

Berlin British School

Maths Scope and Sequence

Maths Scope and Sequence Continuum 2020

Strand	K1	K2	K3	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5
Overall Expectations								
<p>Number <u>Conceptual understanding</u></p> <p>Numbers are a naming system.</p> <p>Numbers can be used in many ways for different purposes in the real world.</p> <p>Numbers are connected to each other through a variety of relationships.</p> <p>Making connections between our experiences with number can help us to develop number sense.</p> <p>The base 10 place value system can be extended to represent magnitude.</p> <p>The base 10 place value system extends infinitely in two directions.</p>	Phase 1		Phase 2		Phase 3		Phase 4	
	Learners will understand that numbers are used for many different purposes in the real world. They will develop an understanding of one-to-one correspondence and conservation of number, and be able to count and use number words and numerals to represent quantities		Learners will develop their understanding of the base 10 place value system and will model, read, write, estimate, compare and order numbers to hundreds or beyond. They will have automatic recall of addition and subtraction facts and be able to model addition and subtraction of whole numbers using the appropriate mathematical language to describe their mental and written strategies. Learners will have an understanding of fractions as representations of whole-part relationships and will be able to model fractions and use fraction names in real-life situations.		Learners will develop the understanding that fractions and decimals are ways of representing whole-part relationships and will demonstrate this understanding by modelling equivalent fractions and decimal fractions to hundredths or beyond. They will be able to model, read, write, compare and order fractions, and use them in real-life situations. Learners will have automatic recall of addition, subtraction, multiplication and division facts. They will select, use and describe a range of strategies to solve problems involving addition, subtraction, multiplication and division, using estimation strategies to check the reasonableness of their answers.		Learners will understand that the base 10 place value system extends infinitely in two directions and will be able to model, compare, read, write and order numbers to millions or beyond, as well as model integers. They will develop an understanding of ratios. They will understand that fractions, decimals and percentages are ways of representing whole-part relationships and will work towards modelling, comparing, reading, writing, ordering and converting fractions, decimals and percentages. They will use mental and written strategies to solve problems involving whole numbers, fractions and decimals in real-life situations, using a range of strategies to evaluate reasonableness of answers.	
	K1	K2	K3	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5
	<p>Whole Numbers and Place Value Students will:</p> <ul style="list-style-type: none"> Show awareness of the language of number Join in the singing of number songs and rhymes Understand mathematical language; same, different, more, fewer, less, how many Count and model numbers to 5 Show awareness of numerals in their environment Understands 1 to 1 correspondence up to 3 then 5 when counting objects in play or real life situations Carry out a request to share objects in a social sense and distribute items or portions, possibly not equally 	<p>Whole Numbers and Place Value Students will:</p> <ul style="list-style-type: none"> Understand mathematical language: same, different, more, fewer, less, how many Count with one to one correspondence to 10 Understand conservation of number up to 5 At a glance, see how many are in a small collection and attach correct number Read, write, match, count and model numbers to 10 Compare and order numbers to 20 Introduced to concept of 1st, 2nd and 3rd 	<p>Whole Numbers and Place Value Students will:</p> <ul style="list-style-type: none"> Use mathematical language: more than, less than, number names, total, etc. Count by 1s, 5s and 10s to 100, and 2s to 20, forwards and backwards Recognise a group of objects, up to 6, without counting Count on from any number to 100 Read, write and models numbers to 100 	<p>Whole Numbers and Place Value Students will:</p> <ul style="list-style-type: none"> Read, write, count, compare and model numbers to 100 Count on from any number by 1s, 2s, 5s and 10s forwards and backwards to 120 Understand place value using ones and tens Recognise and understand ordinal numbers beyond 1st, 2nd, 3rd Using a numberline and manipulatives, round to the nearest ten on a number line 	<p>Whole Numbers and Place Value Students will:</p> <ul style="list-style-type: none"> Read, write, compare, order, and model numbers to 1,000 Count by 1s, 2s, 5s, 10s and 100s forwards and backwards Round 2 and 3 digit numbers to the nearest 10 Recognise and understand ordinal numbers beyond 1st, 2nd, 3rd Count coins in multiples of 5c, 10c, 20c, 50c, 1€ and 2€ Read whole money amounts to 100 euro and show the amount with coins and bills in different ways Decide whether they have more or less money than the price and whether to expect change Calculate change in whole numbers 	<p>Whole Numbers and Place Value Students will:</p> <ul style="list-style-type: none"> Read, write, compare, order and model numbers to 10,000 Say a number that is 1, 10, 100 or 1,000 more or less than a given number Round 4 digit numbers to the nearest 10 or 100 	<p>Whole Numbers and Place Value Students will:</p> <ul style="list-style-type: none"> Read, write, compare, order and model numbers up to 100,000 Show how the value of the digit changes by powers of 10 to 1,000 Round 4 digit numbers and decimals to a given place value 	<p>Whole Numbers and Place Value Students will:</p> <ul style="list-style-type: none"> Read, write, compare, order and model whole numbers up to 1,000,000 and decimal numbers to the thousandths Demonstrate an understanding of place value in whole numbers and decimals Round a 6 digit numbers to a given place value and decimal numbers to the nearest tenth and hundredth
	K1	K2	K3	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5
<p>The operations of addition, subtraction, multiplication and division are related to each other and are used to process information to solve problems.</p> <p>Even complex operations can be modelled in a variety of</p>		<p>Addition and Subtraction Students will:</p> <ul style="list-style-type: none"> Count two sets of objects together Count a set of objects after some items have been removed Model number relationships to 5 	<p>Addition and Subtraction Students will:</p> <ul style="list-style-type: none"> Understand commutative properties of addition e.g. 3+5 = 5+3 Model and draw number stories to 10 Show familiarity with operation symbols, +, -, = 	<p>Addition and Subtraction Students will:</p> <ul style="list-style-type: none"> Read, write and model addition and subtraction to 100 Understand commutative properties of addition e.g. 3+5 = 5+3 Use two stage calculations with addition and subtraction 	<p>Addition and Subtraction Students will:</p> <ul style="list-style-type: none"> Show quick mental recall of addition and subtraction to 100 using strategies such as number bonds to ten, doubling and halving Solve missing number equations to 100 Add and subtract a 2 digit number to/from any 2 digit 	<p>Addition and Subtraction Students will:</p> <ul style="list-style-type: none"> Add and subtract 2 and 3 digit numbers with regrouping 	<p>Addition and Subtraction Students will:</p> <ul style="list-style-type: none"> Add and subtract numbers up to 5 digits 	<p>Addition and Subtraction Students will:</p> <ul style="list-style-type: none"> Add and subtract numbers up to 6 digits to include decimals

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ways, for example, an algorithm is a way to represent an operation. Ratios are a comparison of two numbers or quantities.				<ul style="list-style-type: none"> Add three single digit numbers using manipulatives Decide whether addition or subtraction best suits a given situation 	number with and without regrouping <ul style="list-style-type: none"> Add 3 single digit numbers 			
			Multiplication and Division Students will: <ul style="list-style-type: none"> Share numbers into equal groups up to 12 with manipulatives 	Multiplication and Division Students will: <ul style="list-style-type: none"> Show a beginning understanding of multiplication as repeated addition 	Multiplication/Division Students will: <ul style="list-style-type: none"> Understand multiplication and division through a variety of strategies such as repeated addition/subtraction and arrays Know multiplication facts of 2, 3, 4, 5 and 10 Recall 2, 5 and 10 	Multiplication and Division Students will: <ul style="list-style-type: none"> Know multiplication tables 2,3,4,5,6,7,8, 9 and 10 Model and use the identity and commutative properties for multiplication e.g. $7 \times 3 = 3 \times 7$ Multiply and divide 2 digits by 1 digit with and without remainders Understand the value of zero in multiplications Multiply and divide by 10 and 100 	Multiplication and Division Students will: <ul style="list-style-type: none"> Recall multiplication tables to 10 Multiply and divide a 3 digit numbers by a 1 digit number Multiply and divide by 1,000 Solve multi-step word problems involving addition, subtraction, multiplication and division 	Multiplication and Division Students will: <ul style="list-style-type: none"> Multiply and divide by powers of 10 up to 10,000 and show how the value of the digit changes Multiply 2 digit by 2 digit numbers and apply to larger numbers Recall multiplication tables up to 12 Recognize square numbers Solve simple equations using brackets Divide by a 2 digit divisor with and without remainders
	K1	K2	K3	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5
	Estimating and Problem Solving Students will: <ul style="list-style-type: none"> Identify more and less, longer shorter, fatter/thinner 	Estimation and Problem Solving Students will: <ul style="list-style-type: none"> Estimate quantities to 10 Use manipulatives to solve problems 	Estimation and Problem Solving Students will: <ul style="list-style-type: none"> Estimate the reasonableness of answers Estimate the number in a set up to 20 objects Begin to select and explain an appropriate method for solving a problem 	Estimation and Problem Solving Students will: <ul style="list-style-type: none"> Estimate quantities to 100 mentally or visually 	Estimation and Problem-Solving Students will: <ul style="list-style-type: none"> Begin to estimate quantities to 1,000 	Estimation and Problem-Solving Students will: <ul style="list-style-type: none"> Estimate quantities to 1,000 and compare with the actual number Select and explain an appropriate method for solving a word problem 	Estimation and Problem-Solving Students will: <ul style="list-style-type: none"> Use estimation to determine a reasonable answer before solving a problem 	Estimation and Problem-Solving Students will: <ul style="list-style-type: none"> Use estimation to determine a reasonable answer before solving a problem Select and defend the most appropriate and efficient method of solving a multistep problem using addition, subtraction, multiplication and division
