# AQA GCSE COMBINED SCIENCE (PHYSICS)

## Year 10 – Summer Term

## CONTENT:

**P9 – Motion**

After this topic, students should know:
How speed is calculated for an object moving at constant speed; how a distance–time graph can tell us if an object is stationary or moving at constant speed; what the gradient of the line on a distance–time graph can tell us; how to use the equation for constant speed to calculate the distance moved or the time taken.
The difference between speed and velocity; how to calculate the acceleration of an object; the difference between acceleration and deceleration.
How to measure velocity changes and acceleration; what a horizontal line on a velocity–time graph tells us; how to tell from a velocity–time graph if an object is accelerating or decelerating; what the area under a velocity–time graph tells us.
How to calculate speed from a distance–time graph where the speed is constant and the speed is changing; how to calculate acceleration from a velocity–time graph; how to calculate distance travelled from a velocity–time graph.
**P9.1 Speed and distance–time graphs; P9.2 Velocity and acceleration; P9.3 More about velocity–time graphs; P9.4 Analysing motion graphs.**

**P10 Force and motion**

After this topic, students should know:
How the acceleration of an object depends on the size of the resultant force; the effect that the mass of an object has on its acceleration; how to calculate the resultant force on an object from its acceleration and its mass; what is meant by the inertia of an object.
The difference between mass and weight; about the motion of a falling object acted on only by gravity; what terminal velocity means; what can be said about the resultant force acting on an object that is falling at terminal velocity.
The forces that oppose the driving force of a vehicle; what the stopping distance of a vehicle depends on; what can increase the stopping distance of a vehicle; how to estimate the braking force of a vehicle.
What is meant when an object is called elastic; how to measure the extension of an object when it is stretched; how the extension of a spring changes with the force applied to it; what is meant by the limit of proportionality of a spring.

**P10.1 Forces and acceleration; P10.2 Weight and terminal velocity; P10.3 Forces and breaking; P10.8 Forces and elasticity.**

## Recommended online resources:

**Kerboodle**- Digital Textbook – w:kerboodle.com u:initialsurname p:initialsurname inst.code:yh7 – the individual lesson breakdown is here.

**BBC Bitesize**: KS4 Science AQA – then find the relevant topics

**YOUTUBE**: 'GCSESCIENCELESSONS' then search for the topic of interest

**Oak National Academy**: Lessons available linked to above topics.