



South Sudan

Primary Mathematics 3

Primary Mathematics has been written and developed by Ministry of General Education and Instruction, Government of South Sudan in conjunction with Subjects experts. This course book provides a fun and practical approach to the subject of mathematics, and at the same time imparting life long skills to the pupils.

The book comprehensively covers the Primary 3 syllabus as developed by **Ministry of General Education and Instruction.**

Each year comprises of a Pupil's Book and teacher's Guide.

The Pupil's Books provide:

- Full coverage of the national syllabus.
- A strong grounding in the basics of mathematics.
- Clear presentation and explanation of learning points.
- A wide variety of practice exercises, often showing how mathematics can be applied to real-life situations.
- It provides opportunities for collaboration through group work activities.
- Stimulating illustrations.



All the courses in this primary series were developed by the Ministry of General Education and Instruction, Republic of South Sudan. The books have been designed to meet the primary school syllabus, and at the same time equipping the pupils with skills to fit in the modern day global society.

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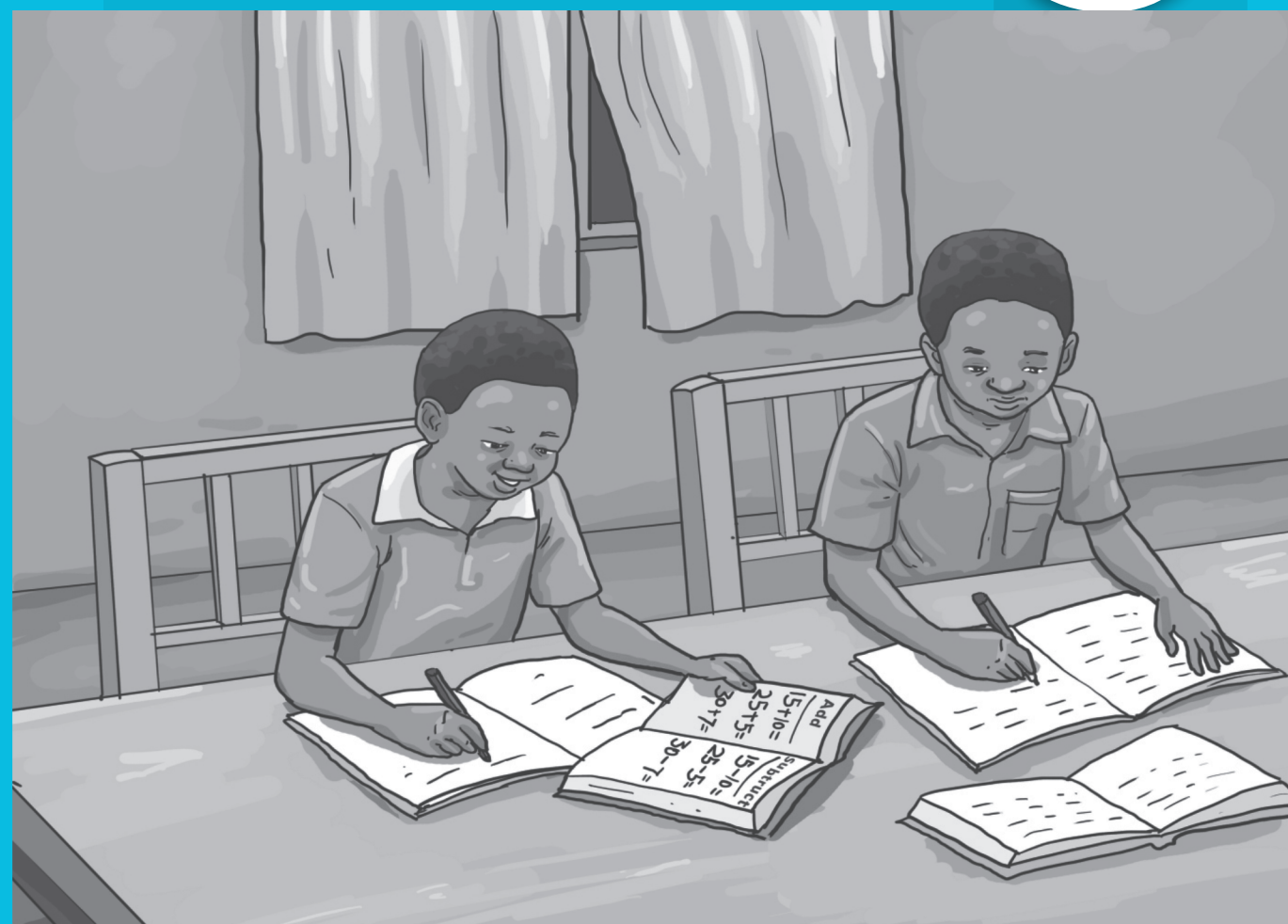
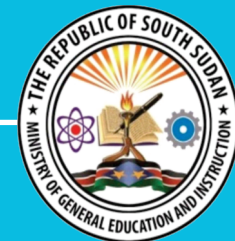
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Primary Mathematics 3

Teacher's Guide



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Mathematics

Teacher's Guide 3

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FOREWORD

I am delighted to present to you this Teacher's Guide, which is developed by the Ministry of General Education and Instruction based on the new South Sudan National Curriculum. The National Curriculum is a learner-centered curriculum that aims to meet the needs and aspirations of the new nation. In particular, it aims to develop (a) Good citizens; (b) successful lifelong learners; (c) creative, active and productive individuals; and (d) Environmentally responsible members of our society. This textbook, like many others, has been designed to contribute to achievement of these noble aims. It has been revised thoroughly by our Subject Panels, is deemed to be fit for the purpose and has been recommended to me for approval. Therefore, I hereby grant my approval. This Teacher's Guide shall be used to facilitate learning for learners in all schools of the Republic of South Sudan, except international schools, with effect from 4th February, 2019.

I am deeply grateful to the staff of the Ministry of General Education and Instruction, especially Mr Michael Lopuke Lotyam Longolio, the Undersecretary of the Ministry, the staff of the Curriculum Development Centre, under the supervision of Mr Omot Okony Olok, the Director General for Quality Assurance and Standards, the Subject Panelists, the Curriculum Foundation (UK), under the able leadership of Dr Brian Male, for providing professional guidance throughout the process of the development of National Curriculum, school textbooks and Teachers' Guides for the Republic of South Sudan since 2013. I wish to thank UNICEF South Sudan for managing the project funded by the Global Partnership in Education so well and funding the development of the National Curriculum, the new textbooks and Teachers' Guides. I am equally grateful for the support provided by Mr Tony Calderbank, the former Country Director of the British Council, South Sudan; Sir Richard Arden, Senior Education Advisor of DfID, South Sudan. I thank Longhorn and Mountain Top publishers in Kenya for working closely with the Ministry, the Subject Panels, UNICEF and the Curriculum Foundation UK to write the new textbooks. Finally, I thank the former Ministers of Education, Hon. Joseph Ukel Abango and Hon. Dr John Gai Nyuot Yoh, for supporting me, in my role as the Undersecretary, to lead the Technical Committee to develop and complete the consultations on the new National Curriculum Framework by 29 November 2013.

The Ministry of General Education and Instruction, Republic of South Sudan, is most grateful to all these key stakeholders for their overwhelming support to the design and development of this historic South Sudan National Curriculum. This historic reform in South Sudan's education system is intended to benefit the people of South Sudan, especially the children and youth and the future generations. It shall enhance the quality of education in the country to promote peace, justice, liberty and prosperity for all. I urge all Teachers to put this textbook to good use.

May God bless South Sudan. May He help our Teachers to inspire, educate and transform the lives of all the children and youth of South Sudan.



Deng Deng Hoc Yai, (Hon.)

Minister of General Education and Instruction, Republic of South Sudan

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INTRODUCTION

This Primary 3 Mathematics teacher's guide will be used alongside the learner's book. It places the learner at the centre of learning as he or she solves mathematical problems.

The learning activities are based on a variety of situations familiar to the learners. Teaching is an interesting endeavour that requires creativity. Try to relate Mathematics activities and problems to relevant, real-life situations.

Components of the book

This primary three mathematics book contains 5 different units each with its own sub unit. Each unit is strategically integrated with discussion sessions with activities that will help further the learners understanding.

The unit are as outlined below.

Primary 3 Mathematics	
Unit	Title
1	Numbers: multiplication, division and fractions
2	Measurement: metric units
3	Geometry: drawing shapes
4	Algebra: comparisons
5	Statistics: Graphs

This teacher's book entails detailed notes covering all the 5 units.

Each unit and sub unit is outlined for the learning of each child as per their criteria of understanding. The teacher's guide book explains in detail about all the information in the mathematics book.

The learner's book also has a series of exercises that come at the very end of each sub-topic and their answers are provided in this teachers guide.

Purpose

This Teacher's Guide must be used in conjunction with the Mathematics learner's book. Its main purpose is to help you to implement the syllabus in your classroom.

This guide provides you with guidelines to help you plan and develop teaching and learning activities for the achievement of the learning outcomes. It also provides you with information and processes to:

Mathematics teaching and learning strategies

a) Problem-based learning

Using this strategy, you can set a problem or a task for the class to solve.

Steps

- ✍ Brainstorm learners' ideas and record them on the board.
- ✍ Ask related questions such as, "How many different multiplication strategies can you find?"
- ✍ Have learners carry out the investigation in groups and report back to the class.

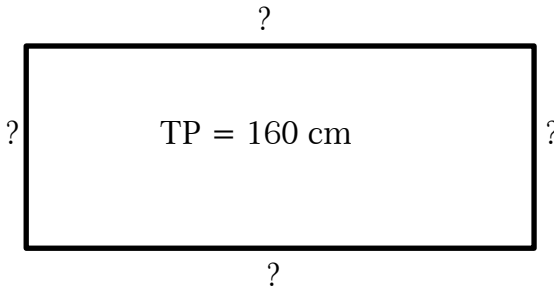
To make the learning explicit, it is important that you create a summary of what has been learnt from solving the problem.

b) Open-ended questions

Closed questions, commonly used in Mathematics lessons, only have one answer.

Open-ended questions can have more than one answer and the variety of possible answers allows learners to make important discoveries.

An example of an open-ended question is:



'The total perimeter of the rectangle above is 160 cm.

Opposite sides are equal in length. What would be the lengths of the sides of the rectangle? How many different answers can you find?'

One answer could be **50 cm × 2 + 30 cm 2**.

If a learner comes up with one answer and stops, ask the class if anyone had a different answer. How many different answers are possible?

You may allow the learners to discuss their answers in groups and agree on an answer for presentation and discussion.

One open-ended question can provide many answers for learners to find and provides them with practice basic skills.

c) Group work

The purpose of group work is to give learners opportunities to share ideas and at the same time learn from other group members.

Every group should have a leader to supervise the group's activities. The leader would, for example, delegate tasks and consult you for assistance.

Group activities can take place inside or outside the classroom. A good example of a group activity would be drawing shapes such as squares and rectangles, and making models of common three-dimensional shapes such as cubes or cones.

Groups of learners could also use a soccer field to measure distance and perimeter using traditional methods of measuring such as with strings and sticks.

This will not only ensure participation by all learners but also gives room for collaborative learning and talk. When grouping, bear in mind their special educational needs, gender balance and their abilities. Groups should never be too large.

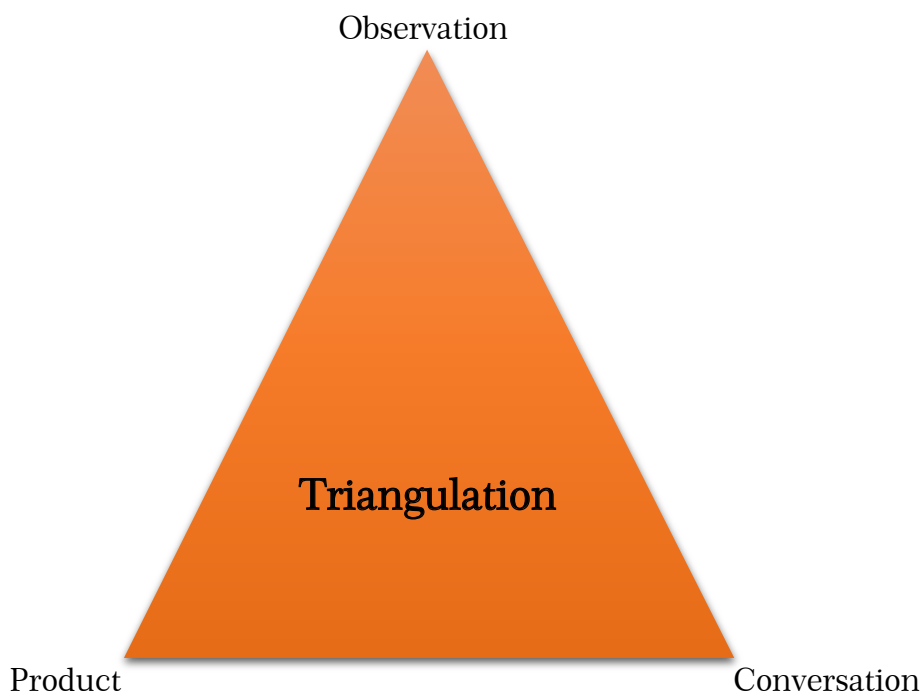
d) Peer teaching and learning

This is organised as a partnership activity in which one learner performs a task while the other observes and assist; making corrections and suggesting new ideas and changes. For example, one learner decides to multiply three-digit numbers by two-digit numbers. The learner who is observing should assist and make sure that all the steps are followed before the final answer is given. The teacher's role in this strategy is to observe and encourage positive interaction and effective communication through which the intended outcome can be achieved.

You are advised to set additional exercises depending on the learner's learning abilities.

MAKING CLASSROOM ASSESSMENT

- Observation – watching learners as they work to assess the skills learners are developing.
- Conversation – asking questions and talking to learners is good for assessing knowledge and understanding of the learner.
- Product – appraising the learner’s work (writing report or finding, mathematics calculation, presentation, drawing diagram, etc).



To find these opportunities, look at the “Learn About’ sections of the syllabus units. These describe the learning that is expected and in doing so they set out a range of opportunities for the three forms of opportunity.

