numbers:

a)  $875 + \bullet = 1\ 256 + 459$

c)  $654 + 746 = \bullet + 598$

b)  $\bullet + 1\ 575 = 2\ 145 + 875$

d)  $1\ 208 + 726 = 576 + \bullet$

### Application activity 13.5.1

Find the missing numbers in the following equalities

a)  $1\ 758 + \bullet = 1\ 526 + 954$

c)  $1\ 546 + 647 = \bullet + 985$

b)  $\bullet + 575 = 215 + 758$

d)  $2\ 801 + 1\ 267 = 2\ 567 + \bullet$

## 13.5.2 Equations involving subtraction

### Activity 13.5.2

Follow the example and find the missing number

### Example:

- a)  $\bullet - 95 = 180 - 25$   $\longrightarrow (180 - 25) + 95 = 250$   
 $\longrightarrow 250 - 95 = 180 - 25$
- b)  $145 - \bullet = 175 - 65$   $\longrightarrow 175 - 65 = 110$   
 $\longrightarrow 145 - 110 = 35$
- c)  $375 - 178 = \bullet - 265$   $\longrightarrow (375 - 178) + 265 = 462$   
 $\longrightarrow 375 - 178 = 462 - 265$

a)  $235 - 45 = 540 - \bullet$

c)  $430 - 180 = 320 - \bullet$

b)  $725 - \bullet = 600 - 10$

d)  $978 - \bullet = 763 - 220$



### Pair assessment 13.5.2

Find the missing numbers below:

a)  $685 - 175 = 1380 - \bullet$

c)  $\bullet - 459 = 897 - 319$

b)  $185 - \bullet = 485 - 375$

d)  $\bullet - 975 = 1785 - 995$

### I have learnt that:

To find the missing number that verifies the equality in subtraction:

- When the missing number is a minuend, find the difference of the other two numbers and you add their difference to the remaining number of another side
- - When the missing number is a subtrahend, find the other difference of two numbers and you subtract their difference from the remaining number of another side



### Self Assessment 13.5.2

Find the missing numbers below:

a)  $456 - \bullet = 564 - 298$

c)  $\bullet - 345 = 856 - 534$

b)  $975 - \bullet = 721 - 432$

d)  $\bullet - 548 = 729 - 509$

### Application activity 15.3.2

Find the missing numbers below:

- a)  $765 - 348 = \bullet - 205$       c)  $1\ 567 - 1\ 198 = 2\ 018 - \bullet$   
b)  $1\ 234 - 978 = \bullet - 725$       d)  $1\ 453 - 832 = 1\ 519 - \bullet$

### 13.5.3 Equations involving multiplication

#### Activity 13.5.3.1

Follow the example and explain steps of finding the missing numbers

#### Example:

- a)  $6 \times 5 = \bullet \times 3 \longrightarrow 6 \times 5 = 30 \longrightarrow 30 \div 3 = 10$   
b)  $4 \times 12 = 8 \times \bullet \longrightarrow 4 \times 12 = 48 \longrightarrow 48 \div 8 = 6$   
c)  $3 \times \bullet = 20 \times 6 \longrightarrow 20 \times 6 = 120 \longrightarrow 120 \div 3 = 40$   
d)  $\bullet \times 9 = 45 \times 4 \longrightarrow 45 \times 4 = 180 \longrightarrow 180 \div 9 = 20$

#### Activity 13.5.3.2

Follow the example given in activity 1 and find the missing number

- a)  $9 \times 18 = 6 \times \dots$       c)  $\bullet \times 7 = 49 \times 3$   
b)  $36 \times 4 = 9 \times \dots$       d)  $\bullet \times 5 = 75 \times 8$



#### Pair assessment 13.5.3

Find the missing numbers in the following equalities

- a)  $5 \times \bullet = 25 \times 8$       c)  $88 \times 5 = \bullet \times 4$   
b)  $9 \times \bullet = 72 \times 3$       d)  $98 \times 6 = \bullet \times 3$

### I have learnt that:

- To find the missing number in multiplication,
- Multiply the two numbers that are close to each other.
- Divide the the product you get by the remaining number on the other side