	K1	K2	K3	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5
Fractions and decimals are ways of representing whole-part relationships. Fractions, decimal fractions and percentages are ways of representing whole-part relationships. For fractional and decimal computation, the ideas developed for whole-number computation can apply.		Fractions and Decimals Students will: <ul style="list-style-type: none"> Recognise half and whole Use fraction names half and whole Recognise coins 	Fractions and Decimals Students will: <ul style="list-style-type: none"> Use fraction names half and whole Recognise quarters Count and organise sets of 1c, 2c, 5c and 10c coins Be exposed to 50c, 1€ and 2€ 	Fractions and Decimals Students will: <ul style="list-style-type: none"> Identify and use fraction names e.g. one half, third, and quarter Identify the fraction of a number e.g. half of 6 Count 1c, 2c, 5c, 10c, 20c, 50c, €1 and €2 coins 	Fractions and Decimals Students will: <ul style="list-style-type: none"> Use manipulatives to model fractions up to tenths Know that simple fractions are part of a whole Begin to see, describe and record simple fractions in words 	Fractions and Decimals Students will: <ul style="list-style-type: none"> Compare, order and describes simple fractions using manipulatives Separate objects and collections into equal parts to compare unit fractions Add and subtract whole numbers and fractions with like denominators Read and write numbers to 2 decimal places in the context of money and measurement Solve addition and subtraction problems using money 	Fractions and Decimals Students will: <ul style="list-style-type: none"> Model equivalent fractions Simplify fractions Add and subtract whole numbers and fractions with like denominators Demonstrate the division of a whole number using fractions Explore the connection between fractions, decimals and percentages Read, write, compare, order, model, add and subtract decimals up to the hundredths place Round to the nearest integer (whole number) 	Fractions, Decimals and Percentages Students will: <ul style="list-style-type: none"> Compare and order fractions on a number line Find common denominators Convert mixed numbers to improper fractions and vice versa Add and subtract fractions with unlike denominators using the concept of equivalent fractions Understand that fractions are relative to particular wholes Demonstrate the connection between fractions, decimals and percentages Read, write, compare, order, model, add and subtract

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								<ul style="list-style-type: none"> decimals up to the thousandths place Round decimal numbers to the nearest tenth and hundredth Model multiplication and division of decimals with reference to money
Overall Expectations								
<p>Data Handling <u>Conceptual understanding</u></p> <p>We collect information to make sense of the world around us.</p> <p>Organizing objects and events helps us to solve problems.</p> <p>Data can be collected, organized, displayed and analysed in different ways.</p> <p>Different graph forms highlight different aspects of data more efficiently.</p> <p>Data can be presented effectively for valid interpretation and communication.</p> <p>Range, mode, median and mean can be used to analyse statistical data.</p>	Phase 1		Phase 2		Phase 3		Phase 4	
	Learners will develop an understanding of how the collection and organization of information helps to make sense of the world. They will sort, describe and label objects by attributes and represent information in graphs including pictographs and tally marks. The learners will discuss chance in daily events.		Learners will understand how information can be expressed as organized and structured data and that this can occur in a range of ways. They will collect and represent data in different types of graphs, interpreting the resulting information for the purpose of answering questions. The learners will develop an understanding that some events in daily life are more likely to happen than others and they will identify and describe likelihood using appropriate vocabulary.		Learners will continue to collect, organize, display and analyse data, developing an understanding of how different graphs highlight different aspects of data more efficiently. They will understand that scale can represent different quantities in graphs and that mode can be used to summarize a set of data. The learners will make the connection that probability is based on experimental events and can be expressed numerically.		Learners will collect, organize and display data for the purposes of valid interpretation and communication. They will be able to use the mode, median, mean and range to summarize a set of data. They will create and manipulate an electronic database for their own purposes, including setting up spreadsheets and using simple formulas to create graphs. Learners will understand that probability can be expressed on a scale (0–1 or 0%–100%) and that the probability of an event can be predicted theoretically.	
