

syllabus statements for **Moving On [MO]**

Speed and velocity

Understand the quantitative relationship between speed, time and distance
Be able to construct and interpret simple graphs relating time, distance and/or speed
Understand the difference between speed and velocity
Know that forces can alter the speed and/or direction of a moving object
Understand the driving forces and counter forces acting on a moving vehicle (including gravity, air resistance and frictional forces)
Understand that velocity will only be constant if these forces balance

Gravity

Understand that the mass of an object is a measure of how much material it contains and that its weight is the force of gravity on the object [ES]
Recall and use the quantitative relationship between mass, weight and gravity [ES]
Know that falling objects are accelerated downwards by gravitational attraction [SS]
Know that air resistance increases as the velocity of an object increases [ES, SS] know that terminal velocity is reached when the forces on an object are balanced [ES]

Forces and Acceleration

Know the meaning of acceleration as rate of change of velocity
be able to calculate acceleration as change in velocity/time taken

- Understand the term negative acceleration for objects which are slowing down

Be able to use qualitative relationships between force, mass and acceleration to explain changes of motion in everyday situations

- Understand the quantitative relationship between force, mass and acceleration

Know that when two bodies interact, the forces they exert on each other are equal and opposite [ES]
Know the factors which affect vehicle stopping distances (speed, weather conditions, state of tyres and road surface, driver concentration, drink and drugs)
Know the measures taken to reduce injuries in the event of collisions (vehicle body design, safety belts, air bags)

The content of this unit is almost unchanged in the new specification, However, section 1 does introduce the idea that a steady velocity is reached when all the forces acting are in balance, and this provides an opportunity to go on to introduce ideas about falling under gravity, since this receives only light coverage in the unit *Earth in Space*.