### Self Assessment 13.5.3



Find the missing numbers below:

a)  $25 \times 8 = \bullet \times 2$

c)  $125 \times 4 = \bullet \times 5$

b)  $45 \times 8 = 6 \times \bullet$

d)  $\bullet \times 9 = 27 \times 45$

### Application activity 13.5.3



Find the missing numbers below:

a)  $\bullet \times 7 = 35 \times 84$

c)  $3 \times \bullet = 76 \times 9$

b)  $105 \times 89 = 5 \times \bullet$

d)  $5 \times \bullet = 138 \times 65$

## 13.5.4 Equations involving division.

### Activity 13.5.4.1

Follow the example and explain steps of finding the missing numbers

#### Example:

a)  $\bullet \div 5 = 225 \div 3 \longrightarrow 225 \div 3 = 75 \longrightarrow 75 \times 5 = 375$

b)  $120 \div \bullet = 45 \div 9 \longrightarrow 45 \div 9 = 5 \longrightarrow 120 \div 5 = 24$

c)  $225 \div 9 = \bullet \div 8 \longrightarrow 225 \div 9 = 25 \longrightarrow 25 \times 8 = 200$

d)  $72 \div 9 = 64 \div \bullet \longrightarrow 72 \div 9 = 8 \longrightarrow 64 \div 8 = 8$

### Activity 13.5.4.2

Follow the example given in the activity 1 and find the missing number

a)  $824 \div 8 = \bullet \div 4$

c)  $945 \div 9 = \bullet \div 3$

b)  $\bullet \div 9 = 2016 \div 4$

d)  $\bullet \div 7 = 2020 \div 5$



#### Pair assessment 13.5.4

Find the missing numbers below.

a)  $636 \div 6 = \bullet \div 2$

c)  $90 \div \bullet = 100 \div 10$

b)  $81 \div \bullet = 72 \div 8$

d)  $546 \div 6 = \bullet \div 5$

#### I have learnt that:

To find the missing number which verify the equality in division,

- If the missing number is a dividend, divide two numbers of the other side of the equality and you multiply its quotient by the remaining number of another side.
- If the missing number is a divisor, you divide two numbers of the other side of the equality and you divide the dividend of another by the quotient you got at first.



#### Self Assessment 13.5.4

Find the missing numbers in the following equalities

a)  $808 \div 8 = \bullet \div 4$

c)  $918 \div 9 = \bullet \div 3$

b)  $\bullet \div 7 = 175 \div 5$

d)  $\bullet \div 5 = 992 \div 8$

#### Application activity 13.5.4

Find the missing numbers below:

a)  $\bullet \div 9 = 1950 \div 6$

c)  $2464 \div 8 = \bullet \div 9$

b)  $\bullet \div 8 = 436 \div 4$

d)  $12 \div 4 = 9 \div \bullet$

## 13.6 Finding the common difference in number patterns.

### 13.6.1 The common difference in ascending (increasing) number pattern

#### Activity 13.6.1

Follow the example on how to find the common difference in ascending number pattern and work out the given activities.

#### Example:

a) 1 250, 1 300, 1 350, 1 400  $\longrightarrow$   $\frac{50}{(1300 - 1250)} =$   
 $\frac{50}{(1350 - 1300)} = \frac{50}{(1400 - 1350)}$  the common difference is 50

b) 2 400, 2 500, 2 600, 2 700  $\longrightarrow$   $\frac{100}{(2500 - 2400)} =$   
 $\frac{100}{(2600 - 2500)} = \frac{100}{(2700 - 2600)}$  the common difference 100

a) 855, 1 355, 1 855

b) 205, 505, 805, 1105



#### Pair assessment 13.6.1

Find the common difference for the following number patterns in ascending order

a) 1 005, 1 075, 1 145

b) 239, 300, 361, 422

#### I have learnt that:

To find the common difference in an ascending order number patterns, you subtract the first number from the second one, and so on .



Find the common difference for the following number patterns

- a) 295, 333, 371, 409      b) 178, 299, 420, 541

### Application activity 13.6.1



Find the common difference for the following number patterns

- a) 397, 630, 863, 1096      b) 524, 700, 876, 1052

## 13.6.2 The common difference in a descending (decreasing) number pattern

### Activity 13.6.2.1

Study the example and explain how the common difference is calculated.

#### Example:

$$\begin{array}{l} \text{a) } 324, 270, 216, 162 \longrightarrow \frac{54}{(324 - 270)} = \frac{54}{(270 - 216)} = \\ \frac{54}{(216 - 162)} \text{ Common difference is } 54 \end{array}$$

$$\begin{array}{l} \text{b) } 153, 125, 97, 72 = \longrightarrow \frac{28}{(153 - 125)} = \frac{28}{(125 - 97)} = \\ \frac{28}{(97 - 72)} \text{ Common difference is } 28 \end{array}$$

### Activity 13.6.2.2

Follow the example in the activity 1 and find the common difference in descending number patterns.

