


Subject	Year	Month	
Mathematics	7	May	

Topic:

COORDINATES AND TRANSFORMATIONS LESSONS: 6

Content (Intent)

<p>Prior Learning</p> <p>KEY STAGE 2</p> <ul style="list-style-type: none"> • Work with coordinates in all four quadrants • Understand the meaning of parallel and link it to gradient/slope • Carry out a reflection in a given vertical or horizontal mirror line • Carry out a translation (described in words) • Know that there are 360° in a full turn; 180° in a half turn and 90° in a quarter turn. 	<p>Future Learning</p> <p>Year 8</p> <ul style="list-style-type: none"> • Plans and elevations • Scale drawing • Enlargement • Linear graphs <p>Year 9</p> <ul style="list-style-type: none"> • Congruent shapes • Equations of parallel and perpendicular lines
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<p>Objectives</p> <ul style="list-style-type: none"> • Work with coordinates in all four quadrants • Write the equation of a line parallel to the x-axis or the y-axis • Identify and draw the lines $y = x$ and $y = -x$ • Construct and describe reflections in horizontal, vertical and diagonal mirror lines (45° from horizontal) • Describe a translation as a 2D vector • Construct and describe rotations using a given angle, direction and centre of rotation • Solve mixed problems involving rotations, reflections and translations 	<p>For teaching purposes</p> <ul style="list-style-type: none"> • Always/ Sometimes/ Never: The centre of rotation is in the centre of the object • Convince me that $y = 0$ is the x-axis • Always / Sometimes / Never: The line $x = a$ is parallel to the x-axis <p>Misconceptions</p> <ul style="list-style-type: none"> • will confuse the order of x- and y-coordinates • Some pupils will wrestle with the idea that $x = a$ is parallel to the y-axis • When describing or carrying out a translation, some pupils may count the squares between the two shapes rather than the squares that describe the movement between the two shapes. • When reflecting a shape in a diagonal mirror line some students may draw a translation • may think that the centre of rotation is always in the centre of the shape • not realise the importance of equal divisions on the axes
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Pedagogical notes (implementation)	How will understanding be assessed & recorded (Impact)
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<p><i>'x is a cross, wise up!'</i></p> <p>Teachers use the language 'negative number', and <i>not</i> 'minus', to avoid future confusion with calculations.</p> <p>Pupils should be able to use a centre of rotation that is outside, inside, or on the edge of the object</p> <p>Pupils should be encouraged to see the line $x = a$ as the complete (and infinite) set of points such that the x-coordinate is a.</p>	<p>7BAM13 Coordinates and transformations End of Year Assessment in June/July</p> <p>How can parents help at home?</p> <p>MathsWatch clips (Qualification KS3) A1a, A1b, A5, G4a, G4b, G6, G5</p>
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Further reading/discussion

<p>Reading / Enrichment</p> <p>KM: Lines</p> <p>KM: Moving house</p> <p>KM: Transformations: Bop It?</p> <p>KM: Dynamic Autograph files: Reflection, Rotation, Translation</p> <p>KM: Autograph transformations</p> <p>KM: Stick on the MathsSSM7: Transformations</p> <p>NRICH: Transformation Game</p>	<p>Literacy</p> <p>(Cartesian) coordinates</p> <p>Axis, axes, x-axis, y-axis</p> <p>Origin</p> <p>Quadrant</p> <p>Translation, Reflection, Rotation</p> <p>Transformation</p> <p>Object, Image</p> <p>Congruent, congruence</p> <p>Mirror line</p> <p>Vector</p> <p>Centre of rotation</p>	<p>Numeracy Links</p>	<p>Careers Links</p> <p>Soldiers</p> <p>Coast guard</p> <p>Game developer</p> <p>Architect</p>
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