Measurement & Geometry Year 6

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Teacher: Date:

A Local Public School

Cross Curriculum Priorities

- Aboriginal and Torres Strait Islander histories and culture
- Asia and Australia's engagement with Asia
- Sustainability

General Capabilities

- Literacy
- Numeracy
- ICT Competence
- Critical and Creative Thinking
- Intercultural Understanding
- Personal and Social Competence
- Ethical Behaviour

First Steps Links

SPACE

Represent Location

- ☐ KU 1 Pg.
- ☐ KU 2 Pg.
- ☐ KU 3 Pg.

Represent Shape

- ☐ KU 1 Pg.
- ☐ KU 2 Pg.
- ☐ KU 3 Pg.

Represent Transformation

- ☐ KU 1 Pg.
- ☐ KU 2 Pg.
- ☐ KU 3 Pg.
- ☐ KU 4 Pg.

Reason Geometrically

- ☐ KU 1 Pg.
- ☐ KU 2 Pg.
- ☐ KU 3 Pg.
- ☐ KU 4 Pg.

SPACE
Understand Units

- ☐ KU 1 Pg.
- ☐ KU 2 Pg.
- ☐ KU 3 Pg.
- ☐ KU 4 Pg.
- ☐ KU 5 Pg.
- ☐ KU 6 Pg.
- ☐ KU 7 Pg.
- ☐ KU 8 Pg.
- ☐ KU 9 Pg.

Direct Measure

- ☐ KU 1 Pg.
- ☐ KU 2 Pg.
- ☐ KU 3 Pg.
- ☐ KU 4 Pg.
- ☐ KU 5 Pg.
- ☐ KU 6 Pg.

Indirect Measure

- ☐ KU 1 Pg.
- ☐ KU 2 Pg.
- ☐ KU 3 Pg.
- ☐ KU 4 Pg.

Estimate

- ☐ KU 1 Pg.
- ☐ KU 2 Pg.
- ☐ KU 3 Pg.

Year 4	Year 5	Year 6
USING UNITS OF MEASUREMENT	**USING UNITS OF MEASUREMENT**	**USING UNITS OF MEASUREMENT**
Use scaled instruments to measure and compare lengths, masses, capacities and temperatures *[ACMMG084]* - Reading and interpreting the graduated scales on a range of measuring instruments to the nearest graduation. Compare objects using familiar metric units of area and volume. *[ACMMG290]* - Comparing areas using grid paper, volume using centicubes Convert between units of time *[ACMMG085]* - Identifying and using the correct operation for converting units of time. Use am and pm notation and solve simple time problems *[ACMMG086]* - Calculating the time spent at school during a normal day - Calculating the time required to travel between two locations - Using units hours, minutes and seconds. - Determining the arrival time given the departure time.	Choose appropriate units of measurement for length, area, volume, capacity and mass *[ACMMG108]* - Recognising that some units of measurement are better suited to some tasks than others Calculate the perimeter and area of rectangles using familiar metric units *[ACMMG109]* - Exploring efficient ways of calculating the perimeters of rectangles such as adding the length and width together and doubling the result. Compare 12 and 24 hour time systems and convert between them. *[ACMMG110]*	Connect decimal representations to the metric system. *[ACMMG135]* Convert between common metric units of length, mass and capacity. *[ACMMG136]* Solve problems involving the comparison of lengths and areas using appropriate units. *[ACMMG137]* Connect volume and capacity and their units of measurement. *[ACMMG138]* Interpret and use timetables. *[ACMMG139]*
SHAPE	**SHAPE**	**SHAPE**
Compare the areas of regular and irregular shapes by informal means *[ACMMG087]* - Comparing areas using metric units, such as counting the number of square centimetres required to cover two areas by overlaying the areas with a grid of centimetre squares. Compare and describe two dimensional shapes that result from combining and splitting common shapes, with and without the use of digital technologies *[ACMMG088]* - Identifying common two-dimensional shapes that are part of a composite shape by recreating it from these shapes. - Creating two-dimensional shapes from written and verbal instructions.	Connect three dimensional objects with their nets and two-dimensional representations. *[ACMMG111]* - the shape and relative position of each face of a solid to determine the net of the solid, including that of prisms and pyramids. - Representing two-dimensional shapes such as photographs, sketches and images created by digital technologies.	Construct simple prisms and pyramids. *[ACMMG140]* - Constructing prisms and pyramids from nets and skeletal models. - Considering the history and significance of pyramids from a range of cultural perspectives including those structures found in China, Korea and Indonesia.
LOCATION AND TRANSFORMATION	**LOCATION AND TRANSFORMATION**	**LOCATION AND TRANSFORMATION**
Use simple scales, legends and directions to interpret information contained in basic maps. *[ACMMG090]* Create symmetrical patterns, pictures and shapes with and without digital technologies. *[ACMMG091]*	Use a grid reference system to describe locations. Describe routes using landmarks and directional language. *[ACMMG113]* Describe translations, reflections and rotations of two-dimensional shapes. Identify line and rotational symmetries. *[ACMMG114]* Apply the enlargement transformation to familiar two dimensional shapes and explore the properties of the resulting image compared with the original. *[ACMMG115]*	Investigate combinations of translations, reflections and rotations with and without the use of digital technologies. *[ACMMG142]* Introduce the Cartesian co-ordinate systems using all four quadrants. *[ACMMG143]*
GEOMETRIC REASONING	**GEOMETRIC REASONING**	**GEOMETRIC REASONING**
Compare angles and classify them as equal to, greater than or less than a right angle. *[ACMMG089]*	Estimate, measure and compare angles using degrees. Construct angles using a protractor. *[ACMMG112]*	Investigate, with and without digital technologies, angles on a straight line, angles at a point and vertically opposite angles. Use results to find unknown angles. *[ACMMG141]*

