# YEAR 10 SUMMER WORK 2018

In September you will have an assessment on the work set this summer. You are required to learn the following:

- All equations in the Physics Equation list
- Required practical activities for paper 1
- Biology – Infections and response topic knowledge mats
- Chemistry - Ionic and Covalent bonding knowledge mats

Your test will include a range of recall and application questions based on the Biology and Chemistry topics and recall and manipulation questions on the Physics equations and practicals from paper 1.

## AQA PHYSICS EQUATION LIST

Below are all of the equations you will be expected to REMEMBER for your exam. The equation that is higher tier only is highlighted.

| Word Equation | Symbol Equation |
|---|---|
| Weight = mass x gravitational field strength (g) | W = m x g |
| Work Done = force x distance | W = F x s |
| Force (applied to a spring) = spring constant x extension | F = k x e |
| Moment of a force = force x distance | M = F x d |
| Pressure = $\frac{\text{force normal to a surface}}{\text{area of the surface}}$ | $p = \frac{F}{A}$ |
| Distance travelled = speed x time | s = v x t |
| Acceleration = $\frac{\text{change in velocity}}{\text{time taken}}$ | $a = \frac{\Delta v}{t}$ |
| Resultant Force = mass x acceleration | F = m x a |
| Momentum =mass x velocity | p = m x v |

| | |
|---|---|
| Kinetic energy = 0.5 x mass x speed$^2$ | $E_k = \frac{1}{2} \times m \times v^2$ |
| Gravitational Potential Energy = mass x gravitational field strength x height | $E_p = m \times g \times h$ |
| Power = $\frac{\textbf{energy transferred}}{\textbf{time taken}}$ | $P = \frac{E}{t}$ |
| Power = $\frac{\textbf{work done}}{\textbf{time taken}}$ | $P = \frac{W}{t}$ |
| Efficiency = $\frac{\textbf{useful energy out}}{\textbf{total energy in}}$ | |
| Efficiency = $\frac{\textbf{total power out}}{\textbf{total power in}}$ | |
| Wave speed = frequency x wavelength | $v = f \times \lambda$ |
| Charge flow = current x time | $Q = I \times t$ |
| Potential difference = current x resistance | $V = I R$ |
| Power = potential difference x current | $P = V I$ |
| Power = current$^2$ x resistance | $P = I^2 R$ |
| Energy transferred = Power x time | $E = P t$ |
| Energy transferred = charge flow x potential difference | $E = Q V$ |
| Density = $\frac{\textbf{mass}}{\textbf{volume}}$ | $\rho = \frac{m}{v}$ |