

MARKHOR JUNIOR MATHEMATICS CURRICULUM

Beginner Level — Class 1 & Class 2

An Original International-Standard Mathematics Framework

Official Curriculum Document
Markhor Junior Contest
2026

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1. Introduction & Curriculum Philosophy

The Markhor Junior Mathematics Curriculum — Beginner Level (Class 1 & Class 2) is an original, internationally-benchmarked mathematics framework designed exclusively for the Markhor Junior Contest. It draws on widely recognised principles of international primary mathematics education — number sense, arithmetic fluency, mathematical reasoning, problem solving and spatial thinking — without referencing, naming or basing itself on any specific external competition or syllabus.

The curriculum is built around a simple philosophy: Understand → Apply → Reason → Solve, rather than Memorise → Repeat. Every topic is designed to develop genuine mathematical thinking, supported by visual and hands-on representations appropriate to each age group.

This document is the official foundation for all future Markhor Junior Mathematics materials, including MCQ question banks, practice tests, mock tests, past papers and contest papers for Class 1 and Class 2.

2. Curriculum Architecture

The curriculum follows a consistent architecture for every topic:

- Class → Mathematical Domain → Topic → Subtopics → Learning Outcomes → Skills → Difficulty → Assessment Mapping

Twelve mathematical domains are used consistently across both classes, allowing the curriculum to scale cleanly into future Markhor Junior classes:

- Number & Number Sense (NS)
- Addition & Subtraction (AS)
- Multiplication & Division (MD)
- Patterns & Early Algebraic Thinking (PT)
- Geometry & Spatial Reasoning (GE)
- Measurement (ME)
- Time (TM)
- Money (MO)
- Fractions (FR)
- Data Handling (DT)
- Logical Reasoning (LR)
- Problem Solving (PS)

3. Three-Tier Difficulty System

Every topic is structured across three difficulty levels. Challenge is created through deeper mathematical thinking, not simply larger numbers or advanced concepts beyond the class level.

- Level 1 — Beginner: basic knowledge and understanding (e.g. identify, read, perform a basic calculation).
- Level 2 — Intermediate: application and reasoning (e.g. solve a word problem, find a missing number, interpret data).
- Level 3 — Challenge: competition-oriented mathematical thinking (e.g. non-routine problems, multi-step reasoning, hidden relationships, unfamiliar visual problems).

4. Spiral Curriculum Model

Class 2 builds on Class 1 through a spiral model: concepts return with greater complexity, deeper reasoning, new representations and more challenging problems, rather than being repeated unnecessarily. Section 9 of this document maps this progression domain by domain.

5. Standard Question Concept Levels

For every topic in this curriculum, future question writers and AI question-generation systems should design MCQs across six standard question concepts, matched to the three-tier difficulty system above: Basic Concept, Application, Reasoning, Visual, Problem Solving, and Challenge. The "Recommended Question Types" field for each topic identifies which specific question formats (from the full list in Section 10) are most appropriate for that topic.

6. Standard Question Formats

The following question formats may be used across topics, as indicated in each topic's Recommended Question Types field:

- Standard MCQ · Visual MCQ · Number-based MCQ · Picture-based MCQ · Pattern question
- Missing number · Matching · Logical reasoning · Word problem · Data interpretation
- Shape reasoning · Comparison question · Mental maths question · Multi-step reasoning

Markhor Junior Mathematics — Beginner Level — Class 1

Course Overview

Markhor Junior Mathematics — Beginner Level — Class 1 builds strong mathematical foundations for young learners. Students develop confident number sense, master addition and subtraction within 20, and take their first steps into multiplication, division, geometry, measurement, time, money, fractions, data handling and logical reasoning. Every topic blends visual, hands-on and reasoning-based learning so that students understand mathematics rather than memorise it. The course balances arithmetic fluency with pattern recognition and problem solving, preparing students for confident, independent mathematical thinking as they progress into Class 2.

Mathematical Domains & Topics

Number & Number Sense

- Number Recognition & Counting (0–100)
- Number Sequences & Number Lines
- Comparing Numbers (Greater/Less/Equal)
- Odd and Even Numbers
- Place Value (Tens & Ones)
- Number Decomposition (Number Bonds)

Addition & Subtraction

- Addition Concepts & Facts
- Subtraction Concepts & Facts
- Missing Numbers in Addition/Subtraction
- Simple Word Problems (Addition/Subtraction)

Multiplication & Division

- Equal Groups & Repeated Addition
- Sharing & Grouping (Early Division)

Patterns & Early Algebraic Thinking

- Repeating Patterns
- Number Patterns & Missing Elements

Geometry & Spatial Reasoning

- 2D Shapes
- 3D Objects
- Position, Direction & Movement

Measurement

- Length & Height
- Weight/Mass
- Capacity

Time

- Day, Night, Days of the Week & Months
- Basic Clock Reading

Money

- Coin & Note Recognition
- Simple Buying & Comparing Values

Fractions

- Halves and Quarters (Visual)

Data Handling

- Sorting & Classification
- Picture Graphs & Tally Marks

Logical Reasoning

- Odd One Out & Classification
- Pattern & Shape Puzzles

Problem Solving

- One-Step Real-Life Problems

Detailed Topic-by-Topic Curriculum — Class 1

Domain: Number & Number Sense

1. Number Recognition & Counting (0–100)

Topic Code	C1-NS-01
Domain	Number & Number Sense
Subtopics	Reading numbers • Writing numbers • Counting objects • Counting forward and backward
Concept Description	Students recognise, read, write and count numbers from 0 to 100 in order and out of order.
Learning Outcomes	Students can identify a given number and count a set of objects accurately.
Skills Developed	Number recognition, One-to-one counting, Number sense
Beginner (L1)	Read, write and count numbers 0–20.
Intermediate (L2)	Count on and back within 100; count in twos and fives.
Challenge (L3)	Continue an unfamiliar counting sequence or identify a counting error.
Visual Priority	High
Recommended Question Types	Picture-based MCQ, Number-based MCQ, Missing number
Should Be Tested	Counting objects up to 100; Reading/writing numerals 0–100; Forward and backward counting
Should NOT Be Tested	Numbers beyond 100; Formal number theory

2. Number Sequences & Number Lines

Topic Code	C1-NS-02
Domain	Number & Number Sense
Subtopics	Ordering numbers • Number lines • Before/after/between • Skip counting by 2s, 5s, 10s
Concept Description	Students use number lines and sequences to understand number order and spacing.
Learning Outcomes	Students can place numbers on a number line and complete a sequence.
Skills Developed	Sequencing, Spatial number sense, Pattern recognition
Beginner (L1)	Identify the number before, after or between two numbers.
Intermediate (L2)	Complete a sequence with a skip-counting rule.
Challenge (L3)	Find a missing number in a sequence with an unstated rule.
Visual Priority	High
Recommended Question Types	Number line MCQ, Missing number, Pattern question
Should Be Tested	Number lines up to 100; Simple skip counting
Should NOT Be Tested	Negative numbers; Decimal number lines

3. Comparing Numbers (Greater/Less/Equal)

Topic Code	C1-NS-03
Domain	Number & Number Sense

Subtopics	Greater than • Less than • Equal to • Comparing two-digit numbers
Concept Description	Students compare two numbers and describe the relationship between them.
Learning Outcomes	Students can correctly compare two numbers using appropriate language or symbols.
Skills Developed	Comparison, Number sense, Reasoning
Beginner (L1)	Compare two single-digit numbers.
Intermediate (L2)	Compare two-digit numbers using place value.
Challenge (L3)	Order a set of numbers or find a number that fits a comparison rule.
Visual Priority	Medium
Recommended Question Types	Standard MCQ, Visual MCQ, Comparison question
Should Be Tested	Comparing numbers up to 100
Should NOT Be Tested	Comparing numbers beyond two digits

4. Odd and Even Numbers

Topic Code	C1-NS-04
Domain	Number & Number Sense
Subtopics	Identifying odd numbers • Identifying even numbers • Grouping in pairs
Concept Description	Students identify whether a number is odd or even using grouping or patterns.
Learning Outcomes	Students can classify numbers as odd or even and explain why.
Skills Developed	Classification, Pattern recognition, Reasoning
Beginner (L1)	Identify odd and even numbers up to 20.
Intermediate (L2)	Identify odd and even numbers up to 100.
Challenge (L3)	Solve a puzzle involving odd/even reasoning.
Visual Priority	Medium
Recommended Question Types	Standard MCQ, Sorting question
Should Be Tested	Odd/even classification up to 100
Should NOT Be Tested	Algebraic proofs of odd/even properties

5. Place Value (Tens & Ones)

Topic Code	C1-NS-05
Domain	Number & Number Sense
Subtopics	Tens and ones • Building numbers with blocks • Reading two-digit numbers
Concept Description	Students understand that the position of a digit determines its value.
Learning Outcomes	Students can decompose a two-digit number into tens and ones and vice versa.
Skills Developed	Place-value reasoning, Representation, Number sense
Beginner (L1)	Identify the tens and ones digit in a two-digit number.
Intermediate (L2)	Build or represent a number using tens and ones.
Challenge (L3)	Solve a problem where regrouping tens and ones changes the answer.

