

KS3 Progress Tracker (years 7-9) for Physics

Overall descriptors for Y7-Y8

	Knowledge (Conceptual understanding)	Skills
Strong	Demonstrates secure and detailed understanding of Physics concepts across KS3 content (forces, energy, electricity, waves, space physics). Explains phenomena accurately using correct scientific terminology and consistently links ideas across topics. Shows clear understanding of models (e.g., particle model, energy stores) and applies them confidently in unfamiliar contexts.	Plans and carries out investigations independently with high accuracy and attention to detail. Selects appropriate equipment and methods confidently. Processes data effectively using graphs, calculations, and analysis. Evaluates methods critically, identifies limitations, and suggests meaningful improvements. Draws well-reasoned scientific conclusions supported by evidence.
Confident	Has a good understanding of most key Physics concepts and can explain them clearly using appropriate terminology. Shows secure knowledge of core content and can make some links between topics. Occasional minor gaps do not prevent overall accurate explanations.	Carries out practical work competently with some independence. Selects appropriate methods and equipment in familiar contexts. Records and processes data accurately, including basic graph work and calculations. Can describe conclusions clearly and begin to suggest simple improvements.
Developing	Shows a partial understanding of key Physics ideas but may have gaps or misconceptions. Can recall some facts and definitions but explanations are often incomplete or inconsistent. Requires support to make links between concepts or apply knowledge beyond familiar examples.	Requires support to plan or carry out investigations. Uses equipment and methods with some accuracy but may make errors in measurement or recording. Data processing is basic and may include incomplete or inaccurate graphs/calculations. Conclusions are simple and may not be well supported by evidence.
Emerging	Has limited understanding of core Physics concepts. Recall of key facts is inconsistent and often inaccurate. Struggles to explain scientific ideas or use correct terminology without significant support.	Needs significant support to engage in practical work. Has difficulty selecting or using equipment appropriately. Records data inconsistently or inaccurately. Struggles to interpret results or draw valid conclusions.

Specific Overall Descriptors for Y7-Y8 in each topic

FORCES - Y7 and Y8

	Knowledge (Conceptual understanding)	Skills
Strong	Explains balanced/unbalanced forces, Newton's laws, pressure with accurate reasoning	Accurately measures forces, interprets graphs (distance–time, velocity–time)
Confident	Understands key force concepts with minor gaps	Conducts force investigations with minor support
Developing	Basic understanding of forces, some misconceptions	Needs guidance with measurements and graphs
Emerging	Limited understanding of forces and motion	Struggles with practical work and data interpretation

ENERGY – Y7 and Y8

	Knowledge (Conceptual understanding)	Skills
Strong	Secure understanding of energy stores, transfers, efficiency, conservation	Accurately calculates energy, efficiency; interprets data well
Confident	Good understanding with minor errors in explanations	Performs calculations and graphs with minor errors
Developing	Partial understanding of energy concepts	Needs support with calculations and representation
Emerging	Limited understanding of energy transfer	Struggles with energy calculations and data handling

ELECTRICITY – Y7 and Y8

	Knowledge (Conceptual understanding)	Skills
Strong	Explains current, voltage, resistance, circuits (series/parallel) accurately	Builds circuits independently; accurate measurements using ammeters/voltmeters
Confident	Good understanding of circuits with occasional gaps	Builds circuits with minor support
Developing	Basