Units and Vectors – Chapter 2

You should be fully confident about the learning outcomes in normal font before the start of the topic.

You will develop your understanding of the learning outcomes in italics during the topic.

Revisit all the learning outcomes at the end of the topic and tick the columns that apply to you.

Learning outcome	I can **recall** this	I **understand** this	I need to **revisit** this
Remember units for physical quantities, SI base quantities and units with their symbols and prefixes.			
Convert units from using prefix. Eg kA to A using standard form.			
Show the use of derived units of SI base units and the quantities that use them.			
Describe scalar and vector quantities. Choose whether a quantity is a vector or a scalar.			
Be able to do addition of 2 vectors by scale drawing.			
Be able to do addition of 2 vectors by calculation. (Sine and cosine rules)			
Be able to resolve a vector into 2 perpendicular components.			
Be able to perform calculations involving vectors.			

READ Chapter 2 of your textbook (pages 8-19). Scanned in folder.

Watch these videos from A Level Physics Online:

https://www.youtube.com/watch?v=60oM8QgOdqI

https://www.youtube.com/watch?v=l36IeG0dC64&list=PLlDtVvefFYT8fcFJK1DjfpEgojh2S5Ryy&index=2

https://www.youtube.com/watch?v=2kHCvtTjOJs

State
Make and memorise flash cards for the following terms:
- 6 Base SI units and their symbols (Table 1 p 8)
- The 12 Prefixes, their symbol and factor (Table 2 p 9)
- Derived unit.
- Scalar
- Vector
- Displacement
- Antiparallel
- Pythagoras' theorem
- Sine rule
- Cosine rule

Make notes:

- Give examples of 5 derived quantities and units and express the units in SI <u>base</u> units.
- Give examples of 3 scalars and 3 vectors with their SI units.
- Explain the difference between distance and displacement.

Worked examples
Write out worked examples of:

- Finding density and units - Lighter than air p12.

- Draw a diagram showing how a force of 5N and a force of 8N at right-angles to each other combine to form a resultant vector and perform calculations to find the magnitude of the resultant and the angle it makes to the 8N force. (p15)
- If a cannonball is fired with a velocity of 53ms^{-1} at an angle of 35° to the horizontal, calculate the horizontal and vertical components that would combine to give this velocity as a resultant. (P16)

Extra info: follow the Units power point in this folder.

In lesson – you will use the notes to help you:

Practice putting derived units into base SI units.

Apply scale diagram and calculation methods to find resultant vectors.

Use Cosine and Sine rules to find resultant forces when there is not a right angled triangle.