	K1	K2	K3	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5
	<p>Students will:</p> <ul style="list-style-type: none"> Sort familiar objects in real life and play situations Graph real life objects (led by teacher) Sort real objects into sets by attributes 	<p>Students will:</p> <ul style="list-style-type: none"> Sort and label real objects into sets by teacher-specified attributes – colour, darkness etc. Create a pictograph of real objects and compares quantities using number words Help create class graphs 	<p>Students will:</p> <ul style="list-style-type: none"> Sort and label objects into sets by one or more student-specified attributes Read and compare data represented in teacher-generated diagrams Read and discuss data from bar graphs and pictographs – compare frequencies Understand how collecting and graphing data can answer questions Use own diagrams to organise information 	<p>Students will:</p> <ul style="list-style-type: none"> Identify, sort and compare objects Collect, display and interpret data for the purposes of finding information Read and compare data from bar graphs, tally marks and diagrams using manipulatives and records on paper Create own pictograph and simple bar graph from a graph of real objects and interpret data by comparing quantities: more, fewer, less than, greater than Describe the results of their data collection 	<p>Students will:</p> <ul style="list-style-type: none"> Collect, sort, organise and display data in a bar, pictograph, or tally marks with correct labelling Read and compare data from pictographs, bar graphs, Venn and Carroll diagrams 	<p>Students will:</p> <ul style="list-style-type: none"> Collect, sort, organise and display data in a variety of ways including bar graphs, line-plot graphs, charts, Venn and Carroll diagrams (with 2 features) with varying scales Read and interpret graphs and charts Show an awareness of using software to create simple databases and graphs such as line-plot and bar graphs to supplement projects 	<p>Students will:</p> <ul style="list-style-type: none"> Collect, sort, organise and display data in a variety of ways including bar graphs, line-plot graphs, charts and Triple Venn diagrams for two features Collect and represent data in graphs using an appropriate scale Compare data from pie graphs Read and interpret graphs and charts Infer and answer questions based on represented information Find the mean, median and mode of a set of data Create and use a spreadsheet to organise information 	<p>Students will:</p> <ul style="list-style-type: none"> Solve a problem by interpreting data in tables, graphs, charts and diagrams Choose the clearest way to represent different types of data Construct graphs in varying scales with appropriate labelling Find the mean, median, mode and range of a set of data Create and use spreadsheets to organise information
<p>Events in daily life involve chance.</p> <p>Probability can be based on experimental events in daily life.</p> <p>Probability can be expressed in numerical notations.</p> <p>Probability can be represented on a scale between 0-1 or 0%-100%.</p> <p>The probability of an event can be predicted theoretically.</p>			<p>Probability</p> <p>Students will:</p> <ul style="list-style-type: none"> Discuss and identify outcomes that will happen, won't happen and might happen Make predictions related to familiar things 	<p>Probability</p> <p>Students will:</p> <ul style="list-style-type: none"> Discuss, identify, predict and place outcomes in order of likelihood: impossible, unlikely, likely and certain 	<p>Probability</p> <p>Students will:</p> <ul style="list-style-type: none"> Discuss, identify, predict and place outcomes in order of likelihood: impossible, unlikely, likely and certain Describe and justify the probability of chance events Predict the probability of outcomes of simple experiments and test the predictions 	<p>Probability</p> <p>Students will:</p> <ul style="list-style-type: none"> Discuss, justify, identify, predict and place outcomes in order of likelihood: impossible, unlikely, likely and certain Describe and justify the probability of chance events using fractions and percentages Predict the probability of outcomes of simple experiments and test the predictions 	<p>Probability</p> <p>Students will:</p> <ul style="list-style-type: none"> Describe probability in reference to everyday happenings Describe probability in different ways Understand the difference between experimental and theoretical probability Comment on their predictions in light of the results of their own data collection 	

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Overall Expectations								
<p>Pattern and Function <u>Conceptual understanding</u></p> <p>Patterns and Sequences occur in everyday situations.</p> <p>Patterns repeat and grow.</p> <p>Functions are relationships or rules that uniquely associate members of one set with members of another set.</p> <p>By analysing patterns and identifying rules for patterns it is possible to make predictions.</p> <p>Patterns can often be generalised using algebraic expressions, equations or functions.</p> <p>Exponential notation is a powerful way to express repeated products of the same number.</p>	Phase 1		Phase 2		Phase 3		Phase 4	
