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Curriculum of MEP

Baan Sankamphaeng School

B.E. 2024

According to the core curriculum of basic education B.E. 2551

(Revised B.E. 2560)

# Math

## MEP (Mini English Program)

Baan Sankamphaeng School

Chiang Mai Primary Educational Service Area Office, Area 1

# Preface

Baan Sankamphaeng School is a model school to use the core curriculum for basic education in 2551 B.E. Group of foreign language learning Primary school B.E. 2024 by bringing the vision, principles, objectives, performance, desirable characteristics Learning standard Indicators and guidelines for measuring and evaluating the core curriculum of basic education B.E. 2551 into a framework for directing curriculum and teaching management. In order to develop learners in Baan Sankamphaeng School to have quality of knowledge Skills / processes and desirable characteristics necessary for living in a changing society And seek knowledge for continuous self-development throughout the life of the year 2024 has improved the curriculum according to the structure of the curriculum to be in accordance with the changing conditions of economy, society, politics and technology and the national education plan Ministry of Education policy Emphasizing education towards the 21st century, New Age Thailand 4.0

Thank you, School Board of Baan Sankamphaeng School student's parent And all those involved who please advise and consult In the preparation of the curriculum of MEP Baan Sankamphaeng School learning Primary education level 2023, this time to develop the quality of students according to the spirit of the core curriculum of basic education B.E. 2551

Producers

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**Vision**

Our school lives up to international standards. Focuses on learning to generate creativity. Our students can communicate using the technology for virtue, art and culture.

**Principles**

Covers all target groups Can transfer learning outcomes. And experience Baan San Kamphaeng School 2009 (School Curriculum 2017) Curriculum Based on Basic Core Curriculum 2008 are as follow.

1. The ultimate aim is attainment of national unity; learning standards and goals are therefore set with a view to enabling the children and youths to acquire knowledge, skills, attitude and morality to serve as a foundation for Thai-ness and universal values.

2. The curriculum facilitates education for all, who have equal access to education of high quality.

3. The curriculum facilitates decentralisation of authority by allowing society to participate in educational provision, which suits prevailing situations and serves local needs.

4. Structure of the curriculum enjoys flexibility regarding learning contents, time allotment and learning management.

5. The learner-centred approach is strongly advocated.

6. The curriculum is intended for education of all types—formal, non-formal and informal, covering all target groups and facilitating transfer of learning outcomes and experiences.

**Goals**

Baan San Kamphaeng School 2009 (Updated 2017) According to Core Curriculum, Basic Education 2008 aims to develop learners into good people with wisdom, happiness and potential for further study, and occupation. It is a destination for students. The following goals have consequently been set for achievement upon completing basic education:

1. Morality, ethics, desirable values, self-esteem, self-discipline, observance of Buddhist teachings or those of one's faith, and guiding principles of Sufficiency Economy;

2. Knowledge and skills for communication, thinking, problem-solving, technological know-how, and life skills;

3. Good physical and mental health, hygiene, and preference for physical exercise;

4. Patriotism, awareness of responsibilities and commitment as Thai citizens and members of the world community, and adherence to a democratic way of life and form of government under constitutional monarchy; and

5. Awareness of the need to preserve all aspects of Thai culture and Thai wisdom, protection and conservation of the environment, and public-mindedness with dedication to public service for peaceful and harmonious co-existence.

**Key Competencies and Desirable Characteristics**

In the development of learners according to the Baan San Kamphaeng School curriculum, 2009 (Update 2017), according to the core curriculum of Basic Education 2008, the students should focus on developing the learners to meet the quality standards. This will help learners to achieve key performance and desired attributes;

**Learners' Key Competencies**

Baan San Kamphaeng School 2009 (Updated 2017) According to Core Curriculum. The Basic Education Core Curriculum is aimed at inculcating among learners the following five key competencies:

**1. Communication Capacity**

Capacity to receive and transmit information; linguistic ability and skills in expressing one's thoughts, knowledge and understanding, feelings and opinions for exchanging information and experience, which will be beneficial to oneself and society; negotiation for solving or reducing problems and conflicts; ability to distinguish and choose whether to receive or avoid information through proper reasoning and sound judgement; and ability to choose efficient methods of communication, bearing in mind possible negative effects on oneself and society.

**2. Thinking Capacity**

Capacity for analytical, synthetic, constructive, critical and systematic thinking, leading to creation of bodies of knowledge or information for judicious decision-making regarding oneself and society.

**3. Problem–Solving Capacity**

Capacity to properly eliminate problems and obstacles, based on sound reasoning, moral principles and accurate information; appreciation of relationships and changes in various social situations; ability to seek and apply knowledge to prevent and solve problems; and ability for judicious decision-making, bearing in mind possible negative effects on oneself, society and the environment.

**4. Capacity for Applying Life Skills**

Capacity for applying various processes in daily life; self-learning; continuous learning; working; and social harmony through strengthening of happy interpersonal relationships; elimination of problems and conflicts through proper means; ability for self-adjustment to keep pace with social and environmental changes; and capacity for avoiding undesirable behaviour with adverse effects on oneself and others.

**5. Capacity for Technological Application**

Ability to choose and apply different technologies; skills in application of technological processes for development of oneself and society in regard to learning, communication, working, and problem-solving through constructive, proper, appropriate and ethical means.

**Desirable Characteristics**

The Basic Education Core Curriculum focuses on learners' development for attainment of the following desirable characteristics, enabling learners to enjoy a life of harmony among others as Thai citizens and global citizens:

1. Love of nation, religion and king
2. Honesty and integrity
3. Self-discipline
4. Avidity for learning
5. Observance of principles of Sufficiency Economy Philosophy in one's way of life
6. Dedication and commitment to work
7. Cherishing Thai-ness
8. Public-mindedness

**Learning Area of Mathematics**

**Why it is necessary to learn mathematics**

Mathematics is highly important to development of the human mind. It enables a person to acquire skills in creativity, logic and systematic and methodical thinking, and allows one to carefully and thoroughly analyse various problems or situations, anticipate, plan, make decisions, solve problems and accurately and appropriately apply mathematics in daily life. Mathematics serves as a tool for learning science, technology and other disciplines. It is therefore useful to one's life, enhances quality of life and enables a person to live in harmony with others.

**What is learned in mathematics?**

The learning area for mathematics is aimed at enabling all children and youths to continuously learn this subject in accord with their potentiality. The contents prescribed for all learners are as follow:

**Numbers and Operations**: numerical concepts and sense of perception; real number system; properties of real numbers; operation of numbers; ratio; percentage; problem-solving involving numbers; and application of numbers in real life

**Measurement:** length; distance; weight; area; volume and capacity; money and time; measuring units; estimation for measurement; trigonometric ratio; problem-solving regarding measurement; and application of measurement in various situations

**Geometry**: geometric figures and properties of one-dimensional geometric figures; visualization of geometric models; geometric theories; and geometric transformation through translation, reflection and rotation

**Algebra**: pattern; relationship; function; sets and their operations; reasoning; expression; equation; equation system; inequality; graph; arithmetic order; geometric order; arithmetic series; and geometric series

**Data Aanalysis and Probability**: determining an issue; writing questions; determining methods of study; study; data collection, systematization and presentation; central tendency and data distribution; data analysis and interpretation; opinion polling; probability; application of statistical knowledge and probability; application of probability in explaining various situations as well as for facilitating decision-making in real life

**Mathematical Skills and Processes**: problem-solving through diverse methods; reasoning; communication; communication and presentation of mathematical concepts; linking mathematics with other disciplines; and attaining ability for creative thinking

**Learners' Quality**

**Grade 3 graduates**

1. Have numerical knowledge, understanding and sense of cardinal numbers not more than 100,000, and zero as well as operation of numbers; can solve problems involving addition, subtraction, multiplication and division; and are aware of validity of the answers reached

2. Have knowledge and understanding of length, distance, weight, volume, capacity, time and money; can measure correctly and appropriately; and can apply knowledge of measurement for solving problems faced in various situations

3. Have knowledge and understanding of triangle, quadrilateral, circle, ellipse, cuboid, sphere and cylinder as well as point, line segment and angle

4. Have knowledge and understanding of pattern and can explain relationship

5. Can collect and analyse relevant data and information about themselves and their surroundings in their daily lives; can avail of pictograms and bar charts for discussing various issues

6. Can apply diverse methods for problem-solving; can avail of mathematical knowledge, skills and processes appropriately for solving problems faced in various situations; can suitably present reasoning for decision-making and appropriately present the conclusion reached; can use mathematical language and symbols for communication, as well as accurate and appropriate communication and presentation of mathematical concepts; can link various bodies of mathematical knowledge; can link mathematics with other disciplines; and have attained ability for creative thinking

**Grade 6 graduates**

1. Have numerical knowledge, understanding, and sense of cardinal numbers and zero, fractions, decimals of not more than three places, percentages, operation of numbers and properties of numbers; can solve problems involving addition, subtraction multiplication and division of cardinal numbers, fractions, decimals of not more than three places and percentages; are aware of validity of the answers reached; and can find estimates of cardinal numbers and decimals of not more than three places.

2. Have knowledge and understanding of length, distance, weight, area, volume, capacity, time, money, direction, diagrams and size of angles; can measure correctly and appropriately; and can apply knowledge of measurement for solving problems faced in various situations

3. Have knowledge and understanding of characteristics and properties of triangles, squares, circles, cuboids, cylinders, cones, prisms, pyramids angles and parallel lines

4. Have knowledge and understanding of patterns and can explain their relationships and solve problems involving patterns; can analyse situations or problems as well as write linear equations with an unknown that can be solved.

5. Can collect data and information and discuss various issues from pictograms, bar charts, comparative bar charts, pie charts, line graphs and tables that are availed of for presentation; and can apply knowledge of basic probability in projecting various possible situations.

6. Can apply diverse methods for problem-solving, availing of mathematical and technological knowledge, skills, and processes appropriately to solve problems faced in various situations; can suitably provide reasoning for decision-making and appropriately present the conclusions reached; can use mathematical language and symbols for communication as well as accurate and appropriate communication and presentation of mathematical concepts; can link various bodies of mathematical knowledge and can link mathematical knowledge with other disciplines; and have attained ability for creative thinking.

**Strands and Learning Standards**

**Strand 1: Numbers and Operations**

Standard M1.1: Understanding of diverse methods of presenting numbers and their application in real life

Standard M1.2: Understanding of results of operations of numbers, relationship of operations, and application of operations for problem-solving

Standard M1.3: Use of estimation in calculation and problem-solving

Standard M1.4: Understanding of numerical system and application of numerical properties

**Strand 2: Measurement**

Standard M2.1: Understanding of the basics of measurement; ability to measure and estimate the size of objects to be measured

Standard M2.2: Solving measurement problems

**Strand 3: Geometry**

Standard M3.1: Ability to explain and analyse two-dimensional and three- dimensional geometric figures

Standard M3.2: Capacity for visualisation, spatial reasoning and application of geometric models for problem-solving

**Strand 4: Algebra**

Standard M4.1: Understanding and ability to analyse patterns, relations and functions

Standard M4.2: Ability to apply algebraic expressions, equations, inequality, graphs and other mathematical models to represent various situations as well as interpretation and application for problem-solving

**Strand 5: Data Analysis and Probability**

Standard M5.1: Understanding and ability to apply statistical methodology for data analysis

Standard M5.2: Application of statistical methodology and knowledge of probability for valid estimation

Standard M5.3: Application of knowledge of statistics and probability for decision-making and problem-solving

**Strand 6: Mathematical Skills and Processes**

Standard M6.1: Capacity for problem-solving, reasoning; communication and presentation of mathematical concept; linking various bodies of mathematical knowledge and linking mathematics with other disciplines; and attaining ability for creative thinking

**Strand 1: Numbers and Operations**

Standard M1.1: Understanding diverse methods of presenting numbers and their application in real life

| Grade level indicators | | | | | |
|---|---|---|---|---|---|
| **Grade 1** | **Grade 2** | **Grade 3** | **Grade 4** | **Grade 5** | **Grade 6** |
| 1. Write and read Hindu-Arabic and Thai numerals showing quantity of objects or cardinal numbers not exceeding 100, and 0.<br>2. Compare and arrange sequence of cardinal numbers not exceeding 100, and 0. | 1. Write and read Hindu-Arabic and Thai numerals and written forms showing quantity of objects or cardinal numbers not exceeding 1,000, and 0.<br>2. Compare and arrange sequence of cardinal numbers not exceeding 1,000, and 0. | 1. Write and read Hindu-Arabic and Thai numerals and written forms showing quantity of objects or cardinal numbers not exceeding 100,000, and 0.<br>2. Compare and arrange sequence of cardinal numbers not exceeding 100,000, and 0. | 1. Write and read Hindu-Arabic and Thai numerals and written forms showing cardinal numbers, 0, fractions, and one-place decimals.<br>2. Compare and arrange sequence of cardinal numbers and 0, fractions, and one-place decimals. | 1. Write and read fractions, mixed numbers and decimals with not more than 2 places.<br>2. Compare and arrange sequence of fractions and decimals with not more than 2 places.<br>3. Write fractions in decimal form and percentages; write percentages in the forms of fractions and decimals, and write decimals in the forms of fractions and percentages. | 1. Write and read decimals with not more than 3 places.<br>2. Compare and arrange sequence of fractions and decimals with not more than 3 places.<br>3. Write decimals in the form of fractions and write fraction in form of decimal. |

**Strand 1: Numbers and Operations**

Standard M1.2: Understanding results of operations of numbers, relationships of operations, and application of operations for problem-solving

| Grade level indicators | | | | | |
|---|---|---|---|---|---|
| **Grade 1** | **Grade 2** | **Grade 3** | **Grade 4** | **Grade 5** | **Grade 6** |
| 1. Add, subtract and mix addition and subtraction of cardinal numbers not exceeding 100, and 0, as well as be aware of validity of the answers.<br>2. Analyse and find answers to problems and mix-problems of cardinal numbers not exceeding 100, and 0, as well as aware of validity of the answers. | 1. Add, subtract and mix addition and subtraction of cardinal numbers not exceeding 1,000, and 0, as well as be aware of validity of the answers.<br>2. Analyse and find answers to problems and mix-problems of cardinal numbers not exceeding 1,000, and 0, as well as be aware of validity of the answers. | 1. Add, subtract and mix addition and subtraction of cardinal numbers not exceeding 100,000, and 0, as well as be aware of validity of the answers.<br>2. Analyse and show method of finding answers to problems and mix-problems of cardinal numbers not exceeding 100,000, and 0, as well as be aware of validity of the answers. | 1. Add, subtract and mix addition, subtraction, multiplication and division of cardinal numbers and 0, as well as be aware of validity of the answers.<br>2. Analyse and show method of finding answers to problems and mix-problems of cardinal numbers and 0, as well as be aware of validity of the answers, and be able to construct problems.<br>3. Add and subtract fractions with same denominator. | 1. Write and read fractions, mixed numbers and decimals with not more than 2 places.<br>2. Compare and arrange sequence of fractions and decimals with not more than 2 places.<br>3. Write fractions in decimal form and percentages; write percentages in the forms of fractions and decimals, and write decimals in the forms of fractions and percentages. | 1. Write and read decimals with not more than 3 places.<br>2. Compare and arrange sequence of fractions and decimals with not more than 3 places.<br>3. Write decimals in the form of fractions and write fraction in form of decimal. |

**Strand 1: Numbers and Operations**

Standard M1.3: Use of estimation in calculation and problem-solving

| Grade level indicators | | | | | |
|---|---|---|---|---|---|
| **Grade 1** | **Grade 2** | **Grade 3** | **Grade 4** | **Grade 5** | **Grade 6** |
| - | - | - | - | 1. Make approximate estimates of integers of 10, 100 and 1,000 of cardinal numbers, which can be applied. | 1. Make approximate estimates of various integers of cardinal numbers, which can be applied.<br>2. Make estimates of decimals of not more than 3 places. |

**Strand 1: Numbers and Operations**

Standard M1.4: Understanding of numerical system and application of numerical properties

| Grade level indicators | | | | | |
|---|---|---|---|---|---|
| **Grade 1** | **Grade 2** | **Grade 3** | **Grade 4** | **Grade 5** | **Grade 6** |
| - | - | - | - | - | 1. Use communicative, associative and distributive properties in calculation.<br>2. Find highest common factor (H.C.F.) and lowest common multiples (L.C.M.) of cardinal numbers.decimals of not more than 3 places. |

**Strand 2: Measurement**

Standard M2.1: Understanding the basics of measurement; ability to measure and estimate the size of objects to be measured

| Grade level indicators | | | | | |
|---|---|---|---|---|---|
| **Grade 1** | **Grade 2** | **Grade 3** | **Grade 4** | **Grade 5** | **Grade 6** |
| 1. Tell length, weight, volume, and capacity by using non-standard units of measure. | 1. Tell length in metres and centimetres, and compare length by using the same unit.<br>2. Tell weight in kilogrammes and | 1. Tell length in metres, centimetres and millimetres by using appropriate measuring tools, and compare length. | 1. Tell the relationship between measuring units for length, weight, volume or capacity and time. | 1. Tell the relationship between measuring units for length, weight and volume or capacity. | 1. Explain a route or indicate positions of various objects by specifying direction and real distance from pictures, |
| **Grade 1** | **Grade 2** | **Grade 3** | **Grade 4** | **Grade 5** | **Grade 6** |

| | | | | | |
|---|---|---|---|---|---|
| 2. Tell period of time, number and names of days of the week. | grammes, and compare weight by using the same unit.<br>3. Tell volume and capacity in litres, and compare volume and capacity.<br>4. Tell total amount of money from coins and bank notes.<br>5. Tell the time on a clock dial (period of 5 minutes).<br>6. Tell the days, months and year from a calendar. | 2. Tell weight in kilogrammes and grammes by using appropriate weighing machine, and compare weights.<br>3. Tell volume and capacity in litres and millilitres by using appropriate measuring tools, and compare weight and capacity by using the same units.<br>4. Tell the time on a clock dial (period of 5 minutes); read, write and tell the time by using numerals.<br>5. Tell the relationship between measuring units for length, height and time.<br>6. Read and write amount of money by using numerals. | 2. Find area of rectangle.<br>3. Tell the time on a clock dial; read and write the time by using numerals; and tell length of time.<br>4. Estimate length, weight and volume or capacity. | 2. Find the perimeter of quadrilaterals and triangles.<br>3. Find the area of rectangles and triangles.<br>4. Measure the size of angle.<br>5. Find volume or capacity of cuboids. | maps and diagrams.<br>2. Find the area of quadrilateral.<br>3. Find the circumference and area of circles. |

**Strand 2: Measurement**

Standard M2.2: Solving measurement problems

| Grade level indicators | | | | | |
|---|---|---|---|---|---|
| **Grade 1** | **Grade 2** | **Grade 3** | **Grade 4** | **Grade 5** | **Grade 6** |
| - | 1. Solve problems involving measurement of length, weight, volume and money. | 1. Solve problems involving measurement of length, weight, volume, money and time.<br>2. Read and keep record of income and expenditure.<br>3. Read and keep record of activities or events, specifying the time. | 1. Solve problems involving measurement of length, weight, volume, money and time.<br>2. Read and keep record of income and expenditure.<br>3. Read and keep record of activities or events, specifying the time. | 1. Solve problems involving area and perimeter of quadrilaterals and triangles. | 1. Solve problems involving area and perimeter of quadrilaterals and circles.<br>2. Solve problems involving volume and capacity of cuboids.<br>3. Draw diagrams showing positions of various objects and diagrams showing travel routes. |

**Strand 3: Geometry**

Standard M3.1: Ability to explain and analyse two-dimensional and three-dimensional geometric figures.

| Grade level indicators | | | | | |
|---|---|---|---|---|---|
| **Grade 1** | **Grade 2** | **Grade 3** | **Grade 4** | **Grade 5** | **Grade 6** |
| 1. Distinguish triangles, quadrilaterals, circles and ellipses. | 1. Identify two-dimensional geometric figures whether in the form of triangles, quadrilaterals, circles or ellipses.<br>2. Identify three-dimensional figures whether in the form of cuboids, spheres or cylinders.<br>3. Distinguish between rectangles and cuboids, and between circles and spheres. | 1. Identify two-dimensional geometric figures that are components of an object in the form of a three-dimensional geometric figure.<br>2. Identify two-dimensional geometric figures with axis of symmetry from a given figure.<br>3. Write linear points, straight lines, rays, parts of straight lines, angles and symbols. | 1. Identify kind, name and components of angles and write symbols.<br>2. Can identify which pair of straight lines or parts of straight lines form a parallel, as well as use symbols to indicate kind of parallel.<br>3. Identify components of a circle.<br>4. Can identify which figure or which part of an object has the form of a rectangle, and can identify whether it is a square or a rectangle.<br>5. Can identify which two- | 1. Identify characteristics and differentiate between various kinds of three-dimensional geometric figures.<br>2. Identify characteristics, relationship and differentiate between various kinds of quadrilaterals.<br>3. Identify characteristics, components, relationships and differentiate between various kinds of triangles. | 1. Identify kinds of two-dimensional geometric figures that are components of three-dimensional geometric figures.<br>2. Identify characteristics of diagonals in various kinds of quadrilaterals.<br>3. Identify which pair of straight lines is parallel. |

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| | | | dimensional geometric figures have axes of symmetry, and identify the number of axes. | | |

**Strand 3: Geometry**

Standard M3.2: Ability for visualization, spatial reasoning and application of geometric models for problem solving

| Grade level indicators | | | | | |
|---|---|---|---|---|---|
| **Grade 1** | **Grade 2** | **Grade 3** | **Grade 4** | **Grade 5** | **Grade 6** |
| - | 1. Draw two-dimensional geometric figures by using geometric models. | 1. Draw two-dimensional geometric figures given in various models.<br>2. Identify various geometric figures in the surroundings. | 1. Use geometric figures to create various designs. | 1. Construct angles by using a protractor.<br>2. Create rectangles, triangles, and circles.<br>3. Create parallels by using a set square. | 1. Create cuboids, cylinders, cones, prisms and pyramids from nets of three-dimensional geometric figures or two-dimensional geometric figures given.<br>2. Construct various kinds of quadrilaterals. |

**Strand 4: Algebra**

Standard M4.1: Understanding and ability to analyse pattern, relation and function

| Grade level indicators | | | | | |
|---|---|---|---|---|---|
| **Grade 1** | **Grade 2** | **Grade 3** | **Grade 4** | **Grade 5** | **Grade 6** |
| 1. Tell the numbers and relations in patterns of numbers that increases by 1s and 2s, and decreases by 1s.<br>2. Identify the forms and relations in patterns in which forms are related in one of the following respects: shape, size or colour. | 1. Tell the numbers and relations in patterns of numbers that increases by 5s, 10s and 100s , and decreases by 2s, 10s and 100s.<br>2. Identify the forms and relations in patterns in which forms are related in one of the following respects: shape, size or colour. | 1. Tell the numbers and relations in patterns of numbers that increases by 3s, 4s, 25s and 50s, and decreases by 3s, 4s, 5s, 25s and 50s and in repeated patterns.<br>2. Identify the forms and relations in patterns in which forms are related in two of the following respects: shape, size or colour. | 1. Tell the numbers and relations in patterns of number which increases or decreases in equal amount each time.<br>2. Identify the forms and relations in patterns of a given form. | 1. Tell the numbers and relations in patterns of given numbers. | 1. Solve problems involving pattern. |

**Strand 4: Algebra**

Standard M4.2: Ability to apply algebraic expressions, equations, inequalities, graphs and other mathematical models to represent various situations, as well as interpretation and application for problem-solving

| Grade level indicators | | | | | |
|---|---|---|---|---|---|
| **Grade 1** | **Grade 2** | **Grade 3** | **Grade 4** | **Grade 5** | **Grade 6** |
| - | - | - | - | - | 1. Write an equation based on a situation or problem, solve the equation and check the answer. |

**Strand 5: Data Analysis and Probability**

Standard M5.1: Understanding and ability to apply statistical methodology for data analysis

| Grade level indicators | | | | | |
|---|---|---|---|---|---|
| **Grade 1** | **Grade 2** | **Grade 3** | **Grade 4** | **Grade 5** | **Grade 6** |
| - | - | 1. Collect and categorize data about oneself and the surroundings in daily life.<br>2. Read data from simple pictograms and bar charts. | 1. Collect and categorize data.<br>2. Read data from pictograms, bar charts and tables.<br>3. Draw pictograms and bar charts. | 1. Draw bar charts with shortening of lines to represent numbers.<br>2. Read data from comparative bar charts. | 1. Read data from line graphs and pie-charts.<br>2. Draw comparative bar charts and line graphs. |

**Strand 5: Data Analysis and Probability**

Standard M5.2: Application of statistical methodology and knowledge of probability for valid estimation

| Grade level indicators | | | | | |
|---|---|---|---|---|---|
| **Grade 1** | **Grade 2** | **Grade 3** | **Grade 4** | **Grade 5** | **Grade 6** |
| - | - | - | - | 1. Can tell whether a described situation:<br>- will definitely happen;<br>- may or may not happen;<br>- will definitely not happen. | 1. Explain events by using terms with similar meaning to:<br>- will definitely happen;<br>- may or may not happen;<br>- will definitely not happen. |

**Strand 6: Mathematical Skills and Processes**

Standard M6.1: Capacity for problem-solving, reasoning and communication; communication and presentation of mathematical concepts; linking various bodies of mathematical knowledge and linking mathematics with other disciplines; and attaining ability for creative thinking

| Grade level indicators | | | | | |
|---|---|---|---|---|---|
| **Grade 1** | **Grade 2** | **Grade 3** | **Grade 4** | **Grade 5** | **Grade 6** |
| 1. Apply diverse methods for problem-solving. | 1. Apply diverse methods for problem-solving. | 1. Apply diverse methods for problem-solving.<br>2. Appropriately apply mathematical knowledge, skills | 1. Apply diverse methods for problem-solving. | 1. Apply diverse methods for problem-solving. | 1. Apply diverse methods for problem-solving. |
| **Grade 1** | **Grade 2** | **Grade 3** | **Grade 4** | **Grade 5** | **Grade 6** |
| 2. Appropriately apply | 2.Appropriately | and processes for problem- | 2. Appropriately apply | 2. Appropriately apply | 2. Appropriately apply |

| | | | | | |
|---|---|---|---|---|---|
| mathematical knowledge, skills and processes for problem-solving in various situations.<br>3. Suitably provide reasoning for decision-making and appropriately present the conclusions reached.<br>4. Accurately use mathematical language and symbols for communication of concepts and presentation.<br>5. Link various bodies of mathematical knowledge, | apply mathematical knowledge, skills and processes for problem-solving in various situations.<br>3. Suitably provide reasoning for decision-making and appropriately present the conclusions reached.<br>4. Accurately use mathematical language and symbols for communication, communication of concepts and presentation.<br>5. Link various bodies of mathematical knowledge, | solving in various situations.<br>3. Suitably provide reasoning for decision-making and appropriately present the conclusions reached.<br>4. Accurately use mathematical language and symbols for communication, communication of concepts and presentation.<br>5. Link various bodies of mathematical knowledge, and link mathematics with other disciplines. | mathematical and technological knowledge, skills and processes for problem-solving in various situations.<br>3. Suitably provide reasoning for decision-making and appropriately present the conclusions reached.<br>4. Accurately use mathematical language and symbols for communication, communication of concepts and presentation.<br>5. Link various bodies of | mathematical and technological knowledge, skills and processes for problem-solving in various situations.<br>3. Suitably provide reasoning for decision-making and appropriately present the conclusions reached.<br>4. Accurately use mathematical language and symbols for communication, communication of concepts and presentation.<br>5. Link various bodies of mathematical | mathematical and technological knowledge, skills and processes for problem-solving in various situations.<br>3. Suitably provide reasoning for decision-making and appropriately present the conclusions reached.<br>4. Accurately use mathematical language and symbols for communication, communication of concepts and presentation.<br>5. Link various bodies of mathematical knowledge, and |
| **Grade 1** | **Grade 2** | **Grade 3** | **Grade 4** | **Grade 5** | **Grade 6** |
| and link mathematics | and link mathematics with other disciplines. | 6. Attain ability for creative thinking. | mathematical knowledge, and link mathematics | knowledge, and link mathematics | link mathematics with other disciplines. |

| | | | | | |
|---|---|---|---|---|---|
| | 6. Attain ability for creative thinking. | | with other disciplines.<br>6. Attain ability for creative thinking. | with other disciplines.<br>6. Attain ability for creative thinking. | 6. Attain ability for creative thinking. |

