

East-West International School

Elementary Mathematics Program.

At East-West International School we take a unique approach to teaching mathematics, integrating mathematics learning outcomes from the Khmer National Curriculum with *GO Maths*, an Australian Mathematics program developed from research for classroom practice. Our focus is on teaching for understanding, not just procedures.

Five strands of mathematics are taught at all grade levels, with each strand divided into two or three topics. Teachers adjust the order of units to best meet the needs of the students, and to make connections between mathematics and the International Primary Curriculum (IPC) units.

English Mathematics Topics		Khmer Mathematics Topics		
Thinking, Reasoning and Working Mathematically	Number	Number concepts	Number	Reasoning
		Addition and subtraction		
		Multiplication and division		
	Patterns and Algebra	Patterns and Functions	Patterns and Algebra	
		Equivalence and Equations		
	Measurement	Length, Mass, Area and Volume	Measurement	
		Time		
	Chance and Data	Chance	Statistics	
Data				
Space	Shape and Line	Geometry		
	Location, Direction and Movement			

Kindergarten

Topic		Units
Number	Number Concepts	N 1.1 Students identify, compare and order small whole numbers, make and match representations of these numbers and identify coins, notes and their uses.
	Addition and Subtraction	N 1.2 Students identify and solve addition and subtraction problems involving small whole numbers.
	Multiplication and Division	N 1.3 Students identify and describe equal groups and equal sharing within everyday situations.
Patterns and Algebra	Patterns and Functions	PA 1.1 Students identify, describe and create patterns and change based on simple rules.
	Equivalence and Equations	PA 1.2 Students compare and describe arrangements of objects and combinations of numbers to 10 using the language of equivalence.

- 1 Working with Numbers One to Six
- 3 Exploring Numbers Six to Nine
- 4 Analysing Numbers Zero to Ten
- 7 Exploring Relative Position
- 11 Exploring Money – Dollar Coins
- 12 Comparing Quantities
- 14 Exploring Ordinal Numbers
- 18 Exploring Numbers Ten to Fifteen
- 19 Extending Relative Position
- 23 Exploring Money – Recognising All Coins
- 28 Exploring Numbers Sixteen to Twenty
- 31 Introducing Fractions – One-Half

- 9 Introducing the Addition Concept
- 17 Introducing the Count-On 1 or 2 Addition Fact Strategy
- 21 Developing the Count-On 2 Addition Fact Strategy
- 22 Introducing the Subtraction Concept
- 25 Introducing the Count-Back 1 or 2 Subtraction Fact Strategy
- 26 Relating Addition and Subtraction

- 30 Representing and Sharing Equal Groups

- 5 Developing Pattern Awareness
- 20 Investigating Growing Patterns

- 15 Introducing Equality

Topic			Units
Measurement	Length, Mass, Area and Volume	M 1.1 Students select the appropriate attribute to compare and order the size of objects and measure with non-standard units.	6 Exploring Measurement – Length 13 Exploring Measurement – Volume (Capacity) and Mass 27 Exploring Measurement – Size and Area
	Time	M 1.2 Students sequence familiar events related to days and weeks, and directly compare the duration of events.	24 Exploring Measurement – Time
Chance & Data	Chance	CD 1.1 Students use everyday language when commenting on aspects of chance in practical activities and familiar events.	32 Developing the Language of Chance
	Data	CD 1.2 Students collect and classify data to investigate particular situations and create and interpret simple displays.	10 Representing and Interpreting Data
Space	Shape and Line	S 1.1 Students identify everyday shapes and objects using geometric names and make and describe simple representations of them.	2 Exploring 3D Shapes 8 Exploring 2D Shapes
	Location, Direction and Movement	S 1.2 Students follow and give simple directions to move through familiar environments and locate and place objects in those environments.	16 Exploring Position in Space 29 Exploring Paths