Visual Priority	High
Recommended Question Types	Visual MCQ, Number-based MCQ, Representation question
Should Be Tested	Two-digit place value
Should NOT Be Tested	Hundreds place value; Formal expanded notation

6. Number Decomposition (Number Bonds)

Topic Code	C1-NS-06
Domain	Number & Number Sense
Subtopics	Number bonds to 10 • Number bonds to 20 • Part-part-whole
Concept Description	Students break numbers into parts to understand composition and support mental maths.
Learning Outcomes	Students can find missing parts of a number bond.
Skills Developed	Decomposition, Mental maths, Number sense
Beginner (L1)	Complete number bonds to 10.
Intermediate (L2)	Complete number bonds to 20.
Challenge (L3)	Find multiple valid part combinations for a given whole.
Visual Priority	High
Recommended Question Types	Visual MCQ, Missing number
Should Be Tested	Number bonds within 20
Should NOT Be Tested	Number bonds beyond 20

Domain: Addition & Subtraction

1. Addition Concepts & Facts

Topic Code	C1-AS-01
Domain	Addition & Subtraction
Subtopics	Adding within 20 • Addition using objects • Addition sentences
Concept Description	Students understand addition as combining two groups and recall basic addition facts.
Learning Outcomes	Students can solve addition facts within 20 accurately.
Skills Developed	Addition fluency, Mental maths, Number sense
Beginner (L1)	Add two numbers within 10.
Intermediate (L2)	Add two numbers within 20, including near-tens.
Challenge (L3)	Solve an addition puzzle with more than two addends.
Visual Priority	High
Recommended Question Types	Standard MCQ, Visual MCQ, Missing number
Should Be Tested	Addition facts within 20
Should NOT Be Tested	Multi-digit column addition

2. Subtraction Concepts & Facts

Topic Code	C1-AS-02
Domain	Addition & Subtraction
Subtopics	Subtracting within 20 • Subtraction using objects • Subtraction sentences
Concept Description	Students understand subtraction as taking away or finding the difference.
Learning Outcomes	Students can solve subtraction facts within 20 accurately.
Skills Developed	Subtraction fluency, Mental maths, Number sense
Beginner (L1)	Subtract within 10.
Intermediate (L2)	Subtract within 20, including near-tens.
Challenge (L3)	Solve a subtraction puzzle involving comparison of two differences.
Visual Priority	High
Recommended Question Types	Standard MCQ, Visual MCQ, Missing number
Should Be Tested	Subtraction facts within 20
Should NOT Be Tested	Multi-digit column subtraction

3. Missing Numbers in Addition/Subtraction

Topic Code	C1-AS-03
Domain	Addition & Subtraction
Subtopics	Missing addend • Missing subtrahend • Balancing simple equations
Concept Description	Students find an unknown value in an addition or subtraction sentence.
Learning Outcomes	Students can find the missing number that makes an equation true.
Skills Developed	Inverse reasoning, Number sense, Early algebraic thinking
Beginner (L1)	Find a missing number within 10.
Intermediate (L2)	Find a missing number within 20.
Challenge (L3)	Find a missing number in a two-step equation.
Visual Priority	Medium
Recommended Question Types	Missing number, Standard MCQ
Should Be Tested	Missing numbers within 20
Should NOT Be Tested	Formal algebraic variables

4. Simple Word Problems (Addition/Subtraction)

Topic Code	C1-AS-04
Domain	Addition & Subtraction
Subtopics	Real-life addition stories • Real-life subtraction stories • Choosing the operation
Concept Description	Students apply addition and subtraction to simple real-life situations.
Learning Outcomes	Students can read a short story problem and choose the correct operation and answer.
Skills Developed	Problem solving, Reading comprehension, Application

Beginner (L1)	Solve a one-step story problem within 10.
Intermediate (L2)	Solve a one-step story problem within 20.
Challenge (L3)	Solve a story problem with an extra irrelevant detail.
Visual Priority	Medium
Recommended Question Types	Word problem, Standard MCQ
Should Be Tested	One-step real-life problems within 20
Should NOT Be Tested	Multi-step story problems

Domain: Multiplication & Division

1. Equal Groups & Repeated Addition

Topic Code	C1-MD-01
Domain	Multiplication & Division
Subtopics	Making equal groups • Counting groups • Repeated addition sentences
Concept Description	Students recognise equal groups and connect them to repeated addition.
Learning Outcomes	Students can describe a picture of equal groups as a repeated addition sentence.
Skills Developed	Grouping, Early multiplicative reasoning, Visual reasoning
Beginner (L1)	Count the total from 2–3 equal groups shown visually.
Intermediate (L2)	Write a repeated addition sentence for equal groups.
Challenge (L3)	Identify which picture does NOT show equal groups.
Visual Priority	High
Recommended Question Types	Picture-based MCQ, Visual MCQ
Should Be Tested	Equal groups up to 5 groups of 5
Should NOT Be Tested	Multiplication tables; Formal multiplication symbol problems

2. Sharing & Grouping (Early Division)

Topic Code	C1-MD-02
Domain	Multiplication & Division
Subtopics	Sharing equally • Grouping into sets • Fair-share stories
Concept Description	Students share a set of objects equally among a small number of groups.
Learning Outcomes	Students can share objects equally and state how many each group receives.
Skills Developed	Early division reasoning, Fairness reasoning, Visual reasoning
Beginner (L1)	Share up to 10 objects equally between 2 groups.
Intermediate (L2)	Share up to 20 objects equally between 2–5 groups.
Challenge (L3)	Decide whether a set can be shared equally with none left over.
Visual Priority	High

Recommended Question Types	Picture-based MCQ, Visual MCQ
Should Be Tested	Sharing within 20, small group sizes
Should NOT Be Tested	Division facts or symbols; Remainders

Domain: Patterns & Early Algebraic Thinking

1. Repeating Patterns

Topic Code	C1-PT-01
Domain	Patterns & Early Algebraic Thinking
Subtopics	Shape patterns • Colour patterns • Sound/action patterns
Concept Description	Students identify and extend a repeating pattern using shapes, colours or objects.
Learning Outcomes	Students can find the next item and continue a repeating pattern.
Skills Developed	Pattern recognition, Visual reasoning, Prediction
Beginner (L1)	Continue an AB pattern (e.g. red, blue, red, blue).
Intermediate (L2)	Continue an ABC or AAB pattern.
Challenge (L3)	Identify the rule of an unfamiliar repeating pattern.
Visual Priority	High
Recommended Question Types	Picture-based MCQ, Pattern question
Should Be Tested	Repeating patterns with 2–3 elements
Should NOT Be Tested	Numeric algebraic sequences

2. Number Patterns & Missing Elements

Topic Code	C1-PT-02
Domain	Patterns & Early Algebraic Thinking
Subtopics	Counting patterns • Missing numbers in a pattern • Simple growing patterns
Concept Description	Students find missing numbers in a simple counting or growing pattern.
Learning Outcomes	Students can identify the rule of a simple number pattern and apply it.
Skills Developed	Pattern recognition, Number sense, Reasoning
Beginner (L1)	Find a missing number in a +1 or +2 counting pattern.
Intermediate (L2)	Find a missing number in a skip-counting pattern.
Challenge (L3)	Identify the rule of an unfamiliar simple growing pattern.
Visual Priority	Medium
Recommended Question Types	Missing number, Pattern question
Should Be Tested	Patterns within 100
Should NOT Be Tested	Algebraic expressions for pattern rules

Domain: Geometry & Spatial Reasoning

1. 2D Shapes

Topic Code	C1-GE-01
Domain	Geometry & Spatial Reasoning
Subtopics	Circle, square, triangle, rectangle • Sides • Corners • Shape comparison
Concept Description	Students identify and describe common 2D shapes by their basic properties.
Learning Outcomes	Students can name a shape and count its sides and corners.
Skills Developed	Shape recognition, Visual reasoning, Classification
Beginner (L1)	Name a common 2D shape.
Intermediate (L2)	Count the sides or corners of a shape.
Challenge (L3)	Identify a shape from a description of its properties.
Visual Priority	High
Recommended Question Types	Picture-based MCQ, Shape reasoning
Should Be Tested	Circle, square, triangle, rectangle, and their basic properties
Should NOT Be Tested	Angles in degrees; Polygons beyond 6 sides

2. 3D Objects

Topic Code	C1-GE-02
Domain	Geometry & Spatial Reasoning
Subtopics	Cube, sphere, cone, cylinder • Everyday object matching • Comparing 3D shapes
Concept Description	Students identify common 3D objects and match them to everyday items.
Learning Outcomes	Students can name a 3D object and identify it in a real-life picture.
Skills Developed	Shape recognition, Visual reasoning, Real-life connection
Beginner (L1)	Name a common 3D object.
Intermediate (L2)	Match a 3D object to a real-life item.
Challenge (L3)	Distinguish between two similar-looking 3D objects.
Visual Priority	High
Recommended Question Types	Picture-based MCQ, Matching
Should Be Tested	Cube, sphere, cone, cylinder
Should NOT Be Tested	Faces/edges/vertices counting

3. Position, Direction & Movement

Topic Code	C1-GE-03
Domain	Geometry & Spatial Reasoning
Subtopics	Above/below • Left/right • In front/behind • Simple directions
Concept Description	Students describe the position of an object and follow simple directional instructions.

Learning Outcomes	Students can identify or describe the position of an object relative to another.
Skills Developed	Spatial reasoning, Visual reasoning, Following instructions
Beginner (L1)	Identify above/below or in/out.
Intermediate (L2)	Identify left/right or in front/behind.
Challenge (L3)	Follow a two-step direction to find a location on a simple grid.
Visual Priority	High
Recommended Question Types	Picture-based MCQ, Visual reasoning
Should Be Tested	Basic positional and directional language
Should NOT Be Tested	Coordinate grids with numbers

Domain: Measurement

1. Length & Height

Topic Code	C1-ME-01
Domain	Measurement
Subtopics	Longer/shorter • Taller/shorter • Non-standard units
Concept Description	Students compare and order objects by length or height using direct comparison.
Learning Outcomes	Students can compare two or more objects by length or height.
Skills Developed	Comparison, Estimation, Measurement reasoning
Beginner (L1)	Compare two objects as longer/shorter.
Intermediate (L2)	Order three or more objects by length.
Challenge (L3)	Use a non-standard unit to compare lengths indirectly.
Visual Priority	High
Recommended Question Types	Picture-based MCQ, Comparison question
Should Be Tested	Direct comparison, non-standard units
Should NOT Be Tested	Measurement in cm/m with a ruler

2. Weight/Mass

Topic Code	C1-ME-02
Domain	Measurement
Subtopics	Heavier/lighter • Balancing objects • Non-standard units
Concept Description	Students compare objects by weight using direct comparison or a balance.
Learning Outcomes	Students can identify which of two objects is heavier or lighter.
Skills Developed	Comparison, Estimation, Measurement reasoning
Beginner (L1)	Compare two objects as heavier/lighter.
Intermediate (L2)	Order three objects by weight using a balance picture.
Challenge (L3)	Reason about weight using an unfamiliar balance scenario.