UNIT 1: NUMBERS

Maths Primary 3		Unit 1: Numbers
Learn about		Key inquiry questions
<p>Learners should engage in a wide range of practical activities throughout the year to read, write, compare and order numbers up to four digits and investigate subtraction using number lines, with and without carrying and borrowing.</p> <p>They should know about and practice the divisibility test for 2, 5 and 10 to check whether or not the division of a number will have a remainder, and discover that a factor is an exact divisor of a number.</p> <p>Learners should investigate parts of a fraction and compare simple equivalent fractions and know the terms numerator and denominator.</p>		<ul style="list-style-type: none"> • Can you write and read any 4 digit numbers? • Can you write the place values of the digits in a 4 digit number? • How do you compare numbers (using greater or less than or equal to)? • Can you arrange these numbers in ascending or descending order? • How can we subtract numbers with or without borrowing? • What is the divisibility test (by 2, 5 and 10)? • How do we compare simple equivalent fractions?
Learning outcomes		
Knowledge and understanding	Skills	Attitudes
<ul style="list-style-type: none"> • Write numbers up to 4 digits • Write place value of digits in a 4 digit number 	<ul style="list-style-type: none"> • Read, write and compare numbers up to 4 digits • Subtract with and without borrowing • Use the divisibility test (x2, 5 and 10) • Compare simple equivalent fractions 	<ul style="list-style-type: none"> • Appreciate divisibility test comparison of simple equivalent fractions • Be confident to investigate using maths and to take responsibility for their own learning

Objectives

Contribution to the competencies:

Critical thinking: challenging mathematical activities

Communication and Co-operation: group work

Links to other subjects:

By the end of this unit, the learner should be able to:

- i. Read and write numbers up to four digits
- ii. Write the place value of the digits in a 4 digit number
- iii. Compare numbers using greater or less than or equal to.
- iv. Arrange numbers in ascending and descending orders
- v. Subtract numbers with and without borrowing
- vi. Compare simple equivalent fractions

Reading and writing numbers.

Materials: Bundles of sticks and number cards

Activities:

1. Revise counting reading and writing numbers 1 to 100 in words.
2. Learners count orally numbers, list the symbols on the chalkboard, call on learners to read the numbers and show them how to write the numbers in words.
3. Hold number cards for the learners to say the number name of digits up to 4 digits.
4. Learners to practice reading and writing numbers up to 4 digits using learner's book.

1.1 Reading numbers

Activity 1

In groups, look at the picture below.

NY 3 *1.25LTR
ODAS GET A
COKE LUNCH BOX

Buy Blue Band 1kg get
500gms naivas sugar

200
70GMS
INDOMIE CHICKEN
Save 5/-

BUY WEETABIX 900GMS
GET 225GMS FREE

194.00 2LTRS
296.00 3LTRS
SAVANAH JUICE (ALL FLAVOURS)
Save 36/- Save 17/-

124.00 2LTRS
TREE TOP DRINK

116.00
BUY 2PCS
BROOKSIDE
LALA 500ML
SAVE KSHS 10

235.00 Save 10/-
500GMS
SAFARI BEEF/ CLASSIC PORK SAUSAGES

BUY ANY 100ML COLGATE
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Colgate
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CARE

Valon
ALL VALON PURE
JELLY 30% off

BUY ANY 200ML
GET REXONA 25ML

240.00
125ML
JOHNSON
BABY OIL
Save 75/-

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Save 10/-
JOHNSON
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Flamingo
2 GET 1FREE

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PADS DUOS

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BEST PRICE
ON SCHOOL SHOES
AND BAGS

1. Guide the learners in identifying and reading numbers out loud. Teacher to ask a learner to tell what number they recognise
2. Correct any reading errors made.

Learners in groups to take in turns and tell the numbers they recognise.

Assessment: Teacher to observe.

What is the largest and smallest number you recognise?

Activity 2

Our Hundreds Chart

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	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Teacher to show learners how to do this first.

1. Encourage learners to work in pairs.
2. Let learners know that they should take turns completing this activity.
3. Learners should count forwards and backwards.
4. To increase the complexity of the exercise, let learners count from different point on the number chart, forwards and backwards.

Activity 3

Mental Math

The partnered learners should take turns completing each column within a given time. This makes this activity more interesting.

Check learners are always saying the correct answers.

Assessment product

Check learners have accurately recorded their answers.

Activity 3

Mental Math

1. Complete the following activity with a partner orally. Take turns saying the numbers.

Number	10 less	10 more	100 less	100 more
430				
128				
904				
327				
999				
254				
929				

2. Copy the table in your exercise book and fill in the spaces with the correct number.
3. With your partner think of a 4 digit number. Write it down ask your partner to work it out 100 less or 100 more and to tell you the new number. What do you notice?

1.2 Writing Numbers

Look at these examples.

- a. 21 = twenty-one
- b. 234 = two hundred and thirty-four
- c. 992 = nine hundred and ninety-two
- d. 764 = seven hundred and sixty-four
- e. 2456 = two thousand, four hundred and fifty-six

Expected Answers

3

Number	10 less	10 more	100 less	100 more
430	420	440	330	530
128	118	138	28	228
904	894	914	804	1004
327	317	337	227	427
999	989	1009	899	1099
254	244	264	154	354
929	919	939	829	1029

1.2 Writing Numbers

Activity 4

Learners should complete this exercise in pairs. Oral presentations can be made in class. Check for correct answers.

f. 7121= seven thousand, one hundred and twenty-one

Activity 4

1. In pairs, write the following in numeric form.
- Two hundred and three
 - Six hundred and thirty-nine
 - Seven hundred and four
 - Four hundred and forty-four
 - Eight hundred and ninety-eight
 - One thousand, three hundred
 - One thousand, two hundred and two

Activity 5 a

In pairs, write the following in words.

- | | | |
|--------|---------|---------|
| a. 3 | f. 222 | k. 4001 |
| b. 13 | g. 891 | l. 4100 |
| c. 628 | h. 999 | m. 1040 |
| d. 118 | i. 1060 | |
| e. 449 | j. 3610 | |

Activity 5 b

Choose two numbers from activity 2a above and add them together.

- Two hundred and three **203**
- Six hundred and thirty nine **639**
- Seven hundred and four **704**
- Four hundred and forty four
444
- Eight hundred and ninety eight
898
- One thousand, three hundred
1300
- One thousand, two hundred and two
1202

4

Activity 5 a

Learners should complete this exercise in pairs. Oral presentations can be made in class. Check for correct answers.

- 3 ____ Three
- 13 ____ Thirteen
- 628 _ Six hundred and twenty eight
- 118 ____ One hundred and eighteen
- 449 ____ Four hundred and forty nine
- 222 ____ Two hundred and twenty two

- g. 891 ____ Eight hundred and ninety one
- h. 999 ____ Nine hundred and ninety nine
- i. 1060 _ One thousand and sixty
- j. 3610- Three thousand six hundred and ten

Activity 5 b

Encourage learners to set out the sum and check their answers.

Activity 6

Learners should complete this exercise in pairs. Oral presentations can be made in class. Check for correct answers.

- | | | |
|---------|---------|---------|
| a) 1166 | e) 9502 | i) 7874 |
| b) 2449 | f) 6315 | j) 5600 |
| c) 795 | g) 4150 | |
| d) 368 | h) 656 | |

Activity 7

Provide manila or large paper for the learners to prepare their presentations. This activity should be completed in groups.

- a. Eight hundred and ninety two.
- b. One thousand, one hundred and twenty two.
- c. Five thousand, six hundred and forty two.
- d. Seven thousand, eight hundred and ninety.
- e. Three thousand, six hundred and fifty one.
- f. One thousand and forty.
- g. Four thousand, one hundred and ten.
- h. Seven thousand, four hundred and fifty six.
- i. One thousand, five hundred and three.

Activity 6

Individually, write the numbers for the following names.

- a. One thousand, one hundred and sixty-six.
- b. Two thousand four hundred and forty-nine.
- c. Seven hundred and ninety-five
- d. Three hundred and sixty-eight.
- e. Nine thousand five hundred and two.
- f. Six thousand three hundred and fifteen.
- g. Four thousand one hundred and fifty.
- h. Six hundred and fifty-six.
- i. Seven thousand eight hundred and seventy-four.
- j. Five thousand six hundred.

Activity 7

In groups, write the number name for the following numbers on manila paper. Hang your work for the class to see. In numeric order the highest and the lowest.

- | | | |
|---------|---------|---------|
| a) 892 | g) 4110 | m) 8504 |
| b) 1122 | h) 7456 | n) 3176 |
| c) 5642 | i) 1503 | o) 2044 |
| d) 7890 | j) 1233 | p) 2018 |
| e) 3651 | k) 4561 | |
| f) 1040 | l) 9810 | |

Add the numbers f, g, h, and i

- j. One thousand, two hundred and thirty three.
- k. Four thousand, five hundred and sixty one.
- l. Nine thousand, eight hundred and ten.
- m. Eight thousand, five hundred and four.
- n. Three thousand, one hundred and seventy six.
- o. Two thousand and forty four.
- p. Two thousand and eighteen.

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1.3 Place value

Activity 8

Place Value Game

Materials: Large digits printed on paper.

How to play

1. Prepare and hand out 4 different digit cards randomly to the class. Each learner should only have one card 0 - 9.
2. Ask the learners to make a specific number.
3. The learners with the cards line up in front of the class with the digits cards held up for the class to see.
4. The rest of the class checks to see if they have made the correct number.
5. Form as many numbers as possible from different sets of numbers.

Assessment product

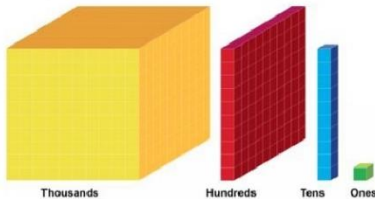
Have they recorded them correctly?

Check that the group have made correct combination of numbers from the digits.

1.3 Place value

Digits have different values because they occupy different positions in a number.

Place value is the position of a digit on a number.



Activity 8

Place Value Game

Materials: Large digits printed on paper.

How to play

1. You will all have one digit card from 0 – 9
2. In your group, use your cards to make a number.
3. Record all the different combinations of numbers you can make.
4. Share one number you have made, holding your digit cards together.

6

Activity 10

Tell your partner the number.

- a. 4 hundreds 6 tens 3 ones =
- b. 5 hundreds 4 tens 2 ones =
- c. 1 hundreds 7 tens 3 ones =
- d. 2 hundreds 2 hundreds 2 tens 2 hundreds =
- e. 1 hundreds 4 hundreds 3 tens 1 ones =
- f. 2 thousand 2 hundreds 2 tens ones =
- g. 6 tens 2 ones =
- h. 9 hundreds 3 ten 2 one =
- i. 5 thousands, 4 hundred, 3 tens 2 ones =

Activity 11

In groups, write the following in expanded form. The first one is done for you. Present your work to the class.

- | | | |
|-------------------------|---------|---------|
| a) $319 = 300 + 10 + 9$ | e) 6724 | h) 2872 |
| b) 588 | f) 8140 | i) 6412 |
| c) 2990 | g) 9095 | j) 4973 |
| d) 4638 | | |

Explain what each digit represents and then order the numbers largest first.

8

Activity 9

Learners to complete this activity in pairs. Class presentations can be made. Check for correct answers.

- a. $234 =$ 2 hundreds 3 tens 4 ones
- b. $1236 =$ 1 thousands 2 hundreds 3 tens 6 ones.
- c. $3468 =$ 3 thousands 4 hundreds 6 tens 8 ones
- d. $705 =$ 7 hundreds 0 tens 5 ones

Activity 10

This activity should be completed in pairs.

- a. 4 hundreds 6 tens 3 ones = 463

- b. 5 hundreds 4 tens 2 ones = 542
- c. 1 hundreds 7 tens 3 ones = 173 .
- d. 2 hundreds 2 tens 2 ones = 222 .
- e. 1 thousands 4 hundreds 3 tens 1 ones = 1431 .
- f. 2 thousands 2 hundreds 2 tens 0 ones = 2220 .
- g. 6 tens 2 ones = 62 .
- h. 9 hundreds 3 ten 2 ones = 932 .
- i. 5 thousands, 4 hundred, 3 tens 2 ones = 5432 .

Activity 11

Have learners form groups to complete this activity. Presentations should be encouraged. Check for correct answers.

- | | |
|---------|------------------------|
| a) 319 | $300 + 10 + 9$ |
| b) 588 | $500 + 80 + 8$ |
| c) 2990 | $2000 + 900 + 90 + 0$ |
| d) 4638 | $4000 + 600 + 30 + 8$ |
| e) 6724 | $6000 + 700 + 20 + 4$ |
| f) 8140 | $8000 + 100 + 40 + 0$ |
| g) 9095 | $9000 + 0 + 90 + 5$ |
| h) 2872 | $2000 + 800 + 70 + 2$ |
| i) 6412 | $6000 + 400 + 100 + 2$ |
| j) 4973 | $4000 + 900 + 70 + 3$ |

1.4 Comparing numbers

Activity 12

Materials: counters

Activities:

- Let the learners arrange the numbers 1 to 10 from smallest to largest and from largest to smallest.

- ii. Use counters to show the learners how to compare two numbers to find the largest and smallest.
- iii. Write numbers up to 100 on the board and let the learners arrange them from smallest to largest and from largest to smallest.
- iv. Learners to practice using learner's book.

1.4 Comparing numbers

Activity 12

Materials: Plates of different sizes, beans, beads, marbles, small stones, maize etc.

Instructions: Work in groups.

1. Lay out two plates of different sizes.
2. Pour in the beans, beads, marbles, small pebbles, or maize into the plates.
 - a) Which holds more?
 - b) Which hold less?
 - c) How are you able to tell which holds more and which holds less?

Activity 13

The following numbers have been arranged from the smallest to the largest. Read them out loud.

- a. 3, 4, 5, 6, 7, 8
- b. 5, 8, 13, 17, 21, 24
- c. 11, 15, 18, 20, 30
- d. 40, 70, 90, 120, 150

Remember: **Ascending order** is the same as increasing order and **descending order** is the same as decreasing order.

9

Activity 14

Study the following examples in pairs.

