

GCSE Physics Knowledge Checklist

Contents

1. Energy	2
2. Electricity	2
3. Particle Model of Matter	2
4. Atomic Structure	2
5. Forces	2
6. Waves	3
7. Magnetism and Electromagnetism	3
8. Space Physics (PHYSICS ONLY)	3
9. Required Practical Skills	3

For each topic, rate your understanding:

✅ Secure | ⚠️ Partial | 🙋 Insecure | ❌ Not Taught yet

All topics for all tiers are included.

Separate Science (Triple) topics are labelled.

Completing this checklist will help you to know where your strengths and weaknesses lie and help me to assess your needs and personalise your tuition sessions.

1. Energy

- ☐ Energy stores and transfers
- ☐ Conservation of energy
- ☐ Calculating work done and power
- ☐ Efficiency and energy dissipation
- ☐ National and global energy resources
- ☐ Energy resources (renewable and non-renewable)

2. Electricity

- ☐ Current, potential difference, and resistance
- ☐ Series and parallel circuits
- ☐ Domestic electricity and safety features
- ☐ National Grid and energy transfers
- ☐ Electrical power and energy calculations
- ☐ Static electricity (PHYSICS ONLY)

3. Particle Model of Matter

- ☐ States of matter and changes of state
- ☐ Density and measuring density
- ☐ Internal energy and specific heat capacity and specific latent heat
- ☐ Gas pressure and volume (PHYSICS ONLY)

4. Atomic Structure

- ☐ Structure of the atom and isotopes
- ☐ Radioactivity and nuclear decay
- ☐ Half-life and decay curves
- ☐ Uses and risks of radiation (PHYSICS ONLY)
- ☐ Nuclear fission and fusion (PHYSICS ONLY)

5. Forces

- ☐ Scalar and vector quantities
- ☐ Contact and non-contact forces
- ☐ Newton's Laws of motion
- ☐ Stopping distance and vehicle safety
- ☐ Momentum and conservation of momentum
- ☐ Moments, levers, and gears (PHYSICS ONLY)
- ☐ Pressure differences in fluids (PHYSICS ONLY)

6. Waves

- ☐ Transverse and longitudinal waves
- ☐ Properties of waves (speed, frequency, wavelength)
- ☐ Reflection and refraction (PHYSICS ONLY)
- ☐ Lenses (PHYSICS ONLY)
- ☐ Sound waves and ultrasound (PHYSICS ONLY)
- ☐ Electromagnetic spectrum and uses
- ☐ Hazards of EM radiation
- ☐ Black body radiation (PHYSICS ONLY)

7. Magnetism and Electromagnetism

- ☐ Magnetic fields and permanent magnets
- ☐ Electromagnets and their applications
- ☐ The motor effect and electric motors
- ☐ Induced potential and transformers (PHYSICS ONLY)

8. Space Physics (PHYSICS ONLY)

- ☐ Solar system and orbits
- ☐ Life cycle of stars
- ☐ Red-shift and the expanding universe

9. Required Practical Skills

- ☐ Planning and conducting physics practicals
- ☐ Measuring accurately and using scientific apparatus
- ☐ Graph skills and interpreting data
- ☐ Evaluating results and suggesting improvements