Visual Priority	High
Recommended Question Types	Picture-based MCQ, Comparison question
Should Be Tested	Direct comparison of weight
Should NOT Be Tested	Weight in kg/g with instruments

3. Capacity

Topic Code	C1-ME-03
Domain	Measurement
Subtopics	Full/empty • More/less liquid • Non-standard units
Concept Description	Students compare containers by how much they can hold.
Learning Outcomes	Students can identify which container holds more or less.
Skills Developed	Comparison, Estimation, Measurement reasoning
Beginner (L1)	Identify full, empty or half-full.
Intermediate (L2)	Compare two containers by capacity.
Challenge (L3)	Order three containers by capacity from a picture.
Visual Priority	High
Recommended Question Types	Picture-based MCQ, Comparison question
Should Be Tested	Direct comparison of capacity
Should NOT Be Tested	Capacity in litres/ml with instruments

Domain: Time

1. Day, Night, Days of the Week & Months

Topic Code	C1-TM-01
Domain	Time
Subtopics	Day and night • Days of the week • Months of the year • Daily routines
Concept Description	Students order daily and yearly time events and recall the days and months in order.
Learning Outcomes	Students can sequence daily activities and recall the days of the week in order.
Skills Developed	Sequencing, Time vocabulary, Real-life reasoning
Beginner (L1)	Identify day or night activities.
Intermediate (L2)	Order the days of the week or months.
Challenge (L3)	Solve a before/after puzzle involving days or months.
Visual Priority	Medium
Recommended Question Types	Standard MCQ, Sequencing
Should Be Tested	Days of the week, months, day/night routines
Should NOT Be Tested	Calendar date calculations

2. Basic Clock Reading

Topic Code	C1-TM-02
Domain	Time
Subtopics	O'clock times • Hour hand and minute hand • Matching clocks to activities
Concept Description	Students read the time to the hour on an analogue clock.
Learning Outcomes	Students can read and match o'clock times to a clock face.
Skills Developed	Clock reading, Visual reasoning, Real-life connection
Beginner (L1)	Read a clock showing an exact hour.
Intermediate (L2)	Match a clock time to a daily activity.
Challenge (L3)	Order a set of o'clock times chronologically.
Visual Priority	High
Recommended Question Types	Picture-based MCQ, Matching
Should Be Tested	O'clock times only
Should NOT Be Tested	Half-past, quarter-past, minutes

Domain: Money

1. Coin & Note Recognition

Topic Code	C1-MO-01
Domain	Money
Subtopics	Common coins • Common notes • Identifying value
Concept Description	Students recognise common coins and notes and their values.
Learning Outcomes	Students can identify a coin or note and state its value.
Skills Developed	Recognition, Real-life connection, Number sense
Beginner (L1)	Identify a common coin or note.
Intermediate (L2)	Match a coin/note to its stated value.
Challenge (L3)	Identify which of two coins/notes has greater value.
Visual Priority	High
Recommended Question Types	Picture-based MCQ, Matching
Should Be Tested	Recognition of common local currency
Should NOT Be Tested	Foreign currency; Exchange rates

2. Simple Buying & Comparing Values

Topic Code	C1-MO-02
Domain	Money
Subtopics	Comparing prices • Enough or not enough money • Simple combinations of coins
Concept Description	Students decide whether a given amount of money is enough for a simple purchase.

Learning Outcomes	Students can compare a price with an amount of money and decide if it is enough.
Skills Developed	Comparison, Real-life reasoning, Number sense
Beginner (L1)	Compare a coin value with a small price.
Intermediate (L2)	Add two coin values to check if they are enough.
Challenge (L3)	Find the smallest combination of coins to match a price.
Visual Priority	High
Recommended Question Types	Picture-based MCQ, Word problem
Should Be Tested	Simple price comparisons within 20
Should NOT Be Tested	Giving change; Multi-item shopping bills

Domain: Fractions

1. Halves and Quarters (Visual)

Topic Code	C1-FR-01
Domain	Fractions
Subtopics	Whole • Half • Quarter • Equal parts
Concept Description	Students recognise halves and quarters as equal parts of a whole shape or set.
Learning Outcomes	Students can identify a shape divided into halves or quarters correctly.
Skills Developed	Visual reasoning, Equal-parts reasoning, Fraction sense
Beginner (L1)	Identify a shape divided into two equal halves.
Intermediate (L2)	Identify a shape divided into four equal quarters.
Challenge (L3)	Identify which shape is NOT divided into equal parts.
Visual Priority	High
Recommended Question Types	Picture-based MCQ, Shape reasoning
Should Be Tested	Visual halves and quarters of shapes and small sets
Should NOT Be Tested	Fraction notation ($\frac{1}{2}$, $\frac{1}{4}$); Fraction operations

Domain: Data Handling

1. Sorting & Classification

Topic Code	C1-DT-01
Domain	Data Handling
Subtopics	Sorting by colour/shape/size • Grouping similar objects • Identifying sorting rules
Concept Description	Students sort a set of objects into groups using a given or self-chosen rule.
Learning Outcomes	Students can sort objects correctly and describe the sorting rule used.
Skills Developed	Classification, Reasoning, Observation
Beginner (L1)	Sort objects into two groups by one property.

Intermediate (L2)	Identify the rule used to sort a given set.
Challenge (L3)	Find the object that does not belong to a sorted group.
Visual Priority	High
Recommended Question Types	Picture-based MCQ, Sorting question
Should Be Tested	Sorting by a single visible property
Should NOT Be Tested	Sorting by multiple combined properties

2. Picture Graphs & Tally Marks

Topic Code	C1-DT-02
Domain	Data Handling
Subtopics	Reading tally marks • Reading picture graphs • Counting totals from a graph
Concept Description	Students read simple picture graphs and tally charts to answer questions.
Learning Outcomes	Students can read a picture graph and state a total or comparison.
Skills Developed	Data reading, Counting, Visual reasoning
Beginner (L1)	Count a total shown on a picture graph.
Intermediate (L2)	Compare two categories on a picture graph.
Challenge (L3)	Answer a question requiring two steps of data reading.
Visual Priority	High
Recommended Question Types	Picture-based MCQ, Data interpretation
Should Be Tested	Picture graphs and tally marks with small totals
Should NOT Be Tested	Bar graphs with numeric scales

Domain: Logical Reasoning

1. Odd One Out & Classification

Topic Code	C1-LR-01
Domain	Logical Reasoning
Subtopics	Finding the odd one out • Classifying by property • Comparing sets
Concept Description	Students identify which item does not belong to a group and explain why.
Learning Outcomes	Students can correctly identify the odd one out in a small set.
Skills Developed	Logical reasoning, Classification, Comparison
Beginner (L1)	Find the odd one out based on one obvious property.
Intermediate (L2)	Find the odd one out based on a less obvious property.
Challenge (L3)	Find the odd one out where more than one property must be considered.
Visual Priority	High
Recommended Question Types	Picture-based MCQ, Logical reasoning

Should Be Tested	Simple visual classification
Should NOT Be Tested	Abstract verbal reasoning beyond age level

2. Pattern & Shape Puzzles

Topic Code	C1-LR-02
Domain	Logical Reasoning
Subtopics	Matching puzzles • Simple shape puzzles • Visual sequencing puzzles
Concept Description	Students solve simple visual puzzles involving shapes and patterns.
Learning Outcomes	Students can solve a one-step visual puzzle involving shapes or matching.
Skills Developed	Visual reasoning, Logical reasoning, Puzzle solving
Beginner (L1)	Match two identical shapes or pictures.
Intermediate (L2)	Complete a simple visual puzzle with one missing piece.
Challenge (L3)	Solve a puzzle requiring two reasoning steps.
Visual Priority	High
Recommended Question Types	Picture-based MCQ, Matching, Logical reasoning
Should Be Tested	Simple visual and shape-based puzzles
Should NOT Be Tested	Multi-step abstract logic puzzles

Domain: Problem Solving

1. One-Step Real-Life Problems

Topic Code	C1-PS-01
Domain	Problem Solving
Subtopics	Story-based problems • Choosing the right operation • Everyday scenarios
Concept Description	Students solve one-step problems set in real-life contexts using numbers within 20.
Learning Outcomes	Students can read a short real-life scenario and find the correct answer.
Skills Developed	Problem solving, Application, Reading comprehension
Beginner (L1)	Solve a familiar one-step scenario within 10.
Intermediate (L2)	Solve a one-step scenario within 20.
Challenge (L3)	Solve a one-step scenario with an unfamiliar context or extra detail.
Visual Priority	Medium
Recommended Question Types	Word problem, Standard MCQ
Should Be Tested	One-step real-life problems within 20
Should NOT Be Tested	Multi-step or abstract problems

Markhor Junior Mathematics — Beginner Level — Class 2

Course Overview

Markhor Junior Mathematics — Beginner Level — Class 2 develops the fluency, reasoning and problem-solving skills introduced in Class 1. Students extend their number range to 1000, master addition and subtraction with regrouping, build genuine multiplication and division fact fluency, and deepen their understanding of geometry, measurement, time, money, fractions and data through richer, more independent reasoning. Logical reasoning and non-routine problem solving are woven throughout, preparing students to apply mathematical thinking flexibly to unfamiliar, competition-style situations.

Mathematical Domains & Topics

Number & Number Sense

- Numbers up to 1000
- Place Value (Hundreds, Tens, Ones) & Expanded Form
- Number Comparison & Ordering (3-digit)
- Odd, Even & Number Relationships
- Number Patterns & Skip Counting
- Rounding to the Nearest 10

Addition & Subtraction

- Addition with Regrouping (2–3 digit)
- Subtraction with Regrouping (2–3 digit)
- Mental Addition & Subtraction Strategies
- Missing Number & Balance Problems
- Multi-Step Word Problems (Add/Subtract)

Multiplication & Division

- Multiplication as Repeated Addition & Arrays
- Multiplication Facts (2, 3, 4, 5, 10)
- Division as Sharing & Grouping
- Multiplication–Division Relationships
- Word Problems (Multiplication/Division)

Patterns & Early Algebraic Thinking

- Growing Patterns & Rules
- Finding Unknown Numbers in Statements

Geometry & Spatial Reasoning

- 2D Shape Properties (Sides & Corners)
- 3D Object Properties (Faces, Edges, Vertices)
- Symmetry
- Shape Composition & Decomposition

Measurement

- Length, Height & Distance (Standard Units)
- Weight/Mass (Standard Units)
- Capacity (Standard Units)

Time

- Reading Clocks (Hour, Half, Quarter)

- Time Intervals & Duration
- Calendar Problems

Money

- Making Amounts & Simple Change
- Word Problems with Money

Fractions

- Halves, Quarters & Equal Parts
- Comparing Simple Fractions

Data Handling

- Bar Graphs & Tally Charts
- Interpreting & Comparing Data

Logical Reasoning

- Sequencing & Matching
- Number & Shape Puzzles
- Deductive Mini-Puzzles

Problem Solving

- Two-Step Word Problems
- Non-Routine Challenge Problems

Detailed Topic-by-Topic Curriculum — Class 2

Domain: Number & Number Sense

1. Numbers up to 1000

Topic Code	C2-NS-01
Domain	Number & Number Sense
Subtopics	Reading 3-digit numbers • Writing 3-digit numbers • Counting up to 1000
Concept Description	Students read, write and count numbers up to 1000, extending fluency beyond Class 1.
Learning Outcomes	Students can read, write and count accurately within 1000.
Skills Developed	Number recognition, Counting fluency, Number sense
Beginner (L1)	Read and write numbers up to 200.
Intermediate (L2)	Read, write and count numbers up to 1000.
Challenge (L3)	Continue or correct an unfamiliar counting sequence within 1000.
Visual Priority	Medium
Recommended Question Types	Standard MCQ, Number-based MCQ, Missing number
Should Be Tested	Numbers up to 1000
Should NOT Be Tested	Numbers beyond 1000