Grade 1

Topic		Units
Number	Number Concepts	N2.1 Students compare and order whole numbers to 999, make and match different representations and combinations of whole numbers and of equivalent amounts of money, and identify simple fractions of objects and collections 1 Working with Numbers to 10 4 Representing and Recording Two-Digit Numbers 6 Using Place Value to Record Two-Digit Numbers 9 Working with Place Value and Relative Position 17 Comparing, Ordering and Sequencing Two-Digit Numbers 24 Using Coins in Problem Situations 29 Working with Fractions
	Addition and Subtraction	N2.2 Students identify and solve addition and subtraction problems involving whole numbers, selecting from a range of computation methods, strategies and known number facts. 2 Revising Addition Concepts and Skills 5 Using Take-Away Situations to Relate Addition and Subtraction 12 Using and Extending the Doubles and Near-Doubles Addition Strategy 14 Developing the Language of Missing Addend Subtraction 15 Extending the Count-On Addition Strategy to Two-Digit Numbers 20 Developing the Language of Comparison Subtraction 23 Introducing the Make-to-10 Addition Strategy 28 Extending the Count-Back Subtraction Strategy to Two-Digit Numbers 31 Extending the Doubles Addition Strategy
	Multiplication and Division	N2.3 Students identify and solve multiplication and division problems involving whole numbers, selecting from a range of computation methods, strategies and known number facts. 19 Developing the Language of Multiplication 26 Connecting Multiplication and Division 27 Developing the Language of Division
Patterns and Algebra	Patterns and Functions	PA2.1 Students create and explain patterns, identify and describe relationships using rules and use backtracking to reverse the effects of rules involving addition and subtraction. 11 Investigating Repeating and Growing Patterns 30 Using Functions to Relate Addition and Subtraction
	Equivalence and Equations	PA2.2 Students represent and describe equivalence in equations that involve addition and subtraction. 22 Exploring Equivalence and Balancing Equations

Topic		Units
Measurement	Length, Mass, Area and Volume	M2.1 Students use non-standard and standard units to estimate, measure and order the size of objects. 3 Making Direct Comparisons and Using Non-Standard Measurement Units 13 Introducing Metres and Litres 21 Working with Units of Length, Mass and Capacity
	Time	M2.2 Students use a calendar to locate and sequence events, read and interpret key times on 12-hour displays and measure and compare durations of time. 8 Exploring Time — Days and Hours 18 Working with Analogue and Digital Times
Chance & Data	Chance	CD2.1 Students identify and classify familiar events according to the likelihood of occurrence. 32 Developing the Language of Chance and Conducting Experiments
	Data	CD2.2 Students collect and organise data, create and interpret a variety of displays to investigate their own and others' questions, and identify elements of the displays. 10 Analysing and Constructing Data Representations
Space	Shape and Line	S2.1 Students describe and sort 3D shapes and objects and 2D shapes according to geometric properties and identify shapes and objects from different viewpoints or orientations. 7 Investigating Representations of 3D and 2D Shapes 25 Exploring 2D and 3D Shapes — Visualisations and Analysing Properties
	Location, Direction and Movement	S2.2 Students interpret and create simple maps, plans and grids to follow and give directions, and to locate or arrange places or objects. 16 Developing the Language of Location and Movement

Grade 2

Topic		Units
Number	Number Concepts	N2.1 Students compare and order whole numbers to 999, make and match different representations and combinations of whole numbers and of equivalent amounts of money, and identify simple fractions of objects and collections 33 Investigating Three-Digit Numbers 36 Making and Describing Hundreds, Tens and Ones 41 Writing Hundreds, Tens and Ones 49 Using Place Value 56 Using Money 61 Exploring Fractions
	Addition and Subtraction	N2.2 Students identify and solve addition and subtraction problems involving whole numbers, selecting from a range of computation methods, strategies and known number facts. 34 Working with Addition and Subtraction 37 Using Near-Doubles Facts to Subtract 38 Extending the Doubles and Near-Doubles Addition Strategies 40 Using Make-to-10 Facts to Subtract 47 Developing Mental Strategies to Add Two-Digit and Three-Digit Numbers 52 Subtracting Two-Digit and Three-Digit Numbers 55 Recording Computation Methods for Addition 60 Recording Computation Methods for Subtraction
	Multiplication and Division	N2.3 Students identify and solve multiplication and division problems involving whole numbers, selecting from a range of computation methods, strategies and known number facts. 44 Investigating Multiplication (Commutativity) 51 Using Skip Counting to Multiply by 2, 5 and 10 58 Using a Doubles Strategy to Multiply by 2 and 4 59 Extending the Division Concept 62 Connecting Multiplication and Division
Patterns and Algebra	Patterns and Functions	PA2.1 Students create and explain patterns, identify and describe relationships using rules and use backtracking to reverse the effects of rules involving addition and subtraction. 43 Investigating Number Patterns 46 Using the Function Idea to Explore Input and Output Data
	Equivalence and Equations	PA2.2 Students represent and describe equivalence in equations that involve addition and subtraction. 54 Working with Unknowns