- a) 2 456, 2 306, 2 156      c) 4 032, 3 957, 3 882  
b) 1 890, 1 751, 1 612      d) 2 476, 3 000, 3 524



### Pair assessment 13.6.2

Find the common difference for the following number patterns in descending order

- a) 2 018, 1 653, 1 288, 923      b) 956, 878, 800, 722

#### I have learnt that:

To find the common difference in a descending order number pattern, you subtract the second number from the first one, and so on.



### Self Assessment 13.6.2



Find the common difference for the following number patterns

- a) 756, 641, 526, 411      b) 1 879, 1 811, 1 743

#### Application activity 11.2.1



Find the common difference for the following number patterns

- a) 1 519, 1 470, 1 421      c) 789, 691, 593, 495  
b) 976, 937, 898, 859

### 13.6.3 Finding the missing number in a number pattern

#### Activity 13.6.3.1

Study the example and explain how to find the missing number in a number pattern.

#### Example:

a) 150, 850, 1 550, 2 250, 2 950, 3 650

The common difference is  $850 - 150 = 700$

b) 125, 250, 375, 500, 625, 750

The common difference is  $250 - 125 = 125$

c) 475, 400, 325, 250, 175, 100

The common difference is  $475 - 400 = 75$

d) 1249, 949, 649, 349, 49

The common difference is  $1249 - 949 = 300$

#### Activity 13.6.3.2

Find the missing numbers in the following number patterns.

a) 3 456, 3 567, 3 678, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_

b) 4 256, 4 365, 4 474, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_

c) 1 994, 2 018, 2 042, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_



Pair assessment 13.6.3

Find the missing numbers in the following number patterns

a) 1 897, 1 950, 2 003, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_

b) 7 564, 6 614, 5 664, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_

### I have learnt that:

To find the missing numbers in the number patterns,

- You first calculate the common difference between numbers
- You keep on adding the common difference on the numbers you are given in order to find the missing terms of an ascending number pattern
- You keep on subtracting the common difference from the numbers you are given in order to find the missing terms of descending number patterns.



### Self Assessment 13.6.3



Find the missing terms for the following number patterns

a) 4 000, 4 500, 5 000, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_

b) 3 480, 3 505, 3 530, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_

### Application activity 13.6.3



Find the missing terms for the following number patterns

a) 5 469, 4 679, 3 889, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_

b) 4 325, 3 875, 3 425, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_

## 13.7 End of unit assessment 13

1) Find the missing numbers

$$\begin{array}{r} \text{a) } 1\ 787 \\ + 6\ \bullet 1\bullet \\ \hline 7\ 899 \end{array}$$

$$\begin{array}{r} \text{b) } \bullet\ \bullet\ \bullet\ \bullet \\ \times 9 \\ \hline 2\ 187 \end{array}$$

$$\begin{array}{r} \text{c) } 4\ 3\bullet\bullet \\ + \bullet\ \bullet 41 \\ \hline 8\ 296 \end{array}$$

$$\begin{array}{r} \text{d) } \bullet\ \bullet\ \bullet\ \bullet \\ \times 8 \\ \hline 1\ 264 \end{array}$$

$$\begin{array}{r} \text{e) } 7\ \bullet\bullet 6 \\ - 1\ 534 \\ \hline \bullet\ 42\bullet \end{array}$$

$$\begin{array}{r} \text{f) } \bullet\ \bullet\ \bullet\ \bullet \\ \times 6 \\ \hline 1\ 074 \end{array}$$

$$\begin{array}{r} \text{g) } 2\ 9\bullet\bullet \\ - 1\ 376 \\ \hline 1\ 611 \end{array}$$