	Learners will understand that patterns and sequences occur in everyday situations. They will be able to identify, describe, extend and create patterns in various ways		Learners will understand that whole numbers exhibit patterns and relationships that can be observed and described, and that the patterns can be represented using numbers and other symbols. As a result, learners will understand the inverse relationship between addition and subtraction, and the associative and commutative properties of addition. They will be able to use their understanding of pattern to represent and make sense of real-life situations and, where appropriate, to solve problems involving addition and subtraction.		Learners will analyse patterns and identify rules for patterns, developing the understanding that functions describe the relationship or rules that uniquely associate members of one set with members of another set. They will understand the inverse relationship between multiplication and division, and the associative and commutative properties of multiplication. They will be able to use their understanding of pattern and function to represent and make sense of real-life situations and, where appropriate, to solve problems involving the four operations.		Learners will understand that patterns can be represented, analysed and generalized using algebraic expressions, equations or functions. They will use words, tables, graphs and, where possible, symbolic rules to analyse and represent patterns. They will develop an understanding of exponential notation as a way to express repeated products, and of the inverse relationship that exists between exponents and roots. The students will continue to use their understanding of pattern and function to represent and make sense of real-life situations and to solve problems involving the four operations.	
	K1	K2	K3	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5
	<p>Students will:</p> <ul style="list-style-type: none"> Copy simple patterns Find and describe simple patterns Create own patterns during creative activities Continue simple patterns Notice patterns in daily activities, sound, counting stories and movement 	<p>Students will:</p> <ul style="list-style-type: none"> Copy, continue and create two part patterns in a variety of ways e.g. music, body parts, manipulatives, etc. Copy, continue and create whole patterns using manipulatives Use simple language to describe patterns Notice patterns in daily activities, sound, counting stories and movement 	<p>Students will:</p> <ul style="list-style-type: none"> Copy, continue and create 3 part-patterns Transfer patterns to a different medium, e.g. red, blue, red, blue - A, B, A, B Copy, continue and create whole number patterns using manipulatives Use a sequence of numbers to represent repeating pattern 	<p>Students will:</p> <ul style="list-style-type: none"> Use patterns to continue sequences and sort by one or more attributes and identify the rule Use narrative problems with manipulatives to show patterns in problem solving Recognise, describe and extend patterns in numbers Find and explain patterns in the 100 chart 	<p>Students will:</p> <ul style="list-style-type: none"> Use patterns to continue numerical sequences and identify the rule Sort by more than one attribute and describe rules used Solve simple logic problems Define and continue rules for geometric patterns 	<p>Students will:</p> <ul style="list-style-type: none"> Continue sequences beyond memorised or modelled numbers Write a pattern of numbers to fit a given pattern Describe and demonstrate patterns in numeric sequences, such as skip counting and multiplication Model, with manipulatives, the relationships between addition and multiplication, and subtraction and division Identify the starting number and the constant multiplier needed to generate a number sequence 	<p>Students will:</p> <ul style="list-style-type: none"> Predict and calculate further data to complete a number pattern Recognise inverse functions Use pattern in sequences of related addition and subtraction problems to generate new equations Analyse patterns when increasing and decreasing the size of 2D shapes Identify and follow a rule based on addition, subtraction, multiplication or division to generate a sequence 	<p>Students will:</p> <ul style="list-style-type: none"> Identify and follow a rule based on addition, subtraction, multiplication and division to generate a sequence, including sequences with decimals Represent the rules of a pattern using simple formulae
Overall Expectations								
<p>Shape and Space <u>Conceptual understanding</u></p> <p>Shapes can be described and organized according to their properties.</p> <p>Changing the position of a shape does not alter its properties.</p>	Phase 1		Phase 2		Phase 3		Phase 4	
