Primary Mathematics Curriculum

Spatial awareness and location

Children should be given opportunities to demonstrate how the knowledge and skills gained in this strand can be used to link, reinforce and progress learning across the other four interconnected strands.

	a The learner	b The learner	c The learner	d The learner	e The learner	f The learner	g The learner	h The learner	i The learner	j The learner	k The learner
Elements					Spatial awareness and location						
Understanding and Connecting	Explores the movements of different parts of the body and/or the ways in which the body can move, or be moved, in space. Develops an awareness of the position of their body in space.	Explores the environment of the classroom, school and other familiar settings, and describes the position or location of objects using everyday language.	Describes the relative location [over, under, above, below] and proximity [near, far, further] of objects.	Gives and follows simple directions including directions for turning [full and half turns].	Describes direction [to the right/left or clockwise/anticlockwise] and amount of turn [whole, half, quarter and three-quarter turns]. Associates the cardinal directions [North, South, East and West] with the appropriate directions in relation to the classroom and school environment.	Identifies and describes the location of an object using a grid system [the use of numbers and letters to identify an area] (For example: A6).	Identifies and classifies angles greater/less than a right angle. Uses meaningful maps to plan and routes, and give directions. Identifies, describes and classifies vertical, horizontal and perpendicular lines.	Identifies and classifies angles as acute, obtuse, straight or reflex. Identifies, describes and classifies oblique and parallel lines. Uses cardinal directions and appropriate measures of distance to discuss location and directions (For example: the river is 5km east of here).	Draws given angles and measures them in degrees. Relates the eight points of the compass to angle measures and explores angles of 45°.	Records and plots positions on the full co-ordinate plane (all four quadrants). Interprets scale maps and draws simple scale plans. Estimates and measures the angles formed when two lines intersect.	Plots shapes on the co-ordinate plane and applies transformations.

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Communicating	Responds to the language and act of movement.	Gives and follows simple instructions related to movement and positioning. Describes the movement and positioning of objects, people and self.	Use simple directional language and countable units to give directions (For example: take 5 steps forward). Creates simple drawings, or uses materials to represent familiar or fictional journeys.	Describes the relative locations and movement of objects on picture maps and simple plans using appropriate language. Identifies and models turns using arms, legs, whole body movements or straws.	Records movement from one location to another using a simple map. Creates drawings or models of familiar locations, which attend to the relative size and position of key elements.	Gives and follows directions involving turns and simple distances or landmarks in the context of simple plans/ grids maps/ aerial photos of familiar environments. Records directions as a series of simple steps.	Discusses and compares grid systems commonly used on maps, including simple approximations of distance (For example: one grid length represents 100km) and conventions for specifying location. Records and displays a set of instructions involving locating an object according to distance and cardinal points.	Discusses mathematical features [scale, relative distance between locations] of conventional maps and digital maps or route-planning tools. Creates drawings or models of familiar locations, in which relative size and position of key elements are presented with reasonable precision.	Follows and gives turning instructions related to the eight points of the compass. Draws a pair of axes [X and Y] to form a quadrant, considering equal scales and labelling. Describes location on the first quadrant of the co-ordinate plane using appropriate language [axis, axes, vertical, horizontal] and using standard conventions.	Draws lines and shapes on the co-ordinate plane by plotting and joining points. Creates scale drawings, models or plans. Describes angle relationships associated with parallel lines.	Describes transformation of shapes on the co-ordinate plane in terms of effects on co-ordinates of corners.

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Reasoning	Attends to the positioning or movement of objects, people or self.	Deduces the location of an object from descriptions of position or location.	Visualises and makes predictions about location based on spatial understanding. Adjusts instructions to give more precise directions. Use spatial relations and visualisation to reason about other areas of mathematics (For example: predicting location of numbers on number line; estimating length).	Interprets simple maps and plans which represents familiar locations and real-life or fictional journeys. Uses understandings of relative position and size to make decisions about how to represent key features on self-drawn maps.	Visualises the result of following a sequence of directions on a map or plan. Deduces and identifies where, in a series of steps, the wrong direction may have been taken. Relates clockwise movements to the clock face. Recognises that some directions are relative to current position and orientation (For example: right/left; up/down; backward/forward).	Recognises the relationship between different modes of representing position and location (For example: birds-eye view versus street view). Analyses and evaluates representation [maps/plans] and directions for movement and refines for clarity and accuracy. Uses spatial relations to reason about other areas of mathematics (For example: identifying appropriate units for area measurement).	Draws connections between making quarter turns and the cardinal points Makes and justifies conjectures about position and location and evaluates the statements of others. Justifies why an angle is greater or less than a right angle. Classifies angles as greater/less than a right angle.	Interprets scale, and/or relative distance, to make and justify estimations of distance from maps. Uses spatial relations and visualisation to reason about other areas of mathematics (For example: exploration of spinners in chance tasks, representations of data). Uses angle knowledge to make inferences about lines.	Evaluates and refines relevant statements and representations of location for precision and accuracy. Makes and justifies estimates and measures in the context of angles/scale maps and plans.	Uses angle sum facts to make deductions about missing angles. Deduces the reasonableness of estimated measures of angles of intersecting lines. Use spatial relations and visualisation to reason about other areas of mathematics (For example: deduction of calculation strategies for volume).	Draw and labels quadrilaterals [parallelograms rhombuses, rectangles and squares], specified by coordinates in the four quadrants, predicting missing co-ordinates using the properties of shapes.

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Applying and Problem-Solving	Moves and repositions self for a purpose.	Moves and repositions objects for a purpose. Responds to obstacles in familiar environments by adjusting paths and/or types of movements.	Traces paths on simple maps or mazes. Identifies objects and specific locations using knowledge of spatial relations.	Creates simple maps or drawings of familiar settings and indicates the positionality of objects. Programmes simple digital devices to navigate appropriate maps or grids. Navigate simple paths through familiar environments.	Solves problems and plays games involving simple maps or grids. Creates a set of simple instructions to direct movement for a given purpose.	Devises and analyses routes on maps, plans or grids that satisfy certain constraints (For example: the shortest route, no crossing roads, avoiding obstacles). Explores grid references in the context of barrier games, or other playful activities.	Uses a grid laid over an aerial photo of a familiar location to create a 'treasure map' for collaborative problem. Solves rich problems involving location of objects using distance and the cardinal directions – north, south, east and west (For example: walk 5 steps north).	Uses a protractor to test estimations; to compare and order angles. Uses formal spatial and measurement conventions to create a set of easily-interpretable steps to direct movement.	Solves problems that involve missing angles. Solves problems involving placing and locating co-ordinate points in the first quadrant.	Uses manipulatives or programmable devices to explore position, movement and direction. Plots and connects co-ordinates to make an image.	Solve problems involving regular and irregular shapes defined in terms of co-ordinates.