Year 6 Achievement Target

By the end of Year 6, students recognise the properties of prime, composite, square and triangular numbers. Theydescribe the use of integers in everyday contexts. They solve problems involving all four operations with wholenumbers. Students connect fractions, decimals and percentages as different representations of the same number.They solve problems involving the addition and subtraction of related fractions. Students make connections betweenthe powers of 10 and the multiplication and division of decimals. They describe rules used in sequences involvingwhole numbers, fractions and decimals. Students connect decimal representations to the metric system and chooseappropriate units of measurement to perform a calculation. They make connections between capacity and volume.They solve problems involving length and area. They interpret timetables. Students describe combinations oftransformations. They solve problems using the properties of angles. Students compare observed and expectedfrequencies. They interpret and compare a variety of data displays including those displays for two categoricalvariables. They evaluate secondary data displayed in the media. Students locate fractions and integers on a numberline. They calculate a simple fraction of a quantity. They add, subtract and multiply decimals and divide decimalswhere the result is rational. Students calculate common percentage discounts on sale items. They write correctnumber sentences using brackets and order of operations. Students locate an ordered pair in any one of the four quadrants on the Cartesian plane. They construct simple prisms and pyramids. Students list and communicate probabilities using simple fractions, decimals and percentages.

PROFICIENCY STRANDS

Understanding

Students build a robust knowledge of adaptable and transferable mathematicalconcepts. They make connections between related concepts and progressivelyapply the familiar to develop new ideas. They develop an understanding of therelationship between the 'why' and the 'how' of mathematics. Students buildunderstanding when they connect related ideas, when they represent conceptsin different ways, when they identify commonalities and differences betweenaspects of content, when they describe their thinking mathematically and when they interpret mathematical information.

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Problem Solving

Students develop the ability to make choices, interpret, formulate, model and investigate problem situations, and communicate solutions effectively. Students formulate and solve problems when they use mathematics to represent unfamiliar or meaningful situations, when they design investigations and plan their approaches, when they apply their existing strategies to seek solutions, and when they verify that their answers are reasonable.

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Fluency

Students develop skills in choosing appropriate procedures, carrying out procedures flexibly, accurately, efficiently and appropriately, and recalling factual knowledge and concepts readily. Students are fluent when they calculate answers efficiently, when they recognise robust ways of answering questions, when they choose appropriate methods and approximations, when they recall definitions and regularly use facts, and when they can manipulate expressions and equations to find solutions.

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Reasoning

Students develop an increasingly sophisticated capacity for logical thought and actions, such as analysing, proving, evaluating, explaining, inferring, justifying and generalising. Students are reasoning mathematically when they explain their thinking, when they deduce and justify strategies used and conclusions reached, when they adapt the known to the unknown, when they transfer learning from one context to another, when they prove that something is true or false and when they compare and contrast related ideas and explain their choices.

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