2. Place Value (Hundreds, Tens, Ones) & Expanded Form

Topic Code	C2-NS-02
Domain	Number & Number Sense
Subtopics	Hundreds/tens/ones • Expanded form • Building 3-digit numbers
Concept Description	Students extend place-value understanding to hundreds and represent numbers in expanded form.
Learning Outcomes	Students can decompose and recompose a 3-digit number using place value.
Skills Developed	Place-value reasoning, Representation, Number sense
Beginner (L1)	Identify the hundreds, tens and ones digit in a 3-digit number.
Intermediate (L2)	Write a 3-digit number in expanded form.
Challenge (L3)	Solve a problem where regrouping across hundreds changes the answer.
Visual Priority	High
Recommended Question Types	Visual MCQ, Representation question
Should Be Tested	3-digit place value and expanded form
Should NOT Be Tested	Numbers beyond 1000; Decimal place value

3. Number Comparison & Ordering (3-digit)

Topic Code	C2-NS-03
Domain	Number & Number Sense

Subtopics	Comparing 3-digit numbers • Ordering sets of numbers • Greatest/smallest
Concept Description	Students compare and order 3-digit numbers using place value.
Learning Outcomes	Students can order a set of 3-digit numbers from smallest to greatest or vice versa.
Skills Developed	Comparison, Ordering, Place-value reasoning
Beginner (L1)	Compare two 3-digit numbers.
Intermediate (L2)	Order four 3-digit numbers.
Challenge (L3)	Find a missing digit that satisfies a comparison rule.
Visual Priority	Medium
Recommended Question Types	Standard MCQ, Comparison question
Should Be Tested	Comparing/ordering numbers up to 1000
Should NOT Be Tested	Numbers beyond 1000

4. Odd, Even & Number Relationships

Topic Code	C2-NS-04
Domain	Number & Number Sense
Subtopics	Odd/even within 1000 • Number relationships • Consecutive numbers
Concept Description	Students extend odd/even reasoning to larger numbers and explore simple number relationships.
Learning Outcomes	Students can classify larger numbers as odd/even and describe simple relationships.
Skills Developed	Classification, Reasoning, Number sense
Beginner (L1)	Identify odd/even numbers within 100.
Intermediate (L2)	Identify odd/even numbers within 1000.
Challenge (L3)	Solve a reasoning puzzle combining odd/even with another property.
Visual Priority	Medium
Recommended Question Types	Standard MCQ, Logical reasoning
Should Be Tested	Odd/even classification up to 1000
Should NOT Be Tested	Prime/composite classification

5. Number Patterns & Skip Counting

Topic Code	C2-NS-05
Domain	Number & Number Sense
Subtopics	Skip counting by 2, 3, 5, 10, 100 • Missing numbers in sequences • Extending patterns
Concept Description	Students skip count using a wider range of intervals and extend number patterns.
Learning Outcomes	Students can extend a skip-counting sequence and find missing terms.
Skills Developed	Pattern recognition, Number sense, Reasoning
Beginner (L1)	Skip count by 2, 5 or 10 within 100.
Intermediate (L2)	Skip count by 3 or 100 within 1000.

Challenge (L3)	Identify the rule of an unfamiliar skip-counting sequence.
Visual Priority	Medium
Recommended Question Types	Missing number, Pattern question
Should Be Tested	Skip counting within 1000
Should NOT Be Tested	Formal sequence formulas

6. Rounding to the Nearest 10

Topic Code	C2-NS-06
Domain	Number & Number Sense
Subtopics	Rounding rules • Rounding 2-digit numbers • Rounding in context
Concept Description	Students round 2-digit numbers to the nearest 10 using place-value reasoning.
Learning Outcomes	Students can round a given number to the nearest 10 correctly.
Skills Developed	Estimation, Place-value reasoning, Number sense
Beginner (L1)	Round a 2-digit number ending in 0–4 or 5–9.
Intermediate (L2)	Round numbers in a simple real-life context.
Challenge (L3)	Find a number range that rounds to a given value.
Visual Priority	Low
Recommended Question Types	Standard MCQ, Word problem
Should Be Tested	Rounding 2-digit numbers to the nearest 10
Should NOT Be Tested	Rounding to nearest 100 or beyond

Domain: Addition & Subtraction

1. Addition with Regrouping (2–3 digit)

Topic Code	C2-AS-01
Domain	Addition & Subtraction
Subtopics	Adding without regrouping • Adding with regrouping • Column addition
Concept Description	Students add 2- and 3-digit numbers, including problems requiring regrouping.
Learning Outcomes	Students can add multi-digit numbers accurately, with and without regrouping.
Skills Developed	Addition fluency, Regrouping, Place-value reasoning
Beginner (L1)	Add two 2-digit numbers without regrouping.
Intermediate (L2)	Add two 2- or 3-digit numbers with regrouping.
Challenge (L3)	Add three numbers with multiple regrouping steps.
Visual Priority	Medium
Recommended Question Types	Standard MCQ, Missing number
Should Be Tested	Addition of numbers up to 1000

Should NOT Be Tested	Addition beyond 1000
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2. Subtraction with Regrouping (2–3 digit)

Topic Code	C2-AS-02
Domain	Addition & Subtraction
Subtopics	Subtracting without regrouping • Subtracting with regrouping • Column subtraction
Concept Description	Students subtract 2- and 3-digit numbers, including problems requiring regrouping.
Learning Outcomes	Students can subtract multi-digit numbers accurately, with and without regrouping.
Skills Developed	Subtraction fluency, Regrouping, Place-value reasoning
Beginner (L1)	Subtract two 2-digit numbers without regrouping.
Intermediate (L2)	Subtract two 2- or 3-digit numbers with regrouping.
Challenge (L3)	Solve a subtraction problem requiring regrouping across hundreds.
Visual Priority	Medium
Recommended Question Types	Standard MCQ, Missing number
Should Be Tested	Subtraction of numbers up to 1000
Should NOT Be Tested	Subtraction beyond 1000

3. Mental Addition & Subtraction Strategies

Topic Code	C2-AS-03
Domain	Addition & Subtraction
Subtopics	Adding/subtracting 10s • Near-doubles • Compensation strategy
Concept Description	Students use mental strategies to add and subtract efficiently without written working.
Learning Outcomes	Students can apply a mental strategy to solve an addition or subtraction fact quickly.
Skills Developed	Mental maths, Strategy selection, Number sense
Beginner (L1)	Add or subtract a multiple of 10 mentally.
Intermediate (L2)	Use a near-double or compensation strategy.
Challenge (L3)	Choose the most efficient mental strategy for an unfamiliar fact.
Visual Priority	Low
Recommended Question Types	Standard MCQ, Mental maths question
Should Be Tested	Mental strategies within 1000
Should NOT Be Tested	Written algorithms tested as mental maths

4. Missing Number & Balance Problems

Topic Code	C2-AS-04
Domain	Addition & Subtraction
Subtopics	Missing addend/subtrahend • Balancing both sides • Inverse operations

Concept Description	Students find unknown values in addition/subtraction sentences, including balanced equations.
Learning Outcomes	Students can find a missing number that balances an equation with numbers up to 1000.
Skills Developed	Inverse reasoning, Early algebraic thinking, Number sense
Beginner (L1)	Find a missing number in a simple equation.
Intermediate (L2)	Balance an equation with operations on both sides.
Challenge (L3)	Solve a two-step missing-number problem.
Visual Priority	Medium
Recommended Question Types	Missing number, Standard MCQ
Should Be Tested	Missing numbers within 1000
Should NOT Be Tested	Formal algebraic variables (x, y)

5. Multi-Step Word Problems (Add/Subtract)

Topic Code	C2-AS-05
Domain	Addition & Subtraction
Subtopics	Two-step stories • Combined addition and subtraction • Real-life contexts
Concept Description	Students solve word problems requiring two connected addition/subtraction steps.
Learning Outcomes	Students can solve a two-step word problem and explain their reasoning.
Skills Developed	Problem solving, Multi-step reasoning, Application
Beginner (L1)	Solve a two-step problem with small numbers.
Intermediate (L2)	Solve a two-step problem within 1000.
Challenge (L3)	Solve a two-step problem with an unfamiliar or tricky context.
Visual Priority	Medium
Recommended Question Types	Word problem, Multi-step reasoning
Should Be Tested	Two-step real-life problems
Should NOT Be Tested	Three or more step problems

Domain: Multiplication & Division

1. Multiplication as Repeated Addition & Arrays

Topic Code	C2-MD-01
Domain	Multiplication & Division
Subtopics	Repeated addition • Arrays (rows and columns) • Multiplication sentences
Concept Description	Students connect repeated addition and arrays to the concept of multiplication.
Learning Outcomes	Students can represent a multiplication fact as an array or repeated addition.
Skills Developed	Multiplicative reasoning, Visual reasoning, Representation
Beginner (L1)	Write a repeated addition sentence for a picture of equal groups.
Intermediate (L2)	Read a multiplication fact from an array.

