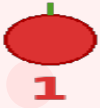




# International Math Olympiad — Grade 1

## Theme: Numbers & The World Around Us

IB PYP Aligned • Problem-Solving • Reasoning • Application



Counting 1 to 8 • Shapes • Adding & Subtracting • Patter



### Counting & Number Recognition

- Count forward and backward from 1 to 100
- Recognize and write numerals 0–100
- Understand the meaning of zero
- Count objects in a set and match to numerals
- Compare groups using 'more than', 'fewer than', 'equal to'

### Simple Measurements

- Compare length using 'longer', 'shorter', 'taller'
- Measure length using non-standard units (blocks, hands)
- Compare weight using 'heavier' and 'lighter'
- Order events using time words: morning, afternoon, night
- Read time on a clock to the hour

### Basic Addition & Subtraction

- Add two single-digit numbers (sums up to 20)
- Subtract single-digit numbers within 20
- Understand addition as 'putting together'
- Understand subtraction as 'taking away'
- Use number lines and counters to add/subtract
- Solve simple addition and subtraction word problems

### Basic Word Problems

- Solve one-step addition problems from stories
- Solve one-step subtraction problems from stories
- Identify key words: 'altogether', 'left', 'more', 'less'
- Draw pictures or use objects to solve problems

### Number Patterns

- Identify and continue simple repeating patterns (e.g. 1,2,1,2...)
- Recognize skip counting by 2s, 5s, and 10s
- Describe rules for number patterns
- Create and extend patterns using objects and numbers

### 2D Shapes

- Name and describe: circle, square, rectangle, triangle
- Identify shapes in real-world objects



# International Math Olympiad — Grade 2

## Theme: Exploring Numbers & Operations

IB PYP Aligned • Problem-Solving • Reasoning • Application

$$3 \times 4 = 12$$



$$2 \times 5 = 10$$



$$4 \times 3 = 12$$



Groups • Place Value • Patterns • 3D Shapes • Money • Time



10

100



### Place Value (up to 1000)

- Understand ones, tens, and hundreds
- Represent numbers using base-10 blocks
- Read and write numbers in standard and expanded form
- Compare and order 3-digit numbers using  $<$ ,  $>$ ,  $=$
- Identify the value of each digit in a 3-digit number

### Addition & Subtraction (2–3 Digits)

- Add 2-digit and 3-digit numbers with and without regrouping
- Subtract 2-digit and 3-digit numbers with borrowing
- Check subtraction using addition (inverse operations)
- Solve multi-step word problems with  $+$  and  $-$
- Estimate sums and differences by rounding

### Introduction to Multiplication

- Understand multiplication as repeated addition
- Use arrays and equal groups to show multiplication
- Learn multiplication facts for 2s, 5s, and 10s
- Write multiplication sentences:  $3 \times 4 = 12$
- Solve simple multiplication word problems

### Patterns & Sequences

- Identify and extend growing number patterns
- Describe the rule for a given pattern

### 2D & 3D Shapes

- Name 2D shapes: pentagon, hexagon, octagon
- Identify 3D shapes: cube, cylinder, cone, sphere, pyramid
- Describe faces, edges, and vertices of 3D shapes
- Find 3D shapes in everyday objects

### Measurement — Time, Length, Mass

- Read analog and digital clocks to the half-hour and quarter-hour
- Measure length in centimeters and meters
- Compare and order lengths
- Measure mass using grams and kilograms
- Use a calendar: days, weeks, months, year

### Money Basics

- Identify coins and banknotes by name and value
- Count and combine money amounts
- Find change from a simple purchase
- Solve simple money word problems

### Word Problems

- Solve one- and two-step problems using all four operations
- Identify important information and choose the right operation
- Use diagrams and number lines to model problems



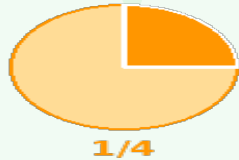
# International Math Olympiad — Grade 3

## Theme: Building Mathematical Reasoning

IB PYP Aligned • Problem-Solving • Reasoning • Application



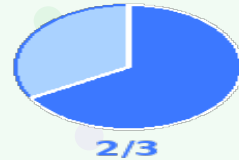
1/2



1/4



3/4



2/3

Fractions • Area & Perimeter • Bar Charts • Logical Reasoning



### Place Value (up to 10,000)

- Understand thousands, hundreds, tens, ones
- Read and write numbers to 10,000 in words and digits
- Represent numbers using different forms (standard, expanded, word)
- Round numbers to nearest 10, 100, and 1000
- Order and compare large numbers on a number line

### Area & Perimeter

- Understand perimeter as the distance around a shape
- Calculate perimeter by adding all sides
- Understand area as the space inside a shape
- Count square units to find area
- Compare the area and perimeter of different shapes

### Multi-Digit Addition & Subtraction

- Add numbers up to 4 digits with multiple regroupings
- Subtract numbers up to 4 digits with borrowing
- Estimate answers before calculating
- Solve multi-step word problems requiring + and -
- Check solutions using inverse operations

### Time & Measurement

- Read time to the nearest minute
- Calculate elapsed time (start to finish)
- Measure and convert units: cm to m, g to kg, mL to L
- Solve measurement word problems

### Multiplication & Division

- Master multiplication tables 1–10
- Understand division as sharing equally and grouping
- Relate multiplication and division as inverse operations
- Divide with and without remainders
- Write division sentences:  $24 \div 6 = 4$
- Solve multiplication and division word problems

### Graphs & Data (Bar Charts)

- Read and interpret bar charts
- Create bar charts from given data
- Answer questions using information from graphs
- Find the most common (mode) value in a data set

