

MEASUREMENT AND GEOMETRY CONCEPT SEQUENCE

RESEARCH

LINKS		GEOMETRY	LINKS	MEASUREMENT	
KINDERGARTEN	<u>1</u>	Name squares, triangles, circles and rectangles.	<u>2</u>	Create and compare lengths, heights and distances.	T1
		POSITION <u>3</u>	Describe the position of an object in relation to another object.		T1
			<u>4</u>	Compare 3 lengths, explaining if A is longer than B, and B is longer than C, then A is longer than C.	T2
		POSITION <u>5</u>	Give and follow directions to a place.		T2
	<u>6</u>	Dimensions are up and down left to right, front to back. Three-dimensional objects have two-dimensional surfaces / shapes with straight lines or curved lines.	<u>8</u>	Compare volumes of objects directly, by placing one against the other. Compare capacity of containers directly, by pouring.	T3
	<u>7</u>	Describe surfaces and lines on three-dimensional objects.			
		POSITION <u>9</u>	Describe position in relation to self, give and follow directions.		T4
			<u>10</u>	Investigate halves of shapes (Fractions and Decimals 1) then apply below. Compare the area of 2 shapes where one fits inside the other, by superimposing, and by cutting up one and paste on the other.	
			<u>11</u>	Compare 3 areas, explaining if A has a larger area than B, and B has a larger area than C, then A has a larger area than C.	
			<u>12</u>	Describe and compare mass through hefting, identifying light and heavy objects.	

LINKS		GEOMETRY		LINKS		MEASUREMENT	
YEAR 1	<u>13</u>	Describe 3-sided triangles, 4-sided quadrilaterals, 5-sided pentagons, 6-sided hexagons, 8-sided octagons.	2D SHAPES	<u>14</u>	Length as measuring 1 dimension. Use multiple uniform informal units to measure length. Relate the number of units to size of units. Use a single informal unit to estimate and measure the length.	LENGTH	T1
	POSITION <u>15</u>	Give and follow directions from perspective of self and from perspective of person facing opposite direction.					
				<u>16</u>	Area as the amount of space a shape or surface takes up in 2 dimensions. Select and use multiple uniform informal units to estimate and measure area of shapes and surfaces of three-dimensional objects, by covering the shape or surface in rows, identifying that the square is the best shape. Relate the number of units to size of units.	AREA	T2
	<u>17</u>	Identify flat and curved surfaces, and straight, curved, vertical, horizontal and parallel lines on three-dimensional objects.	3D OBJECTS	<u>18</u>	Volume as amount of space object takes up in 3 dimensions. Capacity as volume container can hold when filled to capacity. Select and use multiple uniform informal units to estimate and measure the volume and capacity of objects and containers with flat surfaces and straight lines, by packing in rows and layers, explaining why cubes are the best shape. Estimate, measure and compare the capacity of containers with curved surfaces and curved lines by filling with liquid. Relate the number of units to the size of the container.	VOLUME AND CAPACITY	T3
		<u>19</u>		Mass as a measure of how heavy or light an object is. Compare, sort mass using and explaining an equal arm balance.	MASS		

LINKS		GEOMETRY		LINKS		MEASUREMENT			
YEAR 2	<u>20</u>	Manipulate, name, describe, draw, compare two-dimensional shapes, identifying 2 dimensions, vertices and straight, curved, and parallel lines. Select and name a shape from a description of its features.	2D SHAPES	<u>21</u>	<p>Investigate counting by 10 (Place Value 12) then apply below.</p> <p>Length as measuring 1 dimension. Construct and use a tape measure to measure length using informal units, including counting informal units by 10s. Recognise need for formal unit, make a ruler using centimetres. Measure using whole and parts of metres and centimetres.</p>	LENGTH	T1		
	POSITION <u>22</u>	Simple maps of familiar spaces and describe the position of objects and features.							
				<u>23</u>	<p>Investigate arrays (Multiplication and Division 5) then apply below.</p> <p>Area as the amount of space a shape or surface takes up in 2 dimensions. Compare and order two-dimensional rectangular and non-rectangular shapes based on area, using and naming uniform informal square units, and drawing and explaining spatial structure (grid) of repeated units in rows (array).</p>	AREA	T2		
	<u>24</u>	Distinguish between three-dimensional objects and two-dimensional shapes, identifying dimensions, flat surfaces of three-dimensional objects are two-dimensional shapes.	2D & 3D	<u>26</u>	<p>Volume as amount of space object takes up in 3 dimensions. Capacity as volume container can hold when filled to capacity. Construct, use a measuring device using liquid informal units, to measure the capacity of a container with curved surfaces. Create models using cubes, order volumes of models in cubes. Compare and order volumes by displacement.</p>	VOLUME AND CAPACITY	T3		
	<u>25</u>	Sort, describe and classify a three-dimensional object by its features on seeing them, and from a description of its features.	3D OBJECTS						
		<u>27</u>	<p>Investigate halves and quarters (Fractions and Decimals 2, 3) then apply below., Time 10.</p> <p>Describe one-step slides, flips, full, half, quarter turns.</p> <p>Use this concept now to investigate time at quarter past and quarter to (Time 10)</p>						
					<u>28</u>	<p>Mass as a measure of how heavy or light an object is. Masses on equal arm balance, using uniform informal units. Relate number of units to mass of units and mass of object.</p>	MASS	T4	