Topic			Units
Measurement	Length, Mass, Area and Volume	M2.1 Students use non-standard and standard units to estimate, measure and order the size of objects.	35 Introducing Standard Units of Length – The Centimetre 45 Introducing Standard Units of Volume (Capacity) – Parts of a Litre 53 Introducing Standard Units of Mass – Parts of a Kilogram 63 Exploring Area
	Time	M2.2 Students use a calendar to locate and sequence events, read and interpret key times on 12-hour displays and measure and compare durations of time.	50 Working with Time
Chance & Data	Chance	CD2.1 Students identify and classify familiar events according to the likelihood of occurrence.	64 Conducting and Interpreting Experiments Involving Chance
	Data	CD2.2 Students collect and organise data, create and interpret a variety of displays to investigate their own and others' questions, and identify elements of the displays.	42 Collecting, Representing and Interpreting Data
Space	Shape and Line	S2.1 Students describe and sort 3D shapes and objects and 2D shapes according to geometric properties and identify shapes and objects from different viewpoints or orientations.	39 Exploring 2D and 3D Shapes 57 Analysing the Properties of Shapes
	Location, Direction and Movement	S2.2 Students interpret and create simple maps, plans and grids to follow and give directions, and to locate or arrange places or objects.	48 Investigating Location, Direction and Movement

Grade 3

Topic		Units
Number	Number Concepts	<p>N3.1 Students compare, order and represent whole numbers to 9999 and common and decimal fractions, calculate cash transactions and describe other methods of payment.</p> <p>1 Working with Two-Digit and Three-Digit Numbers 4 Introducing 1000 and Representing and Beginning to Record Four-Digit Numbers 9 Reading, Writing and Representing Four-Digit Numbers 11 Working with Common Fractions and Introducing Decimal Fractions 15 Reading, Writing and Representing Tenths as Decimal Fractions 17 Sequencing, Comparing and Ordering Three-Digit and Four-Digit Numbers 24 Solving Problems Involving Money – Coin Combinations and Change</p>
	Addition and Subtraction	<p>N3.2 Students identify and solve addition and subtraction problems involving whole numbers and decimal fractions in context, selecting from a range of computation methods, strategies and known facts.</p> <p>2 Using and Extending Mental and Written Addition Strategies 6 Using and Extending Mental Subtraction Strategies 20 Using and Extending Count-On and Count-Back Strategies to Subtract 23 Developing Written Methods for Addition 28 Developing Written Methods for Subtraction</p>
	Multiplication and Division	<p>N3.2 Students identify and solve multiplication and division problems involving whole numbers and decimal fractions in context, selecting from a range of computation methods, strategies and known facts.</p> <p>5 Using and Extending Twos and Fives Multiplication Strategies 8 Solving Division Problems With and Without Remainders 12 Developing and Extending Multiplication Strategies Involving Doubles – Twos, Fours and Eights 19 Introducing the Build-Up and Build-Down Multiplication Strategies – Nines, Sixes and Last Facts 26 Using Multiplication to Develop Division Facts 27 Exploring Doubling-and-Halving and Place-Value Strategies for Multiplication 30 Connecting Multiplication and Division</p>

Topic		Units
Patterns and Algebra	Patterns and Functions	PA2.1 Students create and continue number patterns, identify, describe and represent relationships between two quantities and use backtracking to reverse any one of the four operations.
	Equivalence and Equations	PA 2.2 Students represent and describe equivalence in equations that involve combinations of multiplication and division or addition and subtraction.
Measurement	Length, Mass, Area and Volume	M3.1 Students identify and use equivalent forms of standard units when measuring, comparing and ordering, and estimate using a range of personal referents.
	Time	M3.2 Students read, record and calculate within 12-hour time, and interpret calendars and simple timetables related to daily activities.