### Simple Fractions

### Logical Reasoning Problems

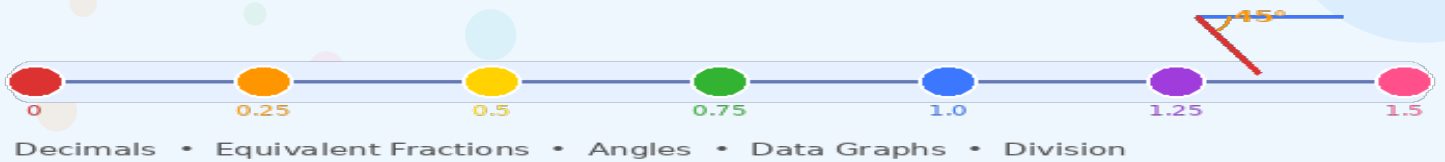
- Solve puzzles using process of elimination
- Use Venn diagrams to sort and classify
- Identify patterns and predict next steps
- Apply trial-and-error strategies to problems



# International Math Olympiad — Grade 4

## Theme: Developing Problem Solvers

IB PYP Aligned • Problem-Solving • Reasoning • Application



### Place Value with Large Numbers

- Read and write numbers up to 1,000,000
- Identify the value of each digit in large numbers
- Round to nearest 10, 100, 1,000, and 10,000
- Order and compare numbers using a number line

### Area & Perimeter

- Calculate perimeter of rectangles and composite shapes
- Use the formula: Area = length × width
- Find the area of rectangles and squares
- Solve problems where area or perimeter is unknown
- Compare shapes with same area but different perimeters

### Multi-Digit Multiplication & Division

- Multiply 2-digit by 2-digit numbers using long multiplication
- Multiply 3-digit numbers by 1-digit numbers
- Divide 3-digit numbers by 1-digit numbers with remainders
- Use long division method step by step
- Solve multi-step multiplication and division word problems
- Verify answers using inverse operations

### Angles (Basic Understanding)

- Identify types: right angle, acute, obtuse, straight angle
- Measure angles using a protractor
- Recognize angles in 2D shapes
- Understand that angles in a triangle add up to 180°

### Fractions — Equivalent & Comparison

- Find and create equivalent fractions (e.g.  $1/2 = 2/4 = 4/8$ )
- Simplify fractions to lowest terms
- Compare fractions with different denominators
- Order fractions on a number line
- Convert between improper fractions and mixed numbers

### Data Handling — Charts & Graphs

- Collect, organize, and display data in bar graphs and pictograms
- Read and interpret line graphs
- Calculate mean (average) of a data set
- Identify mode and range from data
- Draw conclusions from graphs and tables

### Introduction to Decimals

- Understand tenths and hundredths as decimal fractions
- Read and write decimals: 0.1, 0.25, 1.5

### Problem-Solving & Reasoning

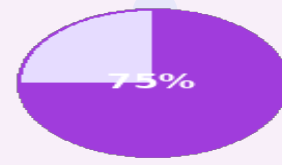
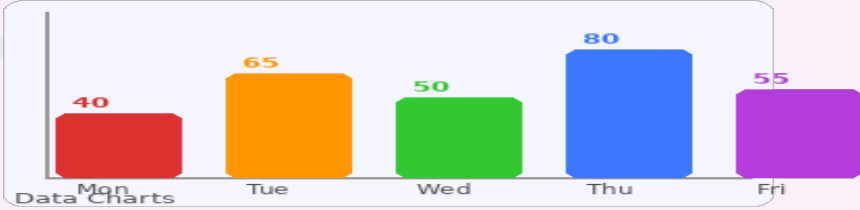
- Use 'Guess and Check', 'Draw a Diagram', 'Make a Table' strategies
- Solve multi-step problems with mixed operations



# International Math Olympiad — Grade 5

## Theme: Advanced Mathematical Thinking

IB PYP Aligned • Problem-Solving • Reasoning • Application



Percentages • Volume • Geometry



### Advanced Operations — Multi-Step Problems

- Solve problems with 3 or more steps using all four operations
- Apply order of operations (BODMAS/PEMDAS)
- Work with numbers up to millions
- Use brackets correctly in calculations
- Estimate and verify answers in context

### Geometry — Angles, Shapes & Symmetry

- Classify triangles by sides (scalene, isosceles, equilateral)
- Classify triangles by angles (right, acute, obtuse)
- Find missing angles in triangles and quadrilaterals
- Identify lines of symmetry and rotational symmetry
- Calculate area of triangles:  $A = \frac{1}{2} \times \text{base} \times \text{height}$
- Understand coordinate grids and plot points

### Fractions — Full Operations

- Add and subtract fractions with different denominators
- Find the Lowest Common Denominator (LCD)
- Multiply a fraction by a whole number and by a fraction
- Divide a fraction by a whole number
- Solve word problems involving fractions in real-life contexts
- Convert between mixed numbers and improper fractions

### Volume (Introduction)

- Understand volume as the amount of space in a 3D object
- Count unit cubes to find the volume of a shape
- Use the formula:  $\text{Volume} = \text{length} \times \text{width} \times \text{height}$
- Solve problems involving volume of rectangular prisms
- Compare volumes of different shapes

### Decimal Operations

- Add and subtract decimals up to thousandths
- Multiply decimals by whole numbers and by decimals
- Divide decimals by whole numbers
- Round decimals to a given number of decimal places
- Solve word problems with decimal quantities

### Data Interpretation — Graphs & Tables

- Read and interpret complex bar graphs and line graphs
- Analyze data in two-way tables
- Calculate mean, median, mode, and range
- Identify trends and draw conclusions from data
- Construct graphs from given data sets

### Percentages (Basic)

### Logical & Critical Thinking