

MATHEMATICS – Criteria for National Standards Achievement Judgements from MOE Books

School-Wide Main Focus Goals	AFTER 1 YEAR AT SCHOOL (Level 1)	AFTER 2 YEARS AT SCHOOL (Level 1)
<p>NUMBER & ALGEBRA</p> <p>1. Use a variety of strategies to calculate and estimate.</p> <p>2. Discern when results of calculations and estimations are reasonable.</p> <p>3. Recognise and create patterns, and see relationships in numbers, shapes and measures.</p> <p>60-80% tchg time</p>	<p>In contexts that require them to solve problems or model situations, students will be able to:</p> <ul style="list-style-type: none"> • apply counting-all strategies • continue sequential patterns and number patterns based on ones 	<p>In contexts that require them to solve problems or model situations, students will be able to:</p> <ul style="list-style-type: none"> • apply counting-on, counting-back, skip-counting, and simple grouping strategies to combine or partition whole numbers • use equal sharing and symmetry to find fractions of sets, shapes, and quantities • create and continue sequential patterns by identifying the unit of repeat • continue number patterns based on ones, twos, fives, and tens.
<p>GEOMETRY & MEASUREMENT</p> <p>1. Recognise and use the properties of symmetry and shape.</p> <p>2. Describe position and movement.</p> <p>3. Use appropriate units and instruments of measurement and calculate quantities</p>	<p>In contexts that require them to solve problems or model situations, students will be able to:</p> <ul style="list-style-type: none"> • compare the lengths, areas, volumes or capacities, and weights of objects directly • sort objects and shapes by a single feature and describe the feature, using everyday language • represent reflections and translations by creating patterns • describe personal locations and give directions, using everyday language. 	<p>In contexts that require them to solve problems or model situations, students will be able to:</p> <ul style="list-style-type: none"> • compare the lengths, areas, volumes or capacities, and weights of objects and the durations of events, using self-chosen units of measurement • sort objects and shapes by different features and describe the features, using mathematical language • represent reflections and translations by creating and describing patterns • describe personal locations and give directions, using steps and half- or quarter-turns.
<p>STATISTICS</p> <p>1. Design investigations, collect, interpret and communicate data.</p> <p>2. Develop ideas of probability.</p>	<p>In contexts that require them to solve problems or model situations, students will be able to:</p> <ul style="list-style-type: none"> • investigate questions by using the statistical enquiry cycle (with support), gathering, displaying, and/or counting category data. 	<p>In contexts that require them to solve problems or model situations, students will be able to:</p> <ul style="list-style-type: none"> • investigate questions by using the statistical enquiry cycle (with support), gathering, displaying, and/or identifying similarities and differences in category data • describe the likelihoods of outcomes for a simple situation involving chance, using everyday language.

School-Wide Main Focus Goals	AFTER 3 YEARS AT SCHOOL (Level 2)	BY END OF YEAR 4 (Level 2)
<p>NUMBER & ALGEBRA</p> <p>1. Use a variety of strategies to calculate and estimate.</p> <p>2. Discern when results of calculations and estimations are reasonable.</p> <p>3. Recognise and create patterns, and see relationships in numbers, shapes and measures.</p> <p>60-80% tchg time</p>	<p>In contexts that require them to solve problems or model situations, students will be able to:</p> <ul style="list-style-type: none"> • apply basic addition facts and knowledge of place value and symmetry to: <ul style="list-style-type: none"> - combine or partition whole numbers - find fractions of sets, shapes, and quantities • create and continue sequential patterns with one or two variables by identifying the unit of repeat • continue spatial patterns and number patterns based on simple addition or subtraction. 	<p>In contexts that require them to solve problems or model situations, students will be able to:</p> <ul style="list-style-type: none"> • apply basic addition and subtraction facts, simple multiplication facts, and knowledge of place value and symmetry to: <ul style="list-style-type: none"> - combine or partition whole numbers - find fractions of sets, shapes, and quantities • create, continue, and give the rule for sequential patterns with two variables • create and continue spatial patterns and number patterns based on repeated addition or subtraction.
<p>GEOMETRY & MEASUREMENT</p> <p>1. Recognise and use the properties of symmetry and shape.</p> <p>2. Describe position and movement.</p> <p>3. Use appropriate units and instruments of measurement and calculate quantities</p>	<p>In contexts that require them to solve problems or model situations, students will be able to:</p> <ul style="list-style-type: none"> • measure the lengths, areas, volumes or capacities, and weights of objects and the duration of events, using linear whole-number scales and applying basic addition facts to standard units • sort objects and two- and three-dimensional shapes by their features, identifying categories within categories • represent reflections, translations, and rotations by creating and describing patterns • describe personal locations and give directions, using whole-number measures and half- or quarter-turns 	<p>In contexts that require them to solve problems or model situations, students will be able to:</p> <ul style="list-style-type: none"> • measure the lengths, areas, volumes or capacities, weights, and temperatures of objects and the duration of events, reading scales to the nearest whole number and applying addition, subtraction, and simple multiplication to standard units • sort objects and two- and three-dimensional shapes by two features simultaneously • represent and describe the symmetries of a shape • create nets for cubes • describe personal locations and give directions, using simple maps
<p>STATISTICS</p> <p>STATISTICS</p> <p>1. Design investigations, collect, interpret and communicate data.</p> <p>2. Develop ideas of probability.</p>	<p>In contexts that require them to solve problems or model situations, students will be able to:</p> <ul style="list-style-type: none"> • investigate questions by using the statistical enquiry cycle (with support): <ul style="list-style-type: none"> - gather and display category and simple whole-number data - interpret displays in context • compare and explain the likelihoods of outcomes for a simple situation involving chance. 	<p>In contexts that require them to solve problems or model situations, students will be able to:</p> <ul style="list-style-type: none"> • investigate questions by using the statistical enquiry cycle independently: <ul style="list-style-type: none"> - gather and display category and simple whole-number data - interpret displays in context • compare and explain the likelihoods of outcomes for a simple situation involving chance, acknowledging uncertainty