LINKS		GEOMETRY		LINKS		MEASUREMENT		
YEAR 3	<u>29</u>	Regular and irregular triangles in different orientations, identifying 2 dimensions, 3 straight lines that meet at vertices as sides. Symmetry and rigidity in triangles.	2D SHAPES	<u>30</u>	Investigate Multiplicative Place Value (Place Value 18), then apply below. Length as measuring 1 dimension. History, relationship to multiplicative place value, length in metre, (decimetre), centimetre, millimetre.	LENGTH	T1	
	ANGLES <u>31</u>			Angles as the amount of turn, identifying the vertex and arms. Angles as the relative slant of two arms that meet at a vertex. Compare angles as less than, equal to, greater than right angle.				
	<u>32</u>	Regular and irregular quadrilaterals, identifying 2 dimensions, 4 straight lines that meet at vertices as sides, explaining that all four-sided shapes are quadrilaterals and identifying symmetry. Identify and name special quadrilaterals, identifying angles.	2D SHAPES	<u>33</u>	Area as the amount of space a shape or surface takes up in 2 dimensions. Measure area using square metre, (square decimetre), square centimetre, (square millimetre), identifying length units have been turned into squares by extending into second dimension.	AREA	T2	
	<u>34</u>	Features (angles, surfaces, lines, symmetry) prisms, pyramids, cylinders, cones and spheres, deconstruct packaging as nets.	3D OBJECTS	<u>35</u>	Investigate Multiplicative Place Value (Place Value 18), then apply below. Volume as amount of space object takes up 3 dimensions. Capacity as volume container hold when filled to capacity. Measure volume and capacity using cubic metre, (cubic decimetre), cubic centimetre, (cubic millimetre), identifying area units have been turned into cubes by extending into third dimension. History, relationship to multiplicative place value, measure volume and capacity using, litre, (decilitre), centilitre, millilitre.	VOLUME AND CAPACITY	T3	
				<u>36</u>	Investigate Multiplicative Place Value (Place Value 18), then apply below. Mass as a measure of how heavy or light an object is. History, relationship to multiplicative place value, measure mass using, kilogram, (hectogram, decagram), gram.	MASS	T4	
POSITION <u>37</u>		Interpret and draw simple grid maps with alpha-numeric grid references.						

LINKS		GEOMETRY		LINKS		MEASUREMENT			
YEAR 4	<u>38</u>	Create designs by reflecting, translating and rotating shapes, identifying symmetry and tessellation.	2D SHAPES	<u>39</u>	<p>Investigate Multiplicative Place Value to tenths and hundredths (Place Value 18, 20, 21, Fractions and Decimals 11, 12) then apply below.</p> <p>Length as measuring 1 dimension. Measure lengths and perimeters in combinations of centimetres and millimetres, metres and centimetres, convert centimetres, millimetres and metres, centimetres.</p>	LENGTH	T1		
	ANGLES <u>40</u>		Angle testers measure 2 line, 1 line angles, right angles, greater than right angles (obtuse), less than right angles (acute).						
	<u>41</u>	Two-dimension shape/s created by combining and splitting.	2D SHAPES	<u>42</u>	<p>Investigate multiplying and dividing by 10, 2, 4, 3, 5, 9, 6, 8, and 7 (Multiplication and Division 9, 10, 11, 12, 13, 14, 15, 16, 17) apply below.</p> <p>Area as the amount of space a shape or surface takes up in 2 dimensions. Measure area shapes by covering the surface in a grid overlay in square centimetres and square metres.</p>	AREA	T2		
	POSITION <u>43</u>		Key, compass, grid references, scale, locate features, distances.						
	<u>44</u>	Identify prisms and pyramids, cylinders, cones identifying any vertices, straight lines as edges and curved lines, and flat surfaces with edges as faces, flat surfaces with curved lines and curved surfaces. Sketch vertices, edges, faces of prisms and pyramids, surfaces, lines of cylinders, cones using perspective. Construct models using cubes and draw each view, construct models from view drawings.	3D OBJECTS	<u>45</u>	<p>Investigate Multiplicative Place Value to tenths and hundredths (Place Value 18, 20, 21, Fractions and Decimals 11, 12) then apply below.</p> <p>Volume as amount of space object takes up in 3 dimensions. Capacity as volume container hold when filled to capacity. Measure capacities of containers in millilitres using scale. Convert millilitres, litres, fraction of a litre. Measure water displaced when object is submerged.</p>	VOLUME & CAPACITY	T3		
				<u>46</u>	Read and interpret temperature on a scale thermometer.			T4	
			<u>47</u>	<p>Investigate Multiplicative Place Value to tenths and hundredths (Place Value 18, 20, 21, Fractions and Decimals 11, 12) then apply below.</p> <p>Mass as a measure of how heavy or light an object is. Measure mass in grams and kilograms using scales. Convert grams, kilograms, fraction of a kilogram.</p>	MASS				