Challenge (L3)	Identify two different arrays that represent the same product.
Visual Priority	High
Recommended Question Types	Picture-based MCQ, Visual MCQ
Should Be Tested	Arrays and repeated addition up to 5x5
Should NOT Be Tested	Multiplication beyond facts up to 10

2. Multiplication Facts (2, 3, 4, 5, 10)

Topic Code	C2-MD-02
Domain	Multiplication & Division
Subtopics	Times tables 2, 3, 4, 5, 10 • Fact fluency • Skip counting connection
Concept Description	Students recall multiplication facts for the 2, 3, 4, 5 and 10 times tables.
Learning Outcomes	Students can recall and apply basic multiplication facts accurately.
Skills Developed	Multiplication fluency, Mental maths, Pattern recognition
Beginner (L1)	Recall multiplication facts for 2, 5 and 10.
Intermediate (L2)	Recall multiplication facts for 3 and 4.
Challenge (L3)	Solve a puzzle requiring multiple multiplication facts.
Visual Priority	Medium
Recommended Question Types	Standard MCQ, Missing number
Should Be Tested	Multiplication facts: 2, 3, 4, 5, 10 tables
Should NOT Be Tested	Tables beyond 10; Long multiplication

3. Division as Sharing & Grouping

Topic Code	C2-MD-03
Domain	Multiplication & Division
Subtopics	Sharing equally • Grouping into equal sets • Division sentences
Concept Description	Students understand division as equal sharing or equal grouping, connected to multiplication facts.
Learning Outcomes	Students can solve a simple division problem using sharing or grouping.
Skills Developed	Division reasoning, Multiplicative reasoning, Visual reasoning
Beginner (L1)	Share objects equally using a picture.
Intermediate (L2)	Solve a division fact linked to the 2, 5 or 10 times table.
Challenge (L3)	Decide whether a division has a remainder using reasoning, without formal remainder notation.
Visual Priority	High
Recommended Question Types	Picture-based MCQ, Standard MCQ
Should Be Tested	Division facts linked to 2, 3, 4, 5, 10 tables
Should NOT Be Tested	Formal remainder notation; Division beyond known facts

4. Multiplication–Division Relationships

Topic Code	C2-MD-04
Domain	Multiplication & Division
Subtopics	Fact families • Inverse operations • Related facts
Concept Description	Students recognise multiplication and division as inverse operations using fact families.
Learning Outcomes	Students can generate a related division fact from a known multiplication fact.
Skills Developed	Inverse reasoning, Fact fluency, Number sense
Beginner (L1)	Identify a related fact within a simple fact family.
Intermediate (L2)	Complete a full fact family for a given set of numbers.
Challenge (L3)	Use a fact family to solve a missing-number problem.
Visual Priority	Medium
Recommended Question Types	Standard MCQ, Missing number
Should Be Tested	Fact families within known tables
Should NOT Be Tested	Fact families beyond the 10 times table

5. Word Problems (Multiplication/Division)

Topic Code	C2-MD-05
Domain	Multiplication & Division
Subtopics	Real-life grouping stories • Real-life sharing stories • Choosing the operation
Concept Description	Students apply multiplication and division to solve real-life word problems.
Learning Outcomes	Students can choose the correct operation and solve a multiplication/division word problem.
Skills Developed	Problem solving, Application, Reasoning
Beginner (L1)	Solve a one-step multiplication or division story problem.
Intermediate (L2)	Solve a story problem requiring the correct choice of operation.
Challenge (L3)	Solve a story problem combining multiplication/division with addition/subtraction.
Visual Priority	Medium
Recommended Question Types	Word problem, Standard MCQ
Should Be Tested	One-step and simple mixed word problems
Should NOT Be Tested	Multi-step problems beyond two operations

Domain: Patterns & Early Algebraic Thinking

1. Growing Patterns & Rules

Topic Code	C2-PT-01
Domain	Patterns & Early Algebraic Thinking
Subtopics	Growing shape patterns • Growing number patterns • Describing the rule
Concept Description	Students identify and describe the rule behind a growing pattern.

Learning Outcomes	Students can extend a growing pattern and describe the rule in words.
Skills Developed	Pattern recognition, Early algebraic thinking, Reasoning
Beginner (L1)	Extend a simple growing pattern by one step.
Intermediate (L2)	Describe the rule of a growing pattern.
Challenge (L3)	Predict a distant term in a growing pattern using the rule.
Visual Priority	High
Recommended Question Types	Pattern question, Standard MCQ
Should Be Tested	Growing patterns within accessible number ranges
Should NOT Be Tested	Formal algebraic notation for rules

2. Finding Unknown Numbers in Statements

Topic Code	C2-PT-02
Domain	Patterns & Early Algebraic Thinking
Subtopics	Unknowns in equations • True/false number statements • Simple relationships
Concept Description	Students find an unknown number that makes a mathematical statement true.
Learning Outcomes	Students can find the unknown value in a simple mathematical statement.
Skills Developed	Early algebraic thinking, Reasoning, Number sense
Beginner (L1)	Find an unknown in a one-step statement.
Intermediate (L2)	Decide whether a number statement is true or false.
Challenge (L3)	Find an unknown in a statement involving two operations.
Visual Priority	Low
Recommended Question Types	Missing number, Standard MCQ
Should Be Tested	Unknowns using symbols such as a box or blank
Should NOT Be Tested	Formal algebraic letters and equations

Domain: Geometry & Spatial Reasoning

1. 2D Shape Properties (Sides & Corners)

Topic Code	C2-GE-01
Domain	Geometry & Spatial Reasoning
Subtopics	Counting sides • Counting corners • Naming polygons • Comparing shapes
Concept Description	Students describe and compare 2D shapes using the number of sides and corners.
Learning Outcomes	Students can identify a shape from its number of sides and corners.
Skills Developed	Shape reasoning, Classification, Visual reasoning
Beginner (L1)	Count the sides or corners of a familiar shape.
Intermediate (L2)	Identify a shape from a description of its properties.
Challenge (L3)	Identify a shape that does not match a given property.

Visual Priority	High
Recommended Question Types	Picture-based MCQ, Shape reasoning
Should Be Tested	Shapes up to 6 sides and their properties
Should NOT Be Tested	Angle measurement; Formal geometric proofs

2. 3D Object Properties (Faces, Edges, Vertices)

Topic Code	C2-GE-02
Domain	Geometry & Spatial Reasoning
Subtopics	Counting faces • Counting edges • Counting vertices • Comparing 3D shapes
Concept Description	Students describe 3D objects using the number of faces, edges and vertices.
Learning Outcomes	Students can count the faces, edges or vertices of a common 3D object.
Skills Developed	Shape reasoning, Classification, Visual reasoning
Beginner (L1)	Count the faces of a familiar 3D object.
Intermediate (L2)	Count the edges or vertices of a 3D object.
Challenge (L3)	Identify a 3D object from a description of its properties.
Visual Priority	High
Recommended Question Types	Picture-based MCQ, Shape reasoning
Should Be Tested	Cube, cuboid, sphere, cone, cylinder properties
Should NOT Be Tested	Nets of 3D shapes; Volume calculations

3. Symmetry

Topic Code	C2-GE-03
Domain	Geometry & Spatial Reasoning
Subtopics	Lines of symmetry • Symmetrical shapes • Symmetrical pictures
Concept Description	Students identify whether a shape or picture has a line of symmetry.
Learning Outcomes	Students can identify a line of symmetry in a simple shape or picture.
Skills Developed	Visual reasoning, Spatial reasoning, Pattern recognition
Beginner (L1)	Identify whether a simple shape is symmetrical.
Intermediate (L2)	Identify the correct line of symmetry in a shape.
Challenge (L3)	Identify all lines of symmetry in a shape with more than one.
Visual Priority	High
Recommended Question Types	Picture-based MCQ, Visual reasoning
Should Be Tested	Simple symmetry in shapes and pictures
Should NOT Be Tested	Rotational symmetry; Symmetry of complex figures

4. Shape Composition & Decomposition

Topic Code	C2-GE-04
Domain	Geometry & Spatial Reasoning
Subtopics	Combining shapes • Splitting shapes • Tangram-style puzzles
Concept Description	Students combine simple shapes to form new shapes, and split shapes into smaller parts.
Learning Outcomes	Students can identify which shapes combine to form a given larger shape.
Skills Developed	Spatial reasoning, Visual reasoning, Problem solving
Beginner (L1)	Identify two shapes that combine to form a simple larger shape.
Intermediate (L2)	Split a shape into two or more given smaller shapes.
Challenge (L3)	Solve a tangram-style puzzle with multiple pieces.
Visual Priority	High
Recommended Question Types	Picture-based MCQ, Visual reasoning
Should Be Tested	Composition/decomposition of simple 2D shapes
Should NOT Be Tested	Area or perimeter calculations

Domain: Measurement

1. Length, Height & Distance (Standard Units)

Topic Code	C2-ME-01
Domain	Measurement
Subtopics	Centimetres and metres • Measuring with a ruler • Estimating length
Concept Description	Students measure and estimate length using standard units (cm, m).
Learning Outcomes	Students can measure an object's length in cm or estimate a reasonable length in context.
Skills Developed	Measurement, Estimation, Unit sense
Beginner (L1)	Read a length shown on a simple ruler diagram.
Intermediate (L2)	Estimate the length of a familiar object in cm or m.
Challenge (L3)	Solve a word problem comparing lengths in different units.
Visual Priority	High
Recommended Question Types	Picture-based MCQ, Word problem
Should Be Tested	Length in cm and m, simple estimation
Should NOT Be Tested	Millimetres; Kilometres; Unit conversion calculations

2. Weight/Mass (Standard Units)

Topic Code	C2-ME-02
Domain	Measurement
Subtopics	Grams and kilograms • Reading a simple scale • Estimating weight
Concept Description	Students measure and estimate weight using standard units (g, kg).
Learning Outcomes	Students can read a simple weighing scale and estimate reasonable weights.

Skills Developed	Measurement, Estimation, Unit sense
Beginner (L1)	Read a weight shown on a simple scale diagram.
Intermediate (L2)	Estimate the weight of a familiar object in g or kg.
Challenge (L3)	Solve a word problem comparing weights in different units.
Visual Priority	High
Recommended Question Types	Picture-based MCQ, Word problem
Should Be Tested	Weight in g and kg, simple estimation
Should NOT Be Tested	Unit conversion calculations

3. Capacity (Standard Units)

Topic Code	C2-ME-03
Domain	Measurement
Subtopics	Litres and millilitres • Reading a simple measuring jug • Estimating capacity
Concept Description	Students measure and estimate capacity using standard units (l, ml).
Learning Outcomes	Students can read a simple measuring jug and estimate reasonable capacities.
Skills Developed	Measurement, Estimation, Unit sense
Beginner (L1)	Read a capacity shown on a simple jug diagram.
Intermediate (L2)	Estimate the capacity of a familiar container in l or ml.
Challenge (L3)	Solve a word problem comparing capacities in different units.
Visual Priority	High
Recommended Question Types	Picture-based MCQ, Word problem
Should Be Tested	Capacity in l and ml, simple estimation
Should NOT Be Tested	Unit conversion calculations

Domain: Time

1. Reading Clocks (Hour, Half, Quarter)

Topic Code	C2-TM-01
Domain	Time
Subtopics	O'clock • Half past • Quarter past/to • Matching digital and analogue
Concept Description	Students read analogue and digital clocks to the hour, half hour and quarter hour.
Learning Outcomes	Students can read and match times shown to the hour, half hour or quarter hour.
Skills Developed	Clock reading, Visual reasoning, Time sense
Beginner (L1)	Read a clock showing o'clock or half past.
Intermediate (L2)	Read a clock showing quarter past or quarter to.
Challenge (L3)	Match an analogue time to its digital equivalent for an unfamiliar time.
Visual Priority	High

Recommended Question Types	Picture-based MCQ, Matching
Should Be Tested	Hour, half-hour, quarter-hour times
Should NOT Be Tested	Reading time to the minute