Example 1: Arrange the following numbers in ascending order:

548, 351, 411, 269

Solution

First compare the digits in the hundred place.

- In 548, the place value of 5 is 500
- In 351, the place value of 3 is 300
- In 411, the place value of 4 is 400
- In 269, the place value of 2 is 200

The ascending order is: 269, 351, 411, 548.

Example 2:

Arrange the following numbers in descending order:
374, 356, 329, 381

Solution

First compare the digits in the hundred place.

Since all the digits have 3 in the hundred place, compare the digits in the tens place.

- In 374, the place value of 7 is 70
- In 356, the place value of 5 is 50
- In 329, the place value of 2 is 20
- In 381, the place value of 8 is 80

10

Activity 13

Guide learners in reading numbers out loud. Can they tell any characteristic of the numbers they are reading? Encourage discussions.

Activity 14

This activity outlines steps learners should employ in comparing numbers. Let learners work in pairs. They can read to each other the steps outlined in the learner's book. Later, let learners talk about arranging numbers in ascending and descending order as a whole class. Have volunteers go to the front of the class and outline the steps involve. They can come up with numbers of their own and order them accordingly.

Activity 15

Provide manila paper for the completion of this activity. Finished work should be pinned on the board for the class to compare. Check for correct answers.

- a. 187, 209, 712, 28, 124, 110
=28, 110, 124, 187, 209, 712
- b. 3, 4, 13, 17, 6, 20
=3, 4, 6, 13, 17, 20
- c. 40, 50, 20, 30, 10, 60
=10, 20, 30, 40, 50, 60
- d. 98, 14, 21, 39, 7, 24
=7, 4, 21, 24, 39, 98
- e. 40, 61, 25, 79, 31, 14, 2
=2, 14, 25, 31, 31, 40, 61, 79
- f. 14, 21, 28, 7, 42, 35, 84
=7, 14, 21, 28, 35, 42, 84
- g. 903, 6114, 532, 9001
=432, 903, 6114, 9001
- h. 7303, 774, 894, 2001
=774, 894, 2001, 7306

Check if the learners can use the correct mathematical vocabulary when they are sharing with the other pair.

Remember: First compare the digits at hundred place, the tens place and then the ones.

Activity 15

On a manila paper, arrange the following numbers from the smallest to the largest (ascending order). Work in pairs.

- a. 187, 209, 712, 28, 124, 110
- b. 3, 4, 13, 17, 6, 20
- c. 40, 50, 20, 30, 10, 60
- d. 98, 14, 21, 39, 7, 24
- e. 40, 61, 25, 79, 31, 14, 2
- f. 14, 21, 28, 7, 42, 35, 84
- g. 903, 6114, 532, 9001
- h. 7303, 774, 894, 2001

Pin your work on the board for the rest of the class to see. Tell another pair how you have checked that your answers are correct.

Activity 16

On a manila paper, arrange the following numbers in descending order (largest to the smallest). Work in groups.

- a. 7, 4, 9, 10, 6, 15, 20
- b. 2, 4, 12, 8, 16, 20, 18, 6
- c. 15, 96, 42, 13, 40, 3, 16

11

- d. 28, 2, 21, 90, 9
- e. 305, 315, 503, 123, 132
- f. 901, 109, 209, 991,
- g. 910, 190, 211, 112, 121
- h. 3001, 5121, 751, 512, 6032
- i. 1131, 7042, 5450, 3441
- j. 8001, 2000, 5055, 6291

Pin your work on the board for the rest of the class to see. Explain as you pin.

Activity 17

In pairs, write the place value of digit 7 in each of the numbers below. Explain your answer.

- a) 8736 =
- b) 3217 =
- c) 7442 =
- d) 3711 =
- e) 9372 =
- f) 7591 =
- g) 4837 =
- h) 7519 =
- i) 1754 =
- j) 8730 =

1.5 Addition & Substataion

4321	5114
+ 3178	+ 2798
-----	-----
7499	7912

Activity 18

Individually, work out the following.

- a. $26 + 42 =$
- b. $98 + 41 =$

12

Activity 16

Provide manila paper for the completion of this activity. Finished work should be pinned on the board for the class to compare. Check for correct answers.

1. Arrange the following numbers in descending order (largest to the smallest)

- a. 7, 4, 9, 10, 6, 15, 20
=20, 15, 10, 9, 6, 4
- b. 2, 4, 12, 8, 16, 20, 18, 6
=20, 18, 16, 12, 8, 6, 4, 2
- c. 15, 96, 42, 13, 40, 3, 16
=96, 42, 40, 16, 15, 13, 3
- d. 28, 2, 21, 90, 9
=90, 28, 21, 9, 2
- e. 305, 315, 503, 123, 132
=503, 315, 305, 132

- f. 901, 109, 209, 991
=991, 901, 209, 109
- g. 910, 190, 211, 112, 121
=910, 211, 190, 121, 112
- h. 3001, 5121, 751, 512, 6032
=6032, 5121, 3001, 751, 521
- i. 1131,7042,5450,3441
=7042, 5450, 3441, 1131
- j. 8001,2000,5055,6291
=8001, 6291, 5055, 2000

Observe if they understand ascending and descending order

- d. 28, 2, 21, 90, 9
e. 305, 315, 503, 123, 132
f. 901, 109, 209, 991,
g. 910, 190, 211, 112, 121
h. 3001, 5121, 751, 512, 6032
i. 1131, 7042, 5450, 3441
j. 8001, 2000, 5055, 6291

Pin your work on the board for the rest of the class to see.
Explain as you pin.

Activity 17

In pairs, write the place value of digit 7 in each of the numbers below. Explain your answer.

- | | |
|-----------|-----------|
| a) 8736 = | f) 7591 = |
| b) 3217 = | g) 4837 = |
| c) 7442 = | h) 7519 = |
| d) 3711 = | i) 1754 = |
| e) 9372 = | j) 8730 = |

1.5 Addition & Substaction

4321	5114
+ 3178	+2798
<hr/> 7499	<hr/> 7912

Activity 18

Individually, work out the following.

- a. $26 + 42 =$ b. $98 + 41 =$

12

Activity 17

Provide manila paper for the completion of this activity. Finished work should be pinned on the board for the class to compare. Check for correct answers.

Write the place value of digit 7 in each of the numbers below.

- | | |
|----|-----------|
| a) | Hundreds |
| b) | Ones |
| c) | Thousands |
| d) | Hundreds |
| e) | Tens |
| f) | Thousands |
| g) | One |
| h) | Thousands |
| i) | Hundreds |
| j) | Hundreds |

1.5 Addition & Substation

Key words: plus, minus

Materials: counters, flash cards

Activities

- i. Remind learners on how to add and subtract numbers using counters
- ii. Use flash cards to recite basic addition and subtraction facts
- iii. Learners copy and complete the exercise in the learner's book

Activity 18

Activity to be completed individually. Let learners explain how they derived their answers. Observe the learners as they add and subtract

a. $26 + 42 = 68$

g. $244 - 128 = 116$

b. $98 + 41 = 139$

h. $3411 + 892 = 4303$

c. $152 + 61 = 213$

i. $2443 + 722 = 3165$

d. $36 - 18 = 18$

j. $6981 - 2221 = 4760$

e. $108 - 72 = 36$

k. $4794 - 794 = 4000$

f. $120 + 32 = 152$

Activity 19

This activity presents addition word problems. Learners should work in groups. They should read and re-read the questions to check for understanding before working out the solutions.

Encourage discussions, and these can deviate from the English language to their mother-tongues.

Class presentations can be made after completion of the activity.

Learners to explain their process of working out each problem.

- c. $152 + 61 =$
 d. $36 - 18 =$
 e. $108 - 72 =$
 f. $120 + 32 =$
 g. $244 - 128 =$

- h. $3411 + 892 =$
 i. $2443 + 722 =$
 j. $6981 - 2221 =$
 k. $4794 - 794 =$

How did you arrive at your answer? Tell your partner check your answers.

Activity 19: Work in pair.

Discuss how you will work it out.

What method will you use? Show your working out.

- Deng had 326 cows. Abdil had 156 cows. Auma had 215 cows. How many did they have altogether?
- Class one had 324 books. Class two had 245 books while class three had 176 books. How many books were in the three classes in total?
- A farm had 426 mango trees. Another farm had 253 mango trees and another had 234 mango trees. How many mango trees are in the three farms?
- There are 276 pupils in a school. There are 425 pupils in another school. If 275 schools joined the two schools how many pupils are there in the two schools altogether?
- In town A there were 412 vehicles. Town B had 245 vehicles while town C had 251 vehicles. How many vehicles were there in the three towns altogether?

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Activity 20

- There are 6457 trees in a farm. A farmer cut down 2114 trees. How many trees were left in the farm?
- 3179 pupils were going for a tour. 2342 went by train and the others by bus. How many went by bus?
- In an election Mutu got 9998 votes. Rukia got 5242 votes. Who won the election? How many more votes did Mutu get than Rukia?
- Taban had 8479 cows. He sold 3241 cows. How many cows was Taban left with?
- Subtract 4172 from 5644?

Activity 21

Write a word problem for another group to work it out. Check if they got it correctly.

1.6 Divisibility test for 2, 5 and 10

Have you ever wondered why some numbers will divide evenly (without a remainder) into a number, while others will not?

The Divisibility Rules help us to determine if a number will divide into another number without actually having to divide. There is a divisibility rule for every number. However, some of the rules are easier to use than others. For the rest, it might just be simpler to actually divide.

14

Activity 20

This activity presents subtraction word problems. Learners should work in groups. They should read and re-read the questions to check for understanding before working out the solutions. Encourage discussions, and these can deviate from the English language to their mother-tongues. Class presentations can be made after completion of the activity.

Activity 21

Guide learners on how to create a word problem by creating one.

This will help learners to create the problems that the other group will attempt to solve.

1.6 Divisibility test for 2, 5 and 10

Activities

- i. Lead learners in practice for divisibility test for 2, 5 and 10 to check whether or not the division of a number will have a remainder, and discover that a factor is an exact divisor of a number.
- ii. Learners discuss the activities in the learner's book.

The Rule for 2: Any whole number that ends in 0, 2, 4, 6, or 8 will be divisible by 2.

Activity 22

Look at the following numbers.

12, 20, 44, 66, 78, 110, 104, 308, 406, 500, 842, 976, 1204, 6348.

1. Are they divisible by 2?
2. How can you determine this?

The Rule for 5: Number that are divisible by 5 must end in 5 or 0.

Activity 23

Look at the numbers below.

15, 30, 45, 75, 90, 110, 15, 265, 345, 650, 925, 1225, 1750, 1900, 6550, 8755, 9500.

1. Are they divisible by 5?
2. How can you determine this?

The Rule for 10: Numbers that are divisible by 10 need to be even and divisible by 5, because the prime factors of 10 are 5 and 2. This means that for a number to be divisible by 10, the last digit must be a 0.

1.7 Comparing simple equivalent fractions

Activity 24

Look at the numbers below.

Example: 40, 100, 300, 900, 1200, 1500, 1900, 2500, 4550, 9850, 9700.

1. Are they divisible by 10?
2. How can you determine this?

In dividing numbers such as $8 \div 2$, 2 is called a divisor. A divisor that goes into a number and divides a number in an exact number of times is called a factor.

Example: $10 \div 3 = 3 \text{ rem } 1$

$8 \div 2 = 2$

2 is a factor or divisor and 3 is the divisor of 10

1.7 Comparing simple equivalent fractions

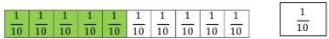
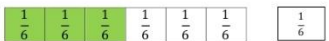
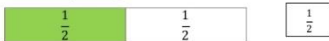
Activity 25

1. In pairs, make circular paper cut-out, fold and cut it to get two halves.
2. In pairs, practice making halves using rectangular paper.
3. Draw a line to divide the shapes into two and colour one half.
4. In pairs, practice making halves using lemons or oranges.

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Activity 26

Look at the figures below. The fraction representing the coloured part is given besides each of them.



What do you observe? Tell your partner using mathematical language.

Activity 27

Since fractions $\frac{1}{2}, \frac{1}{4}, \frac{3}{6}, \frac{4}{8}, \frac{5}{10}$ all indicate the same part of the rectangle, we can say that these fractions name the same number.

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Activity 25

Guide learners in carrying out the steps given in activity 25.

Activity 26

After observing the fraction represented by the shaded regions of the rectangles, learners should be able to conclude that the said fractions represent the same part of the total. In this case, it is half of the whole.

Activity 27

Guide learners in coming up with equivalent.

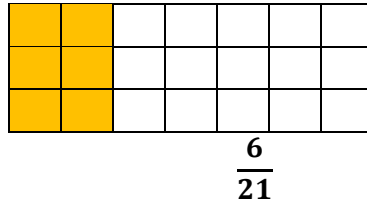
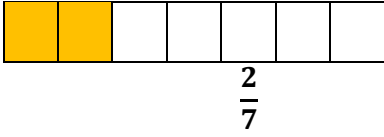
Guide them in proving the fractions are equivalent.

Activity 28

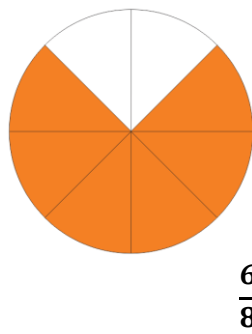
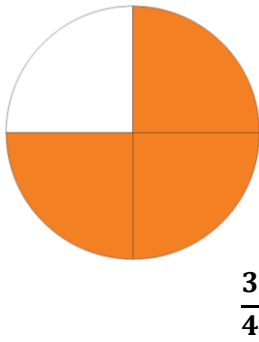
Learners should complete this activity in pairs. They should be able to come up with the correct fraction by counting the number of the shaded regions. Point out the numerator, fraction bar and the denominator. This should guide the learners in writing the fractions.

Encourage discussion among the learners. Let them offer explanations as to how they derived their final answers.