School-Wide Main Focus Goals	BY END OF YEAR 5 (Level 3)	BY END OF YEAR 6 (Level 3)
<p>NUMBER & ALGEBRA</p> <p>1. Use a variety of strategies to calculate and estimate.</p> <p>2. Discern when results of calculations and estimations are reasonable.</p> <p>3. Recognise and create patterns, and see relationships in numbers, shapes and measures.</p> <p>50-70% tchg time</p>	<p>In contexts that require them to solve problems or model situations, students will be able to:</p> <ul style="list-style-type: none"> • apply additive and simple multiplicative strategies and knowledge of symmetry to: <ul style="list-style-type: none"> - combine or partition whole numbers - find fractions of sets, shapes, and quantities • create, continue, and predict further members of sequential patterns with two variables • describe spatial and number patterns, using rules that involve spatial features, repeated addition or subtraction, and simple multiplication 	<p>In contexts that require them to solve problems or model situations, students will be able to:</p> <ul style="list-style-type: none"> • apply additive and simple multiplicative strategies flexibly to: <ul style="list-style-type: none"> - combine or partition whole numbers, including performing mixed operations and using addition and subtraction as inverse operations - find fractions of sets, shapes, and quantities • determine members of sequential patterns, given their ordinal positions • describe spatial and number patterns, using: <ul style="list-style-type: none"> - tables and graphs - rules that involve spatial features, repeated addition or subtraction, and simple multiplication
<p>GEOMETRY & MEASUREMENT</p> <p>1. Recognise and use the properties of symmetry and shape.</p> <p>2. Describe position and movement.</p> <p>3. Use appropriate units and instruments of measurement and calculate quantities</p>	<p>In contexts that require them to solve problems or model situations, students will be able to:</p> <ul style="list-style-type: none"> • measure time and the attributes of objects, choosing appropriate standard units and working with them to the nearest tenth • sort two- and three-dimensional shapes, considering the presence and/or absence of features simultaneously and justifying the decisions made • represent and describe the results of reflection, rotation, and translation on shapes • create nets for rectangular prisms • draw plan, front, and side views of objects • describe locations and give directions, using grid references and points of the compass. 	<p>In contexts that require them to solve problems or model situations, students will be able to:</p> <ul style="list-style-type: none"> • measure time and the attributes of objects, choosing appropriate standard units • use arrays to find the areas of rectangles and the volumes of cuboids, given whole-number dimensions • sort two- and three-dimensional shapes (including prisms), considering given properties simultaneously and justifying the decisions made • represent and describe the results of reflection, rotation, and translation on shapes or patterns • identify nets for rectangular prisms • draw or make objects, given their plan, front, and side views • describe locations and give directions, using grid references, turns, and points of the compass
<p>STATISTICS</p> <p>STATISTICS</p> <p>1. Design investigations, collect, interpret and communicate data.</p> <p>2. Develop ideas of probability.</p>	<p>In contexts that require them to solve problems or model situations, students will be able to:</p> <ul style="list-style-type: none"> • investigate summary and comparison questions by using the statistical enquiry cycle: <ul style="list-style-type: none"> - gather, display, and identify patterns in category and whole-number data - interpret results in context • order the likelihoods of outcomes for simple situations involving chance, experimenting or listing all possible outcomes. 	<p>In contexts that require them to solve problems or model situations, students will be able to:</p> <ul style="list-style-type: none"> • investigate summary and comparison questions by using the statistical enquiry cycle: <ul style="list-style-type: none"> - gather or access multivariate category and whole-number data - sort data into categories or intervals, display it in different ways, and identify patterns - interpret results in context, accepting that samples vary • order the likelihoods of outcomes for situations involving chance, considering experimental results and models of all