## Indicators and Core learning (Revised edition B.E. 2562)

**Strand 1 Number and Algebra**

**Standard M 1.1** Understand the variety of display numbers number systems Operation of the number The result of the operation Treasures of action and to apply.

| Grade | Indicators | Strands and Learning Standards |
|---|---|---|
| Grade 1 | 1. Write and read Hindu-Arabic and Thai numerals showing quantity of objects or cardinal numbers not exceeding 100, and 0.<br>2. Compare of cardinal numbers not exceeding 100, and 0. Using the = ≠ > <.<br>3. Arrange Number sequence not exceeding 100 and ๐ from 3 to 5 number. | **Numeral 1to 100 and 0**<br>• Counts each 1 and each 10<br>• Read Hindu-Arabic and Thai numerals showing quantity of objects<br>• Display Count not exceeding 20 The relationship of a number of small parts (part – whole relationship)<br>• giving information counting number.<br>• The digit value of the numbered digits in each digit and the writing number represents the number in the scatter figure.<br>• Compare of cardinal numbers not exceeding 100, and 0. Using the = ≠ > <<br>• Arrange Number sequence |
| | 4. Look for the value of the unknown value in the sentence. The addition indicator and the symbol of the subtraction number of the count not exceed 100 and 0.<br>5. Show you how to find the answers to the problem of addition and find the answers to the problem of subtraction of the count not exceed 100 and 0. | **Addition Subtraction counting number 1 to 100 และ 0**<br>• The meaning of the addition and subtraction The result of the addition and subtraction and relation of addition and subtraction.<br>•Solving problems of addition and subtraction. And create solving problems together with to come up with an answer. |
| Grade 4 | 1. Write and read Hindu-Arabic, Thai numerals and the letters are showing cardinal numbers greater than 100,000.<br>2. Compare and arrange sequence of cardinal numbers greater than 100,000 from various situations. | **cardinal numbers more than 100,000 and 0**<br>• Write and read Hindu-Arabic, Thai numerals and the letters showing cardinal numbers. |

| Grade | Indicators | Strands and Learning Standards |
|---|---|---|
| | | • value, place value and value of a digit in each value and writing numbers showing distribution amount.<br>• Compare and arrange sequence of amount<br>• Approximation of cardinal numbers and how to use mark ≈ |
| | 3. Describe, read and write fractions, mixed numbers, showing quantity and showing things according fractions, mixed numbers assigned.<br>4. Compare, arrange fractions and mixed numbers, one denominator is multiple of another. | **fraction**<br>• Proper faction, Improper fraction.<br>• Mixed number.<br>• Relation between mixed number and improper fraction.<br>• Equivalent fractions lowest term fraction and fractional equal to numeral.<br>• Compare and arrange faction and mixed number. |
| | 5. read and write decimal less than 3 positions Showing quantity of things and showing. Things according decimal to assign.<br>6. Compare and arrange decimal less than 3 positions from various situations. | **decimal**<br>• Read and write decimal less than 3 positions according quantity to assign.<br>• Value, place value and value of a digit in each decimal and writing numbers showing decimal distribution.<br>• Equivalent decimal.<br>• Compare and arrange decimal. |
| | 7. Estimated results of add, subtract, multiplied, division from various situations reasonably.<br>8. Find the value of the unknown in mathematical statement showing addition and mathematical statement showing subtract of cardinal numbers more than 100,000 and 0<br>9. Find the value of the unknown in the mathematical statement showing multiplied multiples digit ๒ Number with product not exceeding 6 value | add, subtract, multiplied, divided cardinal numbers more than 100,000 and 0<br>• Estimated results of add, subtract, multiplied, division.<br>• Addition and subtract.<br>• Multiplied and division.<br>• Addition, subtract, multiplied, mix addition and subtraction.<br>• Solving word problems and creating word problems with answers. |

| Grade | Indicators | Strands and Learning Standards |
|---|---|---|
| | and mathematical statement showing dividend not exceeding 6 value, divisor not exceeding 2 value. | |
| | 10. find result addition, subtract, multiplied, mix addition of cardinal numbers and 0<br>11. showing how to find answers of word problems 2 steps of cardinal numbers greater than 100,000 and 0<br>12. creating word problems 2 steps of cardinal numbers and 0 with find answers | |
| | 13. Find sum, quotient of fraction and mixed numbers that a denominator is multiple of each another.<br>14. Showing how to find answers of word problems addition, subtract fraction and mixed numbers that a denominator is multiple of each another. | Add, subtract fraction<br>• Add, subtract fraction and mix number.<br>• Solving word problems addition and word problems subtract fraction and mix number. |
| | 15. Find sum, subtract fraction not exceeding 3 positions.<br>16. Showing how to find answers of word problems addition, subtract 2 steps of word problems not exceeding 3 positions. | **Decimal**<br>• addition and subtract decimal<br>• Solving word problems, addition, subtract fraction not exceeding 2 steps |

**Strand 1: Number and Algebra**

**Standard M 1.2** Understand and analyses patterns relations functions sequences and series and apply.

| Grade | Indicators | Strands and Learning Standards |
|---|---|---|
| Grade 1 | 1. Specifies the number that is missing in the form of a number increases or decreases by 1 and 10 and identify the missing image in a repeating pattern of the geometry and other images where | **Patterns**<br>• Increase of patterns number or lower each 1 and each 10.<br>• repeating pattern of the number of geometric shapes and other images. |

| Grade | Indicators | Strands and Learning Standards |
|---|---|---|
| | each of the repeating series members has 2 images. | |
| Grade 4 | 1. ( There are learning management to base but not measured ) | **Pattern**<br>• pattern of the amount resulting from multiplied, division with the same number. |

**Strand 2 Measurement And Geometry**

**Standard M 2.1** Basic understanding of measurement Measuring and estimating the size of the measure and apply.

| Grade | Indicators | Strands and Learning Standards |
|---|---|---|
| Grade 1 | 1. Measure and compare lengths in centimeters to meters. | **The length**<br>• Measuring the length using non-standard units<br>• Measuring length in centimeters to meters<br>• Comparison of the length in centimeters to meters.<br>• Problem solving addition and subtraction of length in centimeters in meters |
| | 2. Measure and compare the weight in kilograms to gram. | **the weight**<br>• Weight measurement units using non-standard units.<br>• Measuring weight in kilograms and grams.<br>• Weight comparison in kilograms to grams.<br>• Problem solving addition and subtraction about weight in kilograms to grams. |
| Grade 4 | 1. Showing how to fine the answers of word problems about time. | **Time**<br>• tell period is second, minute, hour, day, week, year.<br>• Compare the period by using the relationship between units of time.<br>• Read to timetable.<br>• Solving word problems about time. |
| | 2. Measuring and making angles by using diagraph. | **Measurement and making angles**<br>• Measuring size of angle by diagraph.<br>• making angles when defined the size of the angle. |

| Grade | Indicators | Strands and Learning Standards |
|---|---|---|
| | 3. Showing how to find the answers of word problems about perimeter and area of rectangular. | **Rectangular**<br>• Perimeter of rectangular.<br>• area of rectangular.<br>• Solving word problems about perimeter and area of rectangular. |

**Strand 2 Measurement and Geometry**

**Standard M 2.2** Understanding and analyzing geometric patterns The Treasure of geometry is the relationship between geometric shapes and geometric theorem and applied.

| Grade | Indicators | Strands and Learning Standards |
|---|---|---|
| Grade 1 | 1. Distinguish triangles, squares, circles, sphere, cylinder, and cones. | **2D and 3D geometry**<br>• Appearance of rectangular, spherical, cylindrical cone.<br>• Appearance of the triangle Rectangles, circles and ovals |
| Grade 4 | 1. Classify type of angles. Tell the name of angle, component of angle and write symbol showing angle.<br>2. Making rectangular when assigned length of side. | **Geometry**<br>• Plane, point, straight line, radiation. The Straight-line segment and symbol of straight line, radiation, straight line segment.<br>• Angle<br>- Parts of angle.<br>- The name of angle.<br>- Symbol of angle.<br>- Type of angle.<br>• Type and the treasure of a rectangular.<br>• Making rectangular. |

**Strand 3 Statistics and Probability**

**Standard M 3.1** Understand statistical processes and use statistical knowledge to solve the problem.

| Grade | Indicators | Strands and Learning Standards |
|---|---|---|
| Grade 1 | 1. Use the data from the picture chart to find out the problem. When 1 image is defined, replace 1 unit. | **Data representation**<br>• Read pictograms |

| Grade | Indicators | Strands and Learning Standards |
|---|---|---|
| Grade 4 | 1. Using information from bar graph, two-way table to find the answers of word problems. | **Information Presentation**<br>• reading and writing of bar graph (excluding shorten).<br>• reading two-way table. |

# Course Description

## Course Description

**Basic Mathematics Course** **Code: M11101**

**Grade 1** **Time: 200 hours/Year**

Write and read Hindu-Arabic and Thai numerals showing quantity of objects or cardinal numbers not exceeding 100, and 0. Compare of cardinal numbers not exceeding 100, and 0. Using the = ≠ > <. Arrange Number sequence not exceeding 100 and ๐ from 3 to 5 number. Look for the value of the unknown value in the sentence. The addition indicator and the symbol of the subtraction number of the count not exceed 100 and 0. Show you how to find the answers to the problem of addition and find the answers to the problem of subtraction of the count not exceed 100 and 0. Specifies the number that is missing in the form of a number increases or decreases by 1 and 10 and identify the missing image in a repeating pattern of the geometry and other images where each of the repeating series members has two images.

Measure and compare lengths in centimeters to meters. Measure and compare the weight in kilograms to gram. Distinguish triangles, squares, circles, sphere, cylinder, and cones.

Understand statistical processes and use statistical knowledge to solve the problem. Use the data from the picture chart to find out the problem. When 1 image is defined, replace 1 unit.

### Indicator code

M 1.1 Gr1/1 , Gr1/2, Gr1/3 , Gr1/4, Gr1/5

M 1.2 Gr1/1

M 2.1 Gr1/1 , Gr1/2

M 2.2 Gr1/1

M 3.1 Gr1/1

**Total 10 Indicator**

## Course Description

**Basic Mathematics Course** **Code : M12101**

**Grade 2** **Time : 200 hours/Year**

Study, practice, calculate, and solve problems in the following subjects. Reading and writing Hindu Arabic numerals, Thai numerals and alphabets. Count increments by 5, by 10 and by 100 at a time. Count down by 2, by 10 and 100 by number. Number of odd and even pairs. Numbers in each digit and the use of 0. To seize the position of the main Numerical representation of numbers in distributed form Comparison of the number and use of the sign =, ≠, >, < numbering order no more than five.

Addition, subtraction, multiplication, integer multiplication, up to two digits. Divide the divisor and the divisor into one digit. Add, subtract, multiply, divide, solve and solve problems.

Length measurement (centimeters), Weighing (kilograms), Measuring (liter), comparison of length, weight, volume and capacity (Same unit). Type and value of coins and banknotes. Comparison of Coins and Banknotes to tell the total amount (Baht and Satang). Telling time clock with minutes (5 minutes). Reading Calendar Month and evaluate Month. Solve positive and negative problems with the measurement of the length of the weighing scale. Problem, plus, minus, divide and measure.

Triangle, square, oval-shaped, rectangular, circular, cylindrical shape. Classification of two-dimensional geometry with three-dimensional geometry Triangulation Circular, elliptical, and elliptical shapes using a pattern.

Forms of numbers are incremented by 5 at a time, 10 at a time, and 100 at a time. The figure of the number decreases by 2 by 2 by 10 and by 100 by 2. A picture of a shape, size, or color that relate to one another.

To organize the experience or create a close-up situation, the students have to study the truth by practicing, experimenting, summarizing, reporting to improve their skills and processes. Calculation of Problem Solving. Communicating mathematical knowledge and applying knowledge, ideas, and process skills to learn things and use it in everyday life to create. Include good value and good attitude. Mathematics, able to work in a systematic, thoughtful, responsible, critical and self-confident manner.

Use a variety of measurement and evaluation methods based on actual content and skills to measure.

**Indicator code**

M 1.1 Gr2/1, Gr2/2 , Gr2/3, Gr2/4, Gr2/5, Gr2/6, Gr2/7, Gr2/8

M 2.1 Gr2/1, Gr2/2, Gr2/3, Gr2/4, Gr2/5, Gr2/6

M 2.2 Gr2/1

M 3.1 Gr2/1, Gr2/2, Gr2/3

**Total 16 Indicators**

## Course Description

**Basic Mathematics Course** **Code: M13101**

**Grade 3** **Time: 200 hours/Year**

Study, practice, calculate, and solve problems in the following subjects.

Reading and writing Hindu Arabic numerals, Thai numerals and alphabets. The counts are incremented by 3 at a time, 4 at a time, 25 at a time and 50 at a time, counting down 3 at a time, 4 at a time, 5 at a time, 25 at a time, and 50 at a time, and the value of each digit and use 0 to hold the position of the main. Writing numbers in numbers. Distribute the comparison of the number and use of the sign =, ≠, >, <. Sorting order no more than five number.

Addition, subtraction, multiplication, multiplication, and subtraction of up to four digits. Multiplying two digits with two digits. Divisor of not more than four digits and divisor of one digit. Addition, subtraction, multiplication, division, problem solving

Measurement length ( meter, centimeters, milliliter) Choosing the right length measuring instrument weighing (kilograms, grams), selecting the right balance measuring (liter, milliliter) Choosing the right measuring scale. Comparison of length, weight, volume and capacity comparison ( Same unit). Timer is a clock with minutes ( 5 minutes). Timing with point and read. Relationship of unit length, relationship of weighing units Relationship of time unit writing amounts using points and readings. Solve positive and negative problems with measuring the weighing length. Volume or capacity and money Deal with time problems. Reading and Writing Expense Records Read and write activity logs or Time-based event.

Circle shape oval triangle square Five-pointed hexagon shaped octagon. Figure with symmetry axis. Straight lines, straight lines, intersections, two-dimensional geometry.

The figure of the number increases by 3 by one by one by 25 by 25 and by 50 bytes. The figure decreases by 3 by one by one by 4 by 5 by 25 by 25 and by 50 by pattern. The shape of the shape, shape, size or color are related in two ways.

Collection of data and information about themselves and the surrounding environment found in everyday life. Reading diagrams, charts and bar charts.

Organizing experiences or creating close-up situations enables learners to study, practice, experiment, summarize, and report on their skills and processes. Calculation of problem solving, reasoning, mathematical expression and bring the experience of knowledge and ideas. Process skills are used to learn things. And use it in everyday life to create. Include good value and good attitude. Mathematics can work in a systematic, thoughtful, responsible, critical and self-confident manner.

There are various methods of measurement and evaluation. Based on the actual state of the content and the skills to measure

**Indicator code**

M 1.1 Gr3/1, Gr3/2, Gr3/3 , Gr3/4 , Gr3/5 , Gr3/6, Gr3/7, Gr3/8 , Gr3/9 , Gr3/10 , Gr3/11

M 1.2 Gr3/1

M 2.1 Gr3/1, Gr3/2, Gr3/3, Gr3/4, Gr3/5, Gr3/6, Gr3/7, Gr3/8 , Gr3/9 , Gr3/10 , Gr3/11, Gr3/12, Gr3/13

M 2.2 Gr3/1

M 3.1 Gr3/1, Gr3/2

**Total 28 Indicators**

## Course Description

**Basic Mathematics Course** **Code: M14101**

**Grade 4** **Time: 160 hours/Year**

Study, practice, calculate, and solve problems in the following subjects.

Reading and writing Hindu Arabic numerals, Thai numbers and letters showing counts. The digits and values of the numerals in each digit of the count and the use of 0 to hold the position of the digit. Numerical representation of numbers in distributed form Comparisons and Sorting, Count, Meaning, Writing, and Reading. Comparison and sequencing of fractions with equal parts, meaning, writing, and one decimal place. Comparison and collocation of one decimal place.

Addition, subtraction, multiplication, multiplication, and multiplication of more than four digits. Multiply more than one digit with more than two digits. Divide the divisor by no more than three digits. Add, subtract, multiply, divide, and average the probability of the number of counts. Addition and subtraction of fractions with equal parts.

Relationship of unit length, weighing units, measuring unit, time unit. Finding the area of the rectangle. Timing is a clock with minutes. Time writing using point and read Timeline. Prediction Weight and volume or the capacity of the problem with measuring the length of the scale. Volume, capacity and writing time. Revenue receipt Reading and writing activity logs or events that indicate time. Reading schedules

Corner component Composition of names and symbols representing angles, angles, parallelograms, and parallels. Components of a circle, rectangle, square, rectangular, rectangular, and geometric shapes.

The figure of the number increases or decreases by the same amount. Geometric shapes and other shapes.

Data Collection and Identification Reading charts, pictures, bar charts and graphing charts, charts and bar charts.

To organize the experience or create a close-up situation for the students to study the truth by practicing, experimenting, summarizing and reporting. To develop the skills / processes in the calculation. Problem solving, reasoning, mathematical expressions and bring the experience of knowledge and ideas. Process skills are used to learn things and use them in everyday life, to create, to see, to value and to have a good attitude. Mathematics can work in a systematic, thoughtful, responsible, critical and self-confident manner.

There are various methods of measurement and evaluation. Based on the actual state of the content and the skills to measure.

**Indicator code**

M 1.1 Gr4/1, Gr4/2 , Gr4/3, Gr4/4, Gr4/5, Gr4/6, Gr4/7, Gr4/8, Gr4/9, Gr4/10, Gr4/11, Gr4/12, Gr4/13, Gr4/14, Gr4/15, Gr4/16

M 2.1 Gr4/1, Gr4/2, Gr4/3

M 2.2 Gr4/1, Gr4/2

M 3.1 Gr4/1

**Total 22 Indicators**

## Course Description

**Basic Mathematics Course** **Code: M15101**

**Grade 5** **Time: 160 hours/Year**

Study, practice, calculate, and solve problems in the following subjects.

Meaning, reading and writing of fractional fraction, number of decimals and decimals does not exceed two places, fractions equal to the number of writers. Count in fractional fraction. Writing in mixed and mixed form, in fractional form, fractional fraction, low fraction, principal value, and the number of digits in each digit of the count and the decimal not to exceed two positions. Decimal writing in distributed form comparison and collocation of decimal not more than two locations. Comparison and sequencing of parts One person is a multiple of the other. Meaning, reading and writing percentages. Fragmentation of part fractions is a factor of 10 and 100 in decimal and percentage. Writing Percentage and Decimals Decomposition not more than two places in fractional form and percentage. Approximate total of ten Full and full of thousands

The relationship of the volume or capacity unit, the circumference of the rectangle and the triangle.

Finding the area of the rectangle and the triangle. Measure the size of the corners using the printer. Find the size of the angle Finding the volume or capacity of a right-angled triangle. Problem with respect to the area and the circumference of the rectangles and triangles

Circular cylinders, conical prisms, rectangular pyramids, and triangles of various types. Elements of the triangle, the type of angle. Angle Creation with Protractor. Create rectangles, triangles, and circles. Create parallel lines using tree trunks. Form of number.

Data Collection and Identification to write a bar graph with a reduced line length. Reading bar charts. Predictions about the occurrence of events. Organizing experiences or creating close-up situations allows learners to study, practice, experiment, summarize, and report on skills and processes. Calculation of problem solving, reasoning, mathematical interpretation, and knowledge-based thinking. Process skills are used to learn something. And use it in everyday life to create. Include good value and good attitude towards math. Can work in a systematic, responsible, critical and self-confident manner.

There are various methods of measurement and evaluation. Based on the actual state of the content and the skills to measure.

**Indicator code**

M 1.1 Gr5/1, Gr5/2, Gr5/3 , Gr5/4, Gr5/5, Gr5/6, Gr5/7, Gr5/8, Gr5/9

M 2.1 Gr5/1, Gr5/2, Gr5/3, Gr5/4

M 2.2 Gr5/1, Gr5/2, Gr5/3, Gr5/4

M 3.1 Gr5/1, Gr5/2

**Total 19 Indicators**

## Course Description

**Basic Mathematics Course** **Code: M16101**

**Grade 6** **Time: 160 hours/Year**

Study, practice, calculate, and solve problems in the following subjects.

Meaning, reading and writing three decimal places. Principal values and values of digits in each digit of three decimal places. Decimal writing in distributed form Comparison and collocation of up to three decimal places. Comparison and Sorting Decomposition not more than three places in fractional form, and fractional fractionation is a factor of 10, 100, 1,000 in decimal.

Addition, Subtraction, Multiplication, and Division Fraction. Addition, subtraction, multiplication,

and division are mix number. Addition, subtraction, multiplication of fractions, and miscellaneous mix number. Addition, subtraction, multiplication, and division decimal. Addition, subtraction, multiplication, division of decimal Solve problems of counts. Decimals and Percentage.

Approximate value is tens of thousands. Full and Full Estimates are close to one decimal place and two positions.

Positive and multiplication properties Divisibility and multiplication

Direction, scale, map reading, rectangular area finding, circle length and circular area. Estimate the area of the rectangle. Solve the problem of the length, the circumference, and the area of the quadrilateral and the circle. Solve the problem of volume or rectangular capacity. Write Mapping

The components of the three-dimensional geometry are the properties of the diagonals of the

quadrilateral. Considering the invisible parallel lines of three-dimensional geometry. 3D geometry invention. Creating a rectangle.

Problem with model. Equation of linear equation with an unknown value. Equations of Equality of Addition, Subtraction, Multiplication, or Division. Solving problems with equations. Reading of line graphs and pie charts. Drawing bar charts and graphs. Predictions about the occurrence of events. Organizing experiences or creating close-up situations allows learners to study, practice, experiment, summarize, and report on skills and processes. Calculation of problem solving, reasoning, mathematical interpretation, and knowledge-based thinking. Process skills are used to learn something. And use it in everyday life to create. Include good value and good attitude towards math. Can work in a systematic, responsible, critical and self-confident manner.

There are various methods of measurement and evaluation. Based on the actual state of the content and the skills to measure.

**Indicator code**

M 1.1 Gr6/1, Gr6/2, Gr6/3, Gr6/4, Gr6/5, Gr6/6, Gr6/7, Gr6/8, Gr6/9, Gr6/10, Gr6/11, Gr6/12

M 1.2 Gr6/1

M 2.1 Gr6/1, Gr6/2, Gr6/3

M 2.2 Gr6/1, Gr6/2, Gr6/3, Gr6/4

M 3.1 Gr6/1

**Total 21 Indicators**

# Course structure

# Primary 1

Learning Time Structure Mathematics

**Grade 1: - Continuous assessment score 70 points** **Time: 200 hours**

**- Final examination** **score 30 points**

| Chapter | Content | Standard of Mathematics | Time (hours) 200 | C.A.S Score 70 | Final Examination 30 |
|---|---|---|---|---|---|
| 1 | Cardinal number 1-100 and 0 | M1.1: Gr1/1<br>M1.1: Gr1/2<br>M1.1: Gr1/3 | 18 | 6 | 2 |
| 2 | Addition the vertically are not exceeding to 10. | M1.1:Gr1/4<br>M1.1:Gr1/5 | 15 | 6 | 3 |
| 3 | Subtracting the vertically are not exceeding to 10. | M1.1:Gr1/4<br>M1.1:Gr1/5 | 16 | 6 | 2 |
| 4 | Cardinal number 11-20. | M1.1: Gr1/1<br>M1.1: Gr1/2<br>M1.1: Gr1/3 | 12 | 6 | 2 |
| 5 | Addition and subtraction number of the count not exceed 20. | M1.1:Gr1/4<br>M1.1:Gr1/5 | 19 | 6 | 3 |
| 6 | The picture chart | M3.1:Gr1/1 | 7 | 2 | 1 |
| 7 | The weight | M2.1:Gr1/2 | 13 | 3 | 1 |
| **Total Semester: 1st** | | | | **35** | **15** |

| Chapter | Content | Standard of Mathematics | Time (hours) 200 | C.A.S Score 70 | Final Examination 30 |
|---|---|---|---|---|---|
| 8 | The position and rank | - | 8 | 0 | 1 |
| 9 | Geometry | M2.2: Gr1/1<br>M1.2: Gr1/1 | 15 | 4 | 2 |
| 10 | Cardinal number 21-100 | M1.1: Gr1/1<br>M1.1: Gr1/2<br>M1.1: Gr1/3 | 17 | 6 | 2 |
| 11 | Length measurement | M2.1: Gr1/1 | 14 | 5 | 1 |
| 12 | Addition are not exceeding to 100. | M1.1: Gr1/4 | 12 | 7 | 3 |
| 13 | Subtraction two numbers are not exceeding to 10. | M1.1: Gr1/4 | 16 | 7 | 3 |
| 14 | Word problem of Addition and subtraction. | M1.1: Gr1/4<br>M1.1: Gr1/5 | 18 | 6 | 3 |
| **Total Semester: 2nd** | | | | **35** | **15** |
| **Total score all year** | | | | **70** | **30** |

**Table analysis indicators standard of Mathematics with the chapter**

**Code: M11101** **Grade 1**

| No. | Indicators | Chapter | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | 1 Cardinal number 1-100 and 0 | 2 Addition the two numbers are not exceeding to 10. | 3 Subtracting the two numbers are not exceeding to 10. | 4 Cardinal number 11-20. | 5 Addition and subtraction number of the count not exceed 20. | 6 The picture chart | 7 The weight |
| 1 | M 1.1 Gr1/1 Write and read Hindu-Arabic and Thai numerals showing quantity of objects or cardinal numbers not exceeding 100, and 0. | ✓ (2 Point) | | | ✓ (2 Point) | | | |
| 2 | M 1.1 Gr1/2 Compare of cardinal numbers not exceeding 100, and 0. Using the = ≠ > < . | ✓ (2 Point) | | | ✓ (2 Point) | | | |
| 3 | M 1.1 Gr1/3 Arrange Number sequence not exceeding 100 and ๐ from 3 to 5 numbers. | ✓ (2 Point) | | | ✓ (2 Point) | | | |
| 4 | M 1.1 Gr1/4 Look for the value of the unknown value in the sentence. The addition indicator and the symbol of the subtraction number of the count not exceed 100 and 0. | | ✓ (3 Point) | ✓ (3 Point) | | ✓ (3 Point) | | |
| 5 | M 1.1 Gr1/5 Show you how to find the answers to the problem of addition and find the answers to the problem of | | ✓ (3 Point) | ✓ (3 Point) | | ✓ (3 Point) | | |

| No. | Indicators | Chapter | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | 1 Cardinal number 1-100 and 0 | 2 Addition the two numbers are not exceeding to 10. | 3 Subtracting the two numbers are not exceeding to 10. | 4 Cardinal number 11-20. | 5 Addition and subtraction number of the count not exceed 20. | 6 The picture chart | 7 The weight |
| | subtraction of the count not exceed 100 and 0. | | | | | | | |
| 6 | M 1.2 Gr1/1 Specifies the number that is missing in the form of a number increases or decreases by 1 and 10 and identify the missing image in a repeating pattern of the geometry and other images where each of the repeating series members has two images. | | | | | | | |
| 7 | M 2.1 Gr1/1 Measure and compare lengths in centimetres to meters. | | | | | | | |
| 8 | M 2.1 Gr1/2Measure and compare the weight in kilograms to gram. | | | | | | | ✓ (3 Point) |
| 9 | M 2.2 Gr1/1 Distinguish triangles, squares, circles, sphere, cylinder, and cones. | | | | | | | |
| 10 | M 3.1 Gr1/1 Use the data from the picture chart to find out the problem. When 1 image is defined, replace 1 unit. | | | | | | ✓ (2 Point) | |

**Table analysis indicators standard of Mathematics with the chapter**

**Code: M11101** **Grade 1**

| No. | Indicators | Chapter | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | 8 The position and rank | 9 Geometry | 10 Cardinal number 21-100 | 11 Length measure | 12 Addition are not exceeding to 100. | 13 Subtraction two numbers are not exceeding to 10. | 14 Word problem of Addition and subtraction. |
| 1 | M 1.1 Gr1/1 Write and read Hindu-Arabic and Thai numerals showing quantity of objects or cardinal numbers not exceeding 100, and 0. | | | ✓ (2 Point) | | | | |
| 2 | M 1.1 Gr1/2 Compare of cardinal numbers not exceeding 100, and 0. Using the = ≠ > < . | | | ✓ (2 Point) | | | | |
| 3 | M 1.1 Gr1/3 Arrange Number sequence not exceeding 100 and ๐ from 3 to 5 number. | | | ✓ (2 Point) | | | | |
| 4 | M 1.1 Gr1/4 Look for the value of the unknown value in the sentence. The addition indicator and the symbol of the subtraction number of the count not exceed 100 and 0. | | | | | ✓ (7 Point) | ✓ (7 Point) | ✓ (3 Point) |
| 5 | M 1.1 Gr1/5 Show you how to find the answers to the problem of addition and find the answers to the problem of subtraction of the count not exceed 100 and 0. | | | | | | | ✓ (3 Point) |

| No. | Indicators | Chapter | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | 8 The position and rank | 9 Geometry | 10 Cardinal number 21-100 | 11 Length measure | 12 Addition are not exceeding to 100. | 13 Subtraction two numbers are not exceeding to 10. | 14 Word problem of Addition and subtraction. |
| 6 | M 1.2 Gr1/1 Specifies the number that is missing in the form of a number increases or decreases by 1 and 10 and identify the missing image in a repeating pattern of the geometry and other images where each of the repeating series members has two images. | | ✓ (2 Point) | | | | | |
| 7 | M 2.1 Gr1/1 Measure and compare lengths in centimetres to meters. | | | | ✓ (5 Point) | | | |
| 8 | M 2.1 Gr1/2Measure and compare the weight in kilograms to gram. | | | | | | | |
| 9 | M 2.2 Gr1/1 Distinguish triangles, squares, circles, sphere, cylinder, and cones. | | ✓ (2 Point) | | | | | |
| 10 | M 3.1 Gr1/1 Use the data from the picture chart to find out the problem. When 1 image is defined, replace 1 unit. | | | | | | | |

## Chapter 1

**Mathematics (M11101)**

**Content: Cardinal number 1-100 and 0** **Time: 18 hours**

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**Strand 1: Number and Algebra**

Standard M1.1:Understand the variety of display numbers number systems Operation of the number the result of the operation Treasures of action and to apply.