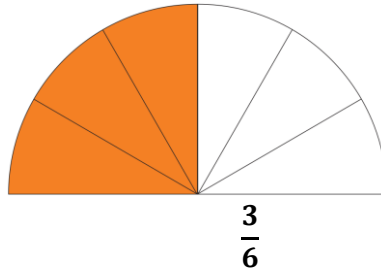
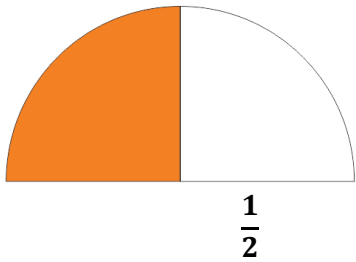
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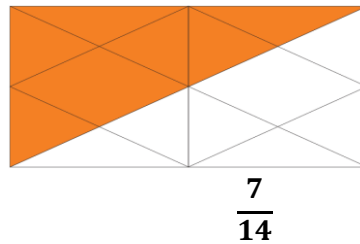
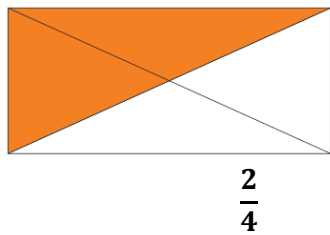
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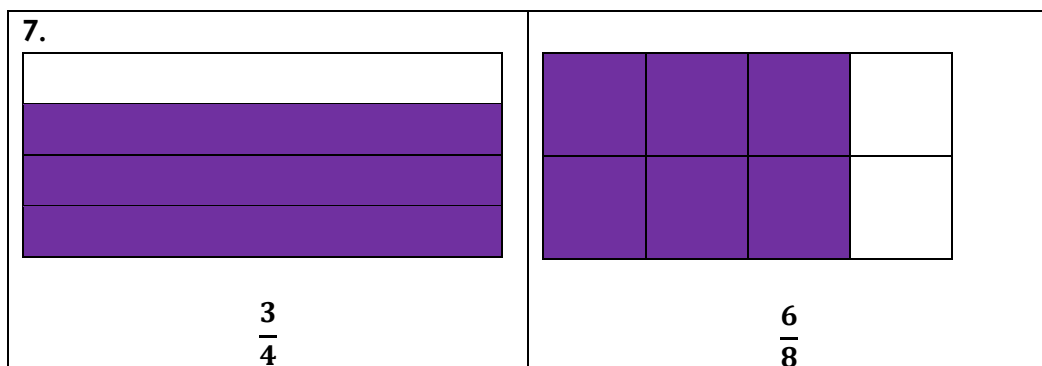
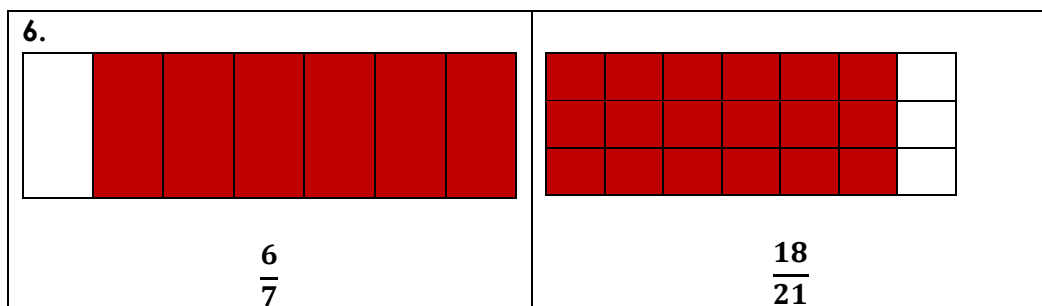
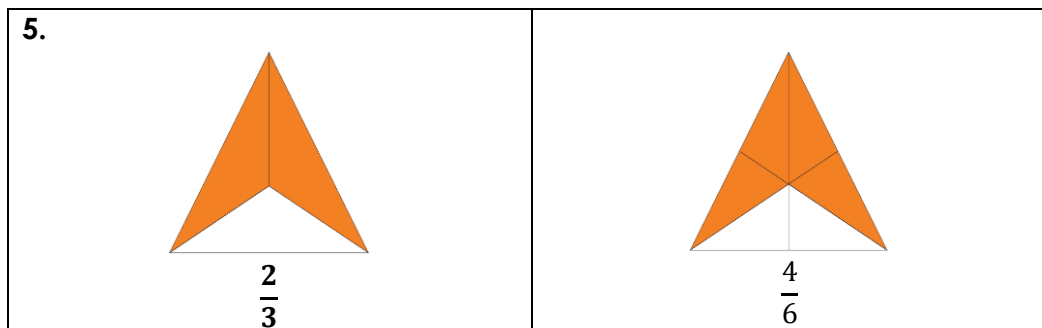


3.



4.





Activity 29 Individually

Encourage learners to work individually.
Let them check their answers with their partners.

Answers

1) $\frac{2}{5} = \frac{6}{16}$ 2) $\frac{2}{6} = \frac{4}{12}$

UNIT 2: MEASUREMENT

Maths Primary 3		Unit 2: Measurement
Learn about		Key inquiry questions
<p>Learners should engage in a wide range of practical activities throughout the year to apply their knowledge of addition, subtraction, multiplication and division to length, capacity and weight. They should estimate distances in centimetres and metres (m) and investigate distances of objects to familiarise themselves with standard units.</p> <p>They should investigate capacity using litres (l), millilitres (ml), and decilitres (dl) using graduated containers (<i>e.g. water bottles, or graduated cylinders</i>).</p> <p>They should estimate the weight of different objects in kilograms (kgs) and grams (g) and check their estimations using a balance.</p> <p>They should work in groups to solve problems that involve the above measures.</p> <p>Learners should convert hours to minutes, minutes to seconds and vice versa and through shopping consolidate the use of money in daily life.</p>		<ul style="list-style-type: none"> • Can you give some estimates of length in metres and cm? • Can you give some estimate on capacity in litres and millilitres; weight in kg and grams? • Can you estimate the weight different objects? • How do you understand the relations between the units for measuring time?
Learning outcomes		
Knowledge and understanding	Skills	Attitudes

<ul style="list-style-type: none"> • Know the relationship between seconds, minutes and hours 	<ul style="list-style-type: none"> • Estimate and measure length in centimetres, meters; capacity in litres, millilitres centiliters and litres; weight in kgs and grams • Solve problems involving length, capacity and weight • Convert hours to minutes, seconds and vice-versa • Solve problems involving money 	<ul style="list-style-type: none"> • Appreciate the importance of the use of mathematics in daily life
<p>Contribution to the competencies: <u>Critical thinking:</u> challenging mathematical activities <u>Communication and Co-operation:</u> group work</p>		
<p>Links to other subjects <u>Life education:</u> shopping problems</p>		

Objectives

By the end of the lesson, the learner should be able to:

- i. Estimate and measure length in centimetres, metres; capacity in litres; weight in kgs and grams
- ii. Solving problems involving length, capacity and weight
- iii. Convert hours to minutes, seconds and vice- versa
- iv. Solve problems involving money

Materials: ruler, meter rule

Activities:

- i. Teacher should discuss with learners about taking measurements in cm and in metres
- ii. Lead the learners in taking measurements of objects within the class room environment such as desk, books, classroom floor and record the measurements.
- iii. Learner should do the exercise in the learner's book.

2.1 Estimate and measure

An estimate is a rough idea that we make without measuring.

UNIT 2: MEASUREMENT

2.1 Estimate and measure

An estimate is a rough idea that we make without measuring.


Activity 1

Estimate and complete the activity in pairs.

Item	Estimate in metres
Length of your arm	
Your height	
Your teachers height	
Length of your desk/chair	
Width of your classroom	
Length of a car	
Width of school playground	

2.2 Introducing centimetres and metres

The centimetre is a standard unit of length. It is helpful in measuring small distances such as length of pencils, chalk, books, etc.

Look at this line AB: A  B

This is a length of 1 centimetre.

The centimetre is written as **cm**.

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Activity 1

Guide learners pair up before completing this activity.

Item	Estimate in metres
Length of your arm	
Your height	
Your teachers height	
Length of your desk/chair	
Width of your classroom	
Length of a car	
Width of school playground	

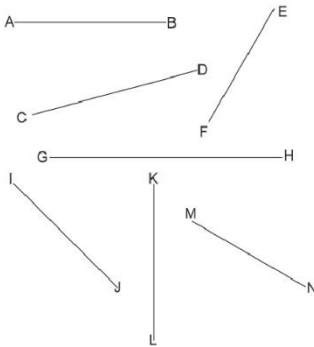
2.2 Introducing centimetres and metres

The centimetre is a standard unit of length. It is helpful in measuring small distances such as length of pencils, chalk, books, etc.

Activity 2

Estimate the lines below.

Using a 15 cm ruler, measure the length of the following lines, to the nearest cm. Work in pairs.



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Activity 3

Work in pairs. Fill in the table with the measurements from Activity 2.

Line	Estimate length	Exact length
AB		
CD		
EF		
GH		
IJ		
KL		
MN		

Activity 4

On a piece of manila paper, draw lines with the following measurements. Work in pairs.

- 4 cm
- 9 cm
- 13 cm
- 15 cm
- 10 cm
- 12 cm
- 7 cm
- 3 cm
- 8 cm
- 11 cm

24

Activity 2

Encourage learners to estimate first. Provide 15 cm rulers, to help learners carry out the measuring activity. Guide learners on the use of rulers: when to start from when measuring and how to check the measurement. Allow learners to take turns measuring and confirming their measurements. Where they do not get an exact reading, review the rounding off rules to help them come up with a measurement.

Activity 3

In this activity, learners fill in a table with the measurements received from activity one above. If they to confirm their readings, allow the learners the time to do so. Class presentations can then be made. Check for accuracy.

Activity 4

Provide manila paper, rulers and pencils for this activity. Learners are to continue working in pairs. Let the learners draw lines on the paper provided. The lines drawn should be accurate. The learners can exchange their work after completion and have a different pair measure the lines drawn. Check for accuracy.

Activity 5

Once learners have a basic idea of how to measure, allow them to measure different objects in the classroom and the school compound in groups. Let the groups select their locations in the classroom and school compound. This way, they get to measure different objects.

They should record their findings in a table. This data will then be presented to the rest of the class.

Activity 5

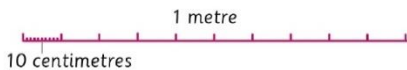
In groups, measure different objects around the classroom and the school compound. Record your measurements in a table like the one below.

Object	Length

Share your findings with the whole class.

2.3 Measuring lengths and distances in metres

Ask learners to look at the following scale. How many centimetres are there in a metre?



Activity 6

Class Activity

1. Use strides to measure the length and width of your school hall, school field and your classroom.
2. Record your measurements in a table.
3. Compare your estimates with the actual measurements.

25

	Number of strides	Measurement in metres
Length of school hall		
Width of school hall		
Length of football field		
Width of football field		
Length of classroom		
Width of classroom		

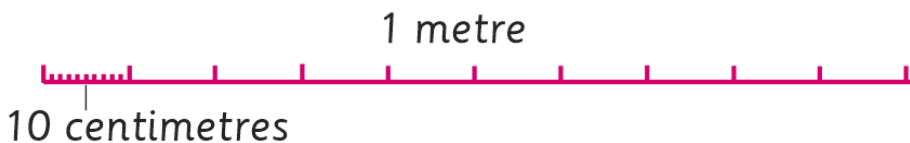
Activity 7

Estimate the lengths of the following objects. Then compare your estimates with the actual measurement using centimetre ruler or a metre rule.

Objects to be measured	Estimated measurement	Actual measurement metre/centimetre
Length of the door		
Length of the desk		
Length of the blackboard		
Length of the teacher's table		

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2.3 Measuring lengths and distances in metres



Use a one metre ruler to explain to learners the difference in centimetres and metres.

This is designed to teach students how to use rulers to measure centimetres. They will also learn how to use a meter stick to measure centimetres and multiple meters at once.

Additionally, they will be able to decide whether they should use meters or centimetres when measuring an object, based on it's overall size, and explain their decision.

Activity 6

Guide learners in carrying out this activity. Findings should be shared with the whole class.

Point out estimates may not always give the correct measurements. For example, when they are giving directions to their friends, they may not give the exact distances to be covered to reach the requested destinations. This is when actual measuring comes in.

Activity 7

Guide learners in carrying out this activity. Findings should be shared with the whole class.

2.4 Conversion of centimetres to metres and metres to centimetres

Activity 8

Guide learners in converting the measurements recorded from previous activities into metres and centimetres.

Activity 9

This activity should be completed in groups. Check for correct answers. Learners should be encouraged to explain they arrived at their answers.

Activity 10

This activity should be completed in pairs. Check for correct answers. Learners should be encouraged to explain they arrived at their answers.

2.4 Conversion of centimetres to metres and metres to centimetres

Activity 8

Study the following examples. Work in pairs.

$$1 \text{ metre} = 100 \text{ centimetres}$$

$$1\text{m} = 100\text{cm}$$

Example 1

Change 485 cm into metres and centimetres.

$$485 = 400 \text{ cm} + 85 \text{ cm}$$

$$= 4 \text{ m} + 85 \text{ cm}$$

$$= 4 \text{ m } 85 \text{ cm}$$

Example 2

Convert 7 m 35 cm into centimetres.

$$7 \text{ m } 35 \text{ cm} = 700 \text{ cm} + 35 \text{ cm}$$

$$= 735 \text{ cm}$$

Look back at the measurements collected from Activity 6 and Activity 7. Convert them into either metres or centimetres.

27

Activity 9

Work in pairs.

Convert the following into metres and centimetres. How did you work this out?

1. 660 cm

6. 484 cm

2. 258 cm

7. 104 cm

3. 850 cm

8. 514 cm

4. 329 cm

9. 701 cm

5. 206 cm

10. 906 cm

Activity 10

In pairs, change the following into centimetres.

1. 2 m 35 cm

6. 6 m 71 cm

2. 3 m 58 cm

7. 9 m 86 cm

3. 4 m 45 cm

8. 26 m 8 cm

4. 5 m 84 cm

9. 8 m 24 cm

5. 8 m 24 cm

10. 20 m 31 cm

28

2.5 Addition and subtraction involving metres and centimetres

Adding metres and centimetres

Activity 11

Guide learners in adding metres and centimetres. Let them study the examples provided, and then explain the steps to their partners.