14 Exploring Multiplication Patterns and Properties

21 Working with Equations and Introducing the < and > Symbols

3 Working with Length, Capacity (Volume) and Mass
 13 Introducing Millilitres and Grams
 22 Exploring the Concepts of Area and Volume (with Cubes)
 29 Using Length, Mass and Capacity to Work with Decimal Fractions

18 Working with Time — a.m./p.m. and Reading Times Past and To The Hour

Topic			Units
Chance & Data	Chance	CD 3.1 Students identify all possible outcomes of familiar situations or actions and, for these sample spaces, order the likelihood of occurrence of the identified outcome using experimental data.	32 Building the Language of Chance and Conducting Experiments
	Data	CD3.2 Students design and trial a variety of data collection methods and use existing sources of data to investigate their own and others' questions, organise data and create suitable displays identifying and interpreting elements of the displays.	10 Analysing the Features of Data Representations
Space	Shape and Line	S3.1 Students describe the defining geometric properties of families of 3D shapes, model 3D shapes using nets and other representations, and identify and describe the properties of specific families and subgroups of 2D shapes.	7 Investigating Properties of 2D Shapes and Working with Symmetry 16 Identifying and Investigating Lines and Angles 31 Investigating Properties of 3D Shapes and Working with Viewpoints
	Location, Direction and Movement	S3.2 Students interpret and create maps and plans using a range of conventions, describe locations and give directions using major compass points, angles and grids.	25 Using Compass Points and Grid Systems to Give and Follow Directions

Grade 4

Topic		Units
Number	Number Concepts	<p>N3.1 Students compare, order and represent whole numbers to 9999 and common and decimal fractions, calculate cash transactions and describe other methods of payment.</p> <p>33 Working with Numbers to 9999 36 Introducing 10 000, and Representing and Recording Five-Digit Numbers 41 Working with Five-Digit Numbers 43 Working with Common Fractions and Exploring Equivalence 47 Reading, Writing and Representing Tenths and Hundredths as Decimal Fractions 49 Working with Hundredths and Relating Common and Decimal Fractions 56 Solving Problems Involving Money – Coin Combinations and Change</p>
	Addition and Subtraction	<p>N3.2 Students identify and solve addition and subtraction problems involving whole numbers and decimal fractions in context, selecting from a range of computation methods, strategies and known facts.</p> <p>34 Using and Extending Mental and Written Addition Strategies 38 Using and Extending Mental Subtraction Strategies 55 Using Written Methods for Addition 60 Using Written Methods for Subtraction</p>
	Multiplication and Division	<p>N3.2 Students identify and solve multiplication and division problems involving whole numbers and decimal fractions in context, selecting from a range of computation methods, strategies and known facts.</p> <p>37 Working with Multiplication and Division (Factors and Multiples) 40 Extending the 'Think Multiplication' Strategy for Division 44 Using Factors, Doubling and Halving, and Place Value to Multiply 51 Using and Extending Mental and Written Multiplication Strategies 52 Using Multiplication, Halving and Place-Value Strategies for Division 58 Using Place-Value and Other Breaking-Up Strategies for Division 59 Solving Division Problems With and Without Remainders</p>

Topic		Units
Patterns and Algebra	Patterns and Functions	PA2.1 Students create and continue number patterns, identify, describe and represent relationships between two quantities and use backtracking to reverse any one of the four operations.
	Equivalence and Equations	PA 2.2 Students represent and describe equivalence in equations that involve combinations of multiplication and division or addition and subtraction.
Measurement	Length, Mass, Area and Volume	M3.1 Students identify and use equivalent forms of standard units when measuring, comparing and ordering, and estimate using a range of personal referents.
	Time	M3.2 Students read, record and calculate within 12-hour time, and interpret calendars and simple timetables related to daily activities.
Chance & Data	Chance	CD 3.1 Students identify all possible outcomes of familiar situations or actions and, for these sample spaces, order the likelihood of occurrence of the identified outcome using experimental data.
	Data	CD3.2 Students design and trial a variety of data collection methods and use existing sources of data to investigate their own and others' questions, organise data and create suitable displays identifying and interpreting elements of the displays.

