Science Edexcel Triple Science

Below are the topics you will need to revise for each of your science exams. Make sure you are revising the correct content for each exam.

Don't forget there will be a periodic table at the back of the Chemistry exam if you need it. Remember that you may find more information in other questions.

Also below are the equations you need for the Physics papers. You will need to learn off by heart the first section of equations (20 of them). You may also be asked to select and use appropriate equations from the second section. Equations in **bold** are for higher tier only.

After the Physics equations are a list of equations for Biology and Chemistry you will need to remember. Higher tier only equations are in **Bold**.

The topics are taken from the specification which you can find a copy of here – Biology:

https://qualifications.pearson.com/content/dam/pdf/GCSE/Science/2016/Specification/GCSE_Biology_Spec.pdf

Chemistry:

https://qualifications.pearson.com/content/dam/pdf/GCSE/Science/2016/Specification/GCSE_Chemistry_Spec.pdf

Physics:

https://qualifications.pearson.com/content/dam/pdf/GCSE/Science/2016/Specification/GCSE_Physics_Spec.pdf

All Triple Science exams are 1 hour 45 min

Paper 1 (Biology 1) 12 May pm

Topic 1 – Key concepts in biology

Topic 2 – Cells and control

Topic 3 – Genetics

Topic 4 – Natural selection and genetic modification

Topic 5 – Health, disease and the development of medicines

Paper 3 (Chemistry 1) 14 May am

Topic 1 – Key concepts in chemistry

Topic 2 – States of matter and mixtures

Topic 3 – Chemical changes

Topic 4 – Extracting metals and equilibria

Paper 5 (Physics 1) 20 May pm

Topic 1 – Key concepts of physics

Topic 2 – Motion and forces

Topic 3 – Conservation of energy

Topic 4 – Waves

Topic 5 – Light and the electromagnetic spectrum

Topic 6 – Radioactivity

Topic 7 – Astronomy

Paper 2 (Biology 2) 1 June pm

Topic 1 – Key concepts in biology

Topic 6 – Plant structures and their functions

Topic 7 – Animal coordination, control and homeostasis

Topic 8 – Exchange and transport in animals

Topic 9 – Ecosystems and material cycles

Paper 4 (Chemistry 2) 10 June am

Topic 1 – Key concepts in chemistry

Topic 6 – Groups in the periodic table

Topic 7 – Rates of reaction and energy changes

Topic 8 – Fuels and Earth science

Paper 6 (Physics 2) 12 June am

Topic 1 – Key concepts of physics (Using correct units and Sig fig/decimal places)

Topic 8 – Energy - Forces doing work

Topic 9 – Forces and their effects

Topic 10 – Electricity and circuits

Topic 12 – Magnetism and the motor effect

Topic 13 – Electromagnetic induction

Topic 14 – Particle model

Topic 15 – Forces and matter

Physics equations – You NEED to REMEMBER these equations and be able to use them.

Don't forget in questions where you are using equations:

- Write out the equation or equation triangle
- Substitute in the information you know
- Re-arrange the equation (change the subject)
- Calculate you answer
- Check the significant figures or decimal places
- Always include units if they are not given

Specification reference	Equation
2.6b	distance travelled = average speed × time
2.8	acceleration = change in velocity ÷ time taken $a = \frac{(v-u)}{t}$
2.15	force = mass × acceleration $F = m \times a$
2.16	weight = mass × gravitational field strength $W = m \times g$
2.24	**momentum = mass × velocity** $\boldsymbol{p = m \times v}$
3.1 and 8.8	change in gravitational potential energy = mass × gravitational field strength × change in vertical height $\Delta GPE = m \times g \times \Delta h$
3.2 and 8.9	kinetic energy = $\frac{1}{2}$ × mass × (speed)^2 $KE = \frac{1}{2} \times m \times v^2$
3.11 and 8.15	efficiency = $\frac{\text{(useful energy transferred by the device)}}{\text{(total energy supplied to the device)}}$
4.6	wave speed = frequency × wavelength $v = f \times \lambda$
	wave speed = distance ÷ time $v = \frac{x}{t}$

8.13	power = work done ÷ time taken $P = \frac{E}{t}$
9.7P	moment of a force = force × distance normal to the direction of the force
10.6	energy transferred = charge moved × potential difference $E = Q \times V$
10.9	charge = current × time $Q = I \times t$
10.13	potential difference = current × resistance $V = I \times R$
10.29	power = energy transferred ÷ time taken $P = \frac{E}{t}$
10.31	electrical power = current × potential difference $P = I \times V$
	electrical power = current squared × resistance $P = I^2 \times R$
14.2	density = mass ÷ volume $\rho = \frac{m}{V}$
15.3	force exerted on a spring = spring constant × extension $F = k \times x$
15.11P	pressure = force normal to surface ÷ area of surface $P = \frac{F}{A}$

(Next page) Physics equations – You DON'T NEED to REMEMBER the following equations, you will be expected to select and use the correct equations. You WILL be given these in the exam at the end of the paper.

Specification reference	Equation
2.9	(final velocity)^2 – (initial velocity)^2 = 2 × acceleration × distance $v^2 - u^2 = 2 \times a \times x$
2.26	**force = change in momentum ÷ time** $F = \frac{(mv - mu)}{t}$
10.27	energy transferred = current × potential difference × time $E = I \times V \times t$
12.13	**force on a conductor at right angles to a magnetic field carrying a current = magnetic flux density × current × length** $F = B \times I \times l$
13.7P	$\frac{\text{potential difference across primary coil}}{\text{potential difference across secondary coil}} = \frac{\text{number of turns in primary coil}}{\text{number of turns in secondary coil}}$ $\frac{V_p}{V_s} = \frac{N_p}{N_s}$
13.10	For transformers with 100% efficiency, potential difference across primary coil × current in primary coil = potential difference across secondary coil × current in secondary coil $V_P \times I_P = V_S \times I_S$
14.8	change in thermal energy = mass × specific heat capacity × change in temperature $\Delta Q = m \times c \times \Delta\theta$
14.9	thermal energy for a change of state = mass × specific latent heat $Q = m \times L$
14.19P	$P_1 \times V_1 = P_2 \times V_2$ to calculate pressure or volume for gases of fixed mass at constant temperature
15.4	energy transferred in stretching = 0.5 × spring constant × (extension)^2 $E = \frac{1}{2} \times k \times x^2$

Specification reference	Equation
15.14P	**pressure due to a column of liquid = height of column × density of liquid × gravitational field strength** $P = h \times \rho \times g$

Biology Equations you must be able to recall

Paper 1

Magnification = image size/actual size, or I=AM (make sure the units are the same for image size and actual size, normally mm or um)

Rate of a reaction = 1/time

Percentage change = (final – initial)/initial *100

Cell number after mitotic division, 5 division = 2^5 (2 power of 5) = 32 cells

Paper 2

BMI = Mass/height^2 (the revision guide uses weight and this is wrong – it should be mass!)

Waist to hip ratio = waist circumference/hip circumference

Light intensity = 1/distance^2

Cardiac output = heart rate * stroke volume

Chemistry Equations you must be able to recall

Number of moles = mass (g)/Mr (of a compound) or Ar (of an element)

Moles = concentration * volume

Rf = distance travelled by solute (spot)/distance travelled by the solvent

Rate of a reaction from a graph Gradient = change in y over change in x

Energy change in a reaction = Energy required to break bonds - energy released in forming bonds.

Formula of an Alkane = C_nH_{2n+2}

Formula of an Alkene = C_nH_{2n}