2. Time Intervals & Duration

Topic Code	C2-TM-02
Domain	Time
Subtopics	How long an activity takes • Start and end times • Comparing durations
Concept Description	Students calculate simple durations and compare how long activities take.
Learning Outcomes	Students can find the duration between two simple times or compare two durations.
Skills Developed	Time reasoning, Comparison, Problem solving
Beginner (L1)	Identify which of two activities takes longer.
Intermediate (L2)	Find the duration between two o'clock/half-hour times.
Challenge (L3)	Solve a word problem involving start time, duration and end time.
Visual Priority	Medium
Recommended Question Types	Word problem, Standard MCQ
Should Be Tested	Simple duration problems using hours and half hours
Should NOT Be Tested	Duration problems requiring minute-level precision

3. Calendar Problems

Topic Code	C2-TM-03
Domain	Time
Subtopics	Reading a calendar • Days between dates • Ordering events
Concept Description	Students use a calendar to answer simple questions about dates and order of events.
Learning Outcomes	Students can read a calendar to answer a simple question about days or dates.
Skills Developed	Time reasoning, Sequencing, Real-life application
Beginner (L1)	Identify a day of the week from a calendar.
Intermediate (L2)	Find how many days until a given date.
Challenge (L3)	Order events across different weeks using a calendar.
Visual Priority	Medium
Recommended Question Types	Picture-based MCQ, Word problem
Should Be Tested	Simple calendar reading within one month
Should NOT Be Tested	Calculations across multiple months/years

Domain: Money

1. Making Amounts & Simple Change

Topic Code	C2-MO-01
Domain	Money
Subtopics	Combining coins/notes • Making a target amount • Finding simple change
Concept Description	Students combine coins and notes to make a target amount and find simple change.
Learning Outcomes	Students can make a given amount using coins/notes and find change from a round amount.
Skills Developed	Addition/subtraction application, Real-life reasoning, Number sense
Beginner (L1)	Combine two coins to make a target amount.
Intermediate (L2)	Find change from a simple round amount.
Challenge (L3)	Find the fewest coins/notes needed to make an amount.
Visual Priority	High
Recommended Question Types	Picture-based MCQ, Word problem
Should Be Tested	Amounts and change within 1000 (local currency)
Should NOT Be Tested	Multi-item bills with decimals

2. Word Problems with Money

Topic Code	C2-MO-02
Domain	Money
Subtopics	Shopping scenarios • Comparing costs • Saving and spending stories
Concept Description	Students solve real-life word problems involving buying, comparing and saving money.
Learning Outcomes	Students can solve a one- or two-step word problem involving money.
Skills Developed	Problem solving, Application, Number sense
Beginner (L1)	Solve a one-step money word problem.
Intermediate (L2)	Solve a two-step money word problem.
Challenge (L3)	Solve a money word problem with an unfamiliar or multi-part scenario.
Visual Priority	Medium
Recommended Question Types	Word problem, Standard MCQ
Should Be Tested	One and two-step money problems
Should NOT Be Tested	Problems involving interest or percentages

Domain: Fractions

1. Halves, Quarters & Equal Parts

Topic Code	C2-FR-01
Domain	Fractions
Subtopics	Halves and quarters of shapes • Halves and quarters of sets • Equal parts of a whole
Concept Description	Students identify and create halves and quarters of shapes and small sets of objects.

Learning Outcomes	Students can divide a shape or a small set into equal halves or quarters.
Skills Developed	Fraction sense, Visual reasoning, Equal-parts reasoning
Beginner (L1)	Identify a shape divided into halves or quarters.
Intermediate (L2)	Find half or a quarter of a small set of objects.
Challenge (L3)	Identify an incorrect division of a shape or set into equal parts.
Visual Priority	High
Recommended Question Types	Picture-based MCQ, Standard MCQ
Should Be Tested	Halves and quarters of shapes and sets up to 20
Should NOT Be Tested	Fraction addition/subtraction

2. Comparing Simple Fractions

Topic Code	C2-FR-02
Domain	Fractions
Subtopics	Comparing halves and quarters • Which is bigger • Visual fraction comparison
Concept Description	Students compare simple visual fractions such as halves and quarters.
Learning Outcomes	Students can identify which of two simple fractions represents a larger part.
Skills Developed	Comparison, Visual reasoning, Fraction sense
Beginner (L1)	Compare a half and a quarter shown visually.
Intermediate (L2)	Compare two fractions of different wholes visually.
Challenge (L3)	Reason about a comparison involving equal but differently shaped parts.
Visual Priority	High
Recommended Question Types	Picture-based MCQ, Comparison question
Should Be Tested	Visual comparison of halves and quarters
Should NOT Be Tested	Comparing fractions with unlike unfamiliar denominators

Domain: Data Handling

1. Bar Graphs & Tally Charts

Topic Code	C2-DT-01
Domain	Data Handling
Subtopics	Reading bar graphs • Reading tally charts • Creating simple totals
Concept Description	Students read and interpret simple bar graphs and tally charts with numeric scales.
Learning Outcomes	Students can read a value from a bar graph or tally chart accurately.
Skills Developed	Data reading, Counting, Visual reasoning
Beginner (L1)	Read a single value from a bar graph.
Intermediate (L2)	Compare two categories on a bar graph.
Challenge (L3)	Answer a two-step question combining several bars or tally totals.

Visual Priority	High
Recommended Question Types	Picture-based MCQ, Data interpretation
Should Be Tested	Bar graphs and tally charts with simple numeric scales
Should NOT Be Tested	Graphs requiring interpolation between scale marks

2. Interpreting & Comparing Data

Topic Code	C2-DT-02
Domain	Data Handling
Subtopics	Most/least common • Totals from data • Simple data-based conclusions
Concept Description	Students draw simple conclusions and comparisons from a set of data.
Learning Outcomes	Students can identify the most/least common category or a total from a data set.
Skills Developed	Data interpretation, Reasoning, Comparison
Beginner (L1)	Identify the category with the most or least items.
Intermediate (L2)	Find the total of two or more categories.
Challenge (L3)	Draw a conclusion requiring comparison across the whole data set.
Visual Priority	Medium
Recommended Question Types	Data interpretation, Standard MCQ
Should Be Tested	Interpretation of simple data sets
Should NOT Be Tested	Mean, median or advanced statistics

Domain: Logical Reasoning

1. Sequencing & Matching

Topic Code	C2-LR-01
Domain	Logical Reasoning
Subtopics	Ordering events or items • Matching pairs • Logical sequences
Concept Description	Students order items logically and match related pairs based on a rule.
Learning Outcomes	Students can correctly order a sequence or match pairs based on a logical rule.
Skills Developed	Sequencing, Matching, Logical reasoning
Beginner (L1)	Order 3–4 items in a logical sequence.
Intermediate (L2)	Match pairs based on a stated rule.
Challenge (L3)	Order items or match pairs based on an unstated rule.
Visual Priority	High
Recommended Question Types	Picture-based MCQ, Matching
Should Be Tested	Simple sequencing and matching tasks
Should NOT Be Tested	Abstract verbal logic beyond age level

2. Number & Shape Puzzles

Topic Code	C2-LR-02
Domain	Logical Reasoning
Subtopics	Number grid puzzles • Shape pattern puzzles • Simple logic grids
Concept Description	Students solve puzzles that combine number and shape reasoning.
Learning Outcomes	Students can solve a one- or two-step number or shape puzzle.
Skills Developed	Logical reasoning, Pattern recognition, Problem solving
Beginner (L1)	Solve a simple number grid puzzle.
Intermediate (L2)	Solve a shape pattern puzzle with one missing element.
Challenge (L3)	Solve a puzzle requiring two combined reasoning steps.
Visual Priority	High
Recommended Question Types	Picture-based MCQ, Logical reasoning
Should Be Tested	One and two-step number/shape puzzles
Should NOT Be Tested	Puzzles requiring formal logic notation

3. Deductive Mini-Puzzles

Topic Code	C2-LR-03
Domain	Logical Reasoning
Subtopics	Clue-based puzzles • Elimination reasoning • Simple 'who has what' puzzles
Concept Description	Students use given clues to eliminate possibilities and reach a single logical conclusion.
Learning Outcomes	Students can use two or three simple clues to solve a mini deduction puzzle.
Skills Developed	Deductive reasoning, Elimination, Logical thinking
Beginner (L1)	Use one clue to eliminate an option.
Intermediate (L2)	Use two clues to find the correct answer.
Challenge (L3)	Use three or more clues in a short deduction puzzle.
Visual Priority	Medium
Recommended Question Types	Standard MCQ, Logical reasoning
Should Be Tested	Simple clue-based deduction with small option sets
Should NOT Be Tested	Complex multi-variable logic grids

Domain: Problem Solving

1. Two-Step Word Problems

Topic Code	C2-PS-01
Domain	Problem Solving
Subtopics	Combined operations • Real-life multi-step stories • Planning the solution
Concept Description	Students solve word problems requiring two connected operations or steps.

Learning Outcomes	Students can plan and solve a two-step word problem accurately.
Skills Developed	Problem solving, Multi-step reasoning, Planning
Beginner (L1)	Solve a two-step problem with small, familiar numbers.
Intermediate (L2)	Solve a two-step problem within 1000.
Challenge (L3)	Solve a two-step problem with an unfamiliar context or extra information.
Visual Priority	Medium
Recommended Question Types	Word problem, Multi-step reasoning
Should Be Tested	Two-step real-life problems across domains
Should NOT Be Tested	Three or more step problems

2. Non-Routine Challenge Problems

Topic Code	C2-PS-02
Domain	Problem Solving
Subtopics	Unfamiliar problem types • Problems with hidden relationships • Competition-style reasoning
Concept Description	Students apply flexible mathematical thinking to problems they have not seen before.
Learning Outcomes	Students can approach an unfamiliar problem using reasoning rather than a memorised method.
Skills Developed	Non-routine problem solving, Flexible reasoning, Perseverance
Beginner (L1)	Solve a simple non-routine problem with guided structure.
Intermediate (L2)	Solve a non-routine problem combining two known concepts.
Challenge (L3)	Solve a genuinely unfamiliar competition-style problem.
Visual Priority	Medium
Recommended Question Types	Standard MCQ, Logical reasoning, Word problem
Should Be Tested	Non-routine problems built from Class 2 concepts only
Should NOT Be Tested	Problems requiring concepts beyond Class 2 scope

9. Class 1 → Class 2 Progression Map

This spiral progression map shows, for every domain, how Class 1 foundations develop into Class 2 fluency and reasoning, and what a Challenge-level extension looks like.

