

# Physics A-Level Pre-course information

Name:

## Physics A-Level builds on your GCSE Physics knowledge

Many topics within AS Physics build on the knowledge and understanding gained at GCSE. It is very easy to forget this and assume that a new course means starting afresh. For that reason it is expected that students will re-visit some of the topics covered at GCSE in preparation for the AS Physics course. The topics you will need to look through again are:

- Mechanics (velocity, acceleration, forces, momentum, energy)
- Electricity (voltage, current, resistance, circuits)
- Waves (wave types, wave equation)

If you no longer have access to this information it can be found on the following website:

[www.antonine-education.co.uk](http://www.antonine-education.co.uk) (GCSE is on the lower right hand side)

## Physics A-Level builds on your GCSE Maths knowledge and other skills

Physics is a very mathematical science and uses some GCSE skills, and some from beyond GCSE. Before the course starts you should brush up on your skills in three main areas:

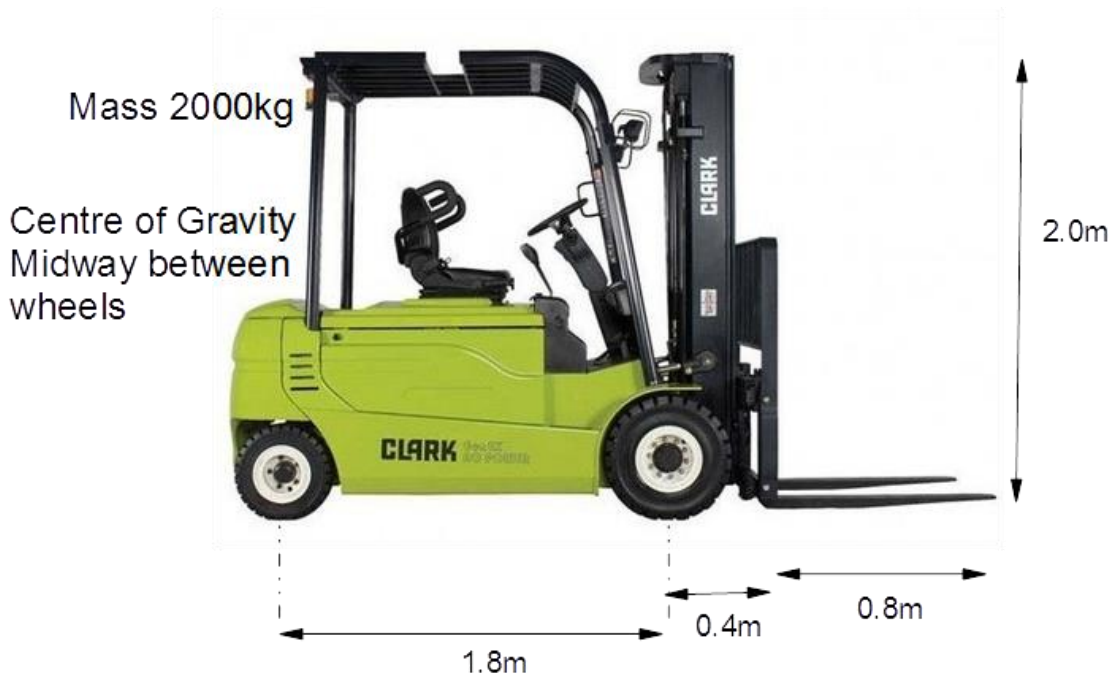
- Trigonometry (Pythagoras, SOHCAHTOA)
- Rearranging equations
- Graph work

If you no longer have access to trigonometry information it can be found on the following website:

[www.s-cool.co.uk/gcse/maths](http://www.s-cool.co.uk/gcse/maths)

If you go to the website: [www.antonine-education.co.uk](http://www.antonine-education.co.uk) and select the “Induction” page for Physics AS you will be faced with five pages covering: Symbols, Standard Form, Equations, Graphs and Quality. Work through each of these in turn.

During the first week you will be given a short test on both Physics and Maths based around the information on this sheet. In the meantime answer the questions about the forklift truck to bring on your first day.



Assume  $g=10\text{N/kg}$

1. How much force is on each tyre?

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2. What is the largest mass the forklift could carry in the centre of its forks without toppling?

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3. If the whole lifting section at the front is rotated anticlockwise by  $10^\circ$  how much higher is the front of the forks than the back? (Assume the forks start horizontal.)

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4. The forks lift a mass of 500kg from ground level to level with the roof. How much Gravitational Potential energy does the mass gain?

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5. If the lifting motor is rated at 2kW, what is the shortest time it could lift the 500kg mass?

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6. The lifting motor uses 5 batteries in series, each of 12V. When lifting at its maximum rate, how much current flows out of the battery pack?

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7. If a box falls of the forks at their maximum height, what is its maximum speed just before impact?

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