	Learners will understand that shapes have characteristics that can be described and compared. They will understand and use common language to describe paths, regions and boundaries of their immediate environment.		Learners will continue to work with 2D and 3D shapes, developing the understanding that shapes are classified and named according to their properties. They will understand that examples of symmetry and transformations can be found in their immediate environment. Learners will interpret, create and use simple directions and specific vocabulary to describe paths, regions, positions and boundaries of their immediate environment.		Learners will sort, describe and model regular and irregular polygons, developing an understanding of their properties. They will be able to describe and model congruency and similarity in 2D shapes. Learners will continue to develop their understanding of symmetry, in particular reflective and rotational symmetry. They will understand how geometric shapes and associated vocabulary are useful for representing and describing objects and events in real-world situations.		Learners will understand the properties of regular and irregular polyhedra. They will understand the properties of 2D shapes and understand that 2D representations of 3D objects can be used to visualize and solve problems in the real world, for example, through the use of drawing and modelling. Learners will develop their understanding of the use of scale (ratio) to enlarge and reduce shapes. They will apply the language and notation of bearing to describe direction and position.	
	K1	K2	K3	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5

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<p>Shapes can be transformed in different ways.</p> <p>Geometric shapes and vocabulary are useful for representing and describing objects and events in real-world situations.</p> <p>Manipulation of shape and space takes place for a particular purpose.</p> <p>Consolidating what we know of geometric concepts allows us to make sense of and interact with our world.</p> <p>Geometric tools and methods can be used to solve problems relating to shape and space.</p>	<p>Shape Students will:</p> <ul style="list-style-type: none"> Begin to notice shapes in the environment Recognize and name common 2D shapes Play with 3D and 2D shapes 	<p>Shape Students will:</p> <ul style="list-style-type: none"> Recognise and name common 2D and 3D shapes Describe some properties of 2D and 3D shapes Begin to make 2D shapes with manipulatives Through play, use 2D shapes to create patterns and pictures Sort and compare shapes by attributes Begin looking for symmetry 	<p>Shape Students will:</p> <ul style="list-style-type: none"> Recognise common 2D and 3D shapes Describe, draw and make 2D shapes Describe 3D shapes Make symmetrical pictures using a variety of means Informally describe the symmetry of a figure or arrangement 	<p>Shape Students will:</p> <ul style="list-style-type: none"> Recognise and name common 2D and 3D shapes Sort and label 2D and 3D shapes using appropriate mathematical vocabulary Use manipulatives to create shapes 	<p>Shape Students will:</p> <ul style="list-style-type: none"> Describe, draw and make quadrilaterals, triangles, circles, hexagons and pentagons Sort and name plane shapes according to attributes Sort and name solid shapes according to attributes using appropriate vocabulary Make models of rectangular- and triangular-based shapes, cones, cylinders and spheres Relate 3D shapes to 2D shapes Explore 2D shapes using tangrams and tessellation games of regular shapes Given a net, can construct a cube 	<p>Shape Students will:</p> <ul style="list-style-type: none"> Describe and classify polygons using the terminology of angles and sides Apply symmetry, translations and reflections using concrete materials and drawings Observe and describe geometry in the environment, including tessellating shapes Given a net, construct 3D shapes 	<p>Shape Students will:</p> <ul style="list-style-type: none"> Classify triangles according to sides and angles Recognise equilateral and isosceles triangles Recognise and draw congruent shapes Identify and create a reflection of a 2D shape Find axes of symmetry in 2D shapes Complete missing half of a more complex geometrical pattern Recognise perpendicular and parallel lines on 2D shapes Create tessellating patterns Describe and classify 2D and 3D shapes using mathematical terminology Create 3D shapes using nets Create nets for 3D shapes 	<p>Shape Students will:</p> <ul style="list-style-type: none"> Identify and name parallel and perpendicular lines and planes in figures and objects Use the symbols representing perpendicular and parallel lines Know basic properties of a circle (radius, diameter and circumference) and know that the diameter is twice the radius Solve real life problems involving shape and area Identify and create rotation and reflection of a 2D shape Recognise, describe and build simple 3D shapes Create nets for 3D shapes