Domain	Class 1 Foundation	Class 2 Development	Challenge Extension
Number & Number Sense	Numbers to 100; place value in tens and ones; number bonds to 20.	Numbers to 1000; place value in hundreds, tens and ones; expanded form; rounding.	Multi-digit reasoning, regrouping puzzles and unfamiliar number relationships.
Addition & Subtraction	Addition and subtraction facts within 20; simple missing numbers.	Multi-digit addition/subtraction with regrouping; mental strategies; two-step word problems.	Multi-step, multi-digit reasoning with regrouping and balanced equations.

Domain	Class 1 Foundation	Class 2 Development	Challenge Extension
Multiplication & Division	Equal groups, repeated addition, sharing and grouping (concept only).	Multiplication facts (2,3,4,5,10), arrays, division as sharing/grouping, fact families.	Mixed multiplication/division word problems and fact-family reasoning.
Patterns & Early Algebraic Thinking	Repeating patterns and simple number patterns.	Growing patterns, pattern rules and unknowns in number statements.	Predicting distant pattern terms and solving two-step unknowns.
Geometry & Spatial Reasoning	Naming 2D shapes and 3D objects; position and direction.	Shape properties (sides, corners, faces, edges, vertices), symmetry, composition/decomposition.	Multi-property shape identification and tangram-style spatial puzzles.
Measurement	Direct comparison of length, weight and capacity using non-standard units.	Measurement in standard units (cm/m, g/kg, l/ml) with estimation.	Word problems comparing measurements across units and contexts.
Time	Days, months, daily routines and o'clock times.	Hour, half-hour and quarter-hour clock reading; duration; calendar problems.	Multi-step duration and calendar reasoning problems.
Money	Coin/note recognition and simple value comparison.	Making target amounts, simple change and money word problems.	Fewest-coins problems and multi-part shopping scenarios.
Fractions	Visual recognition of halves and quarters of shapes.	Halves and quarters of shapes and sets; simple visual comparison.	Identifying incorrect equal-part divisions and comparing unlike wholes.
Data Handling	Sorting, classification, tally marks and picture graphs.	Bar graphs with numeric scales; interpreting and comparing data sets.	Two-step data interpretation questions across multiple categories.
Logical Reasoning	Odd one out, classification and simple visual puzzles.	Sequencing, matching, number/shape puzzles and simple deduction.	Multi-clue deduction puzzles and two-step logic puzzles.
Problem Solving	One-step real-life problems within 20.	Two-step real-life problems and non-routine challenge problems.	Unfamiliar, competition-style problems built from known concepts.

10. MCQ Assessment Blueprint

The following domain-weighting tables give future question writers a recommended percentage distribution for building a balanced Markhor Junior Mathematics question bank at each class level. Number Sense and Addition/Subtraction remain the strongest foundations in both classes, while Multiplication & Division, Logical Reasoning and Problem Solving grow in weight from Class 1 to Class 2, reflecting the natural progression of the curriculum.

Class 1 — Domain Distribution

Mathematical Domain	% of Question Bank
Number & Number Sense	20%
Addition & Subtraction	20%
Multiplication & Division	8%
Patterns & Early Algebraic Thinking	6%
Geometry & Spatial Reasoning	10%
Measurement	8%

Mathematical Domain	% of Question Bank
Time	6%
Money	6%
Fractions	4%
Data Handling	4%
Logical Reasoning	4%
Problem Solving	4%
Total	100%

Class 2 — Domain Distribution

Mathematical Domain	% of Question Bank
Number & Number Sense	16%
Addition & Subtraction	18%
Multiplication & Division	14%
Patterns & Early Algebraic Thinking	5%
Geometry & Spatial Reasoning	10%
Measurement	7%
Time	6%
Money	5%
Fractions	4%
Data Handling	4%
Logical Reasoning	6%
Problem Solving	5%
Total	100%

11. Difficulty Distribution

Class 1 keeps a stronger foundation weighting, while Class 2 shifts noticeably toward Intermediate and Challenge items, reflecting the growth in independent reasoning expected at this stage.

Class 1

Difficulty Level	% of Question Bank
Level 1 — Beginner	45%
Level 2 — Intermediate	40%
Level 3 — Challenge	15%

Class 2

Difficulty Level	% of Question Bank
Level 1 — Beginner	35%
Level 2 — Intermediate	40%

Difficulty Level	% of Question Bank
Level 3 — Challenge	25%

12. Future Question Bank Tagging System

Every Markhor Junior Mathematics MCQ should be tagged using the following standardised code, which scales cleanly to future classes:

CLASS – DOMAIN – DIFFICULTY – TYPE – SEQUENCE

Example: C2-MD-I-PMCQ-014 → Class 2, Multiplication & Division, Intermediate, Picture-based MCQ, item 14.

Class Codes

Code	Meaning
C1	Beginner Level — Class 1
C2	Beginner Level — Class 2

Domain Codes

Code	Meaning
NS	Number & Number Sense
AS	Addition & Subtraction
MD	Multiplication & Division
PT	Patterns & Early Algebraic Thinking
GE	Geometry & Spatial Reasoning
ME	Measurement
TM	Time
MO	Money
FR	Fractions
DT	Data Handling
LR	Logical Reasoning
PS	Problem Solving

Difficulty Codes

Code	Meaning
B	Beginner (Level 1)
I	Intermediate (Level 2)
C	Challenge (Level 3)

Question Type Codes

Code	Meaning
MCQ	Standard multiple-choice question
VMCQ	Visual multiple-choice question
PMCQ	Picture-based multiple-choice question
PAT	Pattern question
MSN	Missing number question
MAT	Matching question

Code	Meaning
LGR	Logical reasoning question
WRD	Word / real-life problem
DIN	Data interpretation question
SHR	Shape reasoning question
CMP	Comparison question
MSR	Mental maths / strategy question

13. Assessment Alignment

This curriculum is structured to directly support every future Markhor Junior assessment product:

- Practice Test — reinforces individual topics and builds foundational skill fluency, drawing mainly from Beginner and Intermediate level items.
- Mock Test — provides mixed-topic examination preparation across all twelve domains, following the recommended MCQ Assessment Blueprint distribution.
- Past Paper — offers contest-style revision, balancing all three difficulty levels as previously used in official Markhor Junior papers.
- Contest Paper — delivers a balanced assessment of mathematical knowledge, reasoning and problem solving, weighted according to the official domain and difficulty distributions in Sections 10 and 11.

14. Master Syllabus Table

A single reference table for teachers, curriculum managers, question writers and AI question-generation systems. Full topic detail (subtopics, concept description, skills, should/should-not boundaries) is provided in the Detailed Topic-by-Topic Curriculum sections above; this table gives a compact, scannable overview.

Class 1

Code	Domain	Topic	Beginner	Intermediate	Challenge	Visual
C1-NS-01	NS	Number Recognition & Counting (0–100)	Read, write and count numbers 0–20.	Count on and back within 100; count in twos and fives.	Continue an unfamiliar counting sequence or identify a counting error.	High
C1-NS-02	NS	Number Sequences & Number Lines	Identify the number before, after or between two numbers.	Complete a sequence with a skip-counting rule.	Find a missing number in a sequence with an unstated rule.	High
C1-NS-03	NS	Comparing Numbers (Greater/Less/Equal)	Compare two single-digit numbers.	Compare two-digit numbers using place value.	Order a set of numbers or find a number that fits a comparison rule.	Medium
C1-NS-04	NS	Odd and Even Numbers	Identify odd and even numbers up to 20.	Identify odd and even numbers up to 100.	Solve a puzzle involving odd/even reasoning.	Medium
C1-NS-05	NS	Place Value (Tens & Ones)	Identify the tens and ones digit in a two-digit number.	Build or represent a number using tens and ones.	Solve a problem where regrouping tens and ones changes the answer.	High
C1-NS-06	NS	Number Decomposition (Number Bonds)	Complete number bonds to 10.	Complete number bonds to 20.	Find multiple valid part combinations for a given whole.	High
C1-AS-07	AS	Addition Concepts & Facts	Add two numbers within 10.	Add two numbers within 20, including near-tens.	Solve an addition puzzle with more than two addends.	High
C1-AS-08	AS	Subtraction Concepts & Facts	Subtract within 10.	Subtract within 20, including near-tens.	Solve a subtraction puzzle involving comparison of two differences.	High
C1-AS-09	AS	Missing Numbers in Addition/Subtraction	Find a missing number within 10.	Find a missing number within 20.	Find a missing number in a two-step equation.	Medium
C1-AS-10	AS	Simple Word Problems (Addition/Subtraction)	Solve a one-step story problem within 10.	Solve a one-step story problem within 20.	Solve a story problem with an extra irrelevant detail.	Medium
C1-MD-11	MD	Equal Groups & Repeated Addition	Count the total from 2–3 equal groups shown visually.	Write a repeated addition sentence for equal groups.	Identify which picture does NOT show equal groups.	High
C1-MD-12	MD	Sharing & Grouping (Early Division)	Share up to 10 objects equally between 2 groups.	Share up to 20 objects equally between 2–5 groups.	Decide whether a set can be shared equally with none left over.	High
C1-PT-13	PT	Repeating Patterns	Continue an AB pattern (e.g. red, blue, red, blue).	Continue an ABC or AAB pattern.	Identify the rule of an unfamiliar repeating pattern.	High
C1-PT-14	PT	Number Patterns & Missing Elements	Find a missing number in a +1 or +2 counting pattern.	Find a missing number in a skip-counting pattern.	Identify the rule of an unfamiliar simple growing pattern.	Medium
C1-GE-15	GE	2D Shapes	Name a common 2D shape.	Count the sides or corners of a shape.	Identify a shape from a description of its properties.	High
C1-GE-16	GE	3D Objects	Name a common 3D object.	Match a 3D object to a real-life item.	Distinguish between two similar-looking 3D objects.	High
C1-GE-17	GE	Position, Direction & Movement	Identify above/below or in/out.	Identify left/right or in front/behind.	Follow a two-step direction to find a location on a simple grid.	High
C1-ME-18	ME	Length & Height	Compare two objects as longer/shorter.	Order three or more objects by length.	Use a non-standard unit to compare lengths indirectly.	High
C1-ME-19	ME	Weight/Mass	Compare two objects as heavier/lighter.	Order three objects by weight using a balance picture.	Reason about weight using an unfamiliar balance scenario.	High