LINKS		GEOMETRY		LINKS		MEASUREMENT	
YEAR 5	ANGLES <u>48</u>		Measure, construct, angles in degrees with a protractor.				
	<u>49</u>	Measure side, angle properties of triangles, quadrilaterals. Construct, enlarge - similar shapes.	2D SHAPES				
	<u>50</u>	Line / rotational / 'order' of rotational symmetry. Transform effects, translations, reflections, rotations.					
				<u>51</u>	Investigate Multiplicative Place Value to 10ths, 100ths, 1000ths, (Place Value 18, 20, 21, 25 Fractions and Decimals 11, 12, 19) then apply below.	LENGTH	T1
					Length as measuring 1 dimension. History, relationship to multiplicative place value, measure length (decametres, hectometres) kilometres. Convert metres, centimetres; centimetres, millimetres. Compare metric system and imperial system for length.		
				<u>52</u>	Area amount space shape or surface in 2 dimensions. Measure area using (square decametres) hectares (square hectometres) square kilometres, identifying length units turned into squares extending into second dimension. Compare metric system and imperial system for area.	AREA	T2
	POSITION <u>53</u>		Use legend / key, compass, scale, alpha-numeric grid references to locate features and describe routes.				
	<u>54</u>	Properties of prisms and pyramids, faces, bases, Cross-sections of prisms and pyramids..	3D OBJECTS	<u>55</u>	Volume as amount of space in 3 dimensions. Capacity as volume container can hold when filled to capacity. Measure volume and capacity using cubic metres. Compare metric/imperial system for volume.	VOLUME AND CAPACITY	T3
	<u>56</u>	Prisms and pyramid perspective drawings, from nets.					
				<u>57</u>	Investigate Multiplicative Place Value to tenths and hundredths (Place Value 18, 20, 21, Fractions and Decimals 11, 12) then apply below.	MASS	T4
			Mass as a measure of how heavy or light an object is. History, relationship to multiplicative place value, measure mass grams, kilograms and tonnes. Gross and net mass. Compare metric system and imperial system for mass.				

LINKS		GEOMETRY		LINKS		MEASUREMENT		
YEAR 6	<u>58</u>	Diagonals two-dimensional shape, endpoints vertices of shape.	2D SHAPES					
				<u>59</u>	Investigate Multiplicative Place Value to thousandths (Place Value 28, 29, Fractions Decimals 25, 26, Multiplication and Division 25) apply below. Convert centimetres millimetres, metres centimetres, kilometres metres, using fractions, multiplicative place value.	LENGTH	T1	
				<u>60</u>	Investigate adding and subtracting decimals (Addition and Subtraction 29, Fractions and Decimals 32, Place Value 32) then apply below. Diff perimeters same area, diff areas same perimeter.	LENGTH AREA	T2	
	<u>61</u>	Transforming effects and patterns formed by combinations of translation, reflection and degrees of rotation.	2D SHAPES					
	POSITION, PATTERNS AND ALGEBRA <u>62</u>		Cartesian plane coordinate system, 4 quadrants to describe location and to construct shapes.					
	<u>63</u>	Construct nets of prisms and pyramids. Construct skeletal models of prisms and pyramids.	3D OBJECTS	<u>64</u>	Investigate Multiplicative Place Value to thousandths (Place Value 28, 29, Fractions Decimals 25, 26, Multiplication Division 25) apply below. Relationship cubic and liquid units – millilitre, cubic centimetre, displacement, convert millilitres, cubic cm Convert millilitres and litres, litres and kilolitres, kilolitres and megalitres, fractions / place value.	VOLUME AND CAPACITY	T3	
	<u>65</u>	Parts and properties of circles.	2D SHAPES					
	ANGLES <u>66</u>	Angles on a straight line and at a point, adjacent angles that form a right angle, a straight angle or an angle of revolution. Vertically opposite angles, identifying that they are equal in size, and use the results to find unknown angles.						T4
				<u>67</u>	Relationship liquid units and mass - litre water, kilogram. Convert milligrams, grams, kilograms and tonnes, using fractions, multiplicative place value.	MASS		