National Curriculum Primary School
Learning Outcomes in Mathematics

Lower Division

For Use in 2019-2020
Learning Outcomes for Lower Division Mathematics

Strand: Numbers and Number Operations

Numbers

Describe quantities in real world situations using positive and negative numbers, the place-value system, fractions, and decimal numbers in practical contexts.

Infant 1

1.1 Count groups of objects up to 10, using the counting principles of stable order, one-to-one correspondence and cardinality.

1.2 Demonstrate different ways of counting through oral exercises such as playing games, singing songs, and saying rhymes.

1.3 Match groups of up to ten objects to written numerical symbols.

1.4 Count groups of objects up to 10, using the counting principles of abstraction and order irrelevance.

1.5 State how many objects are in a group of up to 10 objects at a glance without having to count them one by one.

1.6 Identify an individual number, a sequence of numbers and the number before, after or between given numbers on a number line.

1.7 Recite the numbers 1 to 30 in sequence with fluency and accuracy.

1.8 Compare numbers from 0 to 10 using the less than, greater than and equals signs.

1.9 Write the numeric symbols for numbers from 0 to 10.

1.10 Compose and decompose numbers from 1 - 10, grouping items into given numbers with no remainder.

1.11 Identify the position of an item in a group using ordinal numbers from first to tenth.
Learning Outcomes for Lower Division Mathematics
Strand: Numbers and Number Operations

Infant 2

1.12 Count up to 100 using a number chart.
1.13 Count groups of up to one hundred objects using the five counting principles of stable order, one-to-one correspondence, cardinality, abstraction and order irrelevance.
1.14 Match number names and numeric symbols for numbers from 0 to 100 both orally and in writing.
1.15 Apply the concept of zero to real-life situations.
1.16 Identify the position of an item in a group using ordinal numbers from first to one hundredth.
1.17 Compose 2-digit numbers from groups of tens and ones.
1.18 Decompose 2-digit numbers into groups of tens and ones.
1.19 Sequence a set of numbers between 0 and 100, in ascending or descending order, using a number line.
1.20 Identify the number that is ten more or ten less than a given number using a place value chart.
1.21 Sequence a set of non-consecutive numbers between 0 and 100 using a place value chart.
1.22 Compare numbers from 0 to 100 using the less than, greater than and equals signs.

Standard 1

1.23 Apply the concept of thousands to real life situations.
1.24 Read, write and match numbers up to 1000 using numerical symbols and words.
1.25 Draw a segment of a number line to show a selection of positive numbers up to 1000.
1.26 Explain that each column of a place value chart is ten times more or less than the neighbouring column for numbers between 0 and 999.
1.27 Compare numbers up to 1000 using the symbols for equals (=), less than (<) and greater than (>).
1.28 State, read and write numbers in expanded form, up to 1000.
Learning Outcomes for Lower Division Mathematics
Strand: Numbers and Number Operations

Patterns

**Apply knowledge of repeating, increasing, decreasing and alternating numerical, graphical and other patterns.**

**Infant 1**

2.1 Find examples of patterns in the classroom, school and wider environment.

2.2 Sort objects and shapes based on their colour, size, number of sides or another attribute.

2.3 Create patterns using objects, actions, shapes, colours, sounds or numbers.

2.4 Group 10 or fewer objects into sets of 2's, 3's, 4's and 5's without remainders.

2.5 Count up to 10 objects by 1s and 2s, forwards and backwards.

**Infant 2**

2.6 Identify patterns in pictures and artistic designs.

2.7 Create repeating patterns using actions, objects, shapes, letters, colours, sounds, and numbers.

2.8 Distinguish between odd and even numbers.

2.9 Estimate to the closest benchmark number, for example, 5, 10, 25 or 50 before counting a set of objects to find the exact amount.

**Standard 1**

2.10 Sequence non-consecutive positive numbers between 0 and 1000 in ascending and descending order, using the number line.