<p>Objects in our immediate environment have a position in space that can be described according to a point of reference.</p>	<p>Space Students will:</p> <ul style="list-style-type: none"> Understand positional language Be aware of space in relation to the size of an object 	<p>Space Students will:</p> <ul style="list-style-type: none"> Explore the paths, regions and boundaries of their immediate environment and their position 	<p>Space Students will:</p> <ul style="list-style-type: none"> Describe and represent the paths, regions and boundaries of their immediate environment and their position 	<p>Space Students will:</p> <ul style="list-style-type: none"> Recognise symmetrical designs by folding or using a mirror Create and explain simple symmetrical designs Find and explore symmetry in their immediate environment Interpret, use and create key features of a simple map 	<p>Space Students will:</p> <ul style="list-style-type: none"> Recognise symmetrical shapes by folding or using a mirror Find one line of symmetry 			
					<p>Angles Students will:</p> <ul style="list-style-type: none"> Recognise the eight compass points Using compass directions, make and describe right angle turns Interpret maps and use simple directions to describe paths of movement e.g. north, south, east, west, right angle, quarter turn and half turns 	<p>Angles Students will:</p> <ul style="list-style-type: none"> Recognise and use the eight compass directions and anti-clockwise turns Understand that a right angle is 90°; whole turn is 360° Understand an angle as a measure of rotation by comparing and describing rotation Know that angles are measured in degrees 	<p>Angles Students will:</p> <ul style="list-style-type: none"> Identify relationship of angles to compass points Estimate angles Measure and draw angles to the nearest degree Identify obtuse, acute, straight and reflex angles 	<p>Angles Students will:</p> <ul style="list-style-type: none"> Calculate complementary and supplementary angles Investigate and demonstrate the characteristics of triangles and quadrilaterals Measure and draw acute, obtuse and right angles to the nearest degree
				<p>Co-ordinates Students will:</p> <ul style="list-style-type: none"> Use coordinates to locate items on a simple map 	<p>Co-ordinates Students will:</p> <ul style="list-style-type: none"> Use coordinates to find objects on a grid 	<p>Co-ordinates Students will:</p> <ul style="list-style-type: none"> Read and plot coordinates in all four quadrants 	<p>Co-ordinates Students will:</p> <ul style="list-style-type: none"> Read and plot coordinates in all four quadrants Understand rotation, reflection and translations 	

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Measurement <u>Conceptual understanding</u> Measurement involves comparing objects and events. Objects have attributes that can be measured using non-standard units. Events can be ordered and sequenced. Objects and events have attributes that can be measured using appropriate tools. Relationships exist between standard units that measure the same attributes. Accuracy of measurements depends on the situation and the precision of the tool. Conversion of units and measurements allows us to make sense of the world we live in. A range of procedures exists to measure different attributes of objects and events.	Phase 1		Phase 2		Phase 3		Phase 4	
	Learners will develop an understanding of how measurement involves the comparison of objects and the ordering and sequencing of events. They will be able to identify, compare and describe attributes of real objects as well as describe and sequence familiar events in their daily routine.		Learners will understand that standard units allow us to have a common language to measure and describe objects and events, and that while estimation is a strategy that can be applied for approximate measurements, particular tools allow us to measure and describe attributes of objects and events with more accuracy. Learners will develop these understandings in relation to measurement involving length, mass, capacity, money, temperature and time.		Learners will continue to use standard units to measure objects, in particular developing their understanding of measuring perimeter, area and volume. They will select and use appropriate tools and units of measurement, and will be able to describe measures that fall between two numbers on a scale. The learners will be given the opportunity to construct meaning about the concept of an angle as a measure of rotation.		Learners will understand that a range of procedures exists to measure different attributes of objects and events, for example, the use of formulas for finding area, perimeter and volume. They will be able to decide on the level of accuracy required for measuring and using decimal and fraction notation when precise measurements are necessary. To demonstrate their understanding of angles as a measure of rotation, the learners will be able to measure and construct angles.	
