

PHYSICS

1.1.2 Scalars and Vectors

Identify scalar
and vector
quantities

D/C

Describe
how to
calculate
velocity

B/A

Realise
how vectors
can be added
together

A

Vectors

- Some quantities need to have a direction to be meaningful.
- Force for instance can be big or small but we need to know the direction it acts if it is to be useful.
- Vectors are quantities that have BOTH a Magnitude and a Direction
- We can represent them with ARROWS



10 N Right



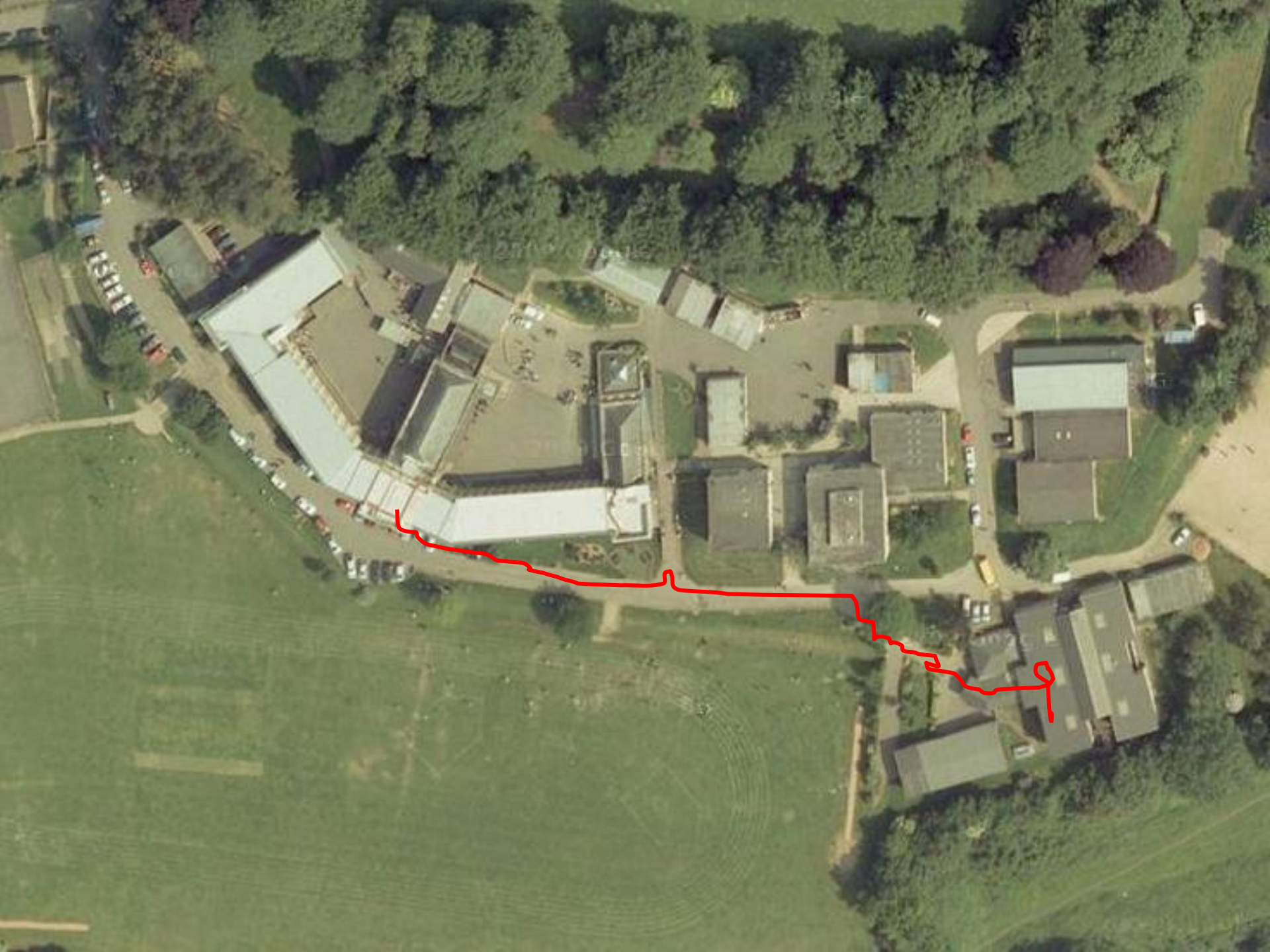
10 N Left or -10N Right

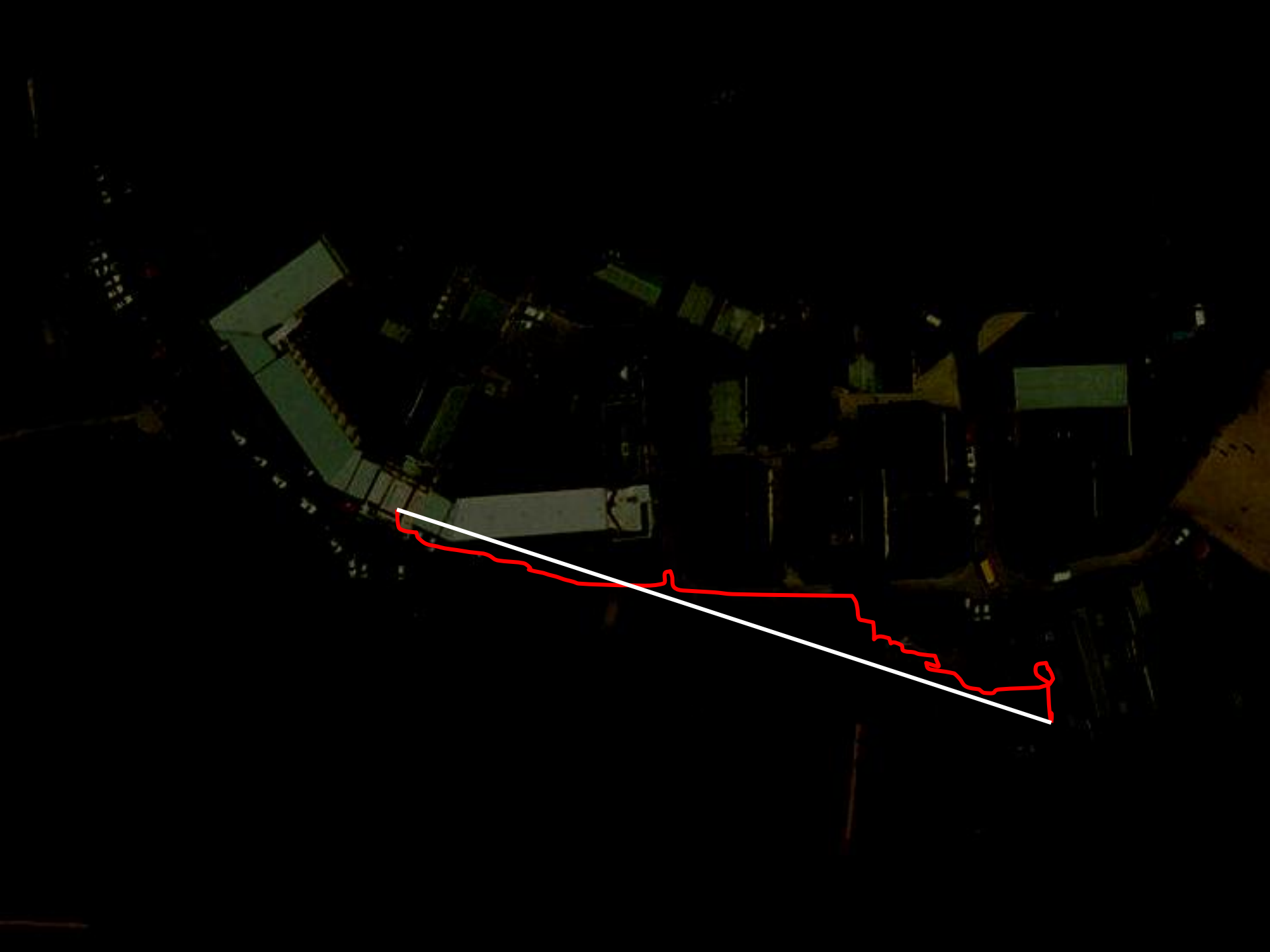
Vectors

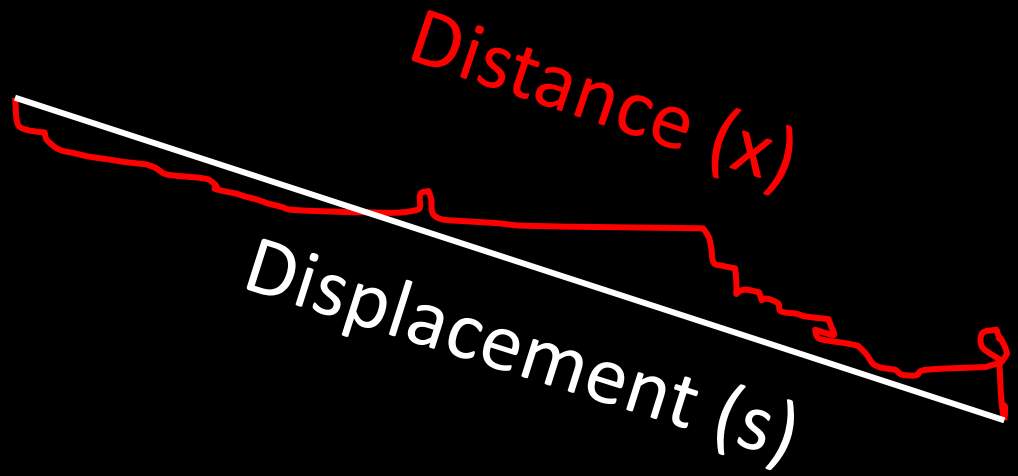
- Velocity
- Acceleration
- Momentum
- Force
- Displacement
- Electric field strength

Scalars

- Time
- Distance
- Speed
- Temperature
- Mass
- Power
- Energy





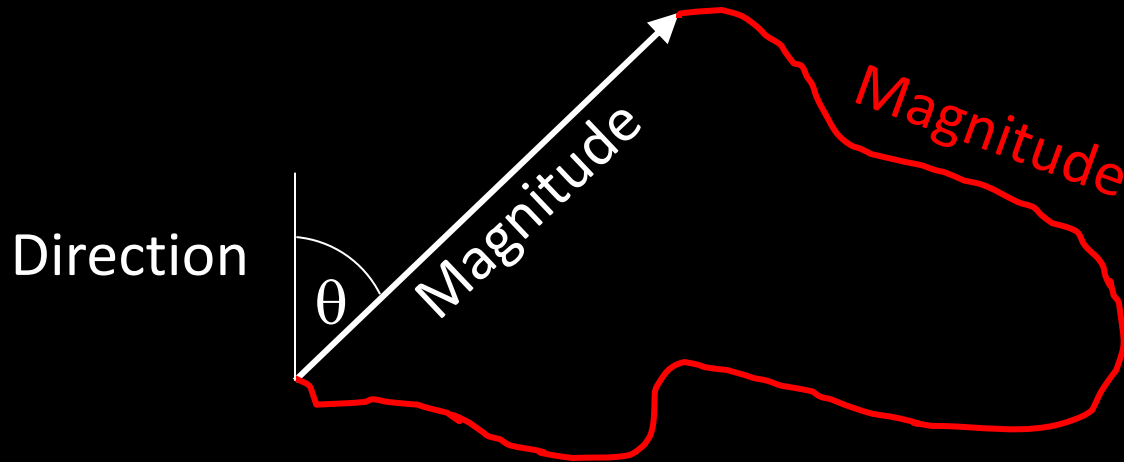


Scalar

$$\text{Speed (v)} = \frac{\text{Distance (x)}}{\text{Time (t)}}$$

Vector

$$\text{Velocity (v)} = \frac{\text{Displacement (s)}}{\text{Time (t)}}$$



Vector Addition

- Is not like ordinary arithmetic
- You have to take account of the direction
- Two ways to do it
 - Scale drawing
 - Trigonometry

Vector Questions - The Rules

- Read the question
- Draw your diagram
 - Ruler, pencil, large enough, labelled
- Write on the Hypotenuse, Opposite and Adjacent sides
- Write down any equations you use
- Show your working out
- Give you answer with units and, if a vector, the direction.