Standard M1.2:Understand and analyses patterns relations functions sequences and series and apply.

**Grade level indicators**

M 1.1 Gr1/1 Write and read Hindu-Arabic and Thai numerals showing quantity of objects or cardinal numbers not exceeding 100, and 0.

M 1.1 Gr1/2 Compare of cardinal numbers not exceeding 100, and 0. Using the = ≠ > < .

M 1.1 Gr1/3 Arrange Number sequence not exceeding 100 and ๐ from 3 to 5 number.

**Learning Objective**

Students will be taught to:

1.Write and read Hindu-Arabic and Thai numerals showing quantity of objects or cardinal numbers not exceeding 100, and 0.

2. Compare of cardinal numbers not exceeding 100, and 0. Using the = ≠ > < .

3. Arrange Number sequence not exceeding 100 and ๐ from 3 to 5 number.

**Learning Outcomes**

Students will be able to:

1. The number of things that represent things by a certain amount.

2. Write and read Hindu-Arabic and Thai numerals not exceeding 100, and 0.

3. Compare of cardinal numbers not exceeding 100, and 0. Using the = ≠ > < .

4. Arrange Number sequence not exceeding 100 and ๐ from 3 to 5 number.

**Learning Areas**

- Count numbers 1 count each and 10 count each
- Write and read Hindu-Arabic and Thai numerals showing quantity cardinal numbers.
- Showing number sequence not exceeding 20 Display Count not exceeding 20 The relationship of a number of small parts (part – whole relationship)
- Compare of cardinal numbers not exceeding 100, and 0. Using the = ≠ > <
- Arrange Number sequence

**Teaching and Learning Activities**

Students will be able to:

1. Students view the picture and tell the number of things that represent things by a certain amount. Write and read Hindu-Arabic and Thai numerals showing quantity of objects or cardinal numbers not exceeding 100, and 0.

2. Students compare of cardinal numbers not exceeding 100, and 0. Using the = ≠ > <.

3. Students do worksheet about arrange Number sequence not exceeding 100 and ๐ from 3 to 5 number.

4. Students do about test unit number sequence 1 to 10 and 0.

**Emphasized Skills:**

1. Thinking skill
2. Problem-solving skill

## Chapter 2

**Mathematics (M11101)**

**Content: Addition the vertically are not exceeding to 10.** **Time: 15 hours**

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**Strand 1: Number and Algebra**

Standard M1.1:Understand the variety of display numbers number systems Operation of the number the result of the operation Treasures of action and To apply.

**Grade level indicators**

M1.1 Gr1/4 Look for the value of the unknown value in the sentence. The addition indicator and the symbol of the subtraction number of the count not exceed 100 and 0.

M1.1 Gr1/5 Show you how to find the answers to the problem of addition and find the answers to the problem of subtraction of the count not exceed 100 and 0.

**Learning Objective**

Students will be taught to :

1. Look for the value of the unknown value in the sentence. The addition indicator and the symbol of the subtraction number of the count not exceed 100 and 0.
2. Show you how to find the answers to the problem of addition and find the answers to the problem of subtraction of the count not exceed 100 and 0.

**Learning Outcomes**

Students will be able to:

1. Look for the value of the unknown value in the sentence.
2. The addition indicator and the symbol of the subtraction number of the count not exceed 100 and 0.
3. Show you how to find the answers to the problem of addition
4. find the answers to the problem of subtraction of the count not exceed 100 and 0.

**Learning Areas**

- The meaning of the addition and subtraction The result of the addition and subtraction and relation of addition and subtraction.
- Solving problems of addition and subtraction. And create solving problems together with to come up with an answer.

**Teaching and Learning Activities**

1. Students to practice look for the value of the unknown value in the sentence. The addition indicator and the symbol of the subtraction number of the count not exceed 100 and 0.

2. Students to practice Show you how to find the answers to the problem of addition and find the answers to the problem of subtraction of the count not exceed 100 and 0.

3. Students do about test unit Addition the two numbers are not exceeding to 10.

**Emphasized Skills:**

1. Thinking skill
2. Problem-solving skill

## Chapter 3

**Mathematics (M11101)**

**Content: subtracting the vertically numbers are not exceeding to 10. Time: 16 hours**

**Strand 1: Number and Algebra**

Standard M1.1:Understand the variety of display numbers number systems Operation of the number The result of the operation Treasures of action and To apply.

**Grade level indicators**

M1.1 Gr1/4 Look for the value of the unknown value in the sentence. The addition indicator and the symbol of the subtraction number of the count not exceed 100 and 0.

M1.1 Gr1/5 Show you how to find the answers to the problem of addition and find the answers to the problem of subtraction of the count not exceed 100 and 0.

**Learning Objective**

Students will be taught to :

1. Look for the value of the unknown value in the sentence. The addition indicator and the symbol of the subtraction number of the count not exceed 100 and 0.

2. Show you how to find the answers to the problem of addition and find the answers to the problem of subtraction of the count not exceed 100 and 0.

**Learning Outcomes**

Students will be able to:

1. Look for the value of the unknown value in the sentence.

2. The addition indicator and the symbol of the subtraction number of the count not exceed 100 and 0.

3. Show you how to find the answers to the problem of addition

4. Find the answers to the problem of subtraction of the count not exceed 100 and 0.

**Learning Areas**

- The meaning of the addition and subtraction the result of the addition and subtraction and relation of addition and subtraction.
- Solving problems of addition and subtraction. And create solving problems together with to come up with an answer.

**Teaching and Learning Activities**

1. Students to practice look for the value of the unknown value in the sentence. The addition indicator and the symbol of the subtraction number of the count not exceed 100 and 0.

2. Students do worksheet; show how to find the answers of word problems addition and word problems subtraction of the count not exceed 100 and 0.

3. Students do about test unit subtracting the vertically numbers are not exceeding to 10.

**Emphasized Skills:**

1. Thinking skill
2. Problem-solving skill

## Chapter 4

**Mathematics (M11101)**

**Content: Cardinal number 11-20.** **Time: 12 hours**

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**Strand 1: Number and Algebra**

Standard M1.1:Understand the variety of display numbers number systems Operation of the number The result of the operation Treasures of action and To apply.

Standard M1.2:Understand and analyses patterns relations functions sequences and series and apply. Grade level indicators

Standard M1.3: Use expressions Inequality equations and matrices Describes a relationship or resolves a given issue.

**Grade level indicators**

M 1.1 Gr1/1 Write and read Hindu-Arabic and Thai numerals showing quantity of objects or cardinal numbers not exceeding 100, and 0.

M 1.1 Gr1/2 Compare of cardinal numbers not exceeding 100, and 0. Using the = ≠ > < .

M 1.1 Gr1/3 Arrange Number sequence not exceeding 100 and ๐ from 3 to 5 number .

**Learning Objective**

Students will be taught to:

1. Write and read Hindu-Arabic and Thai numerals showing quantity of objects or cardinal numbers not exceeding 100, and 0.

2. Compare of cardinal numbers not exceeding 100, and 0. Using the = ≠ > <.

3. Arrange Number sequence not exceeding 100 and ๐ from 3 to 5 number .

**Learning Outcomes**

Students will be able to:

1. Look for the value of the unknown value in the sentence.

2. The addition indicator and the symbol of the subtraction number of the count not exceed 100 and 0.

3. Show you how to find the answers to the problem of addition

4. Find the answers to the problem of subtraction of the count not exceed 100 and 0.

**Learning Areas**

- Counts each 1 and each 10.
- Read Hindu-Arabic and Thai numerals showing quantity of objects.
- Display Count not exceeding 20 The relationship of a number of small parts (part – whole relationship).
- Giving information counting number.
- The digit value of the numbered digits in each digit and the writing number represents the number in the scatter figure.
- Compare of cardinal numbers not exceeding 100, and 0. Using the = ≠ > <.
- Arrange Number sequence.

**Teaching and Learning Activities**

1. Students to practice write and read Hindu-Arabic and Thai numerals showing quantity of objects or cardinal numbers not exceeding 100, and 0.

2. Students to practice compare of cardinal numbers not exceeding 100, and 0. Using the = ≠ > < .

3. Students to practice arrange Number sequence not exceeding 100 and ๐ from 3 to 5 number.

4. Students do about test unit cardinal number 11-20.

**Emphasized Skills:**

1. Thinking skill
2. Problem-solving skill

## Chapter 5

**Mathematics (M11101)**

**Content: Addition and subtraction number of the count not exceed 20. Time: 19 hours**

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**Strand 1: Number and Algebra**

Standard M1.1:Understand the variety of display numbers number systems Operation of the number The result of the operation Treasures of action and To apply.

**Grade level indicators**

M1.1 Gr1/4 Write and read Hindu-Arabic and Thai numerals showing quantity of objects or cardinal numbers not exceeding 100, and 0.

M1.1 Gr1/5 Arrange Number sequence not exceeding 100 and ๐ from 3 to 5 number .

**Learning Objective**

Students will be taught to :

1. Write and read Hindu-Arabic and Thai numerals showing quantity of objects or cardinal numbers not exceeding 100, and 0.
2. Arrange Number sequence not exceeding 100 and ๐ from 3 to 5 number .

**Learning Outcomes**

Students will be able to:

1. Write Hindu-Arabic and Thai numerals.
2. Read Hindu-Arabic and Thai numerals.
3. Showing quantity of objects or cardinal numbers not exceeding 100, and 0.

**Learning Areas**

- The meaning of the addition and subtraction The result of the addition and subtraction and relation of addition and subtraction.
- Solving problems of addition and subtraction. And create solving problems together with to come up with an answer.

**Teaching and Learning Activities**

1. Students to practice the meaning of the addition and subtraction The result of the addition and subtraction and relation of addition and subtraction.

2. Students to practice solving problems of addition and subtraction. And create solving problems together with to come up with an answer.

3. Students do about test unit addition and subtraction number of the count not exceed 20.

**Emphasized Skills:**

1. Thinking skill
2. Problem-solving skill

## Chapter 6

**Mathematics (M11101)**

**Content: The picture chart** **Time: 7 hours**

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**Strand 1: Number and Algebra**

Standard M1.1:Understand the variety of display numbers number systems Operation of the number The result of the operation Treasures of action and To apply.

**Strand 3 : Statistics and Probability**

Standard M3.1: Understand statistical processes and use statistical knowledge to solve the problem.

**Grade level indicators**

M3.1 Gr1/1: Use the data from the picture chart to find out the problem. When 1 image is defined, replace 1 unit.

**Learning Objective**

Students will be taught to :

1. Use the data from the picture chart to find out the problem. When 1 image is defined, replace 1 unit.

**Learning Outcomes**

Students will be able to:

1. Use the data from the picture chart to find out the word problem.
2. 1 image is defined, replace 1 unit.

**Learning Areas**

- Read pictograms.

**Teaching and Learning Activities**

1. Students practice to use the data from the picture chart to find out the problem. When 1 image is defined, replace 1 unit.

2. Students do about test unit The picture chart.

**Emphasized Skills:**

1. Thinking skill
2. Problem-solving skill

## Chapter 7

**Mathematics (M11101)**

**Content: The weight** **Time: 13 hours**

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**Strand 2: Measurement And Geometry**

Standard M2.1:Basic understanding of measurement Measuring and estimating the size of the measure and apply.

**Grade level indicators**

M2.1 Gr1/2 Measure and compare the weight in kilograms to gram.

**Learning Objective**

Students will be taught to :

1. Measure and compare the weight in kilograms to gram.

**Learning Outcomes**

Students will be able to:

1. Measure the weight in kilograms to gram.
2. Compare the weight in kilograms to gram.

**Learning Areas**

- Weight measurement units using non-standard units.
- Measuring weight in kilograms and grams.
- Weight comparison in kilograms to grams.
- Problem solving addition and subtraction about weight in kilograms to grams.

**Teaching and Learning Activities**

1. Students practice to measure and compare the weight in kilograms to gram.
2. Students do about test unit The weight.

**Emphasized Skills:**

1. Thinking skill
2. Problem-solving skill

## Chapter 9

**Mathematics (M11101)**

**Content: Geometry** **Time: 15 hours**

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**Strand 2: Measurement And Geometry**

Standard M2.2: Understanding and analyzing geometric patterns The Treasure of geometry is the relationship between geometric shapes and geometric theorem and applied.

**Grade level indicators**

M2.2 Gr1/1 Distinguish triangles, squares, circles, sphere, cylinder, and cones.

M1.2 Gr1/1 Specifies the number that is missing in the form of a number increases or decreases by 1 and 10 and identify the missing image in a repeating pattern of the geometry and other images where each of the repeating series members has 2 images.

**Learning Objective**

Students will be taught to :

1. Distinguish triangles, Rectangle, sphere, cylinder, and cones.
2. Distinguish squares, circles and oval.
3. Other images where each of the repeating series.
4. Creating a pattern of geometric figures.

**Learning Outcomes**

Students will be able to:

1. Distinguish triangles, Rectangle, sphere, cylinder, and cones.
2. Distinguish squares, circles and oval.
3. Other images where each of the repeating series.
4. Creating a pattern of geometric figures.

**Learning Areas**

- Distinguish triangles, Rectangle, sphere, cylinder, and cones.
- Distinguish squares, circles and oval.
- Other images where each of the repeating series.

**Teaching and Learning Activities**

1. Students practice to distinguish triangles, Rectangle, sphere, cylinder, and cones.

2. Students tell the things that surround the components of a rectangular shape, a cylindrical sphere, or a cone.

3. Students tell the distinguish squares, circles and oval.
4. Students practice to creating a pattern of geometric figures.
5. Students do about test unit geometry

**Emphasized Skills:**

1. Thinking skill
2. Problem-solving skill

## Chapter 10

**Mathematics (M11101)**

**Content: Cardinal number 21-100** **Time: 17 hours**

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**Strand 1: Number and Algebra**

Standard M1.1:Understand the variety of display numbers number systems Operation of the number The result of the operation Treasures of action and To apply.

**Grade level indicators**

M1.1 Gr1/1 Write and read Hindu-Arabic and Thai numerals showing quantity of objects or cardinal numbers not exceeding 100, and 0.

M1.1 Gr1/2 Compare of cardinal numbers not exceeding 100, and 0. Using the = ≠ > < .

M1.1 Gr1/3 Arrange Number sequence not exceeding 100 and ๐ from 3 to 5 number.

M1.2 Gr1/1 Specifies the number that is missing in the form of a number increases or decreases by 1 and 10

**Learning Objective**

Students will be taught to :

1. A number of things and shows things in a given number 21 to 100.

2. Write and read Hindu-Arabic and Thai numerals showing quantity of objects or cardinal numbers 21-100.

3. Compare and Arrange Number 21-100.

4. The pattern of increases or decreases by 1 and 10.

**Learning Outcomes**

Students will be able to:

1. Number of things and shows things in a given number 21 to 100.

2. Write Hindu-Arabic and Thai numerals showing quantity of objects or cardinal numbers 21-100.

3. Read Hindu-Arabic and Thai numerals showing quantity of objects or cardinal numbers 21-100.

4. Compare Number 21-100.

5. Arrange Number 21-100.

6. Tell the pattern of increases or decreases by 1 and 10.

**Learning Areas**

- Counts each 1 and each 10
- Read Hindu-Arabic and Thai numerals showing quantity of objects

- Display Count not exceeding 20 The relationship of a number of small parts (part – whole relationship)
- giving information counting number.
- The digit value of the numbered digits in each digit and the writing number represents the number in the scatter figure.
- Compare of cardinal numbers not exceeding 100, and 0. Using the = ≠ > <
- Arrange Number sequence

**Teaching and Learning Activities**

1. Students practice to number of things and shows things in a given number 21 to 100.
2. Students practice to write and read Hindu-Arabic and Thai numerals showing quantity of objects or cardinal numbers 21-100.
3. Students practice to compare and Arrange Number 21-100.
4. Students practice to the pattern of increases or decreases by 1 and 10.
5. Students practice to said the number of missing in a given pattern.
6. Students do about test unit Cardinal number 21-100

**Emphasized Skills:**

1. Thinking skill
2. Problem-solving skill

## Chapter 11

**Mathematics (M11101)**

**Content: Length measurement** **Time: 14 hours**

**Strand 2: Measurement And Geometry**

Standard M2.1:Basic understanding of measurement Measuring and estimating the size of the measure and apply.

**Grade level indicators**

M2.1 Gr1/1 Measure and compare lengths in centimeters to meters.

**Learning Objective**

Students will be taught to :

1. Compare the lengths that are longer than shorter than the shortest length shorter than equal highest shortest

2. Measure and compare lengths in centimeters to meters.

**Learning Outcomes**

Students will be able to:

1. Compare the lengths that are longer than shorter than the shortest length shorter than equal highest shortest

2. Measure and compare lengths in centimeters to meters.

**Learning Areas**

- Measuring the length using non-standard units.
- Measuring length in centimeters to meters.

**Teaching and Learning Activities**

1. Students practice comparing the lengths of things directly using the corresponding items.
2. Students practice measuring the lengths of things using non-standard.
3. Students practice measure and compare lengths in centimeters to meters.
4. Students do about test unit length measurement

**Emphasized Skills:**

1. Thinking skill
2. Problem-solving skill

## Chapter 12

**Mathematics (M11101)**

**Content: Subtraction two numbers are not exceeding to 100.** **Time: 12 hours**

**Strand 1: Number and Algebra**

Standard M1.1: Understanding the basics of measurement; ability to measure and estimate the size of objects to be measured

**Grade level indicators**

M1.1 Gr1/4 Look for the value of the unknown value in the sentence. The addition indicator and the symbol of the subtraction number of the count not exceed 100 and 0.

M1.1 Gr1/5 Show you how to find the answers to the problem of addition and find the answers to the problem of subtraction of the count not exceed 100 and 0.

**Learning Objective**

Students will be taught to :

1. Look for the value of the unknown value in the sentence. The addition indicator and the symbol of the subtraction number of the count not exceed 100 and 0.

2. Show you how to find the answers to the problem of addition and find the answers to the problem of subtraction of the count not exceed 100 and 0.

**Learning Outcomes**

Students will be able to:

1. Look for the value of the unknown value in the sentence.

2. The addition indicator and the symbol of the subtraction number of the count not exceed 100 and 0.

3. Show you how to find the answers to the problem of addition and find the answers to the problem of subtraction of the count not exceed 100 and 0.

**Learning Areas**

- The meaning of the addition and subtraction The result of the addition and subtraction and relation of addition and subtraction.
- Solving problems of addition and subtraction. And create solving problems together with to come up with an answer.

**Teaching and Learning Activities**

1. Students practice look for the value of the unknown value in the sentence. The addition indicator and the symbol of the subtraction number of the count not exceed 100 and 0.

2. Students practice shows you how to find the answers to the problem of addition and find the answers to the problem of subtraction of the count not exceed 100 and 0.

3. Students do about test unit subtraction two numbers are not exceeding to 100.

**Emphasized Skills:**

1. Thinking skill

2. Problem-solving skill

## Chapter 13

**Mathematics (M11101)**

**Content: Subtraction two numbers are not exceeding to 100.** **Time: 16 hours**

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**Strand 1: Number and Algebra**

Standard M1.1:Understanding the basics of measurement; ability to measure and estimate the size of objects to be measured

**Grade level indicators**

M1.1 Gr1/4 Look for the value of the unknown value in the sentence. The addition indicator and the symbol of the subtraction number of the count not exceed 100 and 0.

M1.1 Gr1/5 Show you how to find the answers to the problem of addition and find the answers to the problem of subtraction of the count not exceed 100 and 0.

**Learning Objective**

Students will be taught to :

1. Look for the value of the unknown value in the sentence. The addition indicator and the symbol of the subtraction number of the count not exceed 100 and 0.

2. Show you how to find the answers to the problem of addition and find the answers to the problem of subtraction of the count not exceed 100 and 0.

**Learning Outcomes**

Students will be able to:

1. Look for the value of the unknown value in the sentence.

2. The addition indicator and the symbol of the subtraction number of the count not exceed 100 and 0.

3. Show you how to find the answers to the problem of addition and find the answers to the problem of subtraction of the count not exceed 100 and 0.

**Learning Areas**

- The meaning of the addition and subtraction The result of the addition and subtraction and relation of addition and subtraction.
- Solving problems of addition and subtraction. And create solving problems together with to come up with an answer.

**Teaching and Learning Activities**

1. Students practice look for the value of the unknown value in the sentence. The addition indicator and the symbol of the subtraction number of the count not exceed 100 and 0.

2. Students practice shows you how to find the answers to the problem of addition and find the answers to the problem of subtraction of the count not exceed 100 and 0.

3. Students do about test unit subtraction two numbers are not exceeding to 100.

**Emphasized Skills:**

1. Thinking skill
2. Problem-solving skill

## Chapter 14

**Mathematics (M11101)**

**Content: Word problem of Addition and subtraction.** **Time: 18 hours**

**Strand 1: Number and Algebra**

Standard M1.1: Understanding the basics of measurement; ability to measure and estimate the size of objects to be measured

**Grade level indicators**

M1.1 Gr1/4 Look for the value of the unknown value in the sentence. The addition indicator and the symbol of the subtraction number of the count not exceed 100 and 0.

M1.1 Gr1/5 Show you how to find the answers to the problem of addition and find the answers to the problem of subtraction of the count not exceed 100 and 0.

**Learning Objective**

Students will be taught to :

1. Look for the value of the unknown value in the sentence. The addition indicator and the symbol of the subtraction number of the count not exceed 100 and 0.

2. Show you how to find the answers to the problem of addition and find the answers to the problem of subtraction of the count not exceed 100 and 0.

**Learning Outcomes**

Students will be able to:

1. Look for the value of the unknown value in the sentence.

2. The addition indicator and the symbol of the subtraction number of the count not exceed 100 and 0.

3. Show you how to find the answers to the problem of addition and find the answers to the problem of subtraction of the count not exceed 100 and 0.

**Learning Areas**

- The meaning of the addition and subtraction The result of the addition and subtraction and relation of addition and subtraction.
- Solving problems of addition and subtraction. And create solving problems together with to come up with an answer.

**Teaching and Learning Activities**

1. Students practice look for the value of the unknown value in the sentence. The addition indicator and the symbol of the subtraction number of the count not exceed 100 and 0.

2. Students practice shows you how to find the answers to the problem of addition and find the answers to the problem of subtraction of the count not exceed 100 and 0.

3. Students do about test unit word problem of Addition and subtraction.

**Emphasized Skills:**

1. Thinking skill
2. Problem-solving skill

# Course structure

# Primary 2

**Learning Time Structure Mathematics**

**Grade 2: - Continuous assessment score 70 points** **Time: 200 hours**

**- Final examination** **30 points**

| Chapter | Content | Standard of Mathematics | Time (hours) 200 | C.A.S Score 70 | Final Examination 30 |
|---|---|---|---|---|---|
| 1 | Numbers up to 1,000 | M1.1: Gr2/1, Gr2/2, Gr2/3 | 20 | 8 | 3 |
| 2 | Addition and Subtraction within 100 | M1.1: Gr2/4, Gr2/8 | 24 | 8 | 4 |
| 3 | Measurement | M2.1: Gr2/1 ,Gr2/2,Gr2/3 | 15 | 5 | 2 |
| 4 | weight measurement | M2.1: Gr2/4, Gr2/5 | 16 | 5 | 2 |
| 5 | Multiplication | M1.1: Gr2/5, Gr2/8 | 25 | 9 | 4 |
| **Total Semester: 1st** | | | | **35** | **15** |

| Chapter | Content | Standard of Mathematics | Time (hours) 200 | C.A.S Score 70 | Final Examination 30 |
|---|---|---|---|---|---|
| 6 | Division | M1.1: Gr2/6, Gr2/8 | 25 | 9 | 3 |
| 7 | Time | M2.1: Gr2/1 | 20 | 7 | 3 |
| 8 | Volume measurement | M2.1: Gr2/6 | 15 | 4 | 2 |
| 9 | Geometric figure | M2.2: Gr2/1 | 8 | 4 | 2 |
| 10 | Addition, subtraction, multiplication, division | M1.1: Gr2/7, Gr2/8 | 24 | 7 | 3 |
| 11 | Geometry | M3.1: Gr2/1 | 8 | 4 | 2 |
| **Total Semester: 2nd** | | | | **35** | **15** |
| **Total score all year** | | | | **70** | **30** |

**Table analysis indicators standard of Mathematics with the chapter**

**Code: Sc12101** **Grade 2**

| No. | Indicators | Chapters | | | | |
|---|---|---|---|---|---|---|
| | | 1 Numbers up to 1,000 | 2 Addition and Subtraction within 100 | 3 Measurement | 4 weight measurement | 5 Multiplication |
| 1 | M1.1 Gr2/1 Write and read Hindu-Arabic and Thai numerals and written forms showing quantity of objects or cardinal numbers not exceeding 1,000, and 0. | ✓ (3 Point) | | | | |
| 2 | M1.1 Gr2/2 Compare and arrange sequence of cardinal numbers not exceeding 1,000, and 0. | ✓ (3 Point) | | | | |
| 3 | M1.1 Gr2/3 Sort numbers up to 1,000 and 0 from 3 to 5 numbers from various situations. | ✓ (2 Point) | | | | |
| 4 | M1.1 Gr2/4 Find the value of the unknown in the addition and subtraction statements of numbers up to 1000 and 0. | | ✓ (4 Point) | | | |
| 5. | M1.1 Gr2/5 Find the value of the unknown in the multiplication symbol sentence of a number of 1 digit by a number of up to 2 digits. | | | | | ✓ (5 Point) |
| 6. | M1.1 Gr2/6 Find the value of the unknown in | | | | | |

| No. | Indicators | Chapters | | | | |
|---|---|---|---|---|---|---|
| | | 1 Numbers up to 1,000 | 2 Addition and Subtraction within 100 | 3 Measurement | 4 weight measurement | 5 Multiplication |
| | the division symbol sentence with no more than 2-digit divisor and 1-digit divisor where the quotient | | | | | |
| 7. | M1.1 Gr2/7 Find the results of adding, subtracting, multiplying, and dividing a number of numbers up to 1,000 and 0. | | | | | |
| 8. | M1.1 Gr2/8 Shows how to find the answer to the 2-step problem of numbers up to 1000 and 0. | | ✓ (4 Point) | | | ✓ (4 Point) |
| 9. | M2.1 Gr2/1 Tell length in metres and centimetres, and compare length by using the same unit. | | | | | |
| 10. | M2.1 Gr2/2 Tell weight in kilogrammes and grammes, and compare weight by using the same unit. | | | ✓ (3 Point) | | |
| 11. | M2.1 Gr2/3 Tell volume and capacity in litres,and compare volume and capacity. | | | ✓ (2 Point) | | |
| 12. | M2.1 Gr2/4 Tell total amount of money from coins and bank notes. | | | | ✓ (3 Point) | |

| No. | Indicators | Chapters | | | | |
|---|---|---|---|---|---|---|
| | | 1 Numbers up to 1,000 | 2 Addition and Subtraction within 100 | 3 Measurement | 4 weight measurement | 5 Multiplication |
| 13. | M2.1 Gr2/5 Tell the time on a clock dial (period of 5 minutes). | | | | ✓ (2 Point) | |
| 14. | M2.1 Gr2/6 Tell the days, months and year from a calendar. | | | | | |
| 15. | M2.2 Gr2/1 Solve problems involving measurement of length, weight, volume and money. | | | | | |
| 16. | M3.1 Gr2/1 Identify two-dimensional geometric figures whether in the form of triangles, quadrilaterals, circles or ellipses | | | | | |