h)  $\bullet \div 4 = 903$

j)  $\bullet \div 2 = 839$

i)  $\bullet \div 5 = 315$

k)  $\bullet \div 6 = 221$

2) Fill in the blanks with the missing number

a)  $100 + 50 = 80 + \bullet$

d)  $9 \times 8 = 18 \times \bullet$

b)  $525 - \bullet = 400 - 75$

e)  $25 \times 2 = 60 \times \bullet$

c)  $978 - \bullet = 763 - 220$

f)  $728 \div 8 = \bullet \div 4$

3) Find the common difference in the following number

a) 234, 215, 196

d) 467, 431, 395

b) 745, 1 000, 1 255

e) 945, 882, 819

c) 834, 755, 676

f) 689, 713, 737

4) Find the missing terms in the following number patterns

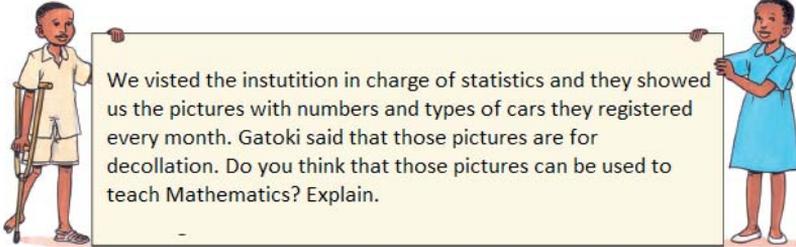
a) 1 250, 1 750, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_

b) 3 400, 3 100, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_

c) 2 525, 3 025, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_



### 14.0 Introductory activity



### 14.1 Number of objects on a pictograph

#### Activity 14.1.1

Study the picture below, name different groups of objects and tell the number of each group of objects

10							
9							
8							
7							
6							
5							
4							
3							
2							
1							

### I have learnt that:

To know the number of objects on a pictograph, you consider the number corresponding with the picture of objects in each column of the pictograph:

- different columns have different types of objects;
- the number of each type is counted vertically in each column,
- the types of objects are counted horizontally and their number equals to the number of columns.

## Activity 14.1.2

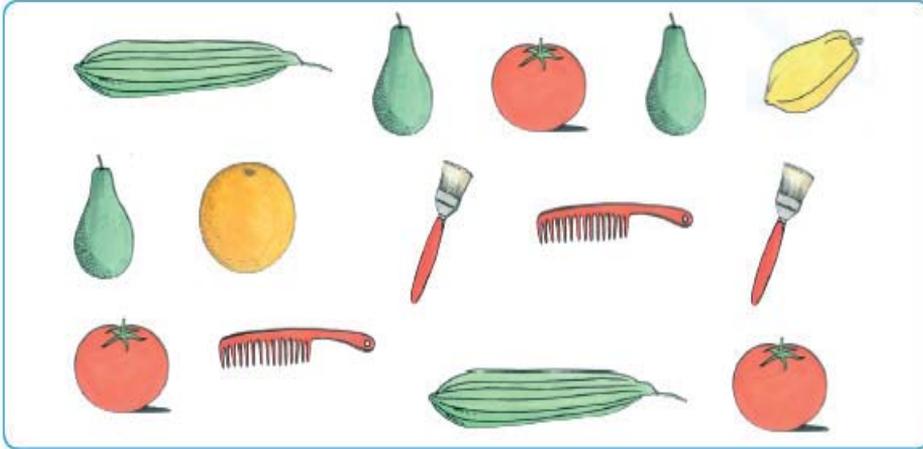
Study the following pictograph, name groups of objects and write down their numbers.

12							
11							
10							
9							
8							
7							
6							
5							
4							
3							
2							
1							

## 14.2 Representation of objects on a pictograph

### Activity 14.2

Study the following pictures, group them according to their type and represent them on a pictograph.



11							
10							
9							
8							
7							
6							
5							
4							
3							
2							
1							

## 14.3 Finding the number of objects on a pictograph

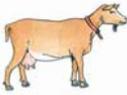
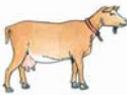
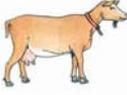
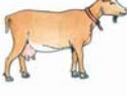
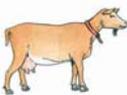
### Activity 14.3

Study the pictograph, name groups of objects and find out their number

A.

