STUDY FORMULA BOOKLET

Edexcel GCSE Physics 1PH0 and Combined Science 1SC0 equations list

The list prints 33 equations: 28 for Combined Science and Physics plus 5 extra for Physics only. Five are higher tier only. Learn the list a items for speed.

IN THE BOOKLET printed in the official booklet LEARN IT not printed: students must recall it

Based on the official **Pearson Edexcel Level 1/Level 2 GCSE (9-1) GCSE Physics and GCSE Combined Science (Physics) Equations List, May-June 2024 assessment window, syllabus references 1PH0 and 1SC0 (W81165A)**, with what to learn and exam tips added by CuratedPrep.

Motion, forces and momentum

Printed in the first table for both Combined Science (1SC0) and Physics (1PH0). HT means higher tier only.

Distance travelled

Spec list a (recall and apply). The sheet prints it in words only. s distance in m, v average speed in m/s, t in s.

$$s = \bar{v}\, t$$

IN THE BOOKLET

Acceleration

Spec list a (recall and apply). a in m/s^2, v final and u initial velocity in m/s, t time taken in s.

$$a = \frac{v - u}{t}$$

IN THE BOOKLET

Resultant force

Spec list a (recall and apply). F in newtons (N), m in kg, a in m/s^2.

$$F = ma$$

IN THE BOOKLET

Weight

Spec list a (recall and apply). W in N, m in kg, g gravitational field strength in N/kg.

$$W = mg$$

IN THE BOOKLET

Momentum

Spec list a (recall and apply). Higher tier (HT) only. p in kg m/s, m in kg, v in m/s.

$$p = mv$$

IN THE BOOKLET

Energy and efficiency

Change in gravitational potential energy

Spec list a (recall and apply). ΔGPE in joules (J), m in kg, g in N/kg, Δh change in vertical height in m.

$$\Delta GPE = mg\Delta h$$

IN THE BOOKLET

Kinetic energy

Spec list a (recall and apply). KE in J, m in kg, v speed in m/s.

$$KE = \frac{1}{2}mv^2$$

IN THE BOOKLET

Efficiency

Spec list a (recall and apply). Printed in words only. A ratio with no unit; multiply by 100 for a percentage.

$$\text{efficiency} = \frac{\text{useful energy transferred by the device}}{\text{total energy supplied to the device}}$$

IN THE BOOKLET

Waves

Wave speed (frequency and wavelength) Spec list a (recall and apply). v in m/s, f frequency in hertz (Hz), λ wavelength in m.	$v = f\lambda$	IN THE BOOKLET
Wave speed (distance and time) Spec list a (recall and apply). x distance in m, t in s.	$v = \frac{x}{t}$	IN THE BOOKLET

Work, power and electricity

Work done Spec list a (recall and apply). E work done in J, F in N, d distance moved in the direction of the force in m.	$E = Fd$	IN THE BOOKLET
Power (work done) Spec list a (recall and apply). Power = work done divided by time taken. P in watts (W), E in J, t in s.	$P = \frac{E}{t}$	IN THE BOOKLET
Energy transferred (charge and potential difference) Spec list a (recall and apply). E in J, Q charge moved in coulombs (C), V in volts (V).	$E = QV$	IN THE BOOKLET
Charge Spec list a (recall and apply). Q in C, I current in amperes (A), t in s.	$Q = It$	IN THE BOOKLET
Potential difference Spec list a (recall and apply). V in V, I in A, R resistance in ohms (Ω).	$V = IR$	IN THE BOOKLET
Power (energy transferred) Spec list a (recall and apply). Power = energy transferred divided by time taken. Same form as the work equation above.	$P = \frac{E}{t}$	IN THE BOOKLET
Electrical power Spec list a (recall and apply). P in W, I in A, V in V.	$P = IV$	IN THE BOOKLET
Electrical power in a resistor Spec list a (recall and apply). P in W, I in A, R in Ω.	$P = I^2R$	IN THE BOOKLET

Density

Density Spec list a (recall and apply). ρ in kg/m^3, m in kg, V in m^3.	$\rho = \frac{m}{V}$	IN THE BOOKLET

Springs, motion and momentum

Second page of the equations list.

