


Subject	Year	Month	
Mathematics	11	January	
Topic:			
Vectors			7 lessons
Content (Intent)			
Prior Learning Year 10 Transformations May Year 10 Pythagoras January		Future Learning Year 12 Pure Ch12 Vectors Mech Ch8 Modelling + throughout all of Mech Y12 Year 13 Pure Ch12 Vectors in 3D Mech Ch8 Vectors + throughout all of Mech Y13	
<ul style="list-style-type: none"> Understand and use vector notation, including column notation, and understand and interpret vectors as displacement in the plane with an associated direction. Understand that $2\mathbf{a}$ is parallel to \mathbf{a} and twice its length, and that \mathbf{a} is parallel to $-\mathbf{a}$ in the opposite direction. Represent vectors, combinations of vectors and scalar multiples in the plane pictorially. Calculate the sum of two vectors, the difference of two vectors and a scalar multiple of a vector using column vectors (including algebraic terms). Find the length of a vector using Pythagoras' Theorem. Calculate the resultant of two vectors. Solve geometric problems in 2D where vectors are divided in a given ratio. Produced geometrical proofs to prove points are collinear and vectors/lines are parallel. 			
Pedagogical notes (implementation)		How will understanding be assessed & recorded (Impact)	
Students find manipulation of column vectors relatively easy compared to pictorial and algebraic manipulation methods - encourage them to draw any vectors they calculate on the picture. Geometry of a hexagon provides a good source of parallel, reverse and multiples of vectors. Remind students to underline vectors or use an arrow above them, or they will be regarded as just lengths.		End of half term no End of Year 2nd mocks in Feb & March	
		How can parents help at home?	
		MathsWatch clips (Qualification GCSE) 174, 181b, 219	
Further reading/discussion			
Reading / Enrichment Extend geometric proofs by showing that the medians of a triangle intersect at a single point. 3D vectors or \mathbf{i} , \mathbf{j} and \mathbf{k} notation can be introduced and further extension work can be found in <i>Mechanics</i> textbooks.	Literacy	Numeracy Links	Careers Links Engineer Physicist Mathematician Navigation