8							
7							
6							
5							
4							
3							
2							
1							

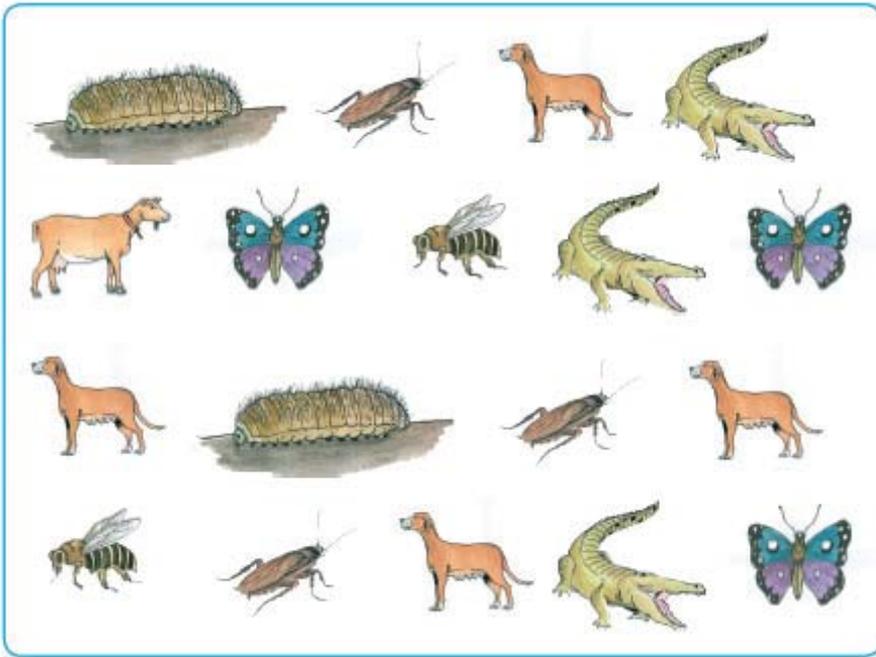
B.

9							
8							
7							
6							
5							
4							
3							
2							
1							

## 14.4 Drawing a pictograph

### Activity 14.4.1

Draw a pictograph using the following: (You can use for example dog 1, dog2, dog 3, dog4 in one column).



### Activity 14.4.2

Draw a pictograph using the following (you can use for example shirt 1, shirt 2)



## 14.5 End of unit assessment

1. Draw 5 different objects found at home and represent them on a pictograph.
2. Draw 5 different objects found at school and represent them on a pictograph.
3. Count all objects you find in the classroom and show their number on a pictograph.
4. Observe the pictograph, name groups of objects and find out their number:

7							
6							
5							
4							
3							
2							
1							

## 15.END OF YEAR ASSESSMENT

### A. Whole numbers

1) Write in figures or in words the following:

a) nine thousand three hundred eighteen

b) 7 546:

c) five thousand seven hundred forty three :

d) 6 978:

2) Write the following number in the table of place value

a) 5 478

b) 7 231

c) 9 768

3) Which number has been expanded below?

a) 7thousannds 6 hundreds 5 tens 8 ones =

b) 9 thousands 6 tens 7 ones =

c) 6 thousads 9 hundreds 3 tens 4 ones =

4) Compare numbers using  $<$ ,  $>$  and  $=$

a) 7 865  7 685

c) 8 798  8 798

b) 9 456  9 546

d) 5 798  5 987

5) Arrange numbers in ascending order

a) 5 768, 5 678, 5 786, 5 687

b) 8 769, 8 796, 8 976, 8 967

6) Arrange numbers in descending order

a) 6 435, 6 354, 6 453, 6 345

b) 9 567, 9 675, 9 576, 9 657

7) Work out the following addition

a)  $5\,785 + 2\,957 =$

b)  $4\,678 + 5\,099 =$

8) Work out the following subtraction

a)  $9\ 123 - 7\ 987 =$

b)  $8\ 005 - 5\ 678 =$

c)  $7\ 234 - 6\ 789 =$

9) Find the product of the following numbers

a)  $82 \times 65 =$       b)  $154 \times 45 =$       c)  $256 \times 38 =$

10) Find the quotient of the following numbers

a)  $7\ 896 : 4 =$       b)  $8\ 469 : 9 =$       c)  $9\ 891 : 7 =$

11) Fill in the missing numbers

a)  $\bullet + 5\ 678 = 9\ 876$

b)  $8 \times \bullet = 6\ 312$

c)  $8\ 567 - \bullet = 2\ 789$

d)  $9\ 785 : \bullet = 5$

e)  $4\ 567 + 3\ 578 = \bullet + 5\ 986$

f)  $6\ 754 - \bullet = 7\ 523 - 5\ 398$

g)  $504 \times 8 = 9 \times \bullet$

h)  $\bullet : 5 = 7\ 000 : 8$

12) Find the common difference between two consecutive numbers

a) 987, 1 092, 1 197, 1 302

b) 875, 780, 685, 590

13) Fill in the blanks with the correct numbers

a) 1 543, 1 474, 1 405, 1 336, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_

b) 2 675, 2 500, 2 325, 2 150, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_