Activity 12

This activity should be completed in pairs. Check for correct answers. Learners should be encouraged to explain they arrived at their answers. Encourage the learners to provide their answers in metres and centimetres.

Activity 13

This activity should be completed in pairs. Check for correct answers. Learners should be encouraged to explain they arrived at their answers.

2.5 Addition and subtraction involving metres and centimetres

Adding metres and centimetres

Activity 11

In pairs, study the following examples carefully.

Example 1

Add 60 cm and 60 cm
 $60 \text{ cm} + 60 \text{ cm}$
 $= 60 \text{ cm} + 40 \text{ cm} + 20 \text{ cm}$
 $= 100 \text{ cm} + 20 \text{ cm}$
 $= 1 \text{ m } 20 \text{ cm}$

Example 2

Add 2 m 36 cm and 1 m 36 cm

$$\begin{array}{r} 2 \text{ m } 36 \text{ cm} \\ + 1 \text{ m } 36 \text{ cm} \\ \hline 3 \text{ m } 72 \text{ cm} \end{array}$$

Example 3

Add 4 m 76 cm and 3 m 34 cm.

$$\begin{array}{r} 4 \text{ m } 76 \text{ cm} \\ + 3 \text{ m } 24 \text{ cm} \\ \hline 8 \text{ m } 10 \text{ cm} \end{array}$$

Note:
 $76 \text{ cm} + 34 \text{ cm}$
 $= 100 \text{ cm} + 10 \text{ cm}$
 $= 1 \text{ m } 10 \text{ cm}$

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Activity 12

In pairs, add the following:

1. $50 \text{ cm} + 50 \text{ cm}$
2. $36 \text{ cm} + 74 \text{ cm}$
3. $75 \text{ cm} + 43 \text{ cm}$
4. $48 \text{ cm} + 45 \text{ cm}$
5. $52 \text{ cm} + 84 \text{ cm}$

Activity 13

In pairs, add the following:

1. $\begin{array}{r} 6 \text{ m } 28 \text{ cm} \\ + 3 \text{ m } 44 \text{ cm} \\ \hline \end{array}$

5. $\begin{array}{r} 5 \text{ m } 29 \text{ cm} \\ + 4 \text{ m } 30 \text{ cm} \\ \hline \end{array}$

2. $\begin{array}{r} 7 \text{ m } 60 \text{ cm} \\ + 2 \text{ m } 18 \text{ cm} \\ \hline \end{array}$

3. $\begin{array}{r} 7 \text{ m } 48 \text{ cm} \\ + 1 \text{ m } 26 \text{ cm} \\ \hline \end{array}$

4. $\begin{array}{r} 6 \text{ m } 38 \text{ cm} \\ + 2 \text{ m } 28 \text{ cm} \\ \hline \end{array}$



30

Subtract metres and centimetres

Activity 14

Guide learners in subtracting metres and centimetres. Let them study the using example 1 and 2, and then explain the steps to their partners.

Activity 15

This activity should be completed in groups. Check for correct answers. Learners should be encouraged to explain they arrived at their answers.

Activity 16

This activity should be completed in groups. Check for correct answers. Learners should be encouraged to explain they arrived at their answers.

Subtract metres and centimetres

Activity 14

In pairs, study the following examples.

Example 1

Subtract 5 m 28 cm from 9 m 48 cm.

$$\begin{array}{r} 9 \text{ m } 48 \text{ cm} \\ - 5 \text{ m } 28 \text{ cm} \\ \hline 4 \text{ m } 20 \text{ cm} \end{array}$$

Example 2

Subtract 5 m 63 cm from 7 m 54 cm.

$$\begin{array}{r} 7 \text{ m } 54 \text{ cm} \\ - 5 \text{ m } 63 \text{ cm} \\ \hline 1 \text{ m } 92 \text{ cm} \end{array}$$

Convert 7 m 54 cm to 6 m 154 cm since 63 cm cannot be removed from 54 cm.

Activity 15

In groups, subtract the following.

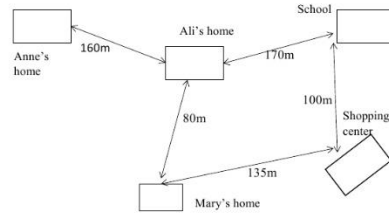
- | | |
|--|--|
| 1. $\begin{array}{r} 8 \text{ m } 60 \text{ cm} \\ - 4 \text{ m } 50 \text{ cm} \end{array}$ | 4. $\begin{array}{r} 6 \text{ m } 38 \text{ cm} \\ - 3 \text{ m } 16 \text{ cm} \end{array}$ |
| 2. $\begin{array}{r} 3 \text{ m } 65 \text{ cm} \\ - 2 \text{ m } 57 \text{ cm} \end{array}$ | 5. $\begin{array}{r} 5 \text{ m } 27 \text{ cm} \\ - 3 \text{ m } 18 \text{ cm} \end{array}$ |
| 3. $\begin{array}{r} 8 \text{ m } 65 \text{ cm} \\ - 2 \text{ m } 45 \text{ cm} \end{array}$ | 6. $\begin{array}{r} 2 \text{ m } 86 \text{ cm} \\ - 1 \text{ m } 99 \text{ cm} \end{array}$ |

31

Activity 16

In groups, solve the following problems. Explain how you arrive at your answers. Show your working out.

1. A stick of 3 m 45 cm long is joined to another. The total length of the sticks is 5 m 85 cm. What is the length of the second stick?
2. A table 3 m 25 cm long is joined to another 2 m 75 cm long. What is the total length of the new table?
3. A woman sold 25 m 70 cm of ribbon on Monday and 35 m 20 cm on Tuesday. How much ribbon did she sell altogether?



4. What is the distance from Anne's house to school through the shopping centre?

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5. Mary can go to school through two ways: Ali's house and through the shopping centre. Which is the shortest and by how many metres.
6. Othow is 168cm tall. His sister is 132 cm. How short is the sister?
7. The length of a barbed wire all round a homestead and the gate is 20 m. The length of the gate is 2 m. What is the length of the fence?
8. A pipe 12 m 45 cm long was cut off from another pipe 20 m 56 cm long. How much pipe is left?

2.6 Capacity

Capacity is the amount of liquid which a container can hold.

Activity 17

In pairs, name some liquids that are found at home and in school.

Activity 18

The standard unit of measurement of capacity is the litre. Litre is written as 'l' in short-form.

In groups, carry out the following:

1. Use a graduated litre bottle and fill it with water.
2. Collect some containers of different shapes and sizes.

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2.6 Capacity

Capacity is the amount of liquid which a container can hold.

Materials: water bottles, graduated cylinders

Activities

- i. Teacher should lead the learners in investigating capacity using litres and millilitres and decilitres using graduated containers.
- ii. Learners to do exercise in the learner's book.

Activity 17

In pairs, guide learners in naming some liquids that are found at home and in school. Learners can describe the containers these liquids are stored in.

Activity 18

This activity should be completed in groups. Check that group members participate fully in this activity. Learners should be encouraged to explain what they observe. They should choose a member to make the presentation to the whole class.

Activity 19

How to prepare a graduated cylinder

Work in groups.

1. Take a large glass or plastic jar and paste a strip of paper on it.
2. Using a litre jug, fill the jar completely with water.
3. Mark the height of the water level on the paper.
4. Now divide the height of the 1 litre level into halves and quarters.
5. Mark the $\frac{1}{4}$ litre, $\frac{1}{2}$ litre and $\frac{3}{4}$ litre levels on the strip of papers.
6. Find out how many jugs of water you need to fill the measuring jar to each of the marked levels.

Note:

1 litre = 2 half litres
 $\frac{1}{2}$ litres + $\frac{1}{2}$ litres = 1 litre
4 quarters litres = 1 litre

Activity 20

Addition of litres

This activity should be completed in pairs. Check for correct answers. Learners should be encouraged to explain they arrived at their answers.

- 5 litres
- 9 litres
- 23 litres
- 30 litres
- 33 litres
- 13 litres
- 20 litres
- 50 litres
- 14 litres
- Irene bought 6 l of paraffin. She put 2 l in one of her lamps and 3 l in another. How many litres are left? 1 litre.

- 32 half litres + 23 half litres = ____ half litres.
- 15 half litres + 16 half litres = ____ half litres.
- 17 half litres + 24 half litres = ____ half litres.
- 41 half litres + 23 half litres = ____ half litres.
- 20 half litres + 19 half litres = ____ half litres.

Activity 6

Subtract. Work in pairs.

Examples

$$75\text{ l} - 8\text{ l} = 67\text{ l}$$

$$100\text{ l} - 2\text{ l} = 98\text{ l}$$

- 33 half litres - 22 half litres = ____ half litres.
- 17 half litres - 3 half litres = ____ half litres.
- 78 half litres - 15 half litres = ____ half litres.
- 85 half litres - 13 half litres = ____ half litres.
- 42 half litres - 21 half litres = ____ half litres.

Activity 7

Subtract. Work in pairs.

- | | |
|----------------------------|----------------------------|
| a) 23 litres - 21 litres = | b) 23 litres - 18 litres = |
| c) 43 litres - 40 litres = | d) 27 litres - 11 litres = |
| e) 30 litres - 20 litres = | f) 25 litres - 12 litres = |
| g) 27 litres - 10 litres = | h) 14 litres - 12 litres = |

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Activity 21

Subtract. Work in pairs.

This activity should be completed in pairs. Check for correct answers. Learners should be encouraged to explain they arrived at their answers.

- 2 litres
- 5 litres
- 3 litres
- 16 litres
- 10 litres
- 13 litres
- 17 litres
- 2 litres

Activity 22

Conversion of Units

Smaller divisions of litre are decilitres, centilitres and millilitres.

Units of measurement

10 millilitres (ml) = 1 centilitre (cl)

10 centilitres (cl) = 1 decilitre (dl)

10 decilitres (dl) = 1 litre

2.7 Weight

Weight refers to how heavy or light an object is.

The kilogram (kg) is the standard unit of weight.

The kilogram (kg) is used as a unit when weighing heavy objects. For smaller or lighter objects, we use the unit gram (g).

The weight of 1 litre of water is 1 kilogram.

There are 1000 grams in 1 kilogram.

$$1 \text{ kg} = 1000 \text{ g}$$

$$\frac{1}{2} \text{ kg} = 500 \text{ g}$$

$$\frac{1}{4} \text{ kg} = 250 \text{ g}$$

Activity 24

Calculate and fill in the missing numbers

Centilitres	LITRES
340cl	
	3 L
550cl	
	7.4 L
800cl	

When converting from cl to L ÷ by 100
When converting from L to cl x by 100

Activity 25

Convert the following from centilitres (cl) to litres (l).
I need to multiply by _____

1. 1.00L _____ cl
2. 3.5L _____ cl
3. 4.9l _____ cl

4 litres or 330cl. Which is bigger and why? Explain your working out.

Tell your partner what you have learnt about converting ml to l and cl to l.

2.7 Weight

Weight refers to how heavy or light an object is.

The kilogram (kg) is the standard unit of weight.

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The kilogram (kg) is used as a unit when weighing heavy objects. For smaller or light objects, we use the unit gram (g).

The weight of 1 litre of water is 1 kilogram.

There are 100 grams in 1 kilogram.

1 kg = 1000 g

$\frac{1}{2}$ kg = 500 g

$\frac{1}{4}$ kg = 250 g

We use grams to weigh smaller or little/ light objects or things. There are 1000g in 1 kg

Activity 26

Look at the following pictures. What is happening? Talk in groups.



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Activity 26

This activity should be completed in groups. The focus of this activity is to talk about how various items are measured using scales. Learners should be encouraged to share their experiences and observations.

Activity 27

Estimate the weight of the following.

1. Stones of different sizes.
2. Text books of different subjects.
3. Your own weight.

Activity 28

This is an outdoors activity to be carried out in groups. Organise how learners will visit nearby markets. Prepare the learners on the information they are required to collect. The learners can write down the questions in a notebook or a piece of paper. Information gathered should be recorded, and later presented in class.

Ensure the safety of the learners is guaranteed before leaving the school compound.

Activity 3

Visit a nearby market. What do the sellers use to weigh different commodities? If their method of measuring accurate? Why do you think that? With a partner, record your findings and present them to the whole class.

Addition and subtraction

Examples

$$4 \text{ kg} + 6 \text{ kg} = 10 \text{ kg}$$

$$45 \text{ kg} + 64 \text{ kg} = 109 \text{ kg}$$

$$104 \text{ kg} + 9 \text{ kg} = 98 \text{ kg} - 43 \text{ kg}$$

104	98
$+ \quad 9$	-43
113	55 kg

Activity 4

- 105 litres – 45 litres=
- 75 litres + 35 litres – 60 litres=
- Kim's car used 7 litres of petrol for his home to school and then 8 litres to church. How many litres did he use altogether?
- Mary bought 5 half – litres packets of milk on her way home one fell and burst how many litres of milk was she left with?

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Activity 29

- 105 litres – 45 litres=60 litres
- 75 litres + 35 litres – 60 litres=50 litres
- Kim's car used 7 litres of petrol for his home to school and then 8 litres to church. How many litres did he use altogether? 15 litres
- Mary bought 5 half – litres packets of milk on her way home one fell and burst how many litres of milk was she left with? 2 litres.

2.8 Units of time

$$1 \text{ week} = 7 \text{ days}$$

$$1 \text{ day} = 24 \text{ hours}$$

$$1 \text{ hour} = 60 \text{ minutes}$$

Example

- How many days are there in 3 weeks?

$$3 \times 7 = 21 \text{ days}$$

- How many weeks are equivalent to 63 days?

$$63 \div 7 = 9 \text{ weeks}$$

Activity 30

This activity should be completed in pairs. Check for correct answers. Learners should be encouraged to explain they arrived at their answers.

1. I stayed in Hotel for 2 weeks and 3 days. I then moved to another one for 3 weeks, how long was my stay in the two hotels? Five weeks and Three days
3. In the April holiday, I spent 12 days in Nairobi, 10 days in Cape Town and another 3 days in Paris, How long was the holiday? 3 weeks and 4 days
4. What is the time interval from 10:00am to 11:30am? 1 hour 30 minutes.