46 Exploring, Describing and Recording Number Patterns
62 Using Tables and Graphs to Record and Represent Patterns and Functions

53 Extending the Idea of Balance to Write Equations (=, , >, <)

35 Working with Length and Capacity (Volume)
45 Exploring Methods to Calculate the Length of Boundaries, Area and Volume
54 Working with Volume and Relating Units of Mass
61 Relating Units for the Same Measurement Attribute

50 Reading Times and Working with Timelines and Timetables

64 Exploring Chance and Conducting Probability Experiments

42 Constructing and Interpreting Data Representations

Topic		Units
Space	Shape and Line	S3.1 Students describe the defining geometric properties of families of 3D shapes, model 3D shapes using nets and other representations, and identify and describe the properties of specific families and subgroups of 2D shapes. 39 Working with Polygons, Symmetry and Transformations 57 Identifying and Investigating Lines (Sides) and Angles of Polygons 63 Investigating Properties of 3D Shapes and Working with Viewpoints
	Location, Direction and Movement	S3.2 Students interpret and create maps and plans using a range of conventions, describe locations and give directions using major compass points, angles and grids. 48 Describing Turns and Giving Directions on Maps and Grids

Grade 5

Topic		Units
Number	Number Concepts	N 4.1 Students compare and order whole numbers and common and decimal fractions of any size, make connections between key percentages and fractions and describe how a range of factors influence financial decisions
	Addition and Subtraction	N 4.2 Students identify and solve addition and subtraction problems involving whole numbers, and common and decimal fractions selecting from a range of computation methods, strategies and known number facts.
	Multiplication and Division	N 4.3 Students identify and solve multiplication and division problems involving whole numbers, decimal fractions, common fractions, percentages, and rates selecting from a range of computation methods, strategies and known number facts.
Patterns and Algebra	Patterns and Functions	PA 4.1 Students identify and create representations of patterns and functions and apply backtracking to solve simple equations that involve combinations of the four operations.
	Equivalence and Equations	PA 4.2 Students create and interpret equations, explain the effect of order of operations, and justify solutions to equations.

Topic			Units
Measurement	Length, Mass, Area and Volume	M 4.1 Students choose appropriate units when estimating and measuring and explain relationships between dimensions when investigating areas, volumes of prisms and lengths of boundaries of rectangles.	2 Using Length, Mass, Volume and Capacity 12 Investigating Mass and Capacity 15 Exploring Perimeter, Area and Volume 21 Using Length, Mass, Volume and Capacity 24 Working with Perimeter and Area
	Time	M4.2 Students read, record and calculate with 24-hour time and develop timetables and calendars to plan and organise events or activities.	19 Working with Units of Time, Timetables and Timelines
Chance & Data	Chance	CD 4.1 Students analyse experimental data and compare numerical results with predicted results to inform judgements about the likelihood of particular outcomes.	32 Making Judgements Relating to Situations Involving Chance
	Data	CD 4.2 Students plan and carry out data collections using their own data record templates, choose and construct appropriate displays and make comparisons about the data based on the displays and measures of location.	14 Collecting and Representing Data 26 Identifying and Interpreting Variation — Mean, Median and Mode
Space	Shape and Line	S 4.1 Students analyse the geometric properties of a range of 3D and 2D shapes to classify shapes into families and their subgroups and justify reasoning.	4 Working with 2D Shapes 16 Working with Angles 30 Identifying and Describing 2D and 3D Shapes
	Location, Direction and Movement	S 4.2 Students interpret maps and plans with reference to conventions including latitude and longitude for maps, and describe movements using compass points and distance.	22 Exploring Location and Movement and Working with Co-ordinates