Code	Domain	Topic	Beginner	Intermediate	Challenge	Visual
C1-ME-20	ME	Capacity	Identify full, empty or half-full.	Compare two containers by capacity.	Order three containers by capacity from a picture.	High
C1-TM-21	TM	Day, Night, Days of the Week & Months	Identify day or night activities.	Order the days of the week or months.	Solve a before/after puzzle involving days or months.	Medium
C1-TM-22	TM	Basic Clock Reading	Read a clock showing an exact hour.	Match a clock time to a daily activity.	Order a set of o'clock times chronologically.	High
C1-MO-23	MO	Coin & Note Recognition	Identify a common coin or note.	Match a coin/note to its stated value.	Identify which of two coins/notes has greater value.	High
C1-MO-24	MO	Simple Buying & Comparing Values	Compare a coin value with a small price.	Add two coin values to check if they are enough.	Find the smallest combination of coins to match a price.	High
C1-FR-25	FR	Halves and Quarters (Visual)	Identify a shape divided into two equal halves.	Identify a shape divided into four equal quarters.	Identify which shape is NOT divided into equal parts.	High
C1-DT-26	DT	Sorting & Classification	Sort objects into two groups by one property.	Identify the rule used to sort a given set.	Find the object that does not belong to a sorted group.	High
C1-DT-27	DT	Picture Graphs & Tally Marks	Count a total shown on a picture graph.	Compare two categories on a picture graph.	Answer a question requiring two steps of data reading.	High
C1-LR-28	LR	Odd One Out & Classification	Find the odd one out based on one obvious property.	Find the odd one out based on a less obvious property.	Find the odd one out where more than one property must be considered.	High
C1-LR-29	LR	Pattern & Shape Puzzles	Match two identical shapes or pictures.	Complete a simple visual puzzle with one missing piece.	Solve a puzzle requiring two reasoning steps.	High
C1-PS-30	PS	One-Step Real-Life Problems	Solve a familiar one-step scenario within 10.	Solve a one-step scenario within 20.	Solve a one-step scenario with an unfamiliar context or extra detail.	Medium

Class 2

Code	Domain	Topic	Beginner	Intermediate	Challenge	Visual
C2-NS-01	NS	Numbers up to 1000	Read and write numbers up to 200.	Read, write and count numbers up to 1000.	Continue or correct an unfamiliar counting sequence within 1000.	Medium
C2-NS-02	NS	Place Value (Hundreds, Tens, Ones) & Expanded Form	Identify the hundreds, tens and ones digit in a 3-digit number.	Write a 3-digit number in expanded form.	Solve a problem where regrouping across hundreds changes the answer.	High
C2-NS-03	NS	Number Comparison & Ordering (3-digit)	Compare two 3-digit numbers.	Order four 3-digit numbers.	Find a missing digit that satisfies a comparison rule.	Medium
C2-NS-04	NS	Odd, Even & Number Relationships	Identify odd/even numbers within 100.	Identify odd/even numbers within 1000.	Solve a reasoning puzzle combining odd/even with another property.	Medium
C2-NS-05	NS	Number Patterns & Skip Counting	Skip count by 2, 5 or 10 within 100.	Skip count by 3 or 100 within 1000.	Identify the rule of an unfamiliar skip-counting sequence.	Medium
C2-NS-06	NS	Rounding to the Nearest 10	Round a 2-digit number ending in 0–4 or 5–9.	Round numbers in a simple real-life context.	Find a number range that rounds to a given value.	Low
C2-AS-07	AS	Addition with Regrouping (2–3 digit)	Add two 2-digit numbers without regrouping.	Add two 2- or 3-digit numbers with regrouping.	Add three numbers with multiple regrouping steps.	Medium
C2-AS-08	AS	Subtraction with Regrouping (2–3 digit)	Subtract two 2-digit numbers without regrouping.	Subtract two 2- or 3-digit numbers with regrouping.	Solve a subtraction problem requiring regrouping across hundreds.	Medium
C2-AS-09	AS	Mental Addition & Subtraction Strategies	Add or subtract a multiple of 10 mentally.	Use a near-double or compensation strategy.	Choose the most efficient mental strategy for an unfamiliar fact.	Low
C2-AS-10	AS	Missing Number & Balance Problems	Find a missing number in a simple equation.	Balance an equation with operations on both sides.	Solve a two-step missing-number problem.	Medium
C2-AS-11	AS	Multi-Step Word Problems (Add/Subtract)	Solve a two-step problem with small numbers.	Solve a two-step problem within 1000.	Solve a two-step problem with an unfamiliar or tricky context.	Medium
C2-MD-12	MD	Multiplication as Repeated Addition & Arrays	Write a repeated addition sentence for a picture of equal groups.	Read a multiplication fact from an array.	Identify two different arrays that represent the same product.	High
C2-MD-13	MD	Multiplication Facts (2, 3, 4, 5, 10)	Recall multiplication facts for 2, 5 and 10.	Recall multiplication facts for 3 and 4.	Solve a puzzle requiring multiple multiplication facts.	Medium
C2-MD-14	MD	Division as Sharing & Grouping	Share objects equally using a picture.	Solve a division fact linked to the 2, 5 or 10 times table.	Decide whether a division has a remainder using reasoning, without formal remainder notation.	High
C2-MD-15	MD	Multiplication–Division Relationships	Identify a related fact within a simple fact family.	Complete a full fact family for a given set of numbers.	Use a fact family to solve a missing-number problem.	Medium
C2-MD-16	MD	Word Problems (Multiplication/Division)	Solve a one-step multiplication or division story problem.	Solve a story problem requiring the correct choice of operation.	Solve a story problem combining multiplication/division with addition/subtraction.	Medium
C2-PT-17	PT	Growing Patterns & Rules	Extend a simple growing pattern by one step.	Describe the rule of a growing pattern.	Predict a distant term in a growing pattern using the rule.	High
C2-PT-18	PT	Finding Unknown Numbers in Statements	Find an unknown in a one-step statement.	Decide whether a number statement is true or false.	Find an unknown in a statement involving two operations.	Low
C2-GE-19	GE	2D Shape Properties (Sides & Corners)	Count the sides or corners of a familiar shape.	Identify a shape from a description of its properties.	Identify a shape that does not match a given property.	High
C2-GE-20	GE	3D Object Properties (Faces, Edges, Vertices)	Count the faces of a familiar 3D object.	Count the edges or vertices of a 3D object.	Identify a 3D object from a description of its properties.	High

Code	Domain	Topic	Beginner	Intermediate	Challenge	Visual
C2-GE-21	GE	Symmetry	Identify whether a simple shape is symmetrical.	Identify the correct line of symmetry in a shape.	Identify all lines of symmetry in a shape with more than one.	High
C2-GE-22	GE	Shape Composition & Decomposition	Identify two shapes that combine to form a simple larger shape.	Split a shape into two or more given smaller shapes.	Solve a tangram-style puzzle with multiple pieces.	High
C2-ME-23	ME	Length, Height & Distance (Standard Units)	Read a length shown on a simple ruler diagram.	Estimate the length of a familiar object in cm or m.	Solve a word problem comparing lengths in different units.	High
C2-ME-24	ME	Weight/Mass (Standard Units)	Read a weight shown on a simple scale diagram.	Estimate the weight of a familiar object in g or kg.	Solve a word problem comparing weights in different units.	High
C2-ME-25	ME	Capacity (Standard Units)	Read a capacity shown on a simple jug diagram.	Estimate the capacity of a familiar container in l or ml.	Solve a word problem comparing capacities in different units.	High
C2-TM-26	TM	Reading Clocks (Hour, Half, Quarter)	Read a clock showing o'clock or half past.	Read a clock showing quarter past or quarter to.	Match an analogue time to its digital equivalent for an unfamiliar time.	High
C2-TM-27	TM	Time Intervals & Duration	Identify which of two activities takes longer.	Find the duration between two o'clock/half-hour times.	Solve a word problem involving start time, duration and end time.	Medium
C2-TM-28	TM	Calendar Problems	Identify a day of the week from a calendar.	Find how many days until a given date.	Order events across different weeks using a calendar.	Medium
C2-MO-29	MO	Making Amounts & Simple Change	Combine two coins to make a target amount.	Find change from a simple round amount.	Find the fewest coins/notes needed to make an amount.	High
C2-MO-30	MO	Word Problems with Money	Solve a one-step money word problem.	Solve a two-step money word problem.	Solve a money word problem with an unfamiliar or multi-part scenario.	Medium
C2-FR-31	FR	Halves, Quarters & Equal Parts	Identify a shape divided into halves or quarters.	Find half or a quarter of a small set of objects.	Identify an incorrect division of a shape or set into equal parts.	High
C2-FR-32	FR	Comparing Simple Fractions	Compare a half and a quarter shown visually.	Compare two fractions of different wholes visually.	Reason about a comparison involving equal but differently shaped parts.	High
C2-DT-33	DT	Bar Graphs & Tally Charts	Read a single value from a bar graph.	Compare two categories on a bar graph.	Answer a two-step question combining several bars or tally totals.	High
C2-DT-34	DT	Interpreting & Comparing Data	Identify the category with the most or least items.	Find the total of two or more categories.	Draw a conclusion requiring comparison across the whole data set.	Medium
C2-LR-35	LR	Sequencing & Matching	Order 3–4 items in a logical sequence.	Match pairs based on a stated rule.	Order items or match pairs based on an unstated rule.	High
C2-LR-36	LR	Number & Shape Puzzles	Solve a simple number grid puzzle.	Solve a shape pattern puzzle with one missing element.	Solve a puzzle requiring two combined reasoning steps.	High
C2-LR-37	LR	Deductive Mini-Puzzles	Use one clue to eliminate an option.	Use two clues to find the correct answer.	Use three or more clues in a short deduction puzzle.	Medium
C2-PS-38	PS	Two-Step Word Problems	Solve a two-step problem with small, familiar numbers.	Solve a two-step problem within 1000.	Solve a two-step problem with an unfamiliar context or extra information.	Medium
C2-PS-39	PS	Non-Routine Challenge Problems	Solve a simple non-routine problem with guided structure.	Solve a non-routine problem combining two known concepts.	Solve a genuinely unfamiliar competition-style problem.	Medium

15. Final Quality Control Summary

This curriculum has been reviewed against the following standards:

- Class 1 is developmentally appropriate for beginner learners; Class 2 is clearly more advanced, with no unnecessary repetition.
- Number sense and arithmetic fluency are strongly developed and balanced with reasoning throughout.
- Geometry, spatial thinking, measurement, time, money and data handling are fully represented at both levels.
- Problem solving and logical reasoning are integrated across domains, not treated as isolated add-ons.
- Challenge-level items are built from deeper mathematical thinking, not merely larger numbers or advanced concepts.
- Every topic can generate high-quality MCQs across the six standard question concepts and has clearly defined testing boundaries.
- Learning outcomes are measurable and question-bank ready.
- The curriculum supports future Practice Tests, Mock Tests, Past Papers and Contest Papers.
- The syllabus is 100% original and exclusively branded as the Markhor Junior Mathematics Curriculum; no external competition is mentioned anywhere in this document.
- No copyrighted material has been copied or closely reproduced from any external source.