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School-Wide Main Focus Goals	BY END OF YEAR 7 (Level 4)	BY END OF YEAR 8 (Level 4)
<p>NUMBER & ALGEBRA</p> <p>1. Use a variety of strategies to calculate and estimate.</p> <p>2. Discern when results of calculations and estimations are reasonable.</p> <p>3. Recognise and create patterns, and see relationships in numbers, shapes and measures.</p> <p><i>40-60% tchg time</i></p>	<p>In contexts that require them to solve problems or model situations, students will be able to:</p> <ul style="list-style-type: none"> • apply additive and multiplicative strategies flexibly to whole numbers, ratios, and equivalent fractions (including percentages) • apply additive strategies to decimals • balance positive and negative amounts • find and represent relationships in spatial and number patterns, using: <ul style="list-style-type: none"> - tables and graphs - general rules for linear relationships. 	<p>In contexts that require them to solve problems or model situations, students will be able to:</p> <ul style="list-style-type: none"> • apply multiplicative strategies flexibly to whole numbers, ratios, and equivalent fractions (including decimals and percentages) • use multiplication and division as inverse operations on whole numbers • apply additive strategies flexibly to decimals and integers • find and represent relationships in spatial and number patterns, using: <ul style="list-style-type: none"> - tables and graphs - equations for linear relationships - recursive rules for non-linear relationships • apply inverse operations to simple linear relationships.
<p>GEOMETRY & MEASUREMENT</p> <p>1. Recognise and use the properties of symmetry and shape.</p> <p>2. Describe position and movement.</p> <p>3. Use appropriate units and instruments of measurement and calculate quantities</p>	<p>In contexts that require them to solve problems or model situations, students will be able to:</p> <ul style="list-style-type: none"> • measure time and the attributes of objects, using metric and other standard measures • make simple conversions between units, using whole numbers • use side or edge lengths to find the perimeters and areas of rectangles and parallelograms and the volumes of cuboids, given whole-number dimensions • sort two- and three-dimensional shapes into classes, defining properties and justifying the decisions made • identify and describe the transformations that have produced given shapes or patterns • create or identify nets for rectangular prisms and other simple solids • draw plan, front, side, and perspective views of objects • describe locations and give directions, using grid references, simple scales, turns, and points of the compass 	<p>In contexts that require them to solve problems or model situations, students will be able to:</p> <ul style="list-style-type: none"> • use metric and other standard measures • make simple conversions between units, using decimals • use side or edge lengths to find the perimeters and areas of rectangles, parallelograms, and triangles and the volumes of cuboids • sort two and three-dimensional shapes into classes, considering the relationships between the classes and justifying the decisions made • identify and describe the features of shapes or patterns that change or do not change under transformation • create or identify nets for rectangular prisms and other simple solids, given particular requirements • draw or make objects, given their plan, front, and side views or their perspective views • describe locations and give directions, using scales, bearings, and co-ordinates.
<p>STATISTICS</p> <p>1. Design investigations, collect, interpret and communicate data.</p>	<p>In contexts that require them to solve problems or model situations, students will be able to:</p> <ul style="list-style-type: none"> • investigate summary, comparison, and relationship questions by using the statistical enquiry cycle: <ul style="list-style-type: none"> - gather or access multivariate category and measurement 	<p>In contexts that require them to solve problems or model situations, students will be able to:</p> <ul style="list-style-type: none"> • investigate summary, comparison, and relationship questions by using the statistical enquiry cycle: <ul style="list-style-type: none"> - gather or access multivariate category, measurement, and

<p>2. Develop ideas of probability.</p>	<p>data</p> <ul style="list-style-type: none"> - sort data and display it in multiple ways, identifying patterns and variations - interpret results in context, accepting that samples vary and have no effect on one another • order the likelihoods of outcomes for situations involving chance, checking for consistency between experimental results and models of all possible outcomes. 	<p>time-series data</p> <ul style="list-style-type: none"> - sort data and display it in multiple ways, identifying patterns, variations, relationships, and trends and using ideas about middle and spread where appropriate - interpret results in context, identifying factors that produce uncertainty • express as fractions the likelihoods of outcomes for situations involving chance, checking for consistency between experimental results and models of all possible outcomes.
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