14) Fill in the missing numbers in the following table

	0	1	2	3	4	5	6	7	8	9	10
$\times 7$											
	0	1	2	3	4	5	6	7	8	9	10
$\times 8$											

↙	0	1	2	3	4	5	6	7	8	9	10
× 9											

### 15) Word problems

a) Equally divide 9 875 mosquito nets to 5 sectors and find the number of mosquito nets to be received by each sector.

b) Bibare cell has the following data of citizens: 1 368 men , 1 579 women and 6 487 children . Find the total number of citizens in Bibare cell.

c) Our sector planted 8 764 eucalyptus seedlings and only 7 985 seedlings grew up. Find the number of seedling which did not grow..

d) In the small stadium there are 1 009 rows of chairs and on each row there are 9 people who are well seated . Find the total number of people in the stadium.

### B) Measurements and Rwandancurrency

1) What is the standard unit of the following measurements?

- a) Length measurements c) capacity measurements
- b) Mass measurements

2) Work out the following:

- a)  $5\text{kg } 80\text{ g} = \dots\text{dag}$
- b)  $8\text{ l } 30\text{ cl} = \dots\text{dl}$
- c)  $5\text{ m } 9\text{ cm} = \dots\text{mm}$

3) Use the conversion table to work out the following

- a)  $225\text{ cl} \times 8 = \dots\text{l}$
- b)  $8\text{km } 50\text{ dam} \times 6 = \dots\text{hm}$
- c)  $578\text{ dag} \times 5 = \dots\text{ hg}$
- d)  $7\text{ 200cl} \div 9 = \dots\text{l}$

e)  $8 \text{ km } 4 \text{ m} \div 6 = \dots \text{ m}$

f)  $7 \text{ kg } 7 \text{ dag} \div 7 = \dots \text{ g}$

g)  $80 \text{ dl} + 120 \text{ ml} = \dots \text{ l}$

h)  $75 \text{ hm} + 2 \text{ 250 dam} = \dots \text{ km}$

i)  $59 \text{ hg } 8 \text{ g} + 286 \text{ dag} = \dots \text{ g}$

j)  $9 \text{ hm } 8 \text{ m} - 49 \text{ dam } 9 \text{ m} = \dots \text{ m}$

k)  $68 \text{ dl} - 3 \text{ 800 ml} = \dots \text{ l}$

l)  $6 \text{ kg } 8 \text{ dag} - 5 \text{ 678 g} = \dots \text{ g}$

4) Work out the following

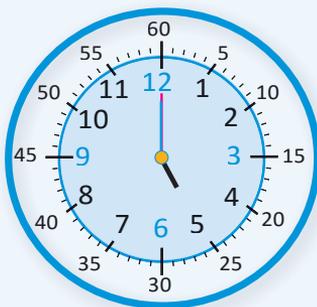
a)  $9 \text{ notes of } 1 \text{ 000 Frw} = 2 \text{ 000 Frw} + \dots \text{ Frw} + \dots \text{ Frw}$

b) Take the biggest note of Rwandan currency, the smallest note of Rwandan currency and two big coins of Rwandan currency. What will be their sum?

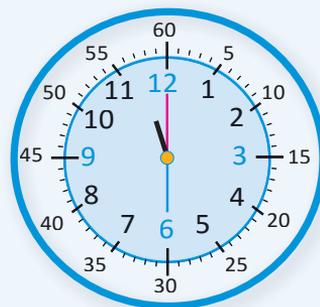
c) Suppose you are given 2 notes of 5000 Frw and you are requested to buy 1kg of sugar at 1 200 Frw, bread at 900 Frw, salt at 400 Frw, soap at 950 Frw, 1 kg of rice at 800 Frw and wheat flour at 1 500 Frw. What will be your balance?

1) Tell the time. ?

a)



b)



6) Convert the following:

a)  $4 \text{ years} = \dots \text{ months}$ .

b) 8 weeks = .....days

c) 30 days =...hours

d) 35 days = ....weeks

7) Explain the different between the year with 365days and the year with 366days.

8) Kagabo used a wheelbarrow to transport 2 700 kg of irish potatoes to the market and he did it 9 times. Find the number of kg of Irish potatoes he carried at once.