2.8 Units of time

- 1 week = 7 days
- 1 day = 24 hours
- 1 hour = 60 minutes

Example

1. How many days are there in 3 weeks?

$$3 \times 7 = 21 \text{ days}$$

2. How many weeks are equivalent to 63 days?

$$63 \div 7 = 9 \text{ weeks}$$

Activity 30

In pairs, work out the answers correctly.

1. I stayed in a hotel for 2 weeks and 3 days. I then moved to another one for 3 weeks, how long was my stay in the two hotels?
2. In the April holiday, I spent 12 days in Nairobi, 10 days in Cape Town and another 3 days in Paris, How long was the holiday?
3. What is the time interval from 10:00am to 11:30am?

How have you worked this out?

Activity 31

We know that hours, minutes and seconds are the units, we use to measure the time. Work in pairs.

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1. What does the long hand of a clock show?
2. What does the short hand of a clock show?
3. What does the long and thin hand of a clock which moves faster show?
4. How many seconds are there in 10 minutes?
5. How many seconds are there in half an hour?
6. How many minutes are there in three hours?
7. How many hours are there in two days?
8. How many days are there in 5 weeks?
9. How many weeks are there in two years?
10. How many months are there in one and a half years?

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Activity 31

This activity should be completed in pairs. Point out that hours, minutes and seconds are units we use to measure time. Learners can prepare clock faces using locally available materials.

Check for correct answers. Learners should be encouraged to explain they arrived at their answers.

1. minutes
2. hours
3. seconds

4. 600

1 hour = 60 minutes. 60 minutes = 1 hour
1 minute = 60 seconds. 60 seconds = 1 minute

 **Activity 32**

If 1 hour is 60 minutes, how many minutes is 3 hours? Show your working.

 **Activity 33**

If you took 520 minutes to travel to your school. How many hours did it take you to get to school?

 **Activity 34**

1 minute is made up of 60 seconds.

Convert into seconds: Work in groups.

1. 1 hours 24 seconds
2. 20 minutes 45 seconds
3. 18 minutes 28 seconds
4. 2 hours 12 seconds
5. 36 minutes 17 seconds
6. 15 hours 19 seconds

How did you arrive at your answers?

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5. 1800
6. 180
7. 48
8. 35
9. 104
10. 18

Activity 34

This activity should be completed in groups. Check for correct answers. Learners should be encouraged to explain they arrived at their answers.

1. 13624 seconds
2. 1245 seconds
3. 1108 seconds
4. 7212 seconds
5. 2177 seconds
6. 54019 seconds

Activity 35

This activity should be completed in groups. Point out what a.m. and p.m. stand for and when they are used. Check for correct answers. Learners should be encouraged to explain they arrived at their answers.

1. 7:35 a.m.
2. 6:45 p.m.
3. 2:20 a.m.
4. 4:35 p.m.
5. 8:48 a.m.
6. 12:50 p.m.
7. 5:05 p.m.
8. 11:27 p.m.
9. 8:36 a.m.
10. 9:17 p.m.

Activity 36

This activity should be completed in groups. Remind learners that hours, minutes and seconds are units we use to measure time. Learners can prepare clock faces using locally available materials.

Check for correct answers.

Learners should be encouraged to explain they arrived at their answers.

1. 9:20 p.m.
2. 11:45 a.m.
3. 3:15 a.m.
4. 6 p.m.
5. 6 a.m.
6. 8:15 a.m.
7. 4:05 a.m.
8. 6:45 p.m.
9. 9:27 p.m.
10. 11:27 a.m.
11. 8:14 a.m.
12. 9:08 p.m.

Activity 35

Use a.m. or p.m. Work in groups.

- | | |
|------------------------|------------------------|
| 1. 7:35 in the morning | 5. 8:48 in the morning |
| 2. 6:45 in the evening | 6. 12:50 afternoon |
| 3. 2:20 midnight | 7. 5:05 in the evening |
| 4. 4:35 in the evening | 8. 11:27 at night |
| 9. 8:36 in the morning | 10. 9:17 at night |

Activity 36

What was the time before 6 hours? Work out in groups.

- | | |
|--------------|----------------|
| 1. 3:20 a.m. | 4. 12 midnight |
| 2. 5:45 p.m. | 5. 12 noon |
| 3. 9:15 a.m. | 6. 2:15 p.m. |

How did you arrive at your answers?

Activity 37

What will be the time after 4 hours? Work out in groups.

- | | | |
|--------------|--------------|--------------|
| 1. 5:40 a.m. | 3. 1:25 a.m. | 6. 2:30 p.m. |
| 2. 8:30 p.m. | 4. 5:20 a.m. | 5. 3:05 p.m. |

How did you arrive at your answers?

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Activity 37

This activity should be completed in groups. Remind learners that hours, minutes and seconds are units we use to measure time. Learners can prepare clock faces using locally available materials.

Check for correct answers. Learners should be encouraged to explain they arrived at their answers.

1. 9:40 a.m.
2. 12:30 p.m.
3. 5:25 p.m.
4. 9:20 a.m.
5. 7:05 p.m.
6. 6:30 p.m.

7. 9:15 p.m.
8. 6:15 a.m.
9. 9:17 p.m.
10. 6:34 a.m.
11. 11:18 p.m.
12. 5:27 a.m.

2.9 Money

2.9 Money

Activity 38



In groups, visit a nearby shop. Find out the prices of the various items sold in the shop. Record your data in a table and present it to the whole class.

1. What is the cheapest item in the shop?
2. What is the most expensive item in the shop?
3. Which item is bought the most at the shop?
4. How does the shopkeeper determine the price of the various items?

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Activity 39

In groups, visit a market.



Find out the prices of the various items sold in the market. Record your data in a table and present it to the whole class.

1. What kind of items are sold at the market?
2. Compare the price of the same item at different stalls. Is it the same? Is there a difference? By how much?
3. Which item is readily available at the market?
4. Which item is scarce at the market? What is its price?
5. If you went to the market with SSP 100, how much would you be able to buy? Write down the list of the items together with their quantity and prices.

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Activity 38

In groups, learners should visit a nearby shop. They should find out the prices of the various items sold in the shop. They should record this data in a table and present it to the whole class.

1. What is the cheapest item in the shop?
2. What is the most expensive item in the shop?
3. Which item is bought the most at the shop?
4. How does the shopkeeper determine the process of the various items?

Activity 39

In groups, learners to visit a market. They should find out the prices of the various items sold in the shop. Data should be recorded in a table and presented it to the whole class.

1. What kind of items are sold at the market?
2. Compare the price of the same item at different stalls. Is it the same? Is there a difference? By how much?
3. Which item is readily available at the market?
4. Which item is scarce at the market? What is its price?
5. If you went to the market with SSP 100, how much would you be able to buy? Write down the list of the items together with their quantity and prices.

Activity 40: in pairs

Explain how you will work it out, show your working.

1. After buying some tickets for SSP8.00, Willie has SSP2.00 left. How much money did Willie have to begin with?
2. Bonnie gives SSP400 to Roy. If Bonnie started with SSP1600, how much money does she have left?
3. Carlos has SSP700 and Karen has SSP600. How much more does Carlos have than Karen?
4. Thomas has SSP1700 and Sandra has SSP1300. How much more does Thomas have than Sandra?
5. Donna has SSP1300 and Jack has SSP200. How much more does Donna have than Jack?
6. Susan has SSP6700 and Joshua has SSP300. How much more does Susan have than Joshua?
7. After buying some bottle caps for SSP9000, Arthur has SSP700 left. How much money did Arthur have to begin with?
8. After buying some marbles for SSP5500, Linda has SSP900 left. How much money did Linda have to begin with?

UNIT 3: GEOMETRY

Maths Primary 3		Unit 3: Geometry
Learn about		Key inquiry questions
<p>Learners should draw geometrical shapes accurately (squares, rectangles, triangles and circles) and apply units of length correctly to consolidate their skills of drawing and measuring.</p> <p>They should investigate the properties of shapes (squares, rectangles, triangles and circles) and how they do or do not fit together, and think critically how different shapes are important in daily life.</p>		<ul style="list-style-type: none"> • Can you identify and name some geometrical shapes from the environment? • Can you sketch and draw accurately some of the geometrical shapes? • How is a knowledge of shapes important in life?
Learning outcomes		
Knowledge and understanding	Skills	Attitudes
<ul style="list-style-type: none"> • Know the key features of squares, rectangles and triangles 	<ul style="list-style-type: none"> • Sketch and draw the geometrical shapes • Use the units of measure of length correctly 	<ul style="list-style-type: none"> • Appreciate the importance of shapes in the environment •
<p>Contribution to the competencies:</p> <p><u>Critical thinking</u>: sketch and draw different geometrical shapes from the environment accurately</p> <p><u>Communication</u>: use the drawings to communicate ideas and improve language skills; group work; carrying out practical activities; sharing ideas and tools</p>		
<p>Links to other subjects:</p> <p>Links to a range of subjects such as: Science and Social Studies where shape and space are used</p>		

We are familiar with the following shapes from primary 2:

1. Rectangles
2. Squares
3. Triangles
4. Ovals
5. Circles.

Activity 1

Take the learners outside the classroom to find objects which have the shapes as the ones listed above.

Guide them to also check the objects in the classroom. For example: table, books, desk etc. Let the learners draw the objects that they find in the environment and compare them with the shapes they resemble.

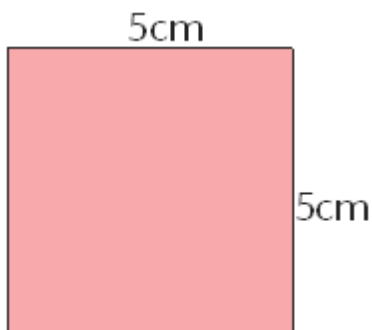
Sketching and drawing shapes accurately .

Activity 2

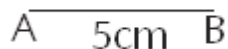
Square

A square is a quadrilateral with four right angles and four congruent/ equal sides. It is very easy to draw.

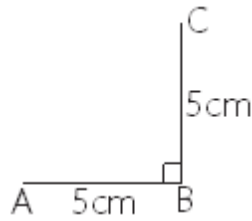
Draw a square measuring 5cm by 5cm. Follow the steps and draw in your exercise book.



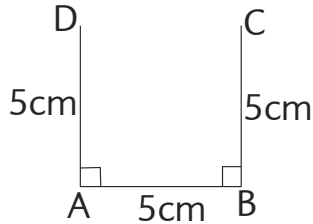
1. Draw a line using a ruler measuring 5cm, which is one side of the square. Label the line AB.



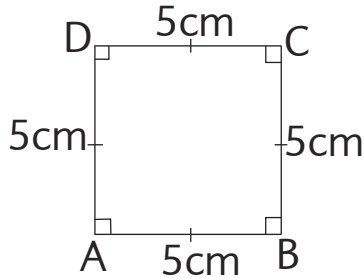
2. Considering the side drawn in the previous step as one of the arms, construct a right angle on one end of it. Label it C



3. Repeat the previous step on the other arm of the line.



4. Join the points C and D to make the square complete.



5. We have drawn a perfect square which is 5cm by 5cm. All the sides are equal and the angles are equal too.

Activity 3

Rectangle

A rectangle is a plane figure with four straight sides and four right angles, especially one with unequal adjacent sides, in contrast to a square.

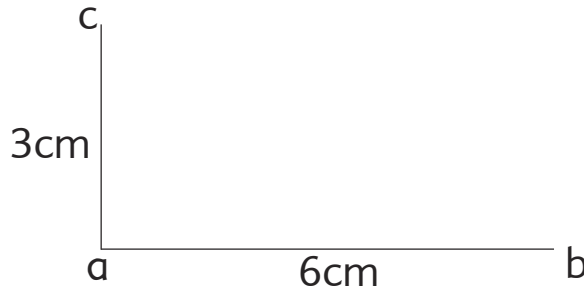
Draw a rectangle measuring 6cm by 3cm.



1. Draw a line using a ruler measuring 6cm, which is one side of the rectangle. Label then line ab



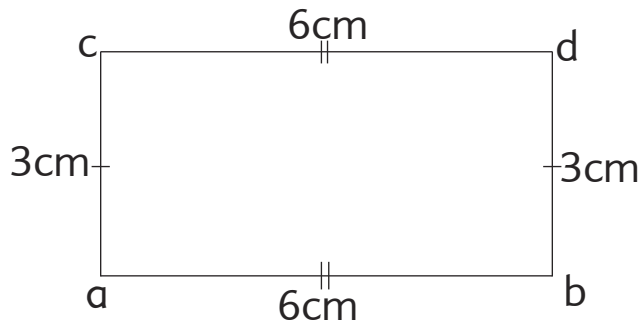
2. Considering the side drawn in the previous step as one of the arms, construct a right angle at one end of it and the line measuring 3cm. Label it c.



3. Repeat the previous step on the other side of the line. Label it d.



4. Join the points c and d to make the square complete.



5. We have drawn a rectangle measuring 6cm by 3cm.
6. A rectangle has 2 of its sides equal and all the angles are right angles.
7. Follow the above steps and draw a rectangle in your exercise book.

Activity 4

Triangle

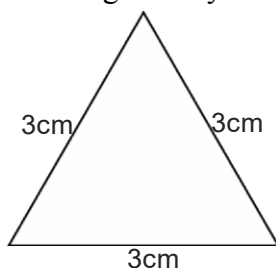
A triangle is a plane figure with three straight sides and three angles.

There are various types of triangles.

In this level we are going to study about:

1. Equilateral triangle.
2. Right angled triangle.
3. Isosceles triangle.
4. Scalene triangle.

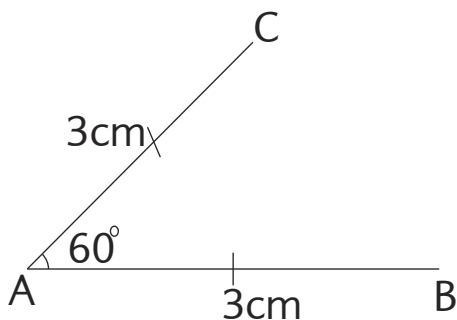
Draw an equilateral triangle measuring 3cm by 3cm by 3cm.