	K1	K2	K3	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5
	<u>Non-standard and Standard Measurement</u> Students will: <ul style="list-style-type: none"> Play with appropriate materials to explore measurement Be exposed to descriptive language such as fast/slow, heavy/light, full/empty, long/short, big/small in real life situations Understand some language of measurement e.g. longer, shorter, bigger, biggest, smallest, shortest, tallest, etc Recognise significant events in the school day Be aware of the days of the week and months of the year through daily calendar activities 	<u>Non-standard and Standard Measurement</u> Students will: <ul style="list-style-type: none"> Show awareness of a variety of non-standard systems of measurement Use a balance to say which is heavier of two visually similar-sized objects Use indirect methods to arrange objects that can be directly compared by length Identify, compare and describe attributes of real objects and situations Identify, compare and sequence events in their daily routine Recognise a clock face and name the hands and place numbers in correct position Read a clock to the hour Know the days of the week Be aware of the months and seasons 	<u>Non-standard and Standard Measurement</u> Students will: <ul style="list-style-type: none"> Use a variety of non-standard systems of measurement – use body parts and familiar objects repeatedly to match the length of things and count Count informal units of capacity and say how many will fit in a container Show awareness that there are standard systems of measurement Count informal units of mass Use language of comparisons Name and sequence the days of the week, months and seasons Understand how the hands on the clock show different times Recognise digital and analogue clocks to the hour and half past 	<u>Non-standard and Standard Measurement</u> Students will: <ul style="list-style-type: none"> Vary use of non-standard systems of measurement appropriate to context Link non-standard to standard measurement Show awareness of and use appropriate tools for measuring Use and read standard units of measurement to measure classroom objects Consolidate sequencing of the days of the week, months and seasons Read and write digital and analogue clocks to the hour, half hour, quarter past the hour Estimate, identify and compare lengths of time Estimate the number of times a unit of length will fit along an object Show improvement in their estimates as a result of testing Explore capacity 	<u>Standard Measures</u> Students will: <ul style="list-style-type: none"> Select and justify appropriate tool for measuring Use and read standard units of measurement to measure classroom objects Know the basic relationship between metric units Read and write digital and analogue 12 hour clock to nearest quarter hour Understand clockwise/ anticlockwise and the concept of 1 minute Demonstrate quarter past, half past, and quarter to on clock faces 	<u>Standard Measures</u> Students will: <ul style="list-style-type: none"> Estimate length and mass using of real objects Recognise relationship between metric units of measurement Read and write digital and analogue clock times to the nearest 5 minutes Recognise relationship between units of time Describe measures that fall between numbers on a measure scale Solve measurement word problems and explains the solutions Estimate Celsius temperatures and relates temperature to everyday situations Identify freezing and boiling points Read and interpret calendars and simple timetables 	<u>Standard Measures</u> Students will: <ul style="list-style-type: none"> Convert between different metric units including measurements with fractions and decimals Calculate elapsed time in problem solving situations using 12 and 24 hour clock Choose the most appropriate standard unit when measuring Decide on the level of accuracy needed for a given task 	<u>Standard Measures</u> Students will: <ul style="list-style-type: none"> Interpret actual distance from a scale model Use prefixes in the metric system and notation correctly Solve, create and explain multiple step word problems using measurement, temperature and time Compare and order length, capacity and mass measurements provided in common standard units
					<u>Area/Perimeter</u> Students will: <ul style="list-style-type: none"> Introduce standard units of area and perimeter Use manipulatives to show squared units of an area Using squared paper, estimate and measure the area and perimeter of regular quadrilaterals using standard units 	<u>Area/Perimeter</u> Students will: <ul style="list-style-type: none"> Calculate the perimeter and area of quadrilaterals 	<u>Area/Perimeter</u> Students will: <ul style="list-style-type: none"> Calculate the perimeter and area of triangles, generalise rules and develop formulae Apply understanding of perimeter and area rules to more complex polygon 	
				<u>Capacity/Volume</u> Students will: <ul style="list-style-type: none"> Use standard units to estimate, and compare, capacity 	<u>Capacity/Volume</u> Students will: <ul style="list-style-type: none"> Estimate and measure capacity using appropriate tools and units 	<u>Capacity/Volume</u> Students will: <ul style="list-style-type: none"> Estimate and measure capacity using appropriate tools and units 	<u>Capacity/Volume</u> Students will: <ul style="list-style-type: none"> Investigate formula for the volume of a cuboid 	