PHYSICS

Learning objectives I can:	I can do this very well	I can do this quite well	I need to do more work on this
2.1 Relate the ionisation by X-rays to their frequency and energy qualitatively ($E = hf$ is not required)			
2.2 Explain the key features of passing a current through an evacuated tube, including: **a** thermionic emission of electrons from a heated filament			
b potential difference between the cathode (filament) and the anode (metal target)			
2.3 Explain that a beam of charged particles is equivalent to an electric current			

H 2.4 Use the equation: $I = Nq$
current   =   number of   ×   charge on
              particles per   each particle
              second
(ampere, A) (1/second, 1/s) (coulomb, C)			

H 2.5 Use the equation: $KE = \frac{1}{2}mv^2 = e \times V$ kinetic = electronic charge × accelerating energy potential difference (joule, J) (coulomb, C) (volt, V)			
HSW 10 Use qualitative and quantitive approaches when presenting scientific ideas and arguments			
2.6 Demonstrate an understanding of the inverse square law for electromagnetic radiation			
2.7 Relate the absorption of X-rays to the thickness of the material through which they are travelling, quantitatively			
2.8 Describe how X-rays are used in CAT scans and fluoroscopes			
2.9 Demonstrate an understanding of the comparison of the risks and benefits of using X-rays for treatment and diagnosis			
HSW 12 Describe the use of contemporary science and technological developments and their benefits, drawbacks and risks			
2.10 Explain how action potentials can be measured with an electrocardiogram (ECG) to monitor heart action			
2.11 Relate the characteristic shape of a normal ECG to heart action			
2.12 Use the equation: frequency = $\dfrac{1}{\text{time period (second, s)}}$ (hertz, Hz) $f = \dfrac{1}{T}$			
2.13 Describe the use of a pacemaker to regulate the heart action			
2.14 Describe the principles and use of pulse oximetry			