2.11 Identify the next, or a missing, object, action, shape, colour, sound or number in a series.

2.12 Create increasing, decreasing and alternating patterns using objects, actions, shapes, colours, sounds or numbers.

2.13 Describe increasing, decreasing and alternating number patterns and patterns of real objects, actions, sounds, colours and shapes.

2.14 Count forward and backward by 2's, 5's, 10's and 100's from any given starting number between 0 and 1000.
Learning Outcomes for Lower Division Mathematics
Strand: Numbers and Number Operations

<table>
<thead>
<tr>
<th>Addition and Subtraction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solve problems by adding and subtracting multi-digit positive and negative numbers with and without decimals.</td>
</tr>
</tbody>
</table>

**Infant 1**

3.1 Add sets of up to ten objects including with the use of zero when adding.

3.2 Solve problems involving addition of up to 10 objects, using real life situations.

3.3 Subtract objects, including zero objects, from a set of up to ten.

3.4 Solve problems involving subtraction of up to 10 objects, using real life situations.

3.5 Add and subtract sets of up to ten objects with and without the use of concrete objects.

3.6 Combine, rearrange and separate objects to show addition and subtraction, including with the use of +, - symbols.

**Infant 2**

3.7 Add a single digit number to a 2 digit number that ends in a zero.

3.8 Add a single digit number to any 2-digit number with the answer not exceeding 99.

3.9 Add, mentally, without the use of manipulatives, multiples of 10, with the sum not exceeding 100.

3.10 Subtract a single digit number from a 2-digit number without the need to borrow.

3.11 Add any two 2-digit numbers together with the answer not exceeding 100, vertically and horizontally with or without the use of a place value chart.

3.12 Subtract a single or 2 digit number from a 2-digit number, vertically and horizontally, without the need to borrow, with or without the use of a place value chart.

3.13 Complete number sentences with sums or differences up to 100 using the symbols +, - =

3.14 Explore the additive identity property, that is if you add a number to 0, then the sum is the same number.
Learning Outcomes for Lower Division Mathematics
Strand: Numbers and Number Operations

Standard 1

3.15 Add 2 digit numbers without regrouping using unit columns.
3.16 Subtract 2 digit numbers without regrouping using unit columns.
3.17 Add 2 digit numbers with regrouping using manipulatives such as base ten blocks or lego.
3.18 Subtract 2 digit numbers with regrouping using manipulatives such as base ten blocks or lego.
3.19 Add three 2-digit numbers with and without regrouping in unit columns.
3.20 Show the relationship between addition and subtraction.
3.21 Add two 3 digit numbers without regrouping using unit columns.
3.22 Subtract two 3 digit numbers without regrouping using unit columns.
3.23 Add two 3-digit numbers with regrouping using manipulatives such as base ten blocks.
3.24 Subtract two 3-digit numbers with regrouping using manipulatives such as base ten blocks.
Learning Outcomes for Lower Division Mathematics
Strand: Numbers and Number Operations

Multiplication and Division

Infant 1

There are no learning outcomes for Multiplication and Division for infant one students

Infant 2

4.1 Place up to 50 objects into groups of equal size.
4.2 Divide groups into equal parts using real objects or pictures.
4.3 Investigate that multiplication is the same as repeated addition.
4.4 Multiply two single digit numbers together using manipulatives arranged in groups, multiplication arrays and so on.

Standard 1

4.5 Multiply, mentally, single digit numbers by 2, 3, 4, 5, and 10 with automaticity.
4.6 Explore the multiplicative identity of a number, that is if you multiply a number by 1, the product is that original number.
4.7 Round-off to the nearest ten to estimate when multiplying.
4.8 Multiply a 2-digit number by a single digit number.
4.9 Represent multiplication problems both horizontally and vertically.
4.10 Read and write multiplication number sentences that include the symbols x and =.
4.11 Multiply numbers by using a 12 by 12 chart.
4.12 Investigate that division is the same as repeated subtraction.
4.13 Divide single and 2-digit numbers by 2, 3, 4, 5, 10, without remainders.
4.14 Read and write division number sentences that include the symbols ÷ and =.
4.15 Show the relationship between multiplication and division.
4.16 Solve word problems with real life applications using multiplication and division.
Learning Outcomes for Lower Division Mathematics
Strand: Numbers and Number Operations