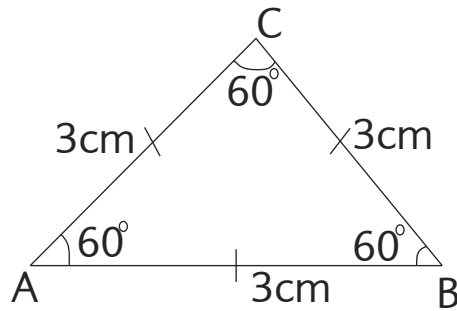
1. Lay your ruler on the paper, then trace a pencil along the straight edge. This line segment will form one side of your equilateral triangle, which means that you will need to draw two more lines of exactly the same length, each reaching toward a point at a 60° angle from the first line. Label it AB.



2. Draw another line from one of the points. Estimate an angle of 60° . Label the line C.



3. From the other point B, draw another line to meet at C.



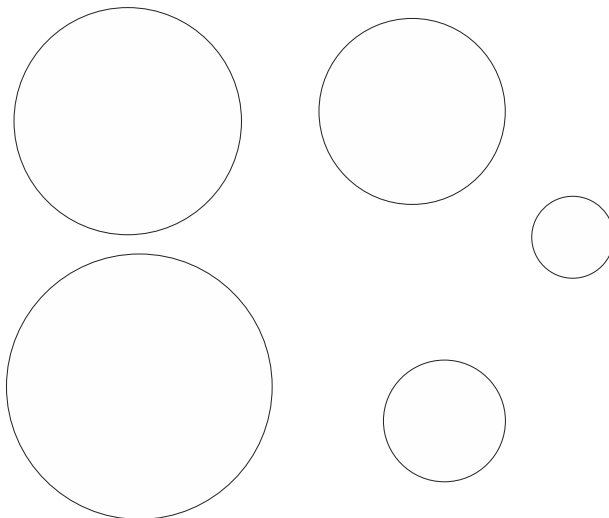
4. We have drawn an equilateral triangle with all sides equal and all angles equal.
5. Draw the equilateral triangle in your exercise book following the above steps.

Activity 5

Circle

A circle is a round plane figure whose boundary (the circumference) consists of points of the same distance from a fixed point (the center).

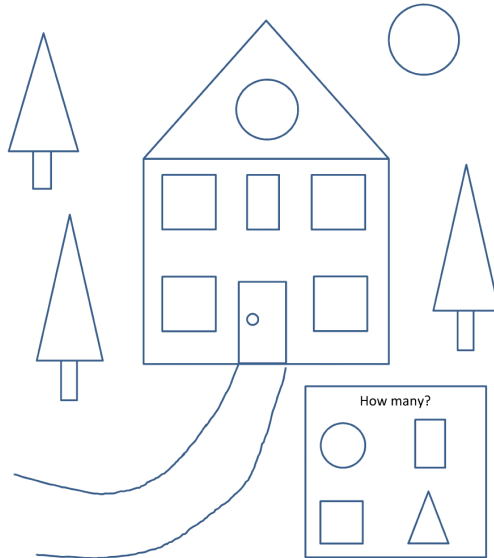
1. Draw an accurate circle.
2. The teacher will provide with various round objects which you can use to draw a perfect circle.
3. For example, a glass of water for a bigger circle, a coin, a bottle, a cup etc.
4. Draw different sizes of circles. Like the ones below.



Activity 6

This activity should be completed in groups. Check for correct answers. Learners should be encouraged to explain they arrived at their answers.

1. Count the shapes in the diagram on the following page.



There are triangle

There arerectangle.

There aresquare.

Exercise 7

1. Draw the following geometric shapes accurately as instructed.
 - a. A circle of radius 4cm.
 - b. A rectangle measuring 4cm by 7cm.
 - c. A square of length 5cm.
 - d. A triangle measuring 4cm by 5cm by 3cm

3.1 Properties of Geometric shapes

Activity 8

SQUARES

Properties of a square:

- a) It has four equal sides.
- b) It has four corners.
- c) All the angles are right angles.
- d) It has 4 lines of symmetry. See the dotted lines.
- e) If you can reflect (or flip) a figure over a line and the figure appears unchanged, then the figure has line symmetry.

RECTANGLES

Properties of a rectangle:

- a) It has four sides.
- b) The opposite sides are equal.
- c) It has four corners.
- d) All the angles are right angled.
- e) It has 2 lines of symmetry. See the dotted lines.

CIRCLES

Properties of a circle:

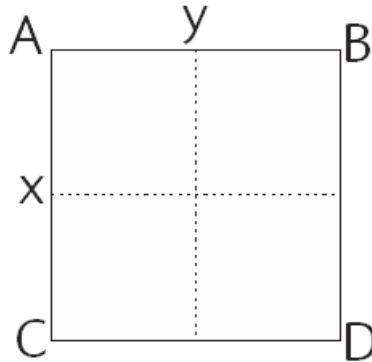
- a) It has a circumference.
- b) It has a diameter. Diameter divides a circle into 2 halves.
- c) When the diameter is divided into half it becomes a radius.
- d) All diameters are lines of symmetry. See the dotted lines.

Any line passing through the centre of the circle cuts it into 2 equal and exact parts.

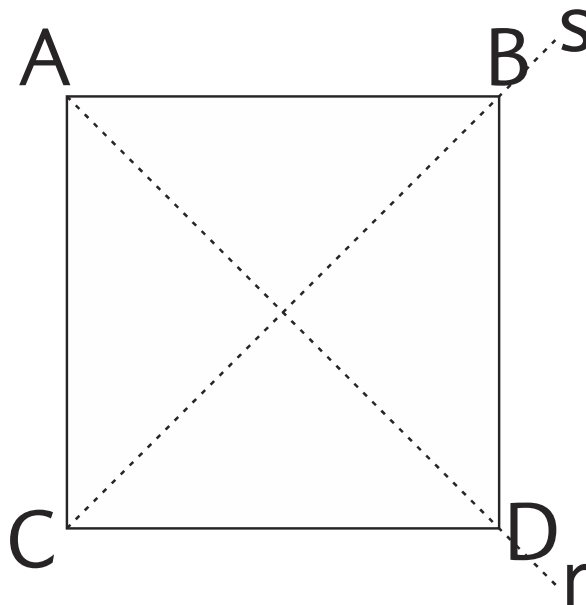
Activity 10

Square

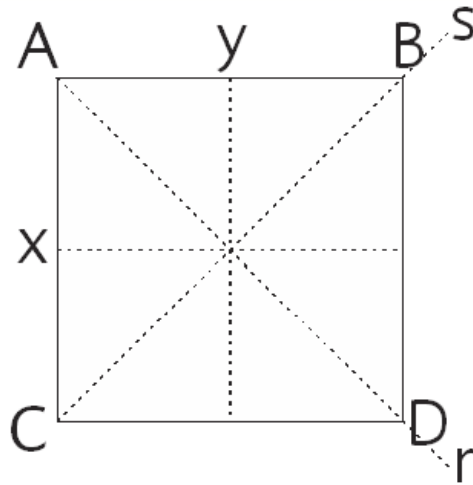
1. Make a paper cut out of a square ABCD.



2. Fold it so that corner B fits to corner A and D to C.
3. Press the fold to show the dotted line x and y.
2. Open the cut out and fold again so that A fits to D and C to B. This will give you the dotted lines s and r.



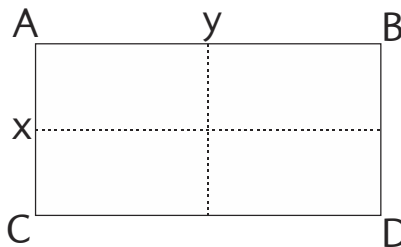
Observation: A square has 4 lines of symmetry.



Activity 11

Rectangle

1. Make a paper cut out of a rectangle ABCD.



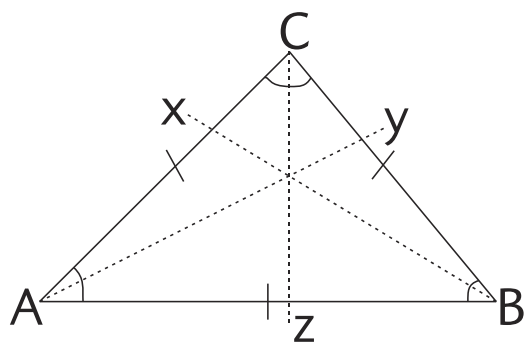
2. Fold it so that corner B fits to corner A and D to C.
3. Press the fold to show the dotted line x and y.

Observation: A rectangle has two lines of symmetry.

Activity 12

Triangle

1. Make a paper cut out of an equilateral triangle ABC.
2. Fold it so that corner B fits to corner A and C is the tip top.
3. Press the fold to show the dotted line z.



4. Fold it again, so that C lies at the centre of the line AB.
5. Fold it again, so that C fits to corner A and B is the tip top.

Observation: An equilateral triangle has 3 lines of symmetry.

Activity 13

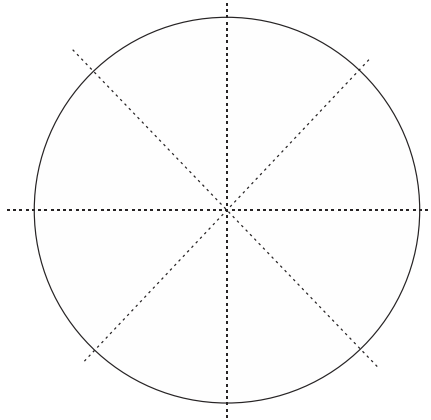
With the help of your teacher work on the other types of triangles, considering that:

1. An isosceles triangle has 1 line of symmetry.
2. A right angled triangle has no line of symmetry.
3. A scalene triangle has no line of symmetry.

Activity 14

Circle

1. Make a circular cut out.
2. Fold into half.
3. Fold into as many halves as possible.



Observation: All the diameters of a circle are lines of symmetry.

Activity 15

This activity should be completed in groups. Remind learners how to go about getting lines of symmetry. Check for correct answers. Learners should be encouraged to explain they arrived at their answers.

UNIT 4: ALGEBRA

Maths Primary 3		Unit 4: Algebra
Learn about		Key inquiry questions
<p>Learners should investigate inequalities and use symbols to compare the values of numbers and objects. They will use $>$ for 'greater than' and $<$ for 'less than' to improve their mathematical vocabulary and communication.</p> <p>They should investigate simple problems on inequalities to compare values and their relationships and understand greater than, less than, heavier than, lighter than, taller than, shorter than. They should understand that in maths a symbol can represent one or more numbers or calculations.</p>		<ul style="list-style-type: none"> • What is an inequality? • How do you use these signs in solving inequality problems?
Learning outcomes		
Knowledge and understanding	Skills	Attitudes
<ul style="list-style-type: none"> • Know the meaning of the symbols for inequality ($<$, $>$ \neq) 	<ul style="list-style-type: none"> • Write the symbols of inequalities • Use the symbols for inequalities to compare quantities 	<ul style="list-style-type: none"> • Appreciate the importance of the symbols of inequalities in comparing values
<p>Contribution to the competencies: <u>Critical thinking:</u> will be developed through comparing of values of numbers and things <u>Communication and Co-operation:</u> group work</p>		
<p>Links to other subjects: Links to a range of subjects such as: Science and Social Studies where algebra is used</p>		

Objectives

By the end of the topic, the learner should be able to:

- Write the symbols of inequalities.
- Investigate inequalities and use symbols to compare the values of numbers and objects.

Activities

- The learners should be guided on how to write inequality signs.
- The learners should be guided on how to compare different numbers using inequality signs.
- Learners should do exercise in the learner's book.

4.1 Inequalities

UNIT 4: ALGEBRA

4.1 Inequalities

An inequality is the relation between two expressions that are not equal, employing a sign such as "not equal to," > "greater than," or < "less than."

Symbol	Words	Example
>	Greater than	$x > 2$
<	Less than	$x < 4$
\geq	Greater than or equal to	$x \geq 10$
\leq	Less than or equal to	$x \leq 3$

Greater than means that the starting number is bigger in value than the other number.

Example: $50 > 15$

This means that 50 is greater than 15.

Less than means that the starting number is smaller in value than the other number.

Example: $15 < 50$

This means 15 is less than 50.

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Activity 1

In pairs, choose numbers and place them correctly in the grid below.

			<			
--	--	--	---	--	--	--

			>			
--	--	--	---	--	--	--

- What number do you have on your right?
- How did you decide to put your number?

Activity 2

1. Copy and write the correct inequality sign.

- | | |
|-------------------------------|------------------------------|
| a) $3 \underline{\quad} 2$ | f) $30 \underline{\quad} 30$ |
| b) $4 \underline{\quad} 7$ | g) $45 \underline{\quad} 20$ |
| c) $30 \underline{\quad} 40$ | h) $61 \underline{\quad} 72$ |
| d) $60 \underline{\quad} 110$ | i) $31 \underline{\quad} 20$ |
| e) $72 \underline{\quad} 40$ | j) $24 \underline{\quad} 17$ |

Activity 3

True or false?

- $4 > 2 + 1$
- $2 + 3 < 4$
- $3 + 5 < 6$
- $1 + 3 > 2$
- $6 > 5 + 4$

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Activity 2

1. Write the correct inequality sign in the space

a) $3 _ > _ 2$

f) $30 _ = _ 30$

k) $18 _ < _ 20$

b) $4 _ < _ 7$

g) $45 _ > _ 20$

l) $30 _ < _ 100$

c) $30 _ < _ 40$

h) $61 _ < _ 72$

m) $21 _ < _ 22$

d) $60 _ < _ 110$

i) $31 _ > _ 20$

n) $14 _ < _ 19$

e) $72 _ > _ 40$

j) $24 _ > _ 17$

o) $13 _ > _ 9$

Activity 3

a) $4 > 2 + 1$ True

d) $1 + 3 > 2$ True

b) $2 + 3 < 4$ False

e) $6 > 5 + 4$ False

c) $3 + 5 < 6$ False

Activity 4

1. Indicate whether true or false

a) $2 + 2 < 3 + 3$

b) $5 - 2 < 7 + 8$

c) $8 - 6 > 3 + 7$

d) $2 + 6 < 4 + 6$

2. Determine which number is greater than the other.

1. 100 and 22

2. 569 and 920

3. 17 and 77

4. 718 and 19

5. 28 and 16

6. 1000 and 918

Explain how you did it.

Activity 4

a) $2 + 2 < 3 + 3$ True

b) $5 - 2 < 7 + 8$ True

c) $8 - 6 > 3 + 7$ False

d) $2 + 6 < 4 + 6$ True

UNIT 5: STATISTICS

Maths Primary 3		Unit 5: Statistics
Learn about		Key inquiry questions
<p>Learners should interpret simple pictographs and block graphs to make meaningful information. In using pictographs learners should use pictures of persons or objects and use simple objects like bottle tops to make block graphs (like the abacus).</p> <p>They should learn how to interpret pictographs as block graphs and carry out practical activities such as measuring leaves from the same tree to show that there is a pattern.</p>		<ul style="list-style-type: none"> • How do you represent information? • What is a pictograph? • What is a block graph? • How can you interpret a pictograph and a block graph? • How do we interpret block graphs from similar objects like bottle tops and variable objects like leaves?
Learning outcomes		
Knowledge and understanding	Skills	Attitudes
<ul style="list-style-type: none"> • Understand the information conveyed by block graphs and pictograms 	<ul style="list-style-type: none"> • Draw pictograph and block graph • Make block graph using simple objects like bottle tops • Interpret simple pictographs and block graphs 	<ul style="list-style-type: none"> • Appreciate the importance of pictographs and block graphs as a form of communication
<p>Contribution to the competencies:</p> <p><u>Critical thinking</u>: making and interpreting pictographs and block graphs</p> <p><u>Communication</u>: discussion and answering problems</p> <p><u>Co-operation</u>: practical demonstration in making block graphs from simple objects</p>		

Links to other subjects:

Links to a range of subjects such as: Science and Social Studies where statistics are used







5.1 Pictographs

When some information is represented by using picture symbols, we say that the picture has been represented pictorially.

Pictorial representation is a method of representing information in a visual form.

Activity 1

The number of loaves of bread baked by a baker in 6 days is depicted below by a pictograph.


Monday	
Tuesday	
Wednesday	
Thursday	
Friday	
Saturday	



























How many loaves of bread are baked each day? Discuss with your partner.

This activity should be completed in pairs. From the pictograph above, it is clear that each picture represents one loaf of bread. Let learners arrive at this conclusion by themselves. Check for correct answers. Learners should be encouraged to explain they arrived at their answers.

Activity 2

Given below is a pictograph showing mangoes sold by a fruit vendor in a week.

Let  represent 10 mangoes.

Sunday	    
Monday	  
Tuesday	   
Wednesday	    
Thursday	     
Friday	      
Saturday	        







In groups, answer the following questions using the pictograph above.

1. How many mangoes were sold on each day?
2. On which day was the maximum number of mangoes sold?

This activity should be completed in groups. From the pictograph above, it is clear that each picture represents 10 mangoes. Let learners arrive at this conclusion by themselves. Remind learners of multiplication rules. Check for correct answers. Learners should be encouraged to explain they arrived at their answers.

Activity 3

The pictogram below shows how many shirts sold in a week. In pairs, study the pictogram and complete the following information. Work in groups.

Monday	
Tuesday	
Wednesday	
Thursday	
Friday	
Saturday	



= 5 shirts

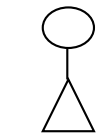
1. On which day of the week 10 shirts were sold?
2. How many shirts were sold on Tuesday?

3. Which was the day that the least shirts were sold?
4. What is the difference between the no of shirts sold on Tuesday and on Friday?

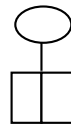
This activity should be completed in groups. From the pictograph above, it is clear that each picture represents 5 shirts. Let learners arrive at this conclusion by themselves. Remind learners of multiplication rules. Check for correct answers. Learners should be encouraged to explain they arrived at their answers.

Activity 4

Number of boys and girls in a class.



10 Girls



10 Boys

Primary 1		
Primary 2		
Primary 3		

- a) How many learners are in primary 1?
- b) How many girls are in primary 1?
- c) How many boys are in primary 2?
- d) How many girls are in primary 2?
- e) What is the total number of girls in the school?
- f) How many girls are in primary 3?
- g) How many boys are in primary 1, 2 and 3?
- h) How many girls are in primary 1, 2 and 3?

This activity should be completed in groups. From the pictograph above, it is clear that each picture represents 10 boys and 10 girls. Let learners arrive at this conclusion by themselves. Remind learners of multiplication rules. Check for correct answers. Learners should be encouraged to explain they arrived at their answers.

Activity 5

In groups, draw a pictograph on a manila paper for the following data. Give a key of what each picture represents. Present your work to the class.

Number of houses built in Juba in 5 years.

Year	2013	2014	2015	2016	2017
Number of houses built	160	330	550	720	890

This activity should be completed in groups. Provide learners with manila paper or any other locally available material upon which they can draw and present their pictograph. Check for correct answers. Learners should be encouraged to explain they arrived at their answers.

Activity 6

Conduct a school survey.

1. Count the number of learners in each class.
2. Prepare a table and record your results.
3. Use the data in your table to prepare a pictograph.
4. Give a key of what each picture represents.

This activity should be completed in groups. Provide learners with manila paper or any other locally available material upon which they can draw and present their pictograph. Learners work should be properly labelled. Check for correct answers. Learners should be encouraged to explain they arrived at their answers.







5.2 Block graphs

The information in a pictograph can be represented in a block graph.

Activity 7

Revisit the information provided in Activity 1.

The number of loaves of bread baked by a baker in 6 days is depicted below by a pictograph.

Monday	
Tuesday	
Wednesday	
Thursday	
Friday	
Saturday	

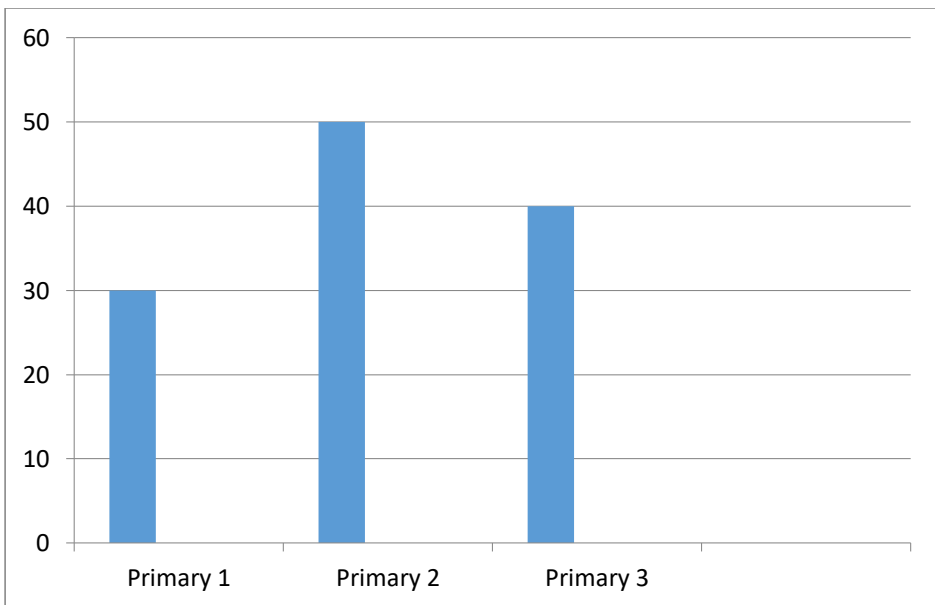
Ask:

1. This can be represented in a block graph as follows.
2. What do you notice about the graph? Talk with your partner.



Activity 8

Graph below shows the number of learners in a class. Together with your partner, study it and answer the questions that follow.



- a) How many learners are there in primary 1? _____
- b) How many learners are there in primary 2? _____
- c) How many learners are there in primary 3? _____

This activity should be completed in pairs. Allow learners to study and discuss the information provided in the graph. Check for correct answers. Learners should be encouraged to explain they arrived at their answers.

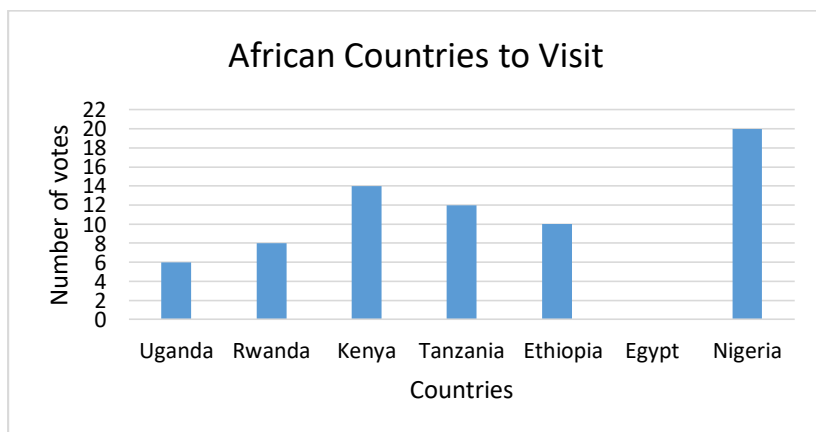
Activity 9

Work in groups.

Each child in Primary 3 selects two African countries they would like to visit.

Country	Votes
Uganda	6
Rwanda	8
Kenya	
Tanzania	12
Ethiopia	10
Egypt	16
Nigeria	

This information is represented in the block graph below.

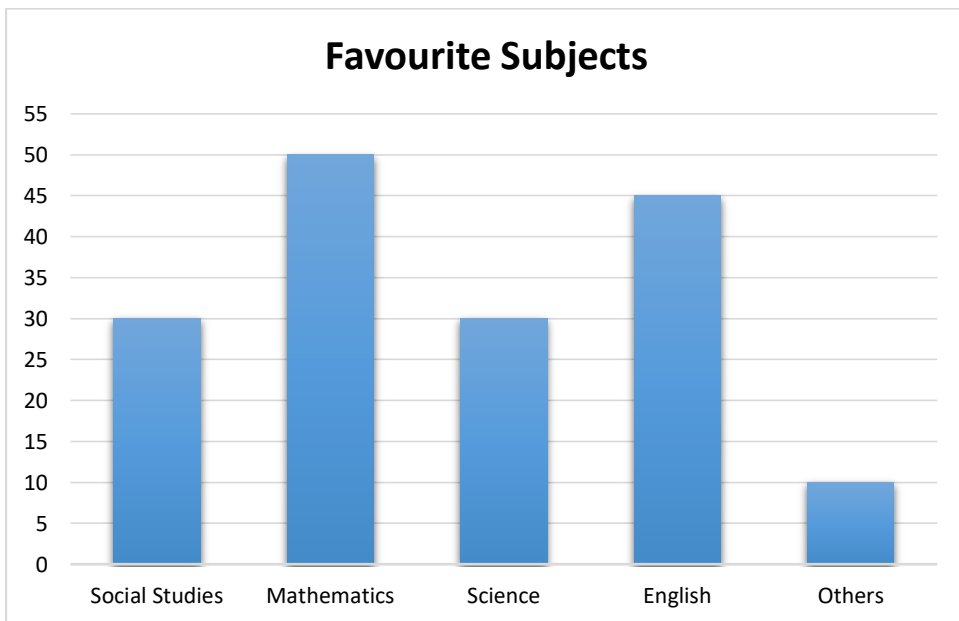


1. Fill in the missing data in the table for Kenya and Nigeria.
2. Draw a bar to show how many votes Egypt got.
3. Which was the most popular country to visit?
4. How many more votes did Tanzania get than Rwanda?
5. How many more votes did Ethiopia get than Rwanda?

This activity should be completed in groups. Allow learners to study and discuss the information provided in the graph. Check for correct answers. Learners should be encouraged to explain they arrived at their answers.

Activity 10

Mrs Ogalla, a teacher, recorded the favourite subjects of her students in the block graph below. Use the graph to answer to answer the questions. Work in pairs.

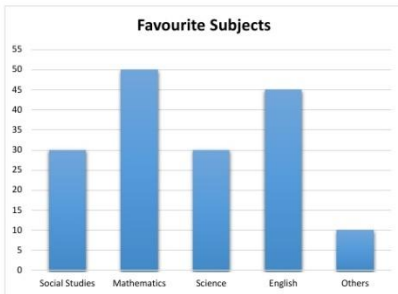


1. Which subject is the second most popular?
2. Which subject is less popular?
3. Which subject is a favourite for 50 students?
4. Which subjects have the same number of votes?
5. What unit of scale is used to display the popularity of subjects among the students?

5. How many more votes did Ethiopia get than Rwanda?

Activity 4

Mrs Ogalla, a teacher, recorded the favourite subjects of her students in the block graph below. Use the graph to answer to answer the questions. Work in pairs.



1. Which subject is the second most popular?
2. Which subject is less popular?
3. Which subject is a favourite for 50 students?
4. Which subjects have the same number of votes?
5. What unit of scale is used to display the popularity of subjects among the students?

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This activity should be completed in pairs. Allow learners to study and discuss the information provided in the graph. Check for correct answers. Learners should be encouraged to explain they arrived at their answers.

Activity 11

In groups, collect and count classroom objects such as books, dusters, erasers, pencils etc. Count the items, record the data and create a block graph.

This activity should be completed in groups. Allow learners to collect and count classroom objects. The data should be clearly recorded in a table. Provide materials on which block graphs are to be drawn. Check for correct answers. Learners should be encouraged to explain they arrived at their answers.






Activity 13

Take a survey among your friends and family on their favourite colour. Display your findings in a block graph.

This activity should be completed individually. It can be given as homework. Allow learners to collect information from friends and family members at home. The data should be clearly recorded in a table. Provide materials on which block graphs are to be drawn. Check for correct answers. Learners should be encouraged to explain they arrived at their answers.

Activity 7

Othow took a survey about the pets kept by his friends and recorded the data. Using the information, write the title of the block graph, label the axis, make appropriate scale and graph the data?

cat		8
dog		14
goat		12
rabbit		4
sheep		18

In groups, guide learners in preparing a block graph with the information given. Presentations can be made in class.