<table>
<thead>
<tr>
<th><strong>Topic</strong></th>
<th><strong>Distance-time graphs and speed</strong></th>
<th><strong>Level</strong></th>
<th>Key Stage 3 (or any course for students aged 11-14)</th>
</tr>
</thead>
</table>
| **Outcomes** | Students can use and draw a distance time graph  
2. Students know units of time, distance and speed  
3. Students use units of speed to understand how to calculate speed from a distance-time graph |          |                                                 |
| **Information for teachers** | Chose one student to walk the graph, put a timer on the board and a tape measure on the ground. Now repeat, but this time talk through each section of the graph. Now chose a different student to walk through the second graph.  
Give students time to sketch distance-time graphs for different activities. Remind them that no numbers are required on the axes. Finally, ask students to draw a distance-time graph for their journey into school. Ask specific students to draw them on the whiteboard and provide feedback.  
Model how to calculate speed from a distance-time graph. Focus on how the units of speed help us. |          |                                                 |
Walk this graph
Walk this graph
1. Assume each object starts at rest.

**Sketch** on the same axes (no units required) a distance-time graph to show:

I. a man walking at a constant speed
II. a boat floating down a river at a constant speed that gets stuck on a rock
III. a parked car
IV. a plane moving down the runway before take off

2. Now draw a distance time graph of your journey into school today. Include numbered axes so you can give *approximate* times and distances.

3. How can we use a distance-time graph to calculate the speed of an object?
Distance (m) vs. Time (s)

- Walking
- Parked car
- Boat
- Plane (line should be smoother!)
The unit of speed is m/s

- m/s
- metres *per* second
- metres *for every* second

Example:

Car travels 5 metres for every 10 seconds

So, 0.5 metres *for every* second

So speed is 0.5 m/s
Calculate speed for each section

Distance (m)

Time (s)

A
B
C
D