**Table analysis indicators standard of Mathematics with the chapter**

**Code: M12101** **Grade 2**

| No. | Indicators | Chapters | | | | | |
|---|---|---|---|---|---|---|---|
| | | 6 Division | 7 Time | 8 Volume measurement | 9 Geometric figure | 10 Addition, subtraction, multiplication, division | 11 Geometry |
| 1 | M1.1 Gr2/1 Write and read Hindu-Arabic and Thai numerals and written | | | | | | |

| No. | Indicators | Chapters | | | | | |
|---|---|---|---|---|---|---|---|
| | | 6 Division | 7 Time | 8 Volume measurement | 9 Geometric figure | 10 Addition, subtraction, multiplication, division | 11 Geometry |
| | forms showing quantity of objects or cardinal numbers not exceeding 1,000, and 0. | | | | | | |
| 2 | M1.1 Gr2/2 Compare and arrange sequence of cardinal numbers not exceeding 1,000, and 0. | | | | | | |
| 3 | M1.1 Gr2/3 Sort numbers up to 1,000 and 0 from 3 to 5 numbers from various situations. | | | | | | |
| 4 | M1.1 Gr2/4 Find the value of the unknown in the addition and subtraction statements of numbers up to 1000 and 0. | | | | | | |
| 5. | M1.1 Gr2/5 Find the value of the unknown in the multiplication symbol sentence of a number of 1 digit by a number of up to 2 digits. | | | | | | |
| 6. | M1.1 Gr2/6 Find the value of the unknown in the division symbol sentence with no more than 2-digit divisor and 1-digit divisor where the quotient | ✓ (3 Point) | | | | | |

| No. | Indicators | Chapters | | | | | |
|---|---|---|---|---|---|---|---|
| | | 6 Division | 7 Time | 8 Volume measurement | 9 Geometric figure | 10 Addition, subtraction, multiplication, division | 11 Geometry |
| 7. | M1.1 Gr2/7 Find the results of adding, subtracting, multiplying, and dividing a number of numbers up to 1,000 and 0. | | | | | ✓ (4 Point) | |
| 8. | M1.1 Gr2/8 Shows how to find the answer to the 2-step problem of numbers up to 1000 and 0. | ✓ (3 Point) | | | | ✓ (3 Point) | |
| 9. | M2.1 Gr2/1 Tell length in metres and centimetres, and compare length by using the same unit. | | ✓ (4 Point) | | | | |
| 10. | M2.1 Gr2/2 Tell weight in kilogrammes and grammes, and compare weight by using the same unit. | | | | | | |
| 11. | M2.1 Gr2/3 Tell volume and capacity in litres,and compare volume and capacity. | | | | | | |
| 12. | M2.1 Gr2/4 Tell total amount of money from coins and bank notes. | | | | | | |
| 13. | M2.1 Gr2/5 Tell the time on a clock dial (period of 5 minutes). | | | | | | |

| No. | Indicators | Chapters | | | | | |
|---|---|---|---|---|---|---|---|
| | | 6 Division | 7 Time | 8 Volume measurement | 9 Geometric figure | 10 Addition, subtraction, multiplication, division | 11 Geometry |
| 14. | M2.1 Gr2/6 Tell the days, months and year from a calendar. | | | ✓ (4 Point) | | | |
| 15. | M2.2 Gr2/1 Solve problems involving measurement of length, weight, volume and money. | | | | ✓ (4 Point) | | |
| 16. | M3.1 Gr2/1 Identify two-dimensional geometric figures whether in the form of triangles, quadrilaterals, circles or ellipses | | | | | | ✓ (4 Point) |

## Chapter 1

**Mathematics (M12101)**

**Content: Numbers up to 1,000** **Time: 20 hours**

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**Strand 1: Numbers and Operations**

Standard M1.1:Understanding of diverse methods of presenting numbers and their application in real life

**Grade level indicators**

M1.1 Gr2/1 Write and read Hindu-Arabic and Thai numerals and written forms showing quantity of objects or cardinal numbers not exceeding 1,000, and 0.

M1.1 Gr2/2 Compare and arrange sequence of cardinal numbers not exceeding 1,000, and 0.

M1.1 Gr2/3 Sort numbers up to 1,000 and 0 from 3 to 5 numbers from various situations.

**Learning Objective**

Students will be taught to :

1. Understand numbers up to 1,000.
2. Compare and order numbers up to 1,000.
3. Recognize and extend number patterns formed by counting on and counting back in interval of 1s,

2s, 5s, 10s and 100s.

4. Understand ordinal numbers.

**Learning Outcomes**

Students will be able to:

1. Count, read and write numbers up to 1,000 in Arabic numerals.
2. Identify place value and value of each digit in a number.
3. Write numbers in expanded form.
4. Compare and order numbers up to 1,000.
5. Count forward and count backward by 1s, 2s, 5s and 100s.
6. Extend number sequence.
7. Complete missing terms in given number sequences.
8. Use ordinal numbers to name position.

**Learning Areas**

- Counting up to 1,000
- Reading and writing numbers
- Place values of digits
- Writing numbers in expended form
- Comparing and ordering numbers
- Number patterns when counting forward and backward
- Using numbers to name positions

**Teaching and Learning Activities**

1. Get a lot of marbles or sticks for students to count.
2. Guide them on how to count up to 1,000, in hundreds, tens and ones.
3. Test students' memory on spelling numbers from 0 to 20. They need to memorize them and this

includes the word 'hundred' and 'thousand'.

4. Write a three-digit number on the board and explain the place values of each digit and its value.

Emphasize that even a zero in a number has a place value.

5. For this section, students need to be good at place value. It is better for them to present a number

with a place value table first before writing it in expanded form. Try a few numbers with them and remember to have numbers with zero.

6. Remind students of the signs of comparison and the terms used in comparison such as 'greater

than', 'more than', 'less than', 'smaller than', 'equal' and 'not equal to'.

7. Emphasize to students to first compare the number of digits when comparing two numbers before

comparing the values of the leftmost digits. Use an abacus to ease your explanation.

8. Remind students the meanings of ascending and descending.
9. Guide students to count forward and backward by ones, fives, tens and hundreds.
10. Guide them on how to analyse a number pattern by comparing every two consecutive numbers.
11. Explain how we use ordinal numbers.

**Emphasized Skills:**

1. Thinking skill
2. Problem-solving skill

## Chapter 2

**Mathematics (M12101)**

**Content: Addition and Subtraction within 100** **Time: 24 hours**

**Strand 1: Numbers and Operations**

Standard M1.1:Understanding of diverse methods of presenting numbers and their application in real life

**Grade level indicators**

M1.1 Gr2/4 Find the value of the unknown in the addition and subtraction statements of numbers up to 1000 and 0.

M1.1 Gr2/8 Shows how to find the answer to the 2-step problem of numbers up to 1000 and 0.

**Learning Objective**

Students will be taught to :

1. Perform addition of numbers within 100.
2. Perform subtraction of numbers within 100.
3. Perform computations involving addition and subtraction to solve word problems.

**Learning Outcomes**

Students will be able to:

1. Add up two numbers without regrouping and with regrouping.
2. Add up three numbers.
3. Subtract without regrouping and with regrouping.
4. Relate the relationship between addition and subtraction.
5. Solve problems involving addition and subtraction within 100

**Learning Areas**

- Addition within 100
- Subtraction within 1,000
- Using subtraction to solve word problems

**Teaching and Learning Activities**

1. Remind students what addition means.

2. Guide students to add without grouping using the standard written method. Emphasize that they should add up digits of the same place values.

3. Write a few addition without regrouping questions on the board for students to solve. Discuss with them.

4. Guide students to add with regrouping using the standard written method.

5. Write a few addition questions on the board and get a few students to answer them. Guide them on how to verify of the answers.

6. Remind students of the meaning of subtraction.

7. Write a few subtraction questions on the board and get a few students to answers them. Discuss the answers with them. Guide them to verify the answers.

8. Explain the relationship between addition and subtraction and how we use this relationship to check for accuracy.

9. Explain how to solve word problems.

**Emphasized Skills:**

1. Thinking skill
2. Problem-solving skill
3. Analysing skill

## Chapter 3

**Mathematics (M12101)**

**Content:** Measurement **Time: 15 hours**

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**Strand 2: Measurement**

Standard M 2.1 Basic understanding of measurement Measuring and estimating the size of the measure and apply.

**Grade level indicators**

M2.1 Gr2/1 Tell length in metres and centimetres, and compare length by using the same unit.

M2.1 Gr2/2 Tell weight in kilogrammes and grammes, and compare weight by using the same unit.

M2.1 Gr2/3 Tell volume and capacity in litres,and compare volume and capacity.

**Learning Objective**

Students will be taught to :

1. Measure and compare lengths using standard units.
2. Solve word problems involving length.

**Learning Outcomes**

Students will be able to:

1. Measure and record lengths of objects in meters and centimeters.
2. Know the relationship between meters and centimeters.
3. Read scales to the nearest division.
4. Measure and record distances of two points in meters and centimeters.
5. Compare lengths of objects in meters and centimeters.
6. Solve words problems involving length.

**Learning Areas**

- Measuring length in meters and centimeters
- Measuring distance
- Comparing length
- Solving word problems involving length

**Teaching and Learning Activities**

1. Briefly explain what length is.

2. Show students some standard measuring tools such as meter rulers, rulers, measuring tapes and

metal measuring tapes.

3. Show them how long a meter and a centimeter are.

4. Introduce to students the relationship between meter and centimeter, and the abbreviations of these units. Explain the differences between length and height too.

5. Using some big items such as windows and cupboards in the class, ask students to measure their lengths using standard measuring tools in meters.

6. Using some small items such as books and pencils in the class, ask students to measure their lengths using standard measuring tools in centimeters.

7. Guide students on how to compare different lengths. Which is longer? Which is shorter? You may compare the heights of two students.

**Emphasized Skills:**

1. Thinking skill
2. Problem-solving skill
3. Analyzing skill

## Chapter 4

**Mathematics (M12101)**

**Content: weight measurement** **Time: 16 hours**

**Strand 2: Numbers and Operations**

Standard M 2.1 Basic understanding of measurement Measuring and estimating the size of the measure and apply.

**Grade level indicators**

M2.1 Gr2/4 Tell total amount of money from coins and bank notes.

M2.1 Gr2/5 Tell the time on a clock dial (period of 5 minutes).

**Learning Objective**

Students will be taught to :

1. Perform addition of numbers within 1,000.
2. Perform computations involving addition to solve word problems.
3. Perform subtraction of numbers within 1,000.
4. Perform computations involving addition and subtraction to solve word problems.

**Learning Outcomes**

Students will be able to:

1. Add up two 3-digit numbers.
2. Add up three 3-digit numbers.
3. Solve problems involving addition.
4. Subtract a number from a 3-digit number.
5. Use addition to check accuracy of answers from subtraction operations.
6. Solve problems involving subtraction

**Learning Areas**

- Addition within 1,000
- Using addition to solve word problems
- Subtraction within 1,000
- Using subtraction to solve word problems

**Teaching and Learning Activities**

1. Guide students on how to add two 3-digit numbers.
2. Guide students to add three 3-digit numbers.
3. Guide students to find the unknown numbers in number sentences.
4. Using the word problem to guide students on how to solve it.
5. Write a number sentence involving addition on the board and ask students to create some word problems on it.
6. Guide students to subtract a number from a 3-digit number. Emphasize that subtraction must start with the ones, follow by the tens and lastly the hundreds.
7. Guide students to use addition to check the accuracy of answers from subtraction operations.
8. Guide students to find the unknown numbers in number sentences.

**Emphasized Skills:**

1. Thinking skill
2. Problem-solving skill
3. Analyzing skill

## Chapter 5

**Mathematics (M12101)**

**Content: Multiplication** **Time: 25 hours**

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**Strand 1: Numbers and Operations**

Standard M1.1:Understanding of diverse methods of presenting numbers and their application in real life

**Grade level indicators**

M1.1 Gr2/5 Find the value of the unknown in the multiplication symbol sentence of a number of 1 digit by a number of up to 2 digits.

M1.1 Gr2/8 Shows how to find the answer to the 2-step problem of numbers up to 1000 and 0.

**Learning Objective**

Students will be taught to :

1. Understand multiplication as repeated addition.
2. Solve word problems involving multiplication of 1-digit numbers.
3. Understand and use the operations of multiplication
4. Solve word problems involving multiplication of 1-digit numbers by 2digit numbers

**Learning Outcomes**

Students will be able to:

1. Recognise multiplication as repeated addition.
2. Read and write number sentences for multiplication.
3. Build up multiplication tables for 2 to 9.
4. Multiply two numbers.
5. Know the properties of multiplication.
6. Solve word problems involving multiplication of 1-digit numbers.
7. Multiply 1-digit numbers by 10, 20, ..., 90.
8. Multiply 1-digit numbers by 2-digit numbers without regrouping and with regrouping.
9. Solve word problems involving the multiplication of 1-digit numbers by 2-digit numbers

**Learning Areas**

- Meaning of multiplication
- Multiplication of 1-digit numbers
- Solving word problems involving the multiplication of 1-digit numbers
- Multiplication of 1-digit numbers by 10, 20, ..., 90
- Multiplication of 1-digit numbers by 2-digit numbers
- Solving word problems involving the multiplication of 1-digit numbers by 2-digit numbers

**Teaching and Learning Activities**

1. Explain the meaning of multiplication as repeated addition.
2. Guide them how to write and read number sentences for multiplication.
3. Guide students to build their own multiplication tables of 1 to 5, using items or pictorial representation.
4. Help students to recall rapidly the multiplication tables by saying aloud and using flash cards. This need to be done daily until they are familiar with the tables.
5. Randomly pick a few students to recall the multiplication tables quickly and smoothly.
6. Guide them to write number sentences using the standard written method.
7. Then, continue to introduce multiplication tables of 6 to 9.
8. Ensure students can recall rapidly all the multiplication tables of 2 to 9.
9. Explain the properties of multiplication such as commutative property, multiplication by one and multiplication by zero.
10. When solving word problems, always ask students to understand the problems and write the number sentences.
11. Show students the relation between multiplying 3 with 2 and 3 with 20.
12. Guide students to do multiplication without regrouping, using the standard written method.
13. Explain to students how to solve it. Reiterate the importance of writing the number sentence before solving it.

**Emphasized Skills:**

1. Thinking skill
2. Problem-solving skill
3. Analyzing skill

## Chapter 6

**Mathematics (M12101)**

**Content: Division** **Time: 25 hours**

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**Strand 1: Numbers and Operations**

Standard M1.1:Understanding of diverse methods of presenting numbers and their application in real life

**Grade level indicators**

M1.1 Gr2/6 Find the value of the unknown in the division symbol sentence with no more than 2-digit divisor and 1-digit divisor where the quotient

M1.1 Gr2/8 Shows how to find the answer to the 2-step problem of numbers up to 1000 and 0.

**Learning Objective**

Students will be taught to :

1. Understand division as sharing equally or grouping.
2. Solve word problems involving division.
3. Understand and use the operation of multiplications.

**Learning Outcomes**

Students will be able to:

1. Recognize multiplication as sharing equally or grouping.
2. Read and write number sentences for division.
3. Recognize division as the opposite of multiplication.
4. Divide by 1-digit divisors.
5. Identify exact division.
6. Solve word problems involving division.

**Learning Areas**

- Meaning of division
- Division as the opposite of multiplication
- Dividing by 1-digit divisors
- Exact division
- Solving word problems involving division

**Teaching and Learning Activities**

1. Explain division as equal sharing or grouping.

2. Emphasize that division means equal sharing or grouping.

3. Guide them on how to write and read number sentences involving division. Label the number sentences.

4. Tell students that division is the opposite of multiplication. Write a few number sentences involving division. Ask a few students to rewrite them involving multiplication.

5. To divide easily, we need to remember the multiplication tables very well.

6. Explain the differences between exact division and division with a reminder to students.

7. Explain to students how to solve it. Reiterate the importance of writing the number sentence before solving it.

**Emphasized Skills:**

1. Thinking skill
2. Problem-solving skill
3. Analyzing skill

## Chapter 7

**Mathematics (M12101)**

**Content: Time** **Time: 20 hours**

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**Strand 2: Measurement**

Standard M2.1: Understanding the basics of measurement; ability to measure and estimate the size of objects to be measured

**Grade level indicators**

M2.1 Gr2/1 Tell length in metres and centimetres, and compare length by using the same unit.

**Learning Objective**

Students will be taught to :

1. Understand, read and write the time.
2. Understand the units of time.

**Learning Outcomes**

Students will be able to:

1. Read and write the time to an hour
2. Read and write the time to five minutes.
3. Know the relationship between day, hour, minute, day, months and year.
4. Relate time to calendar.
5. Read calendar.

**Learning Areas**

- Reading and writing the time
- Reading and writing the time in hours and minutes
- 1 hour = 60 minutes; 1 day = 24 hours
- Months of the year
- Calendar

**Teaching and Learning Activities**

1. Using an analog clock, ask students to identify the minute hand, hour hand and second hand. Emphasize the difference between the hour hand and the minute hand.

2. Guide students to read the time in hours from analog clocks and digital clocks.

3. Explain the minutes on the clocks and the relationship between hours and minutes. Emphasize that each small mark on the clock represents a minute.

4. Guide students to read the time to the five minutes intervals. Introduce a few ways to read the time such as 'forty-five minutes past ten', 'ten forty five', 'a quarter to eleven', 'half past five' and 'fifteen minutes to eleven'.

5. Guide them to write the time too. It can be in numerals or in letters. Check on the spelling.

6. Emphasize that an hour has 60 minutes. When the minute hand moved round the clock once, the hour hand moves to the next number.

7. Emphasize that in a day there are 24 hours. The hour hand moves round the clock 2 times.

8. Guide students to read and spell the months of a year.

**Emphasized Skills:**

1. Thinking skill
2. Problem-solving skill
3. Analyzing skill

## Chapter 8

**Mathematics (M12101)**

**Content: Volume measurement** **Time: 15 hours**

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**Strand 2: Measurement**

Standard M2.1: Understanding the basics of measurement; ability to measure and estimate the size of objects to be measured

**Grade level indicators**

M2.1 Gr2/6 Tell the days, months and year from a calendar.

**Learning Objective**

Students will be taught to :

1. Measure and compare volume in liters.
2. Measure and compare capacity in liters.
3. Solve word problems involving volume and capacity.

**Learning Outcomes**

Students will be able to:

1. Read scales to the nearest division.
2. Measure and record volumes in liter.
3. Compare volumes of two liquids in liters.
4. Measure and record capacity in liters.
5. Compare capacity of two containers in liters.
6. Solve word problems involving volume and capacity.

**Learning Areas**

- Measuring volume in liters
- Measuring capacity in liters
- Solving word problems involving volume and capacity

**Teaching and Learning Activities**

1. Briefly explain what volume is.
2. Show students some standard measuring tools such as measuring spoons, measuring cups, measuring cylinders and beakers.
3. Introduce the unit liter and its abbreviation. Show them how much a liter of water is.
4. Using some containers such as jugs and bowls, ask students to measure their volumes using standard measuring tools in liters.
5. Explain to students the differences between volume and capacity.
6. Guide students to solve them.

**Emphasized Skills:**

1. Thinking skill
2. Problem-solving skill
3. Analyzing skill

## Chapter 9

**Mathematics (M12101)**

**Content: Geometric figure** **Time: 8 hours**

**Strand 2: Measurement**

Standard M2.2: Solving measurement problems

**Grade level indicators**

M2.1 Gr2/1 Tell length in metres and centimetres, and compare length by using the same unit.

**Learning Objective**

Students will be taught to :

1. Understand and use terms related to 2-D and 3-D shapes.
2. Understand the shape patterns.

**Learning Outcomes**

Students will be able to:

1. Identifying 2-D and 3-D shapes.
2. Label the parts of 2-D and 3-D shapes.
3. Identify shape patterns.
4. Form shape patterns.

**Learning Areas**

- Two-dimensional (2-D) shapes
- Three-dimensional (3-D) shapes
- Shape patterns

**Teaching and Learning Activities**

1. Refresh students' memory of 2-D shapes such as triangles, rectangles, squares, circles and ovals.
2. Draw a few 2-D shapes and ask students to identify them.
3. Name a few 2-D shapes and ask students to draw them on the board.
4. Show and introduce to students 3-D shapes using models such as cubes, cuboids, pyramids, cones, spheres and cylinders.
5. Ask them to give examples of things in our daily life that have 3-D shapes.
6. Introduce the parts of a 3-D shape such as the face, edge and corner.
7. Draw alternate squares and triangles. Guide students to identify the pattern.

**Emphasized Skills:**

1. Thinking skill
2. Problem-solving skill
3. Analysing skill

## Chapter 10

**Mathematics (M12101)**

**Content: Addition, subtraction, multiplication, division** **Time: 24 hours**

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**Strand 1: Numbers and Operations**

Standard M1.1:Understanding of diverse methods of presenting numbers and their application in real life

**Grade level indicators**

M1.1 Gr2/7 Find the results of adding, subtracting, multiplying, and dividing a number of numbers up to 1,000 and 0.

M1.1 Gr2/8 Shows how to find the answer to the 2-step problem of numbers up to 1000 and 0.

**Learning Objective**

Students will be taught to :

1. Perform addition of numbers within 1,000.
2. Perform computations involving addition to solve word problems.
3. Perform subtraction of numbers within 1,000.
4. Perform computations involving addition and subtraction to solve word problems.

**Learning Outcomes**

Students will be able to:

1. Add up two 3-digit numbers.
2. Add up three 3-digit numbers.
3. Solve problems involving addition.
4. Subtract a number from a 3-digit number.
5. Use addition to check accuracy of answers from subtraction operations.
6. Solve problems involving subtraction

**Learning Areas**

- Addition within 1,000
- Using addition to solve word problems
- Subtraction within 1,000
- Using subtraction to solve word problems

**Teaching and Learning Activities**

1. Guide students on how to add two 3-digit numbers.
2. Guide students to add three 3-digit numbers.
3. Guide students to find the unknown numbers in number sentences.
4. Using the word problem to guide students on how to solve it.
5. Write a number sentence involving addition on the board and ask students to create some word problems on it.
6. Guide students to subtract a number from a 3-digit number. Emphasize that subtraction must start with the ones, follow by the tens and lastly the hundreds.
7. Guide students to use addition to check the accuracy of answers from subtraction operations.
8. Guide students to find the unknown numbers in number sentences.

**Emphasized Skills:**

1. Thinking skill
2. Problem-solving skill
3. Analyzing skill

## Chapter 11

**Mathematics (M12101)**

**Content: Geometry** **Time: 8 hours**

**Strand 3: Geometry**

Standard M3.1: Ability to explain and analyse two-dimensional and three-dimensional geometric figures

**Grade level indicators**

M3.1 Gr2/1 Identify two-dimensional geometric figures whether in the form of triangles,

**Learning Objective**

Students will be taught to :

1. Understand and use terms related to 2-D and 3-D shapes.
2. Understand the shape patterns.

**Learning Outcomes**

Students will be able to:

1. Identifying 2-D and 3-D shapes.
2. Label the parts of 2-D and 3-D shapes.
3. Identify shape patterns.
4. Form shape patterns.

**Learning Areas**

- Two-dimensional (2-D) shapes
- Three-dimensional (3-D) shapes
- Shape patterns

**Teaching and Learning Activities**

1. Refresh students' memory of 2-D shapes such as triangles, rectangles, squares, circles and ovals.
2. Draw a few 2-D shapes and ask students to identify them.
3. Name a few 2-D shapes and ask students to draw them on the board.
4. Show and introduce to students 3-D shapes using models such as cubes, cuboids, pyramids, cones, spheres and cylinders.
5. Ask them to give examples of things in our daily life that have 3-D shapes.
6. Introduce the parts of a 3-D shape such as the face, edge and corner.
7. Draw alternate squares and triangles. Guide students to identify the pattern.

