

Section 3: Connected objects

Crucial points

- 1. Remember to use weight rather than mass when dealing with forces**
In situations involving a weight force, remember to multiply the mass of an object by g to give its weight.
- 2. Remember that all parts of a connected system have the same acceleration**
If you can calculate the acceleration of any part of a connected system, this will apply to the whole system and to each connected part of it. Often you begin by finding the acceleration of the system as a whole and then apply this acceleration to different parts of the system to find tensions and thrusts in couplings between the connected parts.
- 3. Deal with internal forces appropriately**
In a connected system, forces act between different parts of the system (e.g. tension in a string connecting two masses). If you are looking at the system as a whole, then the internal forces cancel out; if you are looking at separate components of the system, you must include all forces.
- 4. Make sure you can set up and solve simple simultaneous equations confidently**
You should really make sure you are fluent at this. If you are not confident with it, you must practice until you are. It will help you in all areas of Maths and Science.