9) Mahoro has 8 small jelly cans which contains 5 liter each. Find the total number of litres she has.

10) How many days will each of the following years have?

a) 2 018

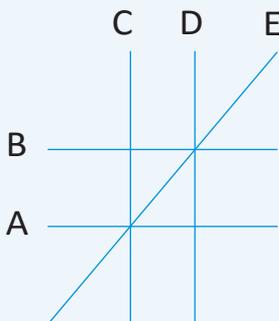
b) 2 019

c) 2 020

d) 2 024

### C. Geometric figures

1) Study the picture and give names of different lines:



a) A B are \_\_\_

e) B E are \_\_\_

b) C B are \_\_\_

f) A D are \_\_\_

c) D E are \_\_\_

g) B D are \_\_\_

d) A E are \_\_\_

h) C D are \_\_\_

2) Complete the tables below:

A) Square

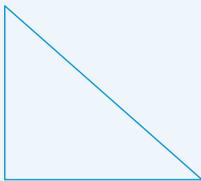
Length of the side	Perimeter
45 cm	
	240 cm
105 cm	
	840cm
78 cm	
	960cm
154 m	

## B) Rectangle

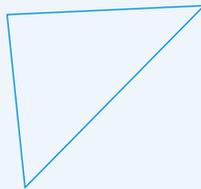
Length	Width	Perimeter
75 cm	54 cm	
23 cm	17 cm	
56 cm	43 cm	
87 cm	67 cm	
93cm	79 cm	
36cm	25 cm	
69 cm	47 cm	

3) Name the following triangles

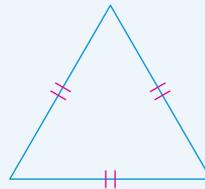
a)



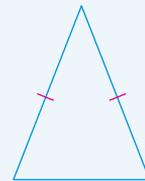
b)



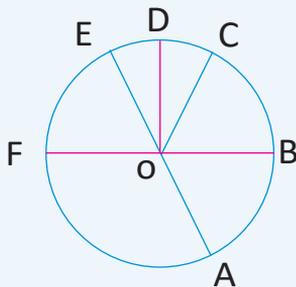
c)



d)



4) Study the image and name all segments on the circle



a) AE is.....

e) OD is.....

b) OB is.....

f) OA is.....

c) FD is.....

g) OF is.....

d) OC is.....

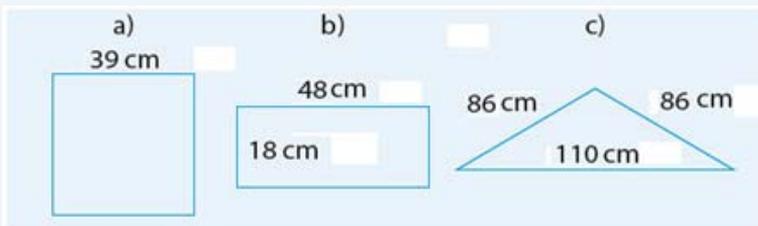
h) OE is.....

5) Find the perimeter of a square with side 45cm.

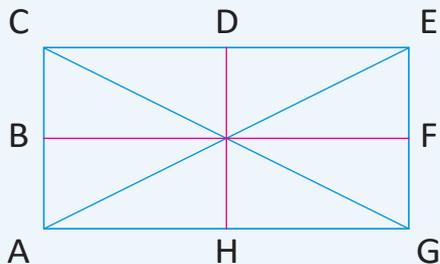
6) Find the perimeter of a rectangular piece land of 89 cm of width and 121 cm of length.

7) Find the perimeter of an equilateral triangle of side 18 cm.

8) Find the perimeter of the following shapes



9) observe the following rectangle and name the given segments



- |         |         |         |         |
|---------|---------|---------|---------|
| a) AC = | c) AG = | e) AE = | g) GE = |
| b) CG = | d) BF = | f) HD = | h) CE = |

10) Draw a grid of 8 horizontal lines and 8 vertical lines:

- Plot the following dot points A (3, 6) B (6, 7) C (3, 3) D (7, 3)
- What is the name of the shape formed?
- Use a protractor to measure its angles.

11) Draw the following angles:  $60^\circ$  and  $135^\circ$

12) Represent the following objects on a pictograph

- |              |                |
|--------------|----------------|
| a) 6 balls   | d) 9 shoes     |
| b) 7 cars    | e) 10 T-shirts |
| c) 2 oranges |                |

