Geometry: Position and Direction with Reasoning

National Centre for Excellence in the Teaching of Mathematics

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
POSITION, DIRECTION AND MOVEMENT					
describe position, direction and movement, including half, quarter and three-quarter turns.	use mathematical vocabulary to describe position, direction and movement including movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anti-clockwise)		describe positions on a 2-D grid as coordinates in the first quadrant	identify, describe and represent the position of a shape following a reflection or translation, using the appropriate language, and know that the shape has not changed	describe positions on the full coordinate grid (all four quadrants)
			describe movements between positions as translations of a given unit to the left/right and up/down		draw and translate simple shapes on the coordinate plane, and reflect them in the axes.
			plot specified points and draw sides to complete a given polygon		
Working backwards The shape below was turned three quarter of a full turn and ended up looking like this. What did it look like when it started? (practical)	**Working backwards** If I face forwards and turn three quarter turns clockwise then a quarter turn anti-clockwise describe my finishing position.	**Working backwards** If I make the two opposite sides of a square 5 cm longer the new lengths of those sides are 27cm. What was the size of my original square? What is the name and size of my new shape?	**Working backwards** Here are the co-ordinates of corners of a rectangle which has width of 5. (7, 3) and (27, 3) What are the other two co-ordinates?	**Working backwards** A square is translated 3 squares down and one square to the right. Three of the coordinates of the translated square are: (3, 6) (8, 11) (8, 6) What are the co-ordinates of the original square?	**Working backwards** Two triangles have the following co-ordinates: Triangle A: (3, 5) (7, 5) (4, 7) Triangle B: (3, 1) (7, 1) (4, 3) Describe the translation of triangle A to B and then from B to A.

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PATTERN					
	order and arrange combinations of mathematical objects in patterns and sequences				
	What comes next? **Explain why**				