<table>
<thead>
<tr>
<th>Fractions and Decimals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solve problems by identifying, comparing, sequencing, adding subtracting, multiplying and dividing fractions and decimals.</td>
</tr>
</tbody>
</table>

**Infant 1**

5.1 Explain that a whole object can be divided into parts of equal and different sizes.

5.2 Describe fractions in everyday situations by using language such as ‘1 out of 2’.

5.3 Compose and decompose a region, shape or set of objects using halves and quarters, recognizing that the fractional parts are equal.

5.4 Match pictures of halves and quarters and objects in parts with the symbols ½ and ¼.

**Infant 2**

5.5 Compose and decompose a region, shape or set of objects using halves, thirds, quarters, and fifths.

5.6 Match pictures of fractional parts with the symbols ½, ⅓, ¼, and ⅕.

**Standard 1**

5.7 Describe parts of a whole or of a set using fractions with numerators other than one, such as, 2/3, 3/4, 2/5, 5/6, 4/10.

5.8 Compare and sequence fractions with like denominators with the aid of pictures, the number line, fraction strips or other manipulatives.

5.9 Add two or more proper fractions with like denominators.

5.10 Convert fractions with tenths to decimals; for example 3/10 is the same as 0.3

5.11 Add and subtract numbers with one decimal place.

5.12 State, read and write decimals to one decimal place.

**Algebra**

**Infant 1**

There are no learning outcomes for Algebra for infant one students.

**Infant 2**

There are no learning outcomes for Algebra for infant two students.

**Standard 1**

There are no learning outcomes for Algebra for standard one students.
Learning Outcomes for Lower Division Mathematics
Strand: Spatial Relationships and Shapes

Geometry

Recognize, draw, construct, and identify the attributes of and relationships between a range of two dimensional shapes and three dimensional objects.

Infant 1

7.1 Find examples of points, lines, squares, circles, rectangles and triangles in the classroom, school and wider environment.

7.2 Explore common shapes through play and the use of manipulatives.

7.3 Describe the properties of triangles, squares and rectangles in terms of the number of sides and corners.

7.4 Construct 2-D shapes using straws, sticks, clay, building blocks and other materials.

7.5 Identify rays, angles and planes in the classroom, school and wider environment.

7.6 Find examples of 3-D objects such as spheres, cubes, cylinders and cones in the classroom, school and wider environment.

7.7 Construct 3-D shapes and objects using straws, sticks, clay, building blocks and other materials.

Infant 2

7.8 Draw lines, rays and angles.

7.9 Differentiate between horizontal, vertical and diagonal lines.

7.10 Identify the similarities and differences between triangles, squares, rectangles and circles.

7.11 Create by drawing or modelling 2-D shapes with a specified number of sides.

7.12 Create models of 3-D shapes and objects with specified properties, such as number of faces.

7.13 Compare 2-D shapes according to specific properties including length of sides, number of vertices and the approximate size of their internal angles.

7.14 Investigate the similarities and differences between symmetrical shapes.
Learning Outcomes for Lower Division Mathematics
Strand: Spatial Relationships and Shapes

Standard 1

7.15 Describe horizontal, vertical, diagonal, intersecting, parallel and perpendicular lines.

7.16 Draw common shapes with specified lengths of sides using a ruler.

7.17 Investigate how the perimeter of common shapes such as triangles, squares and rectangles is calculated.

7.18 Create compound shapes using manipulatives such as pattern blocks, sticks, straws, string or other materials.

7.19 Describe 3-D figures such as cones, cylinders, cubes, cuboids and pyramids.
Learning Outcomes for Lower Division Mathematics
Strand: Spatial Relationships and Shapes

**Measurement**

*Describe, estimate, measure and solve problems in relation to distance, mass, weight, capacity, volume, area and time in real-life situations using both the customary and metric systems.*

**Infant 1**

8.1 Compare the length, height, weight, temperature and capacity of two objects using words such as longer, taller, shorter, lighter, heavier, colder, hotter, more full or emptier.