Force on a spring Spec list a (recall and apply). F in N, k spring constant in N/m, x extension in m. Up to the limit of proportionality.	$F = kx$	IN THE BOOKLET

Uniform acceleration Spec list b (select and apply). v final and u initial velocity in m/s, a in m/s^2, x distance in m.	$v^2 - u^2 = 2ax$	IN THE BOOKLET
Force and change in momentum Spec list b (select and apply). Higher tier (HT) only. mv - μ is the change in momentum in kg m/s, t in s.	$F = \frac{mv - mu}{t}$	IN THE BOOKLET

Electrical energy, magnetism and transformers

Energy transferred (current, potential difference, time) Spec list b (select and apply). E in J, I in A, V in V, t in s.	$E = IVt$	IN THE BOOKLET
Force on a conductor in a magnetic field Spec list b (select and apply). HT only. F in N, B magnetic flux density in tesla (T), I in A, l length in m. Conductor at right angles to the field.	$F = BIl$	IN THE BOOKLET
Transformer: power in equals power out Spec list b (select and apply). For a transformer with 100 per cent efficiency. p is primary coil, s is secondary coil.	$V_pI_p = V_sI_s$	IN THE BOOKLET

Thermal energy and stretching

Change in thermal energy Spec list b (select and apply). ΔQ in J, m in kg, c specific heat capacity in J/kg °C, Δθ temperature change in °C.	$\Delta Q = mc\Delta\theta$	IN THE BOOKLET
Thermal energy for a change of state Spec list b (select and apply). Q in J, m in kg, L specific latent heat in J/kg.	$Q = mL$	IN THE BOOKLET
Energy transferred in stretching Spec list b (select and apply). E in J, k in N/m, x extension in m.	$E = \frac{1}{2}kx^2$	IN THE BOOKLET

Extra equations for GCSE Physics (1PH0) only

The list prints these only for students taking GCSE Physics. Combined Science (1SC0) students do not need them.

Moment of a force Spec list a (recall and apply). Physics only. Printed in words only. M in newton metres (N m), F in N, d distance normal to the direction of the force in m.	$M = Fd$	IN THE BOOKLET
Pressure Spec list a (recall and apply). Physics only. P in pascals (Pa), F force normal to the surface in N, A area in m^2.	$P = \frac{F}{A}$	IN THE BOOKLET
Transformer: turns ratio Spec list b (select and apply). Physics only and HT only. N is the number of turns in each coil.	$\frac{V_p}{V_s} = \frac{N_p}{N_s}$	IN THE BOOKLET

Gas pressure and volume Spec list b (select and apply). Physics only. Fixed mass of gas at constant temperature. Any consistent units.	$P_1V_1 = P_2V_2$	IN THE BOOKLET
Pressure due to a column of liquid Spec list b (select and apply). Physics only and HT only. P in Pa, h height of column in m, ρ in kg/m^3, g in N/kg.	$P = h\rho g$	IN THE BOOKLET

Rules the list does not print

Series circuit: total resistance The specification asks you to calculate currents, potential differences and resistances in series circuits. Same current everywhere.	$R_{\text{total}} = R_1 + R_2$	LEARN IT
Principle of moments Physics only. For rotational forces in equilibrium. Use M = Fd on each side.	$\text{sum of clockwise moments} = \text{sum of anticlockwise moments}$	LEARN IT
Free fall acceleration The Edexcel specification says to recall g in free fall as 10 m/s squared. Use the value in the question if one is given.	$g = 10\ \text{m/s}^2$	LEARN IT

Learn these: not in the booklet

Specification list a: the equations to recall

Distance travelled, acceleration, F = ma, weight, momentum (HT), change in GPE, kinetic energy, efficiency, both wave speed equations, work done, power, E = QV, Q = It, V = IR, both power equations with energy and with current, density, F = kx, and for Physics only the moment and pressure equations. The list prints these too, but the specification says you may be asked to recall them.

Free fall

$g = 10\ \text{m/s}^2$

The specification says to recall this value for acceleration in free fall.

Series circuits

$R_{\text{total}} = R_1 + R_2$

The same current flows through every component.

Principle of moments (Physics only)

For a balanced object, the sum of clockwise moments equals the sum of anticlockwise moments.

Conservation of momentum

Newton's third law links to conservation of momentum in collisions: total momentum before equals total momentum after in a closed system.

Using the booklet in the exam

- Rows marked HT are not needed in Foundation papers, so skip them if you sit Foundation.
- Combined Science (1SC0) students use the two main tables; the extra table is for GCSE Physics (1PH0) only.
- Two rows print power as P = E/t: use the one that matches the wording, work done or energy transferred.
- The list prints distance travelled, efficiency and moment in words only, so write the word equation first, then substitute.
- Convert to kg, m, s and A before you substitute, then give the answer with its unit.

Based on: Pearson Edexcel GCSE (9-1) Physics 1PH0 and Combined Science 1SC0, Equations List, May-June 2024 assessment window; Pearson Edexcel GCSE (9-1) Physics 1PH0 specification, Issue 3, February 2018, Appendix 2: Equations in Physics. Statistical tables are calculated by CuratedPrep to the same layout. Updated 31 October 2026. Always practise with the version of the official booklet your exam uses. More free sheets and topic worksheets at curatedprep.com.