**Emphasized Skills:**

1. Thinking skill
2. Problem-solving skill
3. Analysing skill

# Course structure

# Primary 3

**Learning Time Structure Mathematics**

**M 13101** **Mathematics**

**Grade 3** **Time 200 hours**

| Chapter | Content | Standard of Mathematics | Time (hours) 200 | Scores (100) | |
|---|---|---|---|---|---|
| | | | | C.A.S 70 | Final 30 |
| 1 | cardinal numbers not exceeding 100,000 | M 1.1 P.3/1<br>M 1.1 P.3/2 | 14 | 5 | 2 |
| 2 | Fun with addition and subtraction cardinal numbers not exceeding 100,000 | M 1.1 P.3/5 | 20 | 6 | 3 |
| 3 | Time is interesting | M 2.1 P.3/2 | 15 | 4 | 2 |
| 4 | Geometric shapes | M 2.2 P.3/1 | 10 | 3 | 1 |
| 5 | Picture charts and one way table | M 3.1 P.3/1<br>M 3.1 P.3/2 | 12 | 3 | 1 |
| 6 | Fraction | M 1.1 P.3/3<br>M 1.1 P. 3/4<br>M 1.1 P.3/11 | 13 | 7 | 3 |
| 7 | Practice about multiplication | M 1.1 P. 3/6 | 16 | 7 | 3 |
| **Total Semester: 1st** | | | | **35** | **15** |

| Chapter | Content | Standard of Mathematics | Time (hours) 100 | Scores (100) | |
|---|---|---|---|---|---|
| | | | | C.A.S 70 | Final 30 |
| 8 | Practice about division | M 1.1 P.3/7 | 17 | 7 | 3 |
| 9 | Let's measure of length | M 2.1 P.3/3<br>M 2.1 P.3/4<br>M 2.1 P.3/5<br>M 2.1 P.3/6 | 18 | 6 | 2 |
| 10 | Let's measure of weight | M 2.1 P.3/7,<br>M 2.1 P.3/8<br>M 2.1 P.3/9<br>M 2.1 P. 3/11 | 16 | 6 | 2 |
| 11 | Measuring Volume | M 2.1 P.3/11, P.3/12<br>M 2.1 P. 3/13 | 18 | 5 | 2 |
| 12 | Learning about money | M 2.1 P.3/1 | 15 | 4 | 2 |
| 13 | Mathematical skill and process | M 1.1 P. 3/8<br>M 1.1 P. 3/9 | 16 | 6 | 3 |
| **Total Semester: 2nd** | | | | **35** | **15** |
| **Total score all year** | | | | **70** | **30** |

**Table analysis indicators standard of Mathematics with the chapter**

**Code: M13101 Grade 3(Semester: 1st)**

| Indicators | Chapters | | | | | | |
|---|---|---|---|---|---|---|---|
| | 1 cardinal numbers not exceeding 100,000 | 2 Fun with addition and subtraction cardinal numbers not exceeding 100,000 | 3 Time is interesting | 4 Geometric shapes | 5 Picture charts and one way table | 6 Fraction | 7 Practice about multiplication |
| 1.M1.1 Gr3/1 Write and read Hindu-Arabic and Thai numerals and written forms showing quantity of objects or cardinal numbers not exceeding 100,000, and 0. | ✓ (2 Point) | | | | | | |
| 2.M1.1 Gr3/2 Compare and arrange sequence of cardinal numbers not exceeding 100,000, and 0. | ✓ (2 Points) | | | | | | |
| 3.M1.1Gr3/3Telling,Reading and Writing fraction as a number on the number line; represent fractions on a number line diagram. | | | | | | ✓ (1 Point) | |
| 4.M1.1Gr3/4Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when the two fractions refer to the same whole. | | | | | | ✓ (1 Point) | |
| Indicators | **Chapters** | | | | | | |
| | 1 cardinal numbers not | 2 Fun with addition and subtraction | 3 Time is interesting | 4 Geometric shapes | 5 Picture charts and | 6 Fraction | 7 Practice about |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | exceeding 100,000 | cardinal numbers not exceeding 100,000 | | | one way table | | multiplication |
| 5. M1.1Gr 3/5 finding answer of the unknown whole number by using Mathematical symbols for addition and subtraction of cardinal numbers not exceeding 100,000, and 0. | | ✓ (6 Point) | | | | | |
| 6.M1.1 Gr3/6 finding answer of the unknown whole number by using Mathematical symbols showing multiply one-digit with four- digit and two-digit with two- digit | | | | | | | ✓ (7 Points) |
| 7. M1.1 Gr3/7 Find the value of the unknown in the division symbol sentence where the divisor is not more than 4 digits and the divisor is 1 digit. | | | | | | | |
| 8. M1.1Gr3/8 finding answer of addition,subtraction, multiplication and division of cardinal numbers not exceeding 100,000, and 0 | | | | | | | |
| 9. M1.1Gr3/9 Write the solution to solve word problems in 2 steps of cardinal numbers not exceeding 100,000, and 0. | | | | | | | |

| **Indicators** | Chapters | | | | | | |
|---|---|---|---|---|---|---|---|
| | 1 cardinal numbers not exceedin | **2** Fun with addition and subtraction cardinal numbers not | **3** Time is interesting | **4** Geometric shapes | **5** Picture charts and one way table | **6** Fraction | **7** Practice about multiplication |

| | g 100,000 | exceeding 100,000 | | | | | |
|---|---|---|---|---|---|---|---|
| 10. M1.1Gr 3/10 Find the answers of the addition and subtraction of fractions as equivalent (equal) if they are the same size, or the same point on a number line. | | | | | | ✓ (2 Point) | |
| 11. M1.1 Gr3/11 Write the solution to solve word problems of the addition and subtraction of fractions as equivalent (equal) if they are the same size, or the same point on a number line. | | | | | | ✓ (3 Point) | |
| 12. M1.2Gr3/1 Tell the numbers and relations in patterns of numbers that increases by 3s, 4s, 25s and 50s, and decreases by 3s, 4s, 5s, 25s and 50s and in repeated patterns. | ✓ (1 Point) | | | | | | |
| 13. M2.1Gr3/1 Shows how to find answers to money-related problems. | | | | | | | |
| Indicators | **Chapters** | | | | | | |
| | 1 cardinal numbers not exceeding 100,000 | **2** Fun with addition and subtraction cardinal numbers not exceeding 100,000 | **3** Time is interesting | **4** Geometric shapes | **5** Picture charts and one way table | **6** Fraction | **7** Practice about multiplication |
| 14. M2.1Gr3/2 Write the solution to solve word problems about the time | | | ✓ (4 Point) | | | | |
| 15. M2.1Gr3/3 Choose the right length meter, measure and tell. length of things in centimeters | | | | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| and millimeters meters and centimeters | | | | | | | |
| 16. M2.1Gr3/4 Estimate length in meters and centimeters. | | | | | | | |
| 17. M2.1Gr3/5 Compare the length between centimeters and millimeters. meter to centimeter kilometers to meters from various situations | | | | | | | |
| 18. M2.1Gr3/6 Shows how to find answers to length problems. with units of centimeters and millimeters Meters and Centimeters Kilometers and Meters | | | | | | | |

| Indicators | Chapters | | | | | | |
|---|---|---|---|---|---|---|---|
| | 1 cardinal numbers not exceeding 100,000 | 2 Fun with addition and subtraction cardinal numbers not exceeding 100,000 | 3 Time is interesting | 4 Geometric shapes | 5 Picture charts and one way table | 6 Fraction | 7 Practice about multiplication |
| 19. M2.1Gr3/7 Choose the right balance Measure and tell the weight in kilograms and marks, kilograms and marks. | | | | | | | |
| 20. M2.1Gr3/8 Estimated weight in kilograms and in dashes. | | | | | | | |
| 21. M2.1Gr3/9 Compare weight between kilograms and grams. Metric Tons to Kilograms from various situations | | | | | | | |
| 22. M2.1Gr3/10 Shows how to find answers to weight problems. with units of kilograms and grams Metric Tons to Kilograms | | | | | | | |
| 23. M2.1Gr3/11 Choose the right measuring device. measure and compare volumes Capacity in liters and milliliters | | | | | | | |
| 24.M2.1Gr3/12 Estimate volume and capacity in liters. | | | | | | | |

| Indicators | Chapters | | | | | | |
|---|---|---|---|---|---|---|---|
| | 1 cardinal numbers not exceeding 100,000 | 2 Fun with addition and subtraction cardinal numbers not exceeding 100,000 | 3 Time is interesting | 4 Geometric shapes | 5 Picture charts and one way table | 6 Fraction | 7 Practice about multiplication |
| 25. M2.1Gr3/13 Shows how to find solutions to volume and capacity problems in liters and milliliters. | | | | | | | |
| 26. M2.2Gr3/1 Classify two-dimensional figures based on the presence or absence of Symmetrical axis | | | | ✓ (3 Point) | | | |
| 27. M3.1Gr 3/1 Draw and write a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step | | | | | ✓ (2 Point) | | |
| 28. M3.1 Gr3/2 Write the one way table from the number data and using one way table data to find the answer | | | | | ✓ (1 Point) | | |

| Indicators | Chapters | | | | | |
|---|---|---|---|---|---|---|
| | 8 Practice about division | 9 Let's measure of length | 10 Let's measure of weight | 11 Measuring Volume | 12 Learning about money | 13 Mathematical skill and process |
| 1.M1.1 Gr3/1 Write and read Hindu-Arabic and Thai numerals and written forms showing quantity of objects or cardinal numbers not exceeding 100,000, and 0. | | | | | | |
| 2.M1.1 Gr3/2 Compare and arrange sequence of cardinal numbers not exceeding 100,000, and 0. | | | | | | |
| 3.M1.1Gr3/3Telling,Reading and Writing fraction as a number on the number line; represent fractions on a number line diagram. | | | | | | |
| 4.M1.1Gr3/4Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when the two fractions refer to the same whole. | | | | | | |
| 5. M1.1Gr 3/5 finding answer of the unknown whole number by using Mathematical symbols for addition and subtraction of cardinal numbers not exceeding 100,000, and 0 | | | | | | |

| Indicators | Chapters | | | | | |
|---|---|---|---|---|---|---|
| | 8 Practice about division | 9 Let's measure of length | 10 Let's measure of weight | 11 Measuring Volume | 12 Learning about money | 13 Mathematical skill and process |
| 6.M1.1 Gr3/6 finding answer of the unknown whole number by using Mathematical symbols showing multiply one-digit with four- digit and two-digit with two- digit | | | | | | |
| 7. M1.1 Gr3/7 Find the value of the unknown in the division symbol sentence where the divisor is not more than 4 digits and the divisor is 1 digit. | ✓ (7 Point) | | | | | |
| 8. M1.1Gr3/8 finding answer of addition,subtraction, multiplication and division of cardinal numbers not exceeding 100,000, and 0 | | | | | | ✓ (3 Point) |
| 9. M1.1Gr3/9 Write the solution to solve word problems in 2 steps of cardinal numbers not exceeding 100,000, and 0. | | | | | | ✓ (3 Point) |
| 10. M1.1Gr 3/10 Find the answers of the addition and subtraction of fractions as equivalent (equal) if they are the same size, or the same point on a number line. | | | | | | |

| Indicators | Chapters | | | | | |
|---|---|---|---|---|---|---|
| | 8 Practice about division | **9** Let's measure of length | **10** Let's measure of weight | **11** Measuring Volume | **12** Learning about money | **13** Mathematical skill and process |
| 11. M1.1 Gr3/11 Write the solution to solve word problems of the addition and subtraction of fractions as equivalent (equal) if they are the same size, or the same point on a number line. | | | | | | |
| 12. M1.2Gr3/1 Tell the numbers and relations in patterns of numbers that increases by 3s, 4s, 25s and 50s, and decreases by 3s, 4s, 5s, 25s and 50s and in repeated patterns. | | | | | | |
| 13. M2.1Gr3/1 Shows how to find answers to money-related problems. | | | | | ✓ (4 Point) | |
| 14. M2.1Gr3/2 Write the solution to solve word problems about the time | | | | | | |
| 15. M2.1Gr3/3 Choose the right length meter, measure and tell. length of things in centimeters and millimeters meters and centimeters | | ✓ (1 Point) | | | | |
| 16. M2.1Gr3/4 Estimate length in meters and centimeters. | | ✓ (1 Point) | | | | |

| Indicators | Chapters | | | | | |
|---|---|---|---|---|---|---|
| | 8 Practice about division | **9** Let's measure of length | **10** Let's measure of weight | **11** Measuring Volume | **12** Learning about money | **13** Mathematical skill and process |
| 17. M2.1Gr3/5 Compare the length between centimeters and millimeters. meter to centimeter kilometers to meters from various situations | | ✓ (2 Point) | | | | |
| 18. M2.1Gr3/6 Shows how to find answers to length problems. with units of centimeters and millimeters Meters and Centimeters Kilometers and Meters | | ✓ (3 Point) | | | | |
| 19. M2.1Gr3/7 Choose the right balance Measure and tell the weight in kilograms and marks, kilograms and marks. | | | ✓ (1 Point) | | | |
| 20. M2.1Gr3/8 Estimated weight in kilograms and in dashes. | | | ✓ (1 Point) | | | |
| 21. M2.1Gr3/9 Compare weight between kilograms and grams. Metric Tons to Kilograms from various situations | | | ✓ (2 Point) | | | |
| 22. M2.1Gr3/10 Shows how to find answers to weight problems. with units of kilograms and grams Metric Tons to Kilograms | | | ✓ (2 Point) | | | |

| Indicators | Chapters | | | | | |
|---|---|---|---|---|---|---|
| | 8 Practice about division | 9 Let's measure of length | 10 Let's measure of weight | 11 Measuring Volume | 12 Learning about money | 13 Mathematical skill and process |
| 23. M2.1Gr3/11 Choose the right measuring device. measure and compare volumes Capacity in liters and milliliters | | | | ✓ (1 Point) | | |
| 24.M2.1Gr3/12 Estimate volume and capacity in liters. | | | | ✓ (1 Point) | | |
| 25. M2.1Gr3/13 Shows how to find solutions to volume and capacity problems in liters and milliliters. | | | | ✓ (3 Point) | | |
| 26. M2.2Gr3/1 Classify two-dimensional figures based on the presence or absence of Symmetrical axis | | | | | | |
| 27. M3.1Gr 3/1 Draw and write a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step | | | | | | |
| 28. M3.1 Gr3/2 Write the one way table from the number data and using one way table data to find the answer | | | | | | |

## Chapter 1

**Mathematics (M13101)**

**Content: Cardinal numbers not exceeding 100,000** **Time: 14 hours**

**Strand 1: Numbers and Operations**

Standard M1.1: Understanding diverse methods of presenting numbers and their application in real life

**Grade level indicators**

M1.1 Gr3/1 Write and read Hindu-Arabic and Thai numerals and written forms showing quantity of objects or cardinal numbers not exceeding 100,000, and 0.

M1.1 Gr3/2 Compare and arrange sequence of cardinal numbers not exceeding 100,000 and 0.

**Learning Objective**

Students will be taught to:

1. Understand numbers up to 100,000.
2. Compare and order numbers up to 100,000.
3. Recognize and extend number patterns formed by counting on and counting back in intervals of 3s, 4s, 5s, 25s and 50s

**Learning Outcomes**

Students will be able to:

1. Count, read and write numbers up to 100,000 in Arabic numerals.
2. Identify place value and value of each digit in numbers.
3. Write numbers in expanded form.
4. Compare and order numbers up to 100,000.
5. Count forward and count backward by 3s, 4s, 5s, 25s and 100s.
6. Extend number sequences.
7. Complete missing terms in given number sequences.
8. Estimate quantities.

**Learning Areas**

1. Reading and writing numbers
2. Recognizing place values and expanding numbers
3. Comparing numbers
4. Ordering numbers
5. Counting forward and backward
6. Number patterns
7. Estimating quantities

**Teaching and Learning Activities**

1. Guide students to count by thousands, hundreds and tens.

2. Using an abacus, put in beads to represent numbers up to 100,000. Ask students to read out and write the numbers on the board in numerals and words.

3. Write a five-digit number on the board and explain the place values of each digit and its value.

4. Emphasize that even a zero in a number has a place value.

5. Get three students to write numbers containing not more than six digits. Then, get the other students to state the place value of each digit in each number and its value.

6. Remind students of the signs of comparison and the terms used in comparison such as 'greater than', 'more than', 'less than', 'smaller than', 'equal' and 'not equal to'.

7. Emphasize to students to first compare the number of digits when comparing two numbers before comparing the values of the leftmost digits.

8. Remind students of the meanings of 'ascending' and 'descending'.

9. Guide students to count forward and backward by threes, fours, fives, twenty-fives and fifties.

10. Explain what number pattern is.

11. Guide them on how to analyses a number pattern by comparing every two consecutive numbers and recognize the repeating pattern.

12. Explain to students what estimating is.

**Emphasized Skills:**

1. Thinking skill
2. Problem-solving skill
3. Analyzing skill

**Chapter 2**

**Mathematics (M13101)**

**Content: Fun with addition and subtraction cardinal numbers** **Time: 20 hours**

**Strand 1: Numbers and Operations**

Standard M1.1: Understanding diverse methods of presenting numbers and their application in real life

**Grade level indicators**

M1.1 Gr3/5 finding answer of the unknown whole number by using Mathematical symbols for addition and subtraction of cardinal numbers not exceeding 100,000, and 0. M1.2 Gr3/2 Analyse and show method of finding answers to problems and mix-problems of cardinal

**Learning Objective**

Students will be taught to:

1. Perform addition of numbers within 100,000.
2. Perform subtraction of numbers within 100,000.
3. Perform computations involving addition and subtraction to solve word problems.

**Learning Outcomes**

Students will be able to:

1. Add up two numbers.
2. Add up three numbers.
3. Subtract two numbers.
4. Relate the relationship between addition and subtraction.
5. Solve word problems involving addition and subtraction.
6. Solve problems and word problems involving combined (addition and subtraction) operations

**Learning Areas**

1. Addition within 100,000
2. Subtraction within 100,000
3. Relationship between addition and subtraction
4. Using addition and subtraction to solve word problems
5. Combined (addition and subtraction) operations

**Teaching and Learning Activities**

1. Guide students to add two numbers using the standard written method.
2. Emphasize that they should add up digits of the same place values.
3. Guide students to add three numbers using the standard written method.
4. Guide them on how to verify answers by rounding off.
5. Guide students to subtract two numbers. Remind them on how to regroup. Guide them on how to verify of the answers.
6. Explain the relationship between addition and subtraction and how we use this relationship to check for accuracy.
7. Explain how to solve word problems. Always remind them to understand the questions first and then write the number sentence before solving it.
8. Guide students to do combined operations of addition and subtraction.

Write a few questions on combined operations of addition and subtraction on the board and get a few students to answer them.

9. Remind students of the steps to solve word problems.

**Emphasized Skills:**

1. Thinking skill
2. Problem-solving skill
3. Analyzing skill

## Chapter 3

**Mathematics (M13101)**

**Content: Time is interesting** **Time: 15 hours**

**Strand 2: Measurement**

Standard M2. 1: Understanding the basics of measurement; ability to measure and estimate the size of objects to be measured

**Grade level indicators**

M2. 1 Gr3/ 2 Write the solution to solve word problems about the time and the duration of the time

**Learning Objective**

Students will be taught to:

1. Understand, read and write the time using the 24-hour system and the 12-hour system.
2. Able to read calendars and diaries.
3. Understand the relationship between the units of time.
4. Solve word problems involving time.

**Learning Outcomes**

Students will be able to:

1. Read and write time in 24-hour system.
2. Read and write time in 12-hour system.
3. Able to extract information from calendars.
4. Able to extract information from diaries.
5. Able to convert units of time – seconds, minutes, hours, days, weeks, months, years.
6. Solve word problems involving time.

**Learning Areas**

1. Reading and writing time
2. Calendar
3. Diary
4. Units of time
5. Solving word problems involving time

**Teaching and Learning Activities**

1. Using an analog clock, ask students to identify the minute hand, hour hand and second hand. Emphasize the difference between the hour hand and the minute hand.

2. Remind students on how to read time. Draw a few clocks with different times on the board and ask students read them out. Remind them that there are a few ways to read time.

3. Remind students that there are 24 hours in a day. The hour hand moves two circles in a day.

4. Guide students to write time using the 12-hour system. Explain the meaning of a.m. and p.m.. Emphasize that they need to indicate a.m. or p.m..

5. Show a calendar to students. Ask them the names of the months in sequence.

6. Show a diary to students. Explain the purpose of a diary.

7. Remind students the relationships of the units of time such as seconds, minutes, hours, days, weeks, months and days.

8. Guide students to add time in hours and minutes. Remind students to be extra careful when come to regrouping and remember the relationships of the units of time.

9. Guide students to subtract time in hours and minutes.

10. Guide them to add and minus times in other units of time.

**Emphasized Skills:**

1. Thinking skill
2. Problem-solving skill
3. Analyzing skill

## Chapter 4

**Mathematics (M13101)**

**Content: Geometric shapes** **Time: 10 hours**

**Strand 2: Measurement And Geometry**

Standard M2.2: Understanding and analyzing geometric patterns The Treasure of geometry is the relationship between geometric shapes and geometric theorem and applied.

**Grade level indicators**

M2.1 Gr3/1 Classify two-dimensional figures based on the presence or absence of Symmetrical axis

**Learning Objective**

Students will be taught to:

1. Understand 2-D and 3-D shapes.
2. Understand polygons and non-polygons.
3. Understand lines of symmetry.
4. Understand the shape patterns

**Learning Outcomes**

Students will be able to:

1. Name 2-D shapes such as circles, ovals, triangles, quadrilaterals, pentagons, hexagons and octagons.
2. State the differences between polygons and non-polygons.
3. Draw lines of symmetry on 2-D shapes.
4. State the features of 3-D shapes.
5. Identify the 2-D geometric shapes as parts of 3-D geometric shapes.
6. Identify shape patterns.

**Learning Areas**

1. 2-D geometric shapes
2. Polygons and non-polygons
3. Lines of symmetry
4. 3-D geometric shapes
5. 2-D geometrical shapes as parts of 3-D geometric shapes
6. Shape patterns

**Teaching and Learning Activities**

1. Refresh students' memory of 2-D shapes such as triangles, rectangles, squares, circles and ovals.

2. Inform them that there are many other 2-D shapes and we can group them by the numbers of sides and angles.

3. Explain how many sides and angles triangles, quadrilaterals, pentagons, hexagons and octagons have.

4. Explain the difference between polygons and non-polygons.

5. Explain symmetrical shapes and lines of symmetry.

6. Explain the characteristics of each of the shapes.

7. Get some 3-D shape models such as cubes, cuboids, spheres and cylinders. Show them to students. Ask students to identify if any 2-D shapes on the 3-D shape models.

8. Draw alternate squares and triangles. Guide students to identify the pattern.

9. Try a few more simple shape patterns and have students guess the following shape and also shapes of the next few positions.

**Emphasized Skills:**

1. Thinking skill
2. Problem-solving skill
3. Analyzing skill

## Chapter 5

**Mathematics (M13101)**

**Content: Picture charts and one way table** **Time: 12 hours**

**Strand 3: Data Analysis and Probability**

Standard M3.1: Understanding Statistical process and ability to apply statistical methodology for data analysis to solve the problem.

**Grade level indicators**

M3.1 Gr3/1 Draw and write a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step

M3.1 Gr3/2 Write the one way table from the number data and using one way table data to find the answer

**Learning Objective**

Students will be taught to:

1. Collect and analyze data.
2. Read pictograms.
3. Read bar charts.

**Learning Outcomes**

Students will be able to:

1. Collect data based on given situations.
2. Sort and classify data.
3. Organize data in tables.
4. Extract and interpret information from pictograms.
5. Extract and interpret information from bar charts.

**Learning Areas**

1. Collecting and organizing data
2. Pictograms
3. Bar charts

**Teaching and Learning Activities**

1. Refresh students' memory of the meaning of data.
2. Guide students to collect and analyses data.

3. Explain what pictograms are. Explain that the pictures used in a pictogram represent quantities. For instance, in this pictogram, each picture represents 2 stamps. Guide students to analyses the pictogram.

4. Explain what bar charts are.

**Emphasized Skills:**

1. Thinking skill
2. Problem-solving skill
3. Analyzing skill

## Chapter 6

**Mathematics (M13101)**

**Content: Fraction** **Time: 13 hours**

**Strand 1:Numbers and Operations**

Standard M1.1: Understanding diverse methods of presenting numbers and their application in real life

**Grade level indicators**

M1.1 Gr3/3 Telling, Reading and Writing fraction as a number on the number line; represent fractions on a number line diagram.

M1.1Gr3/4 Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when the two fractions refer to the same whole.

M1.1 Gr3/11 Write the solution to solve word problems of the addition and subtraction of fractions as equivalent (equal) if they are the same size, or the same point on a number line.

**Learning Objective**

Students will be taught to :

1. Understand fraction.
2. Compare and order fractions.
3. Understand equivalent fractions.
4. Add and subtract fractions.
5. Solve word problems involving fractions.

**Learning Outcomes**

Students will be able to:

1. Identify equal parts and non-equal parts.
2. Identify pictures that have parts shaded correctly to represent fractions.
3. Read and write fractions.
4. Compare fractions with the same denominator.
5. Compare fractions with the same numerator.
6. Arrange fractions in ascending and descending orders.
7. Determine equivalent fractions.
8. Add fractions with the same denominator.
9. Subtract fractions with the same denominator.
10. Solve word problems involving fractions.

**Learning Areas**

- Reading and writing fractions
- Comparing fractions
- Ordering fractions
- Equivalent fractions
- Operations involving fractions
- Solving word problems involving fractions

**Teaching and Learning Activities**

1. Make students understand equal parts and non-equal parts.

2. Draw a few shapes with parts in them. Ask students to identify if the shapes are divided into equal parts.

3. Guide students how to read and write fraction.

4. Write a few fractions on the board and a few circles. Ask students to shade the circles correctly to represent.

5. When comparing fractions with the same denominator, we should compare the numerators. The fraction with greater numerator has greater value.

6. Remind students of the signs used in comparison.

7. Write a few fractions with the same denominator and ask students to identify the smallest fraction.

8. When comparing the fractions with the same numerator, we should compare the denominators. The fraction with greater denominator has smaller value.

9. Remind students the meaning of ascending and descending.

10. Explain what equivalent fractions are. Write two fractions on the board and ask students to determine if they are equivalent fractions. Use diagrams to explain the fractions when necessary.

12. When adding fractions with the same denominator, we just add up the numerators and maintain the denominator.

13. Write a few addition problems for students to solve. Use diagrams to explain when necessary.

14. When subtracting fractions with the same denominator, we just subtract the numerators and maintain the denominator.

15. Write a few subtraction problems from students to solve. Use diagrams to explain when necessary.

16. Guide students to solve word problems involving fractions.

**Emphasized Skills:**

1. Thinking skill

2. Problem-solving skill
3. Analyzing skill

## Chapter 7

**Mathematics (M13101)**

**Content: Practice about multiplication** **Time: 16 hours**

**Strand 1: Numbers and Operations**

Standard M1.1: Understanding diverse methods of presenting numbers and their application in real life

**Grade level indicators**

M1.1 Gr3/6 finding answer of the unknown whole number by using Mathematical symbols showing multiply one-digit with four- digit and two-digit with two- digit

**Learning Objective**

Students will be taught to:

1. Multiply any two numbers with the highest product of 100,000.
2. Solve word problems involving multiplication

**Learning Outcomes**

Students will be able to:

1. Multiply a 1-digit number with 2-digit number.
2. Multiply a 1-digit number with a 3-digit number.
3. Multiply a 1-digit number with a 4-digit number.
4. Multiply a 2-digit number with a 2-digit number.
5. Solve word problems involving multiplication.

**Learning Areas**

1. Multiplication of a 1-digit number by a 2-digit number
2. Multiplication of a 1-digit number by a 3-digit number
3. Multiplication of a 1-digit number by a 4-digit number
4. Multiplication of a 2-digit number by a 2-digit number
5. Using multiplication to solve word problems

**Teaching and Learning Activities**

1. Remind students of what multiplication is. Multiplication is repeated addition.
2. Guide students on how to multiply a 1-digit number with tens. Show them a few examples.
3. Guide students on how to multiply a 1-digit number with hundreds.
4. Guide students on how to multiply without regrouping. Always start with the ones, follow by the tens and lastly the hundreds. Remind them to check their answers.
5. Using the examples on page 84, guide them on how to multiply a 1-digit number by a 3-digit number (with regrouping). Remind them to check answers.
6. Guide students on how to multiply a 1-digit number with thousands. Show them a few examples.
7. Guide students on how to multiply a 2-digit number with ten. Show them a few examples.
8. Guide students on how to multiply a 2-digit number with 20, 30, …., 90.
9. Explain to students how to solve it. Reiterate the importance of writing the number sentence before solving it. Guide them to check the answer.

**Emphasized Skills:**

1. Thinking skill
2. Problem-solving skill
3. Analyzing skill

## Chapter 8

**Mathematics (M13101)**

**Content: Practice about Division** **Time: 17 hours**

**Strand 1: Numbers and Operations**

Standard M1.1: Understanding diverse methods of presenting numbers and their application in real life

**Grade level indicators**

M1.1 Gr3/7 finding answer of the unknown whole number by using Mathematical symbols for division that dividend not more than 4 digits divide with 1 digit divisor .

**Learning Objective**

Students will be taught to:

1. Divide a number less than 100,000 with a 1-digit divisor.
2. Solve word problems involving division

**Learning Outcomes**

Students will be able to:

1. Divide a 2-digit dividend with a 1-digit divisor.
2. Divide a 2-digit dividend with a 1-digit divisor using long division.
3. Divide a 3-digit dividend with a 1-digit divisor using long division.
4. Divide a 4-digit dividend with a 1-digit divisor using long division.
5. Use division to solve word problems.

**Learning Areas**

1. Dividing a 2-digit dividend by a 1-digit divisor
2. Dividing a 2-digit dividend by a 1-digit divisor using long division
3. Dividing a 3-digit dividend by a 1-digit divisor using long division
4. Dividing a 4-digit dividend by a 1-digit divisor using long division
5. Using division to solve word problems

**Teaching and Learning Activities**

1. Remind students of these terms – division, remainder, dividend, divisor and quotient.
2. Guide students on how to divide a 2-digit dividend by a 1-digit divisor.
3. Guide students how to write the dividend, divisor and quotient in long division.
4. Explain division using long division step by step. Also guide them to check the answers.
5. Guide students to divide with a remainder using long division. Remind them to check the answers.
6. Guide students to divide 3-digit dividends by a 1-digit divisor without a remainder using long division.
7. Guide students to divide using long division. Remind them to check the answers.
8. Use the word problem on page 103 and explain to students how to solve it. Reiterate the importance of writing the number sentence before solving it. Guide them to check the answer.

**Emphasized Skills:**

1. Thinking skill
2. Problem-solving skill
3. Analyzing skill

## Chapter 9

**Mathematics (M13101)**

**Content: Let's measure of Length** **Time: 18 hours**

**Strand 2:Measurement and geometry**

Standard M2. 1: Understanding the basics of measurement; ability to measure and estimate the size of objects to be measured

**Grade level indicators**

M2. 1 Gr3/ 3 Using appropriate measuring tools to measure and tell length in metres, centimetres and millimetres

M2.1 Gr3/4 Estimate the answer of the length in metres and centimetres.

M2.1 Gr3/5 Comparing the length between centimetres and millimetres/kilometres and metres from the situation.

M2.1 Gr3/6 Write the solution to solve word problems about the length in centimetres and millimetres/ centimetres, kilometres and metres.

**Learning Objective**

Students will be taught to:

1. Measure and compare lengths using standard units.
2. Solve word problems involving length.

**Learning Outcomes**

Students will be able to:

1. Measure and record lengths of objects in meters, centimeters and millimeters.
2. Read scales to the nearest division.
3. Select the appropriate instruments to measure length.
4. Know the relationship between meters, centimeters and millimeters.
5. Compare lengths of objects.
6. Solve words problems involving length.

**Learning Areas**

1. Measuring length
2. Selecting appropriate (proper) instruments for measuring length
3. Relationship between units of length
4. Comparing length
5. Solving word problems involving length

**Teaching and Learning Activities**

1. Introduce the unit of millimeter to students. Use the ruler to show how long a millimeter is.

2. Get a few items for students to measure in millimeters, centimeters and meters, such as the height of a cupboard, the length of a board, the thickness of a book and the length of an eraser.

3. Remind students of the standard measuring tools for measuring length such as meter rulers, rulers, measuring tapes and metal measuring tapes.

4. Remind students of the relationship between units of length such as millimeters, centimeters and meters.

5. Ask students to compare the lengths of the items in the classroom. Which is longer? Which is shorter?

6. Guide students on how to solve word problems involving length and addition

**Emphasized Skills:**

1. Thinking skill
2. Problem-solving skill
3. Analyzing skill

## Chapter 10

**Mathematics (M13101)**

**Content: Let's measure of weight** **Time: 16 hours**

**Strand 2:Measurement and geometry**

Standard M2. 1: Understanding the basics of measurement; ability to measure and estimate the size of objects to be measured

**Grade level indicators**

M2.1 Gr3/7 Using appropriate weighing machine to measure and tell weight in kilogrammes and grammes.

M2.1 Gr3/8 Estimate the answer of the weight in kilogrammes and grammes.

M2.1 Gr3/9 Comparing the weight between kilogrammes and grammes/metric ton and grammes from the situation.

M2. 1 Gr3/ 11 Choose the right measuring device. measure and compare volumes Capacity in liters and milliliters

**Learning Objective**

Students will be taught to:

1. Measure and compare masses using standard units.
2. Solve word problems involving mass.

**Learning Outcomes**

Students will be able to:

1. Measure and record masses of objects in kilograms, kheed and grams.
2. Read scales to the nearest division.
3. Select appropriate scales for measuring mass.
4. Know the relationship between kilograms, kheed and grams.
5. Compare masses of objects.
6. Solve words problems involving mass.

**Learning Areas**

1. Measuring mass
2. Selecting appropriate (proper) scales for measuring mass
3. Relationships between units of mass
5. Comparing masses
6. Solving word problems involving mass

**Teaching and Learning Activities**

1. Briefly explain what mass and kilogram are.

2. Put some items on a spring scale ad ask students to read the readings in kilograms, kheeds and grams.

3. Remind students of the standard measuring tools for measuring mass – spring scales, bathroom scales, balance scales and platform scales.

4. Guide them on the proper measuring tools for different situations such as the mass of a cupboard, the mass of a boy, the mass of a pencil and the mass of a book.

5. Remind students of the relationship between units of mass, such as kilograms, hectograms, kheed and grams.

6. Ask students to compare the masses of the items in the classroom. Which is heavier? Which is lighter?

7. Guide students on how to solve word problems involving mass.

**Emphasized Skills:**

1. Thinking skill
2. Problem-solving skill
3. Analyzing skill

## Chapter 11

**Mathematics (M13101)**

**Content: Measureing Volume** **Time: 18 hours**

**Strand 2: Measurement and geometry**

Standard M2. 1: Understanding the basics of measurement; ability to measure and estimate the size of objects to be measured

**Grade level indicators**

M2.1Gr3/11 Using appropriate measuring tools to measure and compare volume capacity in litres and milliliters.

M2.1Gr3/12 Estimate the answer of the volume and the capacity in litres.

M2.1Gr3/13 Write the solution to solve word problems about of the volume and the capacity in litres and milliliters.

**Learning Objective**

Students will be taught to :

1. Measure and compare volume in liters.
2. Measure and compare capacity in liters.
3. Solve word problems involving volume and capacity.

**Learning Outcomes**

Students will be able to:

1. Read scales to the nearest division.
2. Measure and record volumes in liter.
3. Compare volumes of two liquids in liters.
4. Measure and record capacity in liters.
5. Compare capacity of two containers in liters.
6. Solve word problems involving volume and capacity.

**Learning Areas**

- Measuring volume in liters
- Measuring capacity in liters
- Solving word problems involving volume and capacity

**Teaching and Learning Activities**

1. Briefly explain what volume is.
2. Show students some standard measuring tools such as measuring spoons, measuring cups, measuring cylinders and beakers.
3. Introduce the unit liter and its abbreviation. Show them how much a liter of water is.
4. Using some containers such as jugs and bowls, ask students to measure their volumes using standard measuring tools in liters.
5. Explain to students the differences between volume and capacity.
6. Guide students to solve them.

**Emphasized Skills:**

1. Thinking skill
2. Problem-solving skill
3. Analyzing skill

## Chapter 12

**Mathematics (M13101)**

**Content: Learning about Money** **Time: 15 hours**

**Strand 2: Measurement and geometry**

Standard M2. 1: Understanding the basics of measurement; ability to measure and estimate the size of objects to be measured

**Grade level indicators**

M2.1 Gr3/1 Write the solution to solve word problems about money.

**Learning Objective**

Students will be taught to:

1. Understand the terms related to money.
2. Use and apply knowledge of money in real life.
3. Understand statements of incomes and expenses.

**Learning Outcomes**

Students will be able to:

1. Use dot when writing an amount of money.
2. Solve word problems involving money.
3. Extract information from statements of incomes and expenses.

**Learning Areas**

1. Reading and writing an amount of money using a dot
2. Solving word problems
3. Statements of income and expenses

**Teaching and Learning Activities**

1. Show all students how to write the amount of money using a dot. The dot is used to separate the Baht and Satang. Guide them how to read the amount too.

2. Guide students to solve simple word problems. Remind them to be extra careful when come to regrouping.

3. They have to remember the relationship between Baht and Satang.

4. Explain what a statement of incomes and expenses is and the purpose of having one.

5. Explain the terms used such as income, expense, balance and detail.

**Emphasized Skills:**

1. Thinking skill

2. Problem-solving skill
3. Analyzing skill

## Chapter 13

**Mathematics (M13101)**

**Content: Mathematical skill and processes** **Time: 16 hours**

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**Strand 1: Numbers and Operations**

Standard M1.1: Understanding diverse methods of presenting numbers and their application in real life

**Grade level indicators**

M1.1 Gr3/8 finding answer of addition, subtraction, multiplication and division subtraction of cardinal numbers not exceeding 100,000, and 0.

M1.1 Gr3/9 Write the solution to solve word problems in 2 steps of cardinal numbers not exceeding 100,000, and 0.

**Learning Objective**

Students will be taught to:

1. Perform combined operations involving addition, subtraction, multiplication and division.

**Learning Outcomes**

Students will be able to:

1. Perform combined operations involving addition, subtraction, multiplication and division.
2. Solve word problems involving combined operations.

**Learning Areas**

1. Results of combined operations
2. Using combined operations to solve word problems

**Teaching and Learning Activities**

1. Help students to recall on how to do simple operations.
2. Emphasize that we need to do the operations in the brackets first for any combined operations.
3. Always ask student to understand the problem first. Then write the number sentence before working out the answer.

**Emphasized Skills:**

1. Thinking skill
2. Problem-solving skill
3. Analyzing skill

# Course structure
# Primary 4

**Learning Time Structure Mathematics**

**Grade 4: Continuous assessment score 70 points** **Time: 160 hours**

**Final examination** **30 points**

| Chapter | Content | Standard of Mathematics | Time (hours) 160 | C.A.S Score 70 | Final Examination 30 |
|---|---|---|---|---|---|
| 1 | Numbers greater than 100,000 | M1.1: Gr4/1, Gr4/2 | 12 | 6 | 2 |
| 2 | Addition and Subtraction greater than 100,000 | M1.1: Gr4/7, Gr4/8 | 13 | 8 | 4 |
| 3 | Multiplied and division | M1.1: Gr4/7, Gr4/9 | 24 | 8 | 4 |
| 4 | Addition, subtract, multiplied and division cardinal numbers. | M1.1: Gr4/10, Gr4/11, Gr4/12 | 19 | 7 | 4 |
| 5 | time | M2.1: Gr4/1 | 12 | 6 | 1 |
| **Total Semester: 1st** | | | | **35** | **15** |

| Chapter | Content | Standard of Mathematics | Time (hours) 160 | C.A.S Score 70 | Final Examination 30 |
|---|---|---|---|---|---|
| 6 | Fraction | M1.1: Gr4/3, Gr4/4, Gr4/13 ,Gr4/14 | 23 | 8 | 4 |
| 7 | Decimals | M1.1: Gr4/5, Gr4/6, Gr4/15, Gr4/16 | 20 | 8 | 4 |
| 8 | Angles | M2.1: Gr4/2<br>M2.1: Gr4/1 | 11 | 8 | 4 |
| 9 | rectangular | M2.1: Gr4/3<br>M2.2: Gr4/2 | 19 | 8 | 2 |
| 10 | Presentation of Information | M3.1: Gr4/1 | 7 | 3 | 1 |
| **Total Semester: 2nd** | | | | **35** | **15** |
| **Total score all year** | | | | **70** | **30** |

**Table analysis indicators standard of Mathematics with the chapter**

**Code: M14101** **Grade 4**

| No. | Indicators | Chapter | | | | |
|---|---|---|---|---|---|---|
| | | 1 Numbers Greater than 100,000 | 2 Addition and Subtraction | 3 Multiplied and division | 4 Addition, Subtraction Multiplied and division | 5 time |
| 1. | M1.1 Gr4/1 Write and read Hindu-Arabic, Thai numerals and the letters are showing cardinal numbers greater than 100,000. | ✓ (3 Point) | | | | |
| 2. | M1.1Gr4/2 Compare and arrange sequence of cardinal numbers greater than 100,000 from various situations. | ✓ (3 Point) | | | | |
| 3. | M1.1 Gr4/3 Describe, read and write fractions, mixed numbers, showing quantity and showing things according fractions, mixed numbers assigned. | | | | | |
| 4. | M1.1 Gr4/4 Compare, arrange fractions and mixed numbers, one denominator is multiple of another. | | | | | |
| 5. | M1.1 Gr4/5 read and writes decimal less than 3 positions Showing quantity of things and showing things according decimal to assign. | | | | | |
| 6. | M1.1 Gr4/6 Compare and arrange decimal less than 3 positions from various situations. | | | | | |

| No. | Indicators | Chapter | | | | |
|---|---|---|---|---|---|---|
| | | 1 Numbers Greater than 100,000 | 2 Addition and Subtraction | 3 Multiplied and division | 4 Addition, Subtraction Multiplied and division | 5 time |
| 7. | M1.1 Gr4/7 estimated results of addition subtract, multiplied, division from various situations reasonably. | | ✓ (4 Point) | ✓ (4 Point) | | |
| 8. | M1.1 Gr4/8 Find the value of the unknown in mathematical statement showing addition and mathematical statement showing subtract of cardinal numbers more than 100,000 and 0 | | ✓ (4 Point) | | | |
| 9. | M1.1 Gr4/9 Find the value of the unknown in the mathematical statement showing multiplied multiples digit ๒ Number with product not exceeding 6 value and mathematical statement showing dividend not exceeding 6 | | | ✓ (4 Point) | | |
| 10. | M1.1 Gr4/10 find result addition, subtract, multiplied, mix addition of cardinal numbers and 0 | | | | ✓ (2 Point) | |
| 11. | M1.1 Gr4/11 showing how to find answers of word problems 2 steps of cardinal numbers greater than 100,000 and 0 | | | | ✓ (3 Point) | |

| No. | Indicators | Chapter | | | | |
|---|---|---|---|---|---|---|
| | | 1 Numbers Greater than 100,000 | 2 Addition and Subtraction | 3 Multiplied and division | 4 Addition, Subtraction Multiplied and division | 5 time |
| 12. | M1.1 Gr4/12 creating word problems 2 steps of cardinal numbers and 0 with find answers | | | | ✓ (2 Point) | |
| 13. | M1.1 Gr4/13 Find sum, quotient of fraction and mixed numbers that a denominator is multiple of each another. | | | | | |
| 14. | M1.1 Gr4/14 Showing how to find answers of word problems addition **subtracts** fraction and mixed numbers that a denominator is multiple of each another. | | | | | |
| 15. | M1.1 Gr4/15 Find sum, subtract of fraction not exceeding 3 positions. | | | | | |
| 16. | M1.1 Gr4/16 Showing how to find Answers of word problems addition, subtract 2 steps of word problems not exceeding 3 positions. | | | | | |
| 17. | M2.1 Gr4/2 Showing how to fine the answers of word problems about time. | | | | | ✓ (6 Point) |
| 18. | M2.1 Gr4/3 Measuring and making angles by using diagraph. | | | | | |
| 19. | M2.2 Gr4/1 Showing how to find the answers of word problems about perimeter and area of rectangular. | | | | | |

| No. | Indicators | Chapter | | | | |
|---|---|---|---|---|---|---|
| | | 1 Numbers Greater than 100,000 | 2 Addition and Subtraction | 3 Multiplied and division | 4 Addition, Subtraction Multiplied and division | 5 time |
| 20. | M2.2 Gr4/1 Classify type of angles. Tell the name of angle, component of angle and write symbol showing angle. | | | | | |
| 21. | M2.2 Gr4/2 Making rectangular when assigned length of side. | | | | | |
| 22. | M3.1 Gr4/1 Using information from bar graph, two-way table to find the answers of word problems. | | | | | |

| No. | Indicators | Chapter | | | | |
|---|---|---|---|---|---|---|
| | | 6 Fraction | 7 Decimals | 8 Angles | 9 rectangular | 10 Presentation of Information |
| 1. | M1.1 Gr4/1 Write and read Hindu-Arabic, Thai numerals and the letters are showing cardinal numbers greater than 100,000. | | | | | |
| 2. | M1.1Gr4/2 Compare and arrange sequence of cardinal numbers greater than 100,000 from various situations. | | | | | |
| 3. | M1.2 Gr4/3 Describe, read and write fractions, mixed numbers, showing quantity and showing things according fractions, mixed numbers assigned. | ✓ (1 Point) | | | | |

| No. | Indicators | Chapter | | | | |
|---|---|---|---|---|---|---|
| | | 6 Fraction | 7 Decimals | 8 Angles | 9 rectangular | 10 Presentation of Information |
| 4. | M1.1 Gr4/4 Compare, arrange fractions and mixed numbers, one denominator is multiple of another. | ✓ (2 Point) | | | | |
| 5. | M1.1 Gr4/5 read and writes decimal less than 3 positions Showing quantity of things and showing things according decimal to assign. | | ✓ (2 Point) | | | |
| 6. | M1.1 Gr4/6 Compare and arrange decimal less than 3 positions from various situations. | | ✓ (1 Point) | | | |
| 7. | M1.1 Gr4/7 estimated results of addition subtract, multiplied, division from various situations reasonably. | | | | | |
| 8. | M1.1 Gr4/8 Find the value of the unknown in mathematical statement showing addition and mathematical statement showing subtract of cardinal numbers more than 100,000 and 0 | | | | | |
| 9. | M1.1 Gr4/9 Find the value of the unknown in the mathematical statement showing multiplied multiples digit ๒ Number with product not exceeding 6 value and mathematical statement | | | | | |

| No. | Indicators | Chapter | | | | |
|---|---|---|---|---|---|---|
| | | 6 Fraction | 7 Decimals | 8 Angles | 9 rectangular | 10 Presentation of Information |
| | showing dividend not exceeding 6 | | | | | |
| 10. | M1.1 Gr4/10 find result addition, subtract, multiplied, mix addition of cardinal numbers and 0 | | | | | |
| 11. | M1.1 Gr4/11 showing how to find answers of word problems 2 steps of cardinal numbers greater than 100,000 and 0 | | | | | |
| 12. | M1.1 Gr4/12 creating word problems 2 steps of cardinal numbers and 0 with find answers | | | | | |
| 13. | M1.1 Gr4/13 Find sum, quotient of fraction and mixed numbers that a denominator is multiple of each another. | ✓ (2 Point) | | | | |
| 14. | M1.1 Gr4/14 Showing how to find answers of word problems addition **subtracts** fraction and mixed numbers that a denominator is multiple of each another. | ✓ (3 Point) | | | | |
| 15. | M1.1 Gr4/15 Find sum, subtract of fraction not exceeding 3 positions. | | ✓ (2 Point) | | | |
| 16. | M1.1 Gr4/16 Showing how to find Answers of word problems addition, subtract 2 steps of word problems not exceeding 3 positions. | | ✓ (3 Point) | | | |

| No. | Indicators | Chapter | | | | |
|---|---|---|---|---|---|---|
| | | 6 Fraction | 7 Decimals | 8 Angles | 9 rectangular | 10 Presentation of Information |
| 17. | M2.1 Gr4/2 Showing how to fine the answers of word problems about time. | | | | | |
| 18. | M2.1 Gr4/3 Measuring and making angles by using diagraph. | | | ✓ (5 Point) | | |
| 19. | M2.2 Gr4/1 Showing how to find the answers of word problems about perimeter and area of rectangular. | | | | ✓ (5 Point) | |
| 20. | M2.2 Gr4/1 Classify type of angles. Tell the name of angle, component of angle and write symbol showing angle. | | | ✓ (3 Point) | | |
| 21. | M2.2 Gr4/2 Making rectangular when assigned length of side. | | | | ✓ (3 Point) | |
| 22. | M3.1 Gr4/1 Using information from bar graph, two-way table to find the answers of word problems. | | | | | ✓ (3 Point) |

## Chapter 1

**Mathematics (M14101)**

**Content: Numbers Greater than 100,000** **Time: 12 hours**

**Strand 1: Numbers and Operations**

Standard M1.1: Understanding diverse methods of presenting numbers and their application in real life

**Grade level indicators**

M1.1 Gr4/1 Write and read Hindu-Arabic and Thai numerals and written forms showing cardinal numbers, 0, fractions, and one-place decimals.

M1.1 Gr4/2 Compare and arrange sequence of cardinal numbers and 0, fractions, and one-place decimals.

**Learning Objective**

Students will be taught to :

1. Understand numbers greater than 100,000.
2. Compare and order numbers greater than 100,000.
3. Recognize and extend number patterns formed by counting on and counting back.

**Learning Outcomes**

Students will be able to:

1. Count, read and write numbers greater than 100,000 in numerals.
2. Identify place value and value of each digit.
3. Write numbers in expanded form.
4. Compare and order numbers greater than 100,000.
5. Count forward and count backward.
6. Extend number sequences.
7. Complete missing terms in given number sequences.

**Learning Areas**

- Reading and writing numbers greater than 100,000
- Place value, digit value and using zero as a placeholder
- Writing numbers in the expanded form
- Comparing numbers
- Ordering numbers
- Number patterns

**Teaching and Learning Activities**

1. Guide students to understand hundreds, thousands and millions. Guide students to read and write the numbers.

2. Write a few numbers containing more than 5 digits on the board and have students read them and write the number words.

3. Write a 7-digit number on the board and explain the place value of each digit and its value. Emphasize that a zero in a number has a place value.

4. Get three students to write numbers containing more than five digits. Then, get the other students to state the place value of each digit in each number and its value.

5. When expanding numbers, it is better for students to present a number in a place value table first before writing it in expanded form. Try a few numbers with zero.

6. Remind students of the signs of comparison and the terms used in comparison such as ‘greater than’, ‘more than’, ‘less than’, ‘smaller than’, ‘equal to’ and ‘not equal to’.

7. Emphasize to students to first compare the number of digits when comparing two numbers before comparing the values of the leftmost digits.

8. Remind students of the meanings of ascending and descending.

9. Explain what number pattern is. The number pattern may increase or decrease.

**Emphasized Skills:**

1. Thinking skill
2. Problem-solving skill
3. Analyzing skill

## Chapter 2

**Mathematics (M14101)**

**Content: Addition and Subtraction greater than 100,000** **Time: 13 hours**

**Strand 1: Numbers and Operations**

Standard M1.1: Understanding diverse methods of presenting numbers and their application in real life

**Grade level indicators**

M1.1 Gr4/7 estimated results of **addition subtract**, **multiplied**, division from various situations reasonably.

M1.1 Gr4/8 Find the value of the unknown in mathematical statement showing addition and mathematical statement showing subtract of cardinal numbers more than 100,000 and 0

**Learning Objective**

Students will be taught to :

1. Perform addition of numbers.
2. Perform subtraction of numbers.
3. Perform computations involving addition and subtraction to solve word problems.

**Learning Outcomes**

Students will be able to:

1. Add up two numbers.
2. Add up three numbers.
3. List the properties of addition.
4. Subtract two numbers.
5. Subtract three numbers.
6. Solve word problems involving addition and subtraction.
7. Solve problems and word problems involving combined (addition and subtraction) operations.

**Learning Areas**

- Addition
- Subtraction
- Combined operations

**Teaching and Learning Activities**

1. Guide students to add two numbers using the standard written method. Remind them to align the digits of same place values vertically and add up them up beginning from the digits in ones. Regroup when necessary.

2. Guide students to add up three numbers. They can either add up all the three numbers at once or add up two numbers first before adding the third number.

3. Write three numbers on the boards and have students add them up.

4. There are two properties of addition that students should know – the commutative property of addition and the associative property of addition.

5. Guide students to subtract two numbers using the standard written method. Remind them to align the digits of same place values vertically and subtract them beginning from the digits in ones. Regroup when necessary.

6. Guide students to subtract three numbers. Emphasize that for subtraction of three numbers, we subtract the second number from the first number. Then, we subtract the third number from the initial answer to get the final answer.

7. Explain the meaning of combined operations.

**Emphasized Skills:**

1. Thinking skill
2. Problem-solving skill
3. Analyzing skill

## Chapter 3

**Mathematics (M14101)**

**Content: Multiplication** **Time: 24 hours**

**Strand 1: Numbers and Operations**

Standard M1.1: Understanding diverse methods of presenting numbers and their application in real life

**Grade level indicators**

M1.1 Gr4/7 estimated results of **addition subtract**, **multiplied**, division from various situations reasonably.

M1.1 Gr4/9 Find the value of the unknown in the mathematical statement showing multiplied multiples digit ๒ Number with product not exceeding 6 value and mathematical statementshowing dividend not exceeding 6

**Learning Objective**

Students will be taught to :

1. Understand properties of multiplication.
2. Multiply of any two numbers.
3. Solve word problems involving multiplication.

**Learning Outcomes**

Students will be able to:

1. List the properties of multiplication.
2. Multiply 1-digit numbers by multiple-digit numbers.
3. Multiply 2-digit numbers by 3-digit numbers.
4. Multiply 3-digit numbers by 3-digit numbers.
5. Multiply of multiple-digit numbers.
6. Use multiplication to solve word problems.

**Learning Areas**

- Properties of multiplication
- Multiplication of 1-digit numbers by multiple-digit numbers
- Multiplication of 2-digit numbers by 3-digit numbers
- Multiplication of 3-digit numbers by 3-digit numbers
- Multiplication of multiple-digit numbers
- Using multiplication to solve word problems

**Teaching and Learning Activities**

1. There are a few properties of multiplication – commutative property, associative property, distributive property, multiplication by 1 and multiplication 0.

2. When multiplying numbers, write them in the standard written method. Start to multiply from the digit in the ones place. Regroup when necessary.

3. Guide students on how to multiply 3-digit numbers by 20, 30, …., 90. Just multiply the 3-digit numbers by 2, 3, …, 9 before multiplying the result by 10.

4. When multiplying 2-digit numbers by 100, just add two zeros at the right end of the 2-digit numbers.

5. When multiplying 2-digit numbers by 200, 300, 400, …, 900, multiply the 2-digit numbers with 2, 3, …., 9 and add two zeros at the right end of the products.

6. When multiplying a 2-digit number by a 3-digit number, write them in the standard written method. First multiply the ones, then multiply the tens and add up the products.

7. When multiplying a 3-digit number by a 3-digit number, write them in the standard written method. First multiply the ones, then the tens, follow by the hundreds and add up the products.

8. This goes the same for multiplication of multiple-digit numbers.

9. Sometimes in word problems, we need to use multiplication to solve them.

**Emphasized Skills:**

1. Thinking skill
2. Problem-solving skill
3. Analyzing skill

## Chapter 4

**Mathematics (M14101)**

**Content: Multiplication** **Time: 19 hours**

**Strand 1: Numbers and Operations**

Standard M1.1: Understanding diverse methods of presenting numbers and their application in real life

**Grade level indicators**

M1.1 Gr4/10 find result addition, subtract, multiplied, mix addition of cardinal numbers and 0

M1.1 Gr4/11 showing how to find answers of word problems 2 steps of cardinal numbers greater than 100,000 and 0

M1.1 Gr4/12 creating word problems 2 steps of cardinal numbers and 0 with find answers

**Learning Objective**

Students will be taught to :

1. Understand properties of multiplication.
2. Multiply of any two numbers.
3. Solve word problems involving multiplication.

**Learning Outcomes**

Students will be able to:

1. List the properties of multiplication.
2. Multiply 1-digit numbers by multiple-digit numbers.
3. Multiply 2-digit numbers by 3-digit numbers.
4. Multiply 3-digit numbers by 3-digit numbers.
5. Multiply of multiple-digit numbers.
6. Use multiplication to solve word problems.

**Learning Areas**

- Properties of multiplication
- Multiplication of 1-digit numbers by multiple-digit numbers
- Multiplication of 2-digit numbers by 3-digit numbers
- Multiplication of 3-digit numbers by 3-digit numbers
- Multiplication of multiple-digit numbers
- Using multiplication to solve word problems

**Teaching and Learning Activities**

1. There are a few properties of multiplication – commutative property, associative property, distributive property, multiplication by 1 and multiplication 0.

2. When multiplying numbers, write them in the standard written method. Start to multiply from the digit in the ones place. Regroup when necessary.

3. Guide students on how to multiply 3-digit numbers by 20, 30, …., 90. Just multiply the 3-digit numbers by 2, 3, …, 9 before multiplying the result by 10.

4. When multiplying 2-digit numbers by 100, just add two zeros at the right end of the 2-digit numbers.

5. When multiplying 2-digit numbers by 200, 300, 400, …, 900, multiply the 2-digit numbers with 2, 3, …., 9 and add two zeros at the right end of the products.

6. When multiplying a 2-digit number by a 3-digit number, write them in the standard written method. First multiply the ones, then multiply the tens and add up the products.

7. When multiplying a 3-digit number by a 3-digit number, write them in the standard written method. First multiply the ones, then the tens, follow by the hundreds and add up the products.

8. This goes the same for multiplication of multiple-digit numbers.

9. Sometimes in word problems, we need to use multiplication to solve them.

**Emphasized Skills:**

1. Thinking skill
2. Problem-solving skill
3. Analyzing skill

## Chapter 5

**Mathematics (M14101)**

**Content: Time** **Time: 12 hours**

**Strand 2: Measurement**

Standard M2.1: Understanding the basics of measurement; ability to measure and estimate the size of objects to be measured

**Grade level indicators**

M2.1 Gr4/1 Write and read Hindu-Arabic and Thai numerals and written forms showing cardinal numbers, 0, fractions, and one-place decimals.

**Learning Objective**

Students will be taught to :

1. Read time from clocks.
2. Tell duration of time.
3. Read and extract data from timetables, programs and calendars.
4. Prepare schedules.
5. Understand the relationships between units of time.
6. Solve word problems involving time.

**Learning Outcomes**

Students will be able to:

1. Read time according to the 24-hour system and 12-hour system.
2. Calculate the duration of time.
3. Analyze and extract data from timetables.
4. Analyze and extract data from programs. 5. Analyze and extract data from calendars.
5. Know the relationships between units of time.
6. Convert between units of time.
7. Solve word problems involving time.

**Learning Areas**

- Time
- Duration of time
- Schedule (timetable)
- Schedule (program)
- Calendar
- Relationships between units of time
- Solving word problems involving time

**Teaching and Learning Activities**

1. Show students an analogue clock. Ask them for the names of the hands on the clock. Show them a time and ask them to read the time.

2. Explain that we can read time using two systems – 24-hour system and 12-hour system.

3. Explain what 24-hour system is.

4. Explain what 12-hour system is. Explain also a.m. and p.m., and how we use them.

5. Show a few times on an analogue clock and ask them to read out the times using the 12-hour system.

6. We can calculate the duration of time between two times. We can draw two clocks to show the times and count difference in time.

7. We can see programs when there are events such as a celebration, a festival and a trip. We should learn how to read and extract information from these programs.

8. We use calendars. Calendars give information of time in a larger scale

**Emphasized Skills:**

1. Thinking skill
2. Problem-solving skill
3. Analyzing skill

## Chapter 6

**Mathematics (M14101)**

**Content: Fraction** **Time: 23 hours**

**Strand 1: Numbers and Operations**

Standard M1.1: Understanding diverse methods of presenting numbers and their application in real life

**Grade level indicators**

M1.1 Gr4/3 Describe, read and write fractions, mixed numbers, showing quantity and showing things according fractions, mixed numbers assigned.

M1.1 Gr4/4 Compare, arrange fractions and mixed numbers, one denominator is multiple of another.

M1.1 Gr4/13 Find sum, quotient of fraction and mixed numbers that a denominator is multiple of each another.

M1.1 Gr4/14 Showing how to find answers of word problems addition subtracts fraction and mixed numbers that a denominator is multiple of each another.

**Learning Objective**

Students will be taught to :

1. Understand fraction.
2. Compare and order fractions.
3. Understand equivalent fractions.
4. Add and subtract fractions.
5. Solve word problems involving fractions.

**Learning Outcomes**

Students will be able to:

1. Identify equal parts and non-equal parts.
2. Identify pictures that have parts shaded correctly to represent fractions.
3. Read and write fractions.
4. Compare fractions with the same denominator.
5. Compare fractions with the same numerator.
6. Arrange fractions in ascending and descending orders.
7. Determine equivalent fractions.
8. Add fractions with the same denominator.
9. Subtract fractions with the same denominator.
10. Solve word problems involving fractions.

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**earning Areas**

- Reading and writing fractions
- Comparing fractions
- Ordering fractions
- Equivalent fractions
- Operations involving fractions
- Solving word problems involving fractions

**Teaching and Learning Activities**

1. Make students understand equal parts and non-equal parts.

2. Draw a few shapes with parts in them. Ask students to identify if the shapes are divided into equal parts.

3. Guide students how to read and write fraction.

4. Write a few fractions on the board and a few circles. Ask students to shade the circles correctly to represent.

5. When comparing fractions with the same denominator, we should compare the numerators. The fraction with greater numerator has greater value.

6. Remind students of the signs used in comparison.

7. Write a few fractions with the same denominator and ask students to identify the smallest fraction.

8. When comparing the fractions with the same numerator, we should compare the denominators. The fraction with greater denominator has smaller value.

9. Remind students the meaning of ascending and descending.

10. Explain what equivalent fractions are. Write two fractions on the board and ask students to determine if they are equivalent fractions. Use diagrams to explain the fractions when necessary.

12. When adding fractions with the same denominator, we just add up the numerators and maintain the denominator.

13. Write a few addition problems for students to solve. Use diagrams to explain when necessary.

14. When subtracting fractions with the same denominator, we just subtract the numerators and maintain the denominator.

15. Write a few subtraction problems from students to solve. Use diagrams to explain when necessary.

16. Guide students to solve word problems involving fractions.

**Emphasized Skills:**

1. Thinking skill

2. Problem-solving skill
3. Analysing skill

## Chapter 7

**Mathematics (M14101)**

**Content: Decimals** **Time: 20 hours**

**Strand 1: Numbers and Operations**

Standard M1.1: Understanding diverse methods of presenting numbers and their application in real life

**Grade level indicators**

M1.1 Gr4/5 read and writes decimal less than 3 positions Showing quantity of things and showing things according decimal to assign.

M1.1 Gr4/6 Compare and arrange decimal less than 3 positions from various situations.

M1.1 Gr4/15 Find sum, subtract of fraction not exceeding 3 positions.

M1.1 Gr4/16 Showing how to find Answers of word problems addition, subtract 2 steps of word problems not exceeding 3 positions.

**Learning Objective**

Students will be taught to :

1. Understand decimals.
2. Comparing and ordering decimals.

**Learning Outcomes**

Students will be able to:

1. Know the meaning of fractions.
2. Write and read fractions to one decimal place.
3. Identify place values and digit values in decimals.
4. Compare and order decimals.

**Learning Areas**

- Writing and naming decimals
- Place values and digit values in decimals
- Comparing and ordering decimals

**Teaching and Learning Activities**

1. Explain the relationship between fractions with 10 as the denominator and decimals.
2. Guide students on how to read decimals.
3. Explain what mixed decimals mean. Explain also the parts of a decimal.
4. Explain that the digit in the fractional part has the place value of tenths.
5. When comparing decimals, we compare the whole numbers first. The decimal with greater whole number has greater value.

**Emphasized Skills:**

1. Thinking skill
2. Problem-solving skill
3. Analyzing skill

## Chapter 8

**Mathematics (M14101)**

**Content: Angles** **Time: 11 hours**

**Strand 2: Measurement**

Standard M2.1: Understanding the basics of measurement; ability to measure and estimate the size of objects to be measured

**Grade level indicators**

M2.1 Gr4/1 Tell the relationship between measuring units for length, weight, volume or capacity and time.

M2.1 Gr4/2 Find area of rectangle.

**Learning Objective**

Students will be taught to :

1. Understand the relationships between units of length, mass and volume.
2. Estimate length, mass and volume.
3. Solve problems involving length, mass and volume.

**Learning Outcomes**

Students will be able to:

1. State the relationships between units of length.
2. Convert between units of length.
3. Estimate the lengths of objects.
4. Solve word problems involving length.
5. State the relationships between units of mass.
6. Convert between units of mass.
7. Estimate the masses of objects.
8. Solve word problems involving mass.
9. State the relationships between units of volume.
10. Convert between units of volume.
11. Estimate the volumes and capacities of objects.
12. Solve word problems involving volume.

**Learning Areas**

- Length
- Mass
- Volume

**Teaching and Learning Activities**

1. Introduce the unit “kilometer” and “wah” and also their relationships with other units.
2. When we estimate length, we should use the suitable units. We can compare the lengths with known lengths.
3. Introduce the unit ton and also its relationships with other units.
4. Guide students on how to convert between units of mass.
5. When we estimate mass, we should use the suitable units. We can compare the masses with known mass.
6. Introduce the unit cubic meters and cubic centimeters and also their relationships with other units.
7. Guide students on how to convert between units of length.
8. When we estimate volume and capacity, we should use the suitable units.

**Emphasized Skills:**

1. Thinking skill
2. Problem-solving skill
3. Analysing skill

## Chapter 9

**Mathematics (M14101)**

**Content: rectangular** **Time: 19 hours**

**Strand 2: Measurement**

Standard M2.1: Understanding the basics of measurement; ability to measure and estimate the size of objects to be measured

Standard M2.2: Solving measurement problems

**Grade level indicators**

M2.1 Gr4/3 Measuring and making angles by using diagraph.

M2.2 Gr4/2 Making rectangular when assigned length of side.

**Learning Objective**

Students will be taught to :

1. Understand area.
2. Measure the area of a rectangle.
3. Solve word problems involving area.

**Learning Outcomes**

Students will be able to:

1. Understand concept of area.
2. Compare areas.
3. Measure areas by counting squares.
4. Measure areas in square centimeters.
5. Estimate areas.
6. Measure area of a rectangle by counting squares.
7. Measure area of a rectangle by calculation.
8. Solve word problems involving area.

**Learning Areas**

- Measuring area
- Measuring the area of a rectangle
- Solving word problems involving area

**Teaching and Learning Activities**

1. Explain to students what an area is.
2. How do we compare two areas? We can put one area on top of the other to compare.
3. Explain square unit. Cut out a few similar squares and use them to measure area.

4. Inform students that if the lengths of the squares are one centimeter, the squares have an area of 1 square centimeter. Cut out a square of 1 square centimeter. Let students have an idea how big a square centimetre is.

5. We can estimate an area of a shape using a 1-centimeter grid paper.

6. We can find areas of rectangles by dividing the rectangles into square centimeters and calculate the square centimeters.

7. We can calculate the areas of a rectangle by multiplying the length of the rectangle by the width of the rectangle.

8. There are word problems that involve areas.

**Emphasized Skills:**

1. Thinking skill
2. Problem-solving skill
3. Analyzing skill

## Chapter 10

**Mathematics (M14101)**

**Content: Presentation of Information** **Time: 25 hours**

**Strand 3: Geometry**

Standard M3.1: Ability to explain and analyse two-dimensional and three-dimensional geometric figures.

**Grade level indicators**

M3.1 Gr4/1 Identify kind, name and components of angles and write symbols.

**Learning Objective**

Students will be taught to :

1. Understand types of angles.
2. Understand quadrilaterals.
3. Understand diagonals.
4. Understand parallel lines.
5. Understand circles.
6. Understand symmetrical shapes.
7. Understand patterns.

**Learning Outcomes**

Students will be able to:

1. Identify the symbol used to represent angles.
2. Identify types of angles – right angles, acute angles, obtuse angles and straight angles.
3. Identify quadrilaterals.
4. Differentiate rectangles and squares.
5. Identify diagonals.
6. Identify parallel lines and the symbol used to represent parallel lines.
7. Identify parts of a circle.
8. Identify symmetrical shapes and axes of symmetry.
9. Use geometrical shapes to design and create.
10. Identify pattern of a series of objects

**Learning Areas**

- Angles
- Types of angles
- Quadrilaterals
- Diagonals
- Parallel lines
- Circles
- Symmetrical shapes
- Using geometric shapes to design and create
- Patterns

**Teaching and Learning Activities**

1. Guide students to identify parts of an angle and name types of angles.

2. There are a few types of angles – right angles, acute angles, obtuse angles and straight angle.

3. Explain what quadrilaterals are.

4. Explain the differences between rectangles and squares from other quadrilaterals. From the shapes drawn on the board, identify rectangles and squares.

5. Explain what diagonals are.

6. Explain what parallel lines are.

7. Explain also the symbols we use for parallel lines.

8. Explain the parts of a circle.

9. Guide students to identify symmetrical shapes.

10. Guide students to identify the repeating group of objects or shapes and predict the next object or shape

**Emphasized Skills:**

1. Thinking skill
2. Problem-solving skill
3. Analyzing skill

# Course structure

# Primary 5

**Course Code: C 15101** **Mathematics Substance Group**

**Grade 5** **Study time 160 hours**

| No. | Name of Learning Unit | Learning standards / indicators | Time (hours) 160 | Points During Study 70 | Year End Points 30 |
|---|---|---|---|---|---|
| 1 | fraction | M. 1.1 P. 5/3<br>M. 1.1 P. 5/4<br>M. 1.1 P. 5/5 | 34 | 15 | 6 |
| 2 | decimal places | M.1.1 P. 5/1<br>M.1.1 P. 5/6<br>M.1.1 P. 5/7<br>M.1.1 P. 5/8<br>M.2.1 P. 5/1<br>M.2.1 P. 5/2 | 34 | 15 | 6 |
| 3 | Presentation of information | M.3.1 P. 5/1<br>M.3.1 P. 5/2 | 12 | 5 | 3 |
| **Total Semester: 1st** | | | | **35** | **15** |

| No. | Name of Learning Unit | Learning standards / indicators | Time (hours) | Points During Study | Year End Points |
|---|---|---|---|---|---|
| 4 | Prohibited Truth | M. 1.1 P. 5/2 | 9 | 5 | 3 |
| 5 | percent | M.1.1 P. 5/9 | 17 | 5 | 3 |
| 6 | Parallel lines | M.2.2 P. 5/1 | 13 | 5 | 3 |
| 7 | Quadrilateral | M.2.1 P. 5/4<br>M.2.2 P. 5/2<br>M.2.2 P. 5/3 | 24 | 10 | 3 |
| 8 | The volume and capacity of the rectangle | M.2.1 P. 5/3<br>M.2.2 P. 5/4 | 17 | 10 | 3 |
| **Total Semester: 2nd** | | | | **35** | **15** |
| **Total score all year** | | | | **70** | **30** |

**Table analysis indicators standard of Mathematics with the chapter**

**Code: M15101** **Grade 5 Semester 1**

| No. | Indicators | Chapter | | |
|---|---|---|---|---|
| | | 1<br>Fraction | 2<br>Decimal places | 3<br>Presentation of information |
| 1 | M 1.1 Gr5/1 Write a fractional whose denominator is factors of 10 or 100 or 1,000 in decimal. | | ✓<br>(2 Point) | |
| 2 | M 1.1 Gr5/2 Show me how to find the answer to the problem by using trilogy. | | | |
| 3 | M 1.1 Gr5/3 Find sums of the fractions and mixed numbers. | ✓<br>(5 Point) | | |
| 4 | M 1.1 Gr5/4 Find the product of the fractions and mixed numbers. | ✓<br>(5 Point) | | |
| 5 | M 1.1 Gr5/5 Two steps to find the answer to the problem of addition, subtraction, multiplication, and division of fractions. | ✓<br>(5 Point) | | |
| 6 | M 1.1 Gr5/6 Find the products of the decimal number whose product is not more than 3 decimal places. | | ✓<br>(2 Point) | |
| 7 | M 1.1 Gr5/7 Find the quotient in which the numerator is a number or decimal not more than 3 positions and the divisor is a number. The quotient is not more than 3 decimal places. | | ✓<br>(2 Point) | |
| 8 | M 1.1 Gr5/8 Two steps on how to find solutions to problems of addition, subtraction, multiplication and division. | | ✓<br>(3 Point) | |
| 9 | M 1.1 Gr5/9 Show the methods in finding the answer of the problem in percentages | | | |
| 10 | M 2.1 Gr5/1 Show how to find an answer to the problem of changing length and to decimal form. | | ✓<br>(3 Point) | |

| No. | Indicators | Chapter | | |
|---|---|---|---|---|
| | | 1<br>Fraction | 2<br>Decimal places | 3<br>Presentation of information |
| 11 | M 2.1 Gr5/2<br>Show how to find an answer to a problem by changing weight units into decimal form. | | ✓<br>(3 Point) | |
| 12 | M 2.1 Gr5/3 Types and properties of quadrilaterals. | | | |
| 13 | M 2.1 Gr5/4 Diagonals of Quadrilaterals. | | | |
| 14 | M 2.2 Gr5/1 Constructing Quadrilaterals. | | | |
| 15 | M 2.2 Gr5/2 Types and properties of Quadrilaterals. | | | |
| 16 | M 2.2 Gr5/3 Create different types of rectangles when determining the length of the side and the size of the corner or when determining the length of the diagonal. | | | |
| 17 | M 2.2 Gr5/4 Tell the characteristics of prism. | | | |
| 18 | M 3.1 Gr5/1 Use the information from the graph to find the answer to the problem. | | | ✓<br>(2 Point) |
| 19 | M 3.1 Gr5/2 Write a bar chart from a given data. | | | ✓<br>(3 Point) |

**Table analysis indicators standard of Mathematics with the chapter**

**Code: Sc15101** **Grade 5** **Semester 2**

| No. | Indicators | Chapter | | | | |
|---|---|---|---|---|---|---|
| | | 4 Prohibited Truth | 5 Percent | 6 Parallel lines | 7 Quadrilateral | 8 The volume and capacity of the rectangle |
| 1 | M 1.1 Gr5/1 Write a fractional whose denominator is factors of 10 or 100 or 1,000 in decimal. | | | | | |
| 2 | M 1.1 Gr5/2 Show me how to find the answer to the problem by using trilogy. | ✓ (5 Point) | | | | |
| 3 | M 1.1 Gr5/3 Find sums of the fractions and mixed numbers. | | | | | |
| 4 | M 1.1 Gr5/4 Find the product of the fractions and mixed numbers. | | | | | |
| 5 | M 1.1 Gr5/5 Two steps to find the answer to the problem of addition, subtraction, multiplication, and division of fractions. | | | | | |
| 6 | M 1.1 Gr5/6 Find the products of the decimal number whose product is not more than 3 decimal places. | | | | | |
| 7 | M 1.1 Gr5/7 Find the quotient in which the numerator is a number or decimal not more than 3 positions and the divisor is a number. The quotient is not more than 3 decimal places. | | | | | |
| 8 | M 1.1 Gr5/8 Two steps on how to find solutions to problems of addition, subtraction, multiplication and division. | | | | | |
| 9 | M 1.1 Gr5/9 Show the methods in finding the answer of the problem in percentages. | | ✓ (5 Point) | | | |
| 10 | M 2.1 Gr5/1 Show how to find an answer to the problem of | | | | | |

| No. | Indicators | Chapter | | | | |
|---|---|---|---|---|---|---|
| | | 4 Prohibited Truth | 5 Percent | 6 Parallel lines | 7 Quadrilateral | 8 The volume and capacity of the rectangle |
| | changing length and to decimal form. | | | | | |
| 11 | M 2.1 Gr5/2 Show how to find an answer to a problem by changing weight units into decimal form. | | | | | |
| 12 | M 2.1 Gr5/3 Types and properties of quadrilaterals. | | | | | ✓ (5 Point) |
| 13 | M 2.1 Gr5/4 Diagonals of Quadrilaterals. | | | | ✓ (4 Point) | |
| 14 | M 2.2 Gr5/1 Constructing Quadrilaterals. | | | ✓ (5 Point) | | |
| 15 | M 2.2 Gr5/2 Types and properties of Quadrilaterals. | | | | ✓ (3 Point) | |
| 16 | M 2.2 Gr5/3 Create different types of rectangles when determining the length of the side and the size of the corner or when determining the length of the diagonal. | | | | ✓ (3 Point) | |
| 17 | M 2.2 Gr5/4 Tell the characteristics of prism. | | | | | ✓ (5 Point) |
| 18 | M 3.1 Gr5/1 Use the information from the graph to find the answer to the problem. | | | | | |
| 19 | M 3.1 Gr5/2 Write a bar chart from a given data. | | | | | |

## Chapter 1

**Mathematics (M15101)**

**Content: Fraction** **Time 34 hours**

**Content and standard of learning**

**Strand 1**: Number and Algebra

Standard M1.1: Understand the variety of system displays, the number of operations, the number of results produced by the operation Properties of operation and use.

**Grade level indicators**

M 1.1 Gr5/3 Find sums of fractions and mixed numbers.

M 1.1 Gr5/4 Find the product of fractions and mixed numbers.

M 1.1 Gr5/5 Two steps to find the answer to the problem of addition, subtraction, multiplication, and division of fractions.

**Learning Objectives**

Students will be able to:

1. Find sums of fractions and mixed numbers.
2. Find the product of fractions and mixed numbers.
3. Two steps to find the answer to the problem of addition, subtraction, multiplication, and division of fractions.

**Learning Outcomes**

1. Comparison of fractions and ordering.
   - addition, subtraction
   - multiplication
   - Division
   - Addition, subtraction, multiplication, division.
   - Problems of addition, subtraction, multiplication, division

2 Analyze and show how to find answers to problems with fractions

**Learning Areas**

1. Fraction and addition, subtraction, multiplication, and division of fractions.

1.1 Comparison of fractions and mixed numbers.

1.2 Addition, subtraction, fractions and mixed numbers.

1.3 Multiplication and division of fractions and mixed numbers.

1.4 Addition, subtraction, multiplication, and division of fractions and mixed numbers.

1.5 Solving fractions with different word problems.

**Teaching and Learning Activities**

1. Students study, observe, explain, and show ways to think of answers, addition, subtraction, fractions in which one personal knowledge and other denominator from the given information.

2. Students study, observe, explain, and show ways to think of answers to multiplication of fractions.

3. Students study, observe, explain, and show the solution to get answers of a fractions.

4. Students should analyze given problems and show how to do it and find answers.

5. Students make a booklet about problem solving, show how to do it, and find answers to add, subtract, multiply and divide fractions. Students present their work.

7. Students exchange, evaluate the work piece.

8. Students take the unit test on fractions.

**Emphasized Skills:**

1. Communication ability
2. Thinking ability
3. Ability to solve problems
4. Honesty
5. Commitment to work

## Chapter 2

**Mathematics (M15101)**

**Content: decimal places** **Time 34 hours**

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**Content and standard of learning**

**Strand 1: Number and Algebra**

Standard M1.1: Understand the variety of system displays, the number of operations, the number of results produced by the operation of properties used.

**Strand 2: Measurement**

Standard M2.1: Understand the basics of measurement and estimate the size of the items to be measured.

Standard M2.2: Solving problems with measurement.

**Grade level indicators**

M 1.1 Gr5/1 Write a fractional number whose denominator is factors of 10 or 100 or 1,000 in decimal.

M 1.1 Gr5/6 Find the products of the decimal number whose product is not more than 3 decimal places.

M 1.1 Gr5/7 Find the quotient in which the numerator is a number or decimal not more than 3 positions and the divisor. The quotient is not more than 3 decimal places.

M 1.1 Gr5/8 Two steps on how to find a solutions to problem of addition, subtraction, multiplication and division.

M 2.1 Gr5/1 Show how to find an answer to the problem of changing length and to decimal form.

M 2.1 Gr5/2 Show how to find an answer to a problem by changing weight units into decimal form.

**Learning Objective**

Students will be able to:

1. Write a fractional number whose denominator is factors of 10 or 100 or 1,000 in decimal.

2. Find the products of the decimal number whose product is not more than 3 decimal places.

3. Find the quotient in which the numerator is a number or decimal not more than 3 positions and the divisor. The quotient is not more than 3 decimal places.

4. Two steps on how to find solutions to problems of addition, subtraction, multiplication and division.

5. Show how to find an answer to the problem of changing length and to decimal form.

6. Show how to find an answer to a problem by changing weight units into decimal form division of fractions.

**Learning Outcomes**

1 . Problem solving, addition, subtraction multiplication and addition and subtraction multiplication simultaneously both show problem solving and find answers.

2. Composing the thinking problem of two decimal places.
3. Pursuing learning
4. Commitment to work
5. Thinking ability

**Learning Areas**

1. Decimal
    1.1 The relationship between fractions and decimals.
    1.2 Estimated number of decimal places not more than 3 positions which are 1 decimal place and 2 decimal places. Using the symbol
2. Multiplication and division of decimals
    2.1 Finding the results of addition, subtraction, multiplication, and division of decimals
    2.2 Multiplication of Decimals
    2.3 Dividing the decimal
    2.4 Solving problems with decimal digits
3. Length
    3.1 The relationship between the unit length in centimeters and millimeters meters to centimeters kilometers to meters by using knowledge of decimal.
    3.2 Solving the problem of length by using knowledge about changing units and decimals weight.
    3.3 Relationship between weight units kilograms to grams by using knowledge of decimal.
    3.4 Solving problems with weight by using the knowledge of unit and decimal conversion

**Teaching and Learning Activities**

1. Problem solving, addition, subtraction multiplication and addition and subtraction multiplication simultaneously.Both show problem solving and find answers.

2. Composing a given problem of two decimal places.

3. Pursuing learning.

**Emphasized Skills:**

1. Communication ability

2. Thinking ability

3. Ability to solve problems

## Chapter 3

**Mathematics (M15101)**

**Content: Presentation of Information** **Time 12 hours**

**Content and standard of learning**

**Strand 1**: Number and Algebra

Standard M1.1: Understand the variety of system displays, the number of operations, the number of results produced by the operation properties of operation and use.

**Grade level indicators**

M3.1:Gr 5/1 Use the information from the graph to find the answer to the problem.

M3.1: Gr 5/2 Write a bar chart from a given data.

**Learning Objective**

Students will be able to:

1. Use the information from the graph to find the answer to the problem.
2. Write a bar chart from a given data.

**Learning Outcomes**

1. Collection of interesting information that is available in daily life.
2. Creating a bar chart with shortening the number line.
3. Reading the bar chart data and comparing the answers.
4. Writing a conceptual map showing examples of various events. That can certainly happen may or may not occur for sure

**Learning Areas**

1. Data presentation
    - 1.1 Reading and writing bar charts
    - 1.2 Reading the line graph

**Teaching and Learning Activities**

1. Students plan to collect data that they are interested in writing as a bar chart with a shortened the bar line.
2. Students read a bar chart, compare and answer the questions.
3. Students present their work.
4. Students exchange and evaluate the work piece.
5. Students take the unit test on data presentation.

**Emphasized Skills:**

1. Communication ability
2. Thinking ability
3. Ability to solve problems
4. Communication ability

## Chapter 4

**Mathematics (M15101)**

**Content: Prohibited Truth** **Time 9 hours**

**Content and standard of learning**

**Strand 1**: Number and Algebra

Standard M1.1: Understand the variety of system displays, the number of operations, the number of results produced by the operation properties of operation and use.

**Grade level indicators**

M 1.1 Gr5/2 Show how to find the answer to the problem by using trilogy.

**Learning Objective**

Students will be able to:

1. Show how to find the answer to the problem by using trilogy.

**Learning Outcomes**

1. Collection of interesting information that is available in daily life.
2. Creating a bar chart with shorter bar line.
3. Reading the bar chart data and comparing the answers.
4. Writing a conceptual map showing examples of various events. That can certainly happen may or may not occur.
5. Honesty

**Learning Areas**

1. Counting of addition, subtraction, multiplication and division
   1.1 Solving problems by using the given rules and solution.

**Teaching and Learning Activities**

1. Students study and discuss the meaning of reading and writing. Percentage from fractions that contribute from knowledge sheets and work sheets.
2. Students study and discuss writing percentage based on fractions which have multiple parts of knowledge sheets and worksheet.
3. Students analyze problems of multiplication, division (trisection), show how to do and find answers in knowledge sheet and work sheet.
4. Students make a booklet Problem solving.
5. Students present their work.
6. Students exchange and evaluate the work piece.
7. Students take the unit test on rule of three in arithmetic.

**Emphasized Skills:**

1. Communication ability
2. Thinking ability
3. Ability to solve problems
4. Honesty

## Chapter 5

**Mathematics (M15101)**

**Content: percent** **Time 17 hours**

**Content and standard of learning**

**Strand 1**: Number and Algebra

Standard M1.1: Understand the variety of system displays, the number of operations, the number of results produced by the operation and properties used.

**Grade level indicators**

M 1.1 Gr5/9 Show the methods in finding the answer of the problem in percentages.

**Learning Objective**

Students will be able to:

1. Show the methods in finding the answer of the problem in percentages.

**Learning Outcomes**

1. Problem writing about finding profit and loss, buying price, selling price and percentage of various amounts.

3. Show how to solve problems about percentage and finding profit and loss, finding purchase price, selling price and percentage of various amounts.

4. Finding answers from problems Embellishment.

5. Analyzing and showing methods of finding the answer to the problem.

**Learning Areas**

1. Percentage or percentages

1.1 reading and writing percentage or percentages.

1.2 Solving problem percentage.

**Teaching and Learning Activities**

1. Students study and discuss the meaning of reading and writing. Percentage from fractions that contribute from work sheets.

2. Students study and discuss writing percentage based on fractions which have multiple parts of information and work sheets.

3. Students analyze problems of multiplication, division, show methods of doing, and find answers on work sheets.

4. Students analyze problem purchase profit percentage income selling price shows how to do and find answers. knowledge sheet and work sheet.

5. Make a booklet Percent problem solving related to profit and loss finding purchase prices, selling prices, finding costs and finding percentages of various amounts.

6. Students present their work.
7. Students exchange, evaluate the work piece.
8. Students take the unit test on the percentage.

**Emphasized Skills:**

1. Communication ability
2. Thinking ability
3. Ability to solve problems
4. Honesty
5. Commitment to work
6. The ability to use technology

## Chapter 6

**Mathematics (M15101)**

**Content:** Parallel lines **Time 13 hours**

**Content and standard of learning**

**Strand 2**: Measurement and geometry

Standard M 2.2:Understand and analyze geometry Geometric properties Relationship between geometry and geometric theorems used.

**Grade level indicators**

M 2.2 Gr5/1 Constructing Quadrilaterals.

**Learning Objective**

Students will be able to:

1. Constructing Quadrilaterals.

**Learning Outcomes**

1. Creating parallel lines using orthogonal.
2. Pattern design using parallel lines.

**Learning Areas**

1. Geometry
   - 1.1 Perpendicular lines and perpendicular symbols
   - 1.2 Parallel lines and parallel symbols
   - 1.3 Creating parallel lines, counterclockwise, internal and external angles that are on the same side of the transverse line (Transversal)

**Teaching and Learning Activities**

1. Students study how to create parallel lines using protractors.
2. Students create parallel lines using protractors.
3. Students help plan the design of parallel lines using protractors.
4. Students present their work.
5. Students exchange, evaluate work
6. Students take a unit test on the parallel lines.

**Emphasized Skills:**

1. Communication ability

## Chapter 7

**Mathematics (M15101)**

**Content:** Quadrilateral **Time 24 hours**

**Content and standard of learning**

**Strand 2**: Measurement and geometry

Standard M2.1: Understand the basics of measurement Measure and estimate the size of the items to be measured and used.

Standard M2.2: Understand and analyze geometry Geometric properties Relationship between geometry and geometric theorems used.

**Grade level indicators**

M 2.1 Gr5/2 Show how to find an answer to a problem by changing weight units into decimal form.

M 2.1 Gr5/3 Types and properties of quadrilaterals.

M 2.1 Gr5/4 Diagonals of Quadrilaterals.

**Learning Objective**

Students will be able to:

1. Show how to find an answer to a problem by changing weight units into decimal form.
2. Types and properties of quadrilaterals.
3. Diagonals of Quadrilaterals.

**Learning Outcomes**

1. Finding the perimeter of a rectangle.
2. Finding the area of a rectangle.
3. Solving problems with the area of a perimeter of a rectangle.
4. Identifying relationships and classifying squares.
5. Creating a rectangle.

**Learning Areas**

1. The perimeter of the rectangle
2. The area of a parallelogram and a rhombus
3. Solving problems with the perimeter of a rectangle and the area of a parallelogram and a rhombus
4. Types and properties of squares
5. Creating a square

**Teaching and Learning Activities**

1. Students study the properties of various types of squares. And discuss the characteristics of the relationship and classify the quadrilateral.

2. Students discuss and practice to find perimeter length, finding area and solving problems regarding perimeter lengths of rectangles

3. Students jointly discuss and practice to find perimeter length, finding area and solving problems regarding perimeter lengths of rectangles

4. Students write a diagram showing the school building within the school area.
5. Students present their work.
6. Students exchange and evaluate the work piece.
7. Students take the unit test on geometry.

**Emphasized Skills:**

1. Communication ability
2. Commitment to work
3. Having a public mind
4. Ability to solve problems
5. Thinking ability

## Chapter 8

**Mathematics (M15101)**

**Content: The volume and capacity of the rectangle** **Time 17 hours**

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**Content and standard of learning**

**Strand 1**: Measurement and geometry

Standard M2.1: Understand the basics of measurement Measure and estimate the size of the item to be measured and used.

Standard M2.2: Understand and analyze geometry Geometric properties Relationship between geometry and geometric theorems used.

**Grade level indicators**

M 2.1 Gr5/1 Show how to find an answer to the problem of changing length and to decimal form.

M 2.2 Gr5/4 Tell the characteristics of prism.

**Learning Objective**

Students will be able to:

1. Show how to find an answer to the problem of changing length and to decimal form.
2. Tell the characteristics of prism.

**Learning Outcomes**

1. Identification and classification of different types of three-dimensional geometry, creation of different shapes
2. Identifying the relationships of units of measurement of volume or capacity
3. Finding the volume or capacity of a rectangle

**Learning Areas**

1. The perimeter of the rectangle
2. The area of a parallelogram and a rhombus.
3. Solving problems with the perimeter of a rectangle and the area of a parallelogram and a rhombus.
4. Types and properties of squares.
5. Creating a square.

**Teaching and Learning Activities**

1. Study and observe the characteristics of a rectangle, sphere, cone, prism, and pyramid.
2. Study and practice the volume finding skills the capacity of the rectangle.
3. Study and practice comparative skills Compare unit of measurement.
4. Paper cutting for various shapes.
5. Take the paper box that was created. Patch into the school chart.
6. Presentation of work
7. Students exchange, evaluate the work piece
8. Students take the unit test on geometry.

**Emphasized Skills:**

1. Communication ability
2. Commitment to work
3. Thinking ability
4. Ability to solve problems

# Course structure

# Primary 6

**Learning Time Structure Mathematics**

**Grade 6 : - Continuous assessment score 70 points** **Time: 160 hours**

**- Final examination 30 points**

| **Chapter** | **Content** | **Standard of Mathematics** | **Time (hours) 160** | **C.A.S Score 70** | **Final Examination 30** |
|---|---|---|---|---|---|
| 1 | G.C.D. (Greatest common divisor) And L.C.M. (Least common multiple) | M1.1: Gr6/4<br>M1.1: Gr6/5<br>M1.1: Gr6/6 | 19 | 9 | 3 |
| 2 | Fractions | M1.1: Gr6/1<br>M1.1: Gr6/7<br>M1.1: Gr6/8 | 17 | 8 | 4 |
| 3 | Decimals | M1.1: Gr6/9<br>M1.1: Gr6/10 | 15 | 7 | 3 |
| 4 | Percentage | M1.1: Gr6/2<br>M1.1: Gr6/3<br>M1.1: Gr6/11<br>M1.1: Gr6/12 | 20 | 8 | 3 |
| 5 | Pattern | M1.2: Gr6/1 | 9 | 3 | 2 |
| **Total Semester: 1st** | | | | **35** | **15** |

| Chapter | Content | Standard of Mathematics | Time (hours) 160 | C.A.S Score 70 | Final Examination 30 |
|---|---|---|---|---|---|
| 6 | Triangle | M2.2: Gr6/1<br>M2.2: Gr6/2 | 20 | 7 | 3 |
| 7 | Polygon | M2.1: Gr6/2 | 17 | 6 | 3 |
| 8 | Circle | M2.1: Gr6/3 | 20 | 7 | 3 |
| 9 | Tree-Dimensional Geometric Shape | M2.1: Gr6/1<br>M2.2: Gr6/3<br>M2.2: Gr6/4 | 13 | 10 | 4 |
| 10 | Data Presentation | M3.1: Gr6/1 | 10 | 5 | 2 |
| **Total Semester: 2nd** | | | | **35** | **15** |
| **Total score all year** | | | | **70** | **30** |

**Table analysis indicators standard of Mathematics with the chapter**

**Code: M16101** **Grade 6**

| No. | Indicators | Chapter | | | | |
|---|---|---|---|---|---|---|
| | | 1 G.C.D. And L.C.M. | 2 Fractions | 3 Decimals | 4 Percentage | 5 Pattern |
| 1. | M1.1 Gr6/1 Compare and arrange sequence of fractions. | | ✓ (2 Point) | | | |
| 2. | M1.1 Gr6/2 Write decimals in the form of fractions and write fraction in form of decimal. | | | | ✓ (1 Point) | |
| 3. | M1.1 Gr6/3 Write decimals in the form of fractions and write fraction in form of decimal. | | | | ✓ (1 Point) | |
| 4. | M1.1 Gr6/4 Write and read Hindu Arabic and Thai numerals and written forms showing cardinal numbers, 0, fractions, and one-place decimals. | ✓ (3 Point) | | | | |
| 5. | M1.1 Gr6/5 Write and read fractions, mixed numbers and decimals with not more than 2 places. | ✓ (3 Point) | | | | |
| 6. | M1.1 Gr6/6 Analyse and show method of finding answers to problems G.C.D. And L.C.M | ✓ (3 Point) | | | | |
| 7. | M1.1 Gr6/7 Specify or give examples and compare added integral numbers, subtracted integral numbers, 0, fractions and decimals. | | ✓ (3 Point) | | | |

| No. | Indicators | Chapter | | | | |
|---|---|---|---|---|---|---|
| | | 1 G.C.D. And L.C.M. | 2 Fractions | 3 Decimals | 4 Percentage | 5 Pattern |
| 8. | M1.1 Gr6/8 Write fractions in the form of decimals and write circulating decimals in form of fractions. | | ✓ (3 Point) | | | |
| 9. | M1.1 Gr6/9 Explain and specify square roots and cube roots of real numbers. | | | ✓ (3 Point) | | |
| 10. | M1.1 Gr6/10 Show relationships of various numbers in the real number system. | | | ✓ (4 Point) | | |
| 11. | M1.1 Gr6/11 Have concepts of absolute values of real numbers. | | | | ✓ (3 Point) | |
| 12. | M1.1 Gr6/12 Have concepts of real numbers expressed in exponential notation with rational indices, and real numbers expressed in radicals. | | | | ✓ (3 Point) | |
| 13. | M1.2 Gr6/1 Add, subtract and mix addition, subtraction, multiplication and division of fractions, mixed numbers and decimals, as well as be aware of validity of the answers. | | | | | ✓ (3 Point) |

**Table analysis indicators standard of Mathematics with the chapter**

**Code: M16101** **Grade 6**

| No. | Indicators | Chapter | | | | |
|---|---|---|---|---|---|---|
| | | 6 Tri Angle | 7 Polygon | 8 Decimals | 9 Tree-Dimensional Geometric Shape | 10 Data Presentation |
| 1. | M2.1 Gr6/1 Explain a route or indicate positions of various objects by specifying direction and real distance from pictures, maps and diagrams. | | | | ✓ (4 Point) | |
| 2. | M2.1 Gr6/2 Find the area of quadrilateral. | | ✓ (6 Point) | | | |
| 3. | M2.1 Gr6/3 Find the circumference and area of circles. | | | ✓ (7 Point) | | |
| 4. | M2.2 Gr6/1 Solve problems involving area and perimeter of quadrilaterals and circles. | ✓ (3 Point) | | | | |
| 5. | M2.2 Gr6/2 Solve problems involving volume and capacity of cuboids. | ✓ (4 Point) | | | | |
| 6. | M2.2 Gr6/3 Draw diagrams showing positions of various objects and diagrams showing travel routes. | | | | ✓ (3 Point) | |
| 7. | M2.2 Gr6/4 Solve problems of measurement of length, weight, volume, money and time. | | | | ✓ (3 Point) | |
| 8. | M3.1 Gr6/1 Identify kinds of two-dimensional geometric figures that are components of three- | | | | | ✓ (5 Point) |

| No. | Indicators | Chapter | | | | |
|---|---|---|---|---|---|---|
| | | 6<br>Tri Angle | 7<br>Polygon | 8<br>Decimals | 9<br>Tree-Dimensional Geometric Shape | 10<br>Data Presentation |
| | dimensional geometric figures. | | | | | |

## Chapter 1

**Mathematics (M16101)**

**Content: Greatest common divisor and Least common multiple** **Time: 19 hours**

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**Strand 1: Numbers and Operations**

Standard M1.1: Understanding of diverse methods of presenting numbers and their application for real life

**Grade level indicators**

M1.1 Gr6/4 Write and read Hindu Arabic and Thai numerals and written forms showing cardinal numbers, 0, fractions, and one-place decimals.

M1.1 Gr6/5 Write and read fractions, mixed numbers and decimals with not more than 2 places.

M1.1 Gr6/6 Analyse and show method of finding answers to problems G.C.D. And L.C.M

**Learning Objective**

Students will be taught to :

1. Understand the concept of factors of whole numbers.
2. Understand the characteristics and use the knowledge of prime factors of whole numbers.
3. Understand the characteristics and use the knowledge of the Highest Common Factor (HCF).
4. Understand the characteristics and use the knowledge of the Lowest Common Multiple (LCM).

**Learning Outcomes**

Students will be able to:

1. Determine the factors of whole numbers.
2. Identify characteristics of prime numbers.
3. Identify prime factors from a list of factors.
4. Find prime factors of whole numbers.
5. Find common factors of two and three whole numbers.
6. Determine whether a number is a common factor of two and three given whole numbers.
7. Find the HCF of two and three given numbers.
8. Find common multiples of two or three whole numbers.
9. Determine whether a number is the common multiple of two or three given whole numbers.
10. Find the LCM of two or three given numbers.
11. Use HCF and LCM to solve word problems.

**Learning Areas**

- Factors of whole numbers
- Prime factors
- Factorization of whole numbers
- Highest Common Factor
- Lowest Common Multiple
- Using HCF and LCM to solve word problems

**Teaching and Learning Activities**

1. Explain what a factor is in Mathematics. Write the number 90 on the board and ask them if 9 is a factor of 90. Try with other numbers.

2. A prime number can be divided, without remainder, only by itself and by 1. This number has only 2 factors – that is 1 and itself. Zero and 1 are not considered as prime numbers.

3. Explain prime numbers. In order to prove if a number is a prime number, try to divide by 2 and see if you can get a whole number. If you can, then the number is not a prime number. Next try divide by prime numbers – 3, 5, 7, 11…. If it is a prime number, you should not get a whole number as the quotient.

4. Finding the prime factorization of a whole number is finding the prime numbers that multiply together to make that whole number.

5. Common factors of two or more whole numbers are the factors for the numbers.

6. The highest common factor of two or more whole numbers is the greatest common factor of the number. We can find the highest common factor using three methods – by listing all the factors, by prime factorization and by division algorithm.

7. Multiples of a whole numbers are the products of the number and another whole number. Ask students to list multiples of 7, 9 and 11.

8. The common multiples of two or more whole numbers are the multiples of both numbers. Ask students to list the common multiples of 2 and 3.

9. The lowest common multiple (LCM) of two or more whole numbers is the common multiple with the least value.

10. We can find LCM by three methods – by listing the multiples, by prime factorization and by division algorithm.

**Emphasized Skills:**

1. Problem-solving skill
2. Analyzing skill
3. Thinking skill

## Chapter 2

**Mathematics (M16101)**

**Content: Fractions** **Time: 17 hours**

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**Strand 1: Numbers and Operations**

Standard M1.1: Understanding of diverse methods of presenting numbers and their application for real life

**Grade level indicators**

M1.1 Gr6/1 Compare and arrange sequence of fractions.

M1.1 Gr6/7 Specify or give examples and compare added integral numbers, subtracted integral numbers, 0, fractions and decimals.

M1.1 Gr6/8 Write fractions in the form of decimals and write circulating decimals in form of fractions.

**Learning Objective**

Students will be taught to :

1. Understand how to round off whole numbers.
2. Perform combined operations.

**Learning Outcomes**

Students will be able to:

1. Round off whole numbers.
2. Perform combined operations.
3. Solve word problems involving combined operations.

**Learning Areas**

- Rounding off whole numbers
- Combined operation
- Solving word problems involving combined operations

**Teaching and Learning Activities**

1. Guide students to always look at the digit on the right of the place value to which the number is to be rounded off, when they are going to round off numbers.

2. Help students to recall the commutative property, the associative property and the distributive property.

3. Guide students to solve word problems involving combined operations.

**Emphasized Skills:**

1. Problem-solving skill
2. Analyzing skill
3. Thinking skill

## Chapter 3

**Mathematics (M16101)**

**Content: Decimals** **Time: 15 hours**

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**Strand 1: Numbers and Operations**

Standard M1.1: Understanding of diverse methods of presenting numbers and their application for real life

**Grade level indicators**

M1.1 Gr6/9 Explain and specify square roots and cube roots of real numbers.

M1.1 Gr6/10 Show relationships of various numbers in the real number system.

**Learning Objective**

Students will be taught to :

1. Compare fractions.
2. Order fractions.
3. Simplify fractions.
4. Understand the concept of addition and subtraction of fractions to solve problems.
5. Understand the concept of multiplication and division of fractions to solve problems.

**Learning Outcomes**

Students will be able to:

1. Use LCM to find equivalent fractions to compare.
2. Use LCM to find equivalent fractions to order.
3. Use HCF to simplify fractions.
4. Perform addition and subtraction involving
    a. fractions with different denominators
    b. mixed numbers
    c. combined operations on fractions and mixed numbers
5. Perform multiplications involving
    d. mixed numbers
    e. three fractions
6. Perform division involving mixed numbers.
7. Solve word problems involving fractions.
8. Perform combined operations.

**Learning Areas**

- Comparing fractions
- Ordering fractions
- Simplifying fractions

- Addition and subtraction of fractions
- Multiplying fractions
- Division of fractions
- Solving word problems involving fractions
- Combined operations of fractions

**Teaching and Learning Activities**

1. When we compare fractions with different numerators and denominators, we should equalize the denominators first. We can do so by finding the LCM for the denominators. Then, the fraction with greater numerator is the greater fraction.

2. When we want to arrange a set of fractions in an order, we need to compare them first. These fractions should be converted into equivalents fractions with the same denominator. Use LCM to look for the same denominator.

3. When simplifying a fraction, we can divide the numerator and denominator with their HCF.

4. When we add or subtract fractions with different denominators, we need to equalize the denominators first. We can use LCM to find the common denominator.

5. When we add or subtract mixed numbers, we need to change them into improper fractions first. Then find equivalent improper fractions that have same denominator before adding or subtracting.

6. When performing any combined operations, we should always perform the operations in the brackets.

7. When we multiply mixed numbers, always convert the mixed numbers into improper numbers before multiplying.

8. When we divide mixed numbers, we should convert them into improper fractions first. Always remember to change the sign ÷ to × and the divisor to its reciprocal. Then, only we multiply them.

9. When we perform combined operations, remember to perform those in the brackets first.

10. Always remember when solving word problems involving combined operations of fractions, we should analyses the question first and write the number sentence.

**Emphasized Skills:**

1. Problem-solving skill
2. Analyzing skill
3. Thinking skill

## Chapter 4

**Mathematics (M16101)**

**Content: Percentage** **Time: 20 hours**

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**Strand 1: Numbers and Operations**

Standard M1.1: Understanding of diverse methods of presenting numbers and their application for real life

**Grade level indicators**

M1.1 Gr6/2 Write decimals in the form of fractions and write fraction in form of decimal.

M1.1 Gr6/3 Write decimals in the form of fractions and write fraction in form of decimal.

M1.1 Gr6/11 Have concepts of absolute values of real numbers.

M1.1 Gr6/12 Have concepts of real numbers expressed in exponential notation with rational indices, and real numbers expressed in radicals.

**Learning Objective**

Students will be taught to :

1. Read and write decimals.
2. Understand the concept of place value and value of each digit in decimals.
3. Understand the relationship between decimals and fractions.

**Learning Outcomes**

Students will be able to:

1. Read and write decimals to thousandths.
2. State the place value and the value of each digit in a decimal.
3. Write decimals in expanded forms.
4. Compare the values of two given decimals.
5. Round off decimals. \

**Learning Areas**

- Three-decimal place numbers
- Place values and digit values of digits in decimals
- Writing decimals in expanded form
- Comparing and ordering decimals
- Decimals and fractions
- Rounding off decimals

**Teaching and Learning Activities**

1. Guide students on how to read and write three-decimal place numbers. Explain that a three-decimal place number can be represented by a fraction with 1000 as its denominator.

2. Guide students to understand the place values and digit values of the digits in a three-decimal place number.

3. Write a few three-decimal place numbers and ask students to state the place values and digit values of the digits.

4. Show students on how to write decimals in expanded form.

5. When we compare two decimals, always compare the whole number parts first. If they are similar, then compare the digits in the tenths, hundredths and thousandths.

6. We can easily convert a decimal into a fraction by analyzing the number of decimal place the decimal has. If the decimal has 2 decimal places such as 12.89, then the fraction will have 100 as its denominator and its fraction is $12\frac{89}{100}$. If the decimal has three-decimal place such as 0.108, then the fraction has 1000 as its denominator and its fraction is $\frac{108}{1000}$.

7. If the fractions or mixed numbers do not have 10, 100 or 1000 as their denominators, we will have to change to them into fractions with those denominators before converting into decimals.

8. When rounding off decimals, always look at the digit on the right of the digit that will be rounded.

**Emphasized Skills:**

1. Problem-solving skill
2. Analyzing skill
3. Thinking skill

## Chapter 5

**Mathematics (M16101)**

**Content: Pattern** **Time: 9 hours**

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**Strand 1: Numbers and Operations**

Standard M1.2: Understanding results of operations of numbers, relationships of operations, and application of operations for problem-solving

**Grade level indicators**

M1.2 Gr6/1 Add, subtract and mix addition, subtraction, multiplication and division of fractions, mixed numbers and decimals, as well as be aware of validity of the answers.

**Learning Objective**

Students will be taught to :

1. Understand the concept of addition and subtraction of decimals to solve problems.
2. Understand the concept of multiplication of decimals to solve problems.

**Learning Outcomes**

Students will be able to:

1. Add three-decimal place numbers.
2. Add three decimals.
3. Subtract three-decimal place numbers.
4. Multiply three-decimal place numbers by whole numbers.
5. Multiply decimals by decimals.
6. Use addition, subtraction and multiplication of decimals to solve word problems.

**Learning Areas**

- Addition of decimals
- Subtraction of decimals
- Multiplication of decimals
- Using addition, subtraction and multiplication of decimals to solve word problems

**Teaching and Learning Activities**

1. Adding two three-decimal place numbers is just like any addition of two two-decimal numbers. We need to align the digits by their place values before adding.

2. It is the same when we add up three decimals. Make sure all the digits are aligned according to their place values.

3. When comes to subtraction of decimals, we have to align the digits based on their place value too before subtracting.

4. We can multiply decimals by whole numbers using different method - by repeated addition, by converting the decimals into fractions first before multiply and by multiplying as if they are whole numbers.

5. When we multiply decimals by 10, 100 or 1000, we move the decimal point to the right by 1, 2 or 3 places respectively.

6. When we multiply decimals by decimals, we need to extra caution with the positioning of the decimal point in the product.

7. We can use addition, subtraction and multiplication to solve word problems involving decimals.

**Emphasized Skills:**

1. Problem-solving skill
2. Analyzing skill
3. Thinking skill

## Chapter 6

**Mathematics (M16101)**

**Content:** Triangle **Time: 20 hours**

**Content and standard of learning**

**Strand 2: Measurement and geometry**

Standard M 2.2:Understand and analyze geometry Geometric properties Relationship between geometry and geometric theorems used.

**Grade level indicators**

M2.2 Gr6/1 Solve problems involving area and perimeter of quadrilaterals and circles.

M2.2 Gr6/2 Solve problems involving volume and capacity of cuboids.

**Learning Objective**

Students will be taught to :

1. Understand the properties of angles associated with transversal lines.

**Learning Outcomes**

Students will be able to:

1. Determine the properties of angles associated with transversal lines – corresponding angles, alternate angles and interior angles.

2. Determine if two or more lines are parallel lines.

**Learning Areas**

- Corresponding, alternate and interior angles
- Determine if two or more lines are parallel lines

**Teaching and Learning Activities**

1. Explain what a transversal line is. There are 8 angles formed on transversal line that pass through two other lines. However when a transversal line passes through two parallel lines, we can classify the angles into corresponding angles, alternate angles and interior angles.

2. Draw a transversal line passing through two parallel lines on the board. Ask students to identify the angles. Which angles are similar? Which two angles have the sum of $180^{\circ}$?.

3. We can determine if two or more lines are parallel lines by checking the sizes of the angles formed by the transversal line.

4. Students have to be clear of the characteristics of the angles formed by a transversal lines passing through the parallel lines.

**Emphasized Skills:**

1. Problem-solving skill
2. Analyzing skill
3. Thinking skill

## Chapter 7

**Mathematics (M16101)**

**Content: Polygon** **Time: 17 hours**

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**Content and standard of learning**

**Strand 2: Measurement and geometry**

Standard M2.1: Understand the basics of measurement Measure and estimate the size of the items to be measured and used.

**Grade level indicators**

M2.1 Gr6/2 Find the area of quadrilateral.

**Learning Objective**

Students will be taught to :

1. Understand the concept of equations.
2. Solve word problems involving equations

**Learning Outcomes**

Students will be able to:

1. Determine true and false equations.
2. Identify equations with an unknown.
3. Know the addition, subtraction, multiplication and division properties of equality.
4. Solve problems and word problems involving equations.

**Learning Areas**

- Equations
- Equations with one unknown
- Addition and subtraction properties of equality
- Multiplication and division properties of equality
- Solving equations using properties of equality
- Using equations to solve word problems

**Teaching and Learning Activities**

1. Introduce equations to students. Equations have the equal sign (=).

2. There are true and false equations. A true equation has the same value on both sides of the equal sign. A false equation has two different values on both sides of the equal sign.

3. Explain what an unknown is in Mathematics. We usually use a letter to represent an unknown. When an unknown is used in an equation, the equation is known as an equation with one unknown.

4. The values on both sides of the equal sign in a true equation are the same. Therefore, when we add the same number to both sides, the equation remains true.

5. When we multiply or divide both sides of a true equation by the same number, the equation remains true.

6. We can use the addition and subtraction properties of equality to solve problems.

7. When solving word problems, always analyze the problems and write the equations before solving them. Remember to check the answers by substitute the answers into the equations.

**Emphasized Skills:**

1. Problem-solving skill
2. Analyzing skill

## Chapter 8

**Mathematics (M16101)**

**Content: Circle** **Time: 20 hours**

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**Strand 2: Measurement**

Standard M2.1:Understanding the basics of measurement; ability to measure and estimate the size of objects to be measured

**Grade level indicators**

M2.1 Gr6/3 Find the circumference and area of circles.

**Learning Objective**

Students will be taught to :

1. Understand the concept of circumference of a circle to solve problems.
2. Understand the concept of area of a circle to solve problems.

**Learning Outcomes**

Students will be able to:

1. Find the circumference of a circle.
2. Find the area of a circle.

**Learning Areas**

- Circumference of a circle
- Area of a circle

**Teaching and Learning Activities**

1. Explain how to obtain the formula for the circumference of a circle. Pi ($\pi$) is a constant number and has a value of about 3.14159265358979323846.
2. Guide students on how to use the 'pi'.
3. Explain how the formula for the area of a circle is obtained.
4. Guide students to find the area of a circle.

**Emphasized Skills:**

1. Problem-solving skill
2. Analyzing skill
3. Thinking skill

## Chapter 9

**Mathematics (M16101)**

**Content: Tree Dimensional Geometric Shape** **Time: 13 hours**

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**Strand 2: Measurement**

Standard M2.1:Understanding the basics of measurement; ability to measure and estimate the size of objects to be measured

Standard M2.2: Solving measurement problems

**Grade level indicators**

M2.1 Gr6/1 Explain a route or indicate positions of various objects by specifying direction and real distance from pictures, maps and diagrams.

M2.2 Gr6/3 Draw diagrams showing positions of various objects and diagrams showing travel routes.

M2.2 Gr6/4 Solve problems of measurement of length, weight, volume, money and time.

**Learning Objective**

Students will be taught to :

1. Understand the concept of net.
2. Understand the concepts of volumes of cuboid to solve problems.

**Learning Outcomes**

Students will be able to:

1. Draw nets for cubes, cuboids, prisms, pyramids, cylinders and cones.
2. State the types of solids given the nets.
3. Construct models of geometrics given the nets

**Learning Areas**

- Nets
- Models of geometric solids
- Volume of a cuboid

**Teaching and Learning Activities**

1. Ask students to bring any boxes to school. Ask them to open up the boxes and lay them flat on the table. Those open-up boxes are the nets of the boxes.

2. Ask students to imagine the nets for a cylinder, pyramid, cone, prism, square and cuboid.

3. We can imagine the 3-D solid shapes we will get from folded nets.

4. Fold nets into models of geometric solids.

5. To find the volume of cuboid, we need to multiply the length, width and height of the cuboid

6. Guide students to find the volumes of cuboids.

**Emphasized Skills:**

1. Problem-solving skill
2. Analyzing skill
3. Thinking skill

## Chapter 10

**Mathematics (M16101)**

**Content:** Data Presentation **Time: 10 hours**

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**Strand 3: Geometry**

Standard M3.1: Ability to explain and analyses two-dimensional and three-dimensional geometric figures

**Grade level indicators**

M3.1 Gr6/1 Suitably provide reasoning for decision-making and appropriately present the conclusions reached

**Learning Objective**

Students will be taught to :

1. Understand the concept and solve problems.

**Learning Outcomes**

Students will be able to:

1. Find the solve problems.

**Learning Areas**

- problems
- Information

**Teaching and Learning Activities**

1. Guide students to solve word problems involving quadrilaterals.
2. Guide students on how to use the ‘pi’.
3. Explain how the formula for the area of a circle is obtained.

**Emphasized Skills:**

1. Problem-solving skill
2. Analyzing skill
3. Thinking skill

# Producers

1. Miss Phitchaphak Saisanongyod
2. Miss Pareena Pongthammachat
3. Miss Leelawadee Prominta
4. Miss Suchanan Srijai
5. Miss Phetcharin Lungta
6. Miss Kotchakorn Chairawang
7. Miss Kanyarat Phonrob
8. Miss.Daraporn Kattiya
9. Miss Kanruetai kampa
10. Miss Patcharaporn Satasarn
11. Miss Chariya Srisem
12. Miss Cheeranan Thananwatmaythee
13. Miss Jaynisa Threesukontharat
14. Miss Krittaporn Khiawham
15. Miss Sujittar Thianthongmongkol
16. Mrs.Souwakon Sanvilai
17. Miss Nitchakan Pokrai
18. Miss Jittiporn Suwannachart
19. Mr.Songkran kamkaew
20. Mrs. Angkanaruk Chanthong
21. Miss Napatsorn Somjay
22. Miss Ornchira Maneejom
23. Miss Htet Htet Aung
24. Miss Jenebie O. Redelosa
25. Mr.Moises I Edano
26. Mr. Jon Gabriel L. Batinga
27. Mr. Saw Victor Gay Htoo
28. Miss Vrenille Avy Villanueva
29. Miss.Melanie S.Valdez
30. Miss Monera Distrajo
31. Miss Khin Myint Myat Maw
32. Miss Mary Cris A. Bagas
33. Mr. Kian Boon Lim