8.2 Investigate the length of objects found in the classroom or wider environment, in non-standard units of measurement, such as finger lengths, pieces of string or lengths of a pencil.

8.3 Describe the position of two objects relative to each other in terms of distance and direction using phrases such as near to, far from, very far from, to the right of, below, above and so on.

8.4 Describe the passage of time using terms such as minute, hour, day, week, month and year.

8.5 Correctly sequence the days of the week and months of the year using ordinal numbers.

8.6 Identify the current dates and days of the month on a calendar or weather chart using ordinal numbers.

8.7 Tell time to the hour using an analogue clock.

**Infant 2**

8.8 Investigate the perimeter and area of 2-D shapes using non-standard measures.

8.9 Measure the length of lines, perimeter of shapes and real objects found in the environment using the customary units of feet and inches.

8.10 Investigate the volume of 3-D shapes using non-standard units of measurement.

8.11 Measure volume of containers using the customary units of cups and pints.

8.12 Measure the weight of objects using the customary units of pounds and ounces.

8.13 Compare the use of non-standard units to the use of customary units of measurement.

8.14 Identify time as half hour, quarter hour to or past the hour using an analogue clock.

8.15 Apply the terms a.m. and p.m. to time

8.16 Explore the relationship between seconds, minutes, hours, days, weeks and a year.

8.17 Identify how many seconds have passed using the second hand of an analogue clock.

8.18 Identify the time to the nearest minute using both analogue and digital clocks.
Learning Outcomes for Lower Division Mathematics
Strand: Spatial Relationships and Shapes

Standard 1

8.19 Measure, compare and record the length of lines, distances and the size of objects using the customary units of inches, feet and yards.

8.20 Measure, compare and record the weight of various objects in the customary units of pounds and ounces.

8.21 Measure, compare and record the capacity of a container using the customary units of cups, pints, quarts and gallons.

8.22 Estimate the length, weight and capacity of objects before accurately measuring them.

8.23 Convert among units within the customary system of length, weight and capacity.

8.24 Convert a length of time between minutes and seconds.

8.25 Identify the temperature of the environment, in either degrees Celsius or Fahrenheit, by using a thermometer with a scale.
Learning Outcomes for Lower Division Mathematics
Strand: Data Handling

Coordinate Graphs

Infant 1
There are no learning outcomes for Coordinate Graphs for infant one students.

Infant 2
There are no learning outcomes for Coordinate Graphs for infant two students.

Standard 1
There are no learning outcomes for Coordinate Graphs for standard one students.

Sets

Infant 1
There are no learning outcomes for Sets for infant one students.

Infant 2
There are no learning outcomes for Sets for infant two students

Standard 1
There are no learning outcomes for Sets for standard one students
Learning Outcomes for Lower Division Mathematics
Strand: Data Handling

**Data**

*Collect, record, interpret and communicate data from real life contexts.*

**Infant 1**

11.1 Gather data from environment through observation, counting, sorting and grouping of items such as objects and pictures.

11.2 Organize and display data using concrete materials in tally charts and on pictorial representations.

11.3 Interpret information presented in pictographs using a variety of data sets.

**Infant 2**

11.4 Gather data from picture and written sources and the environment through observation.

11.5 Organize and display data using concrete materials in tally charts and column representations.

11.6 Interpret information presented in simple column graphs using a variety of data sets.

11.7 Make predictions using graphs.

**Standard 1**

11.8 Collect data in real life situations.

11.9 Represent data contained in a tally chart or frequency table using pictographs and bar graphs.

11.10 Analyse a tally chart of real life events that are based on chance.

11.11 Discuss situations that involve chance such as certain, impossible or equally likely events.

11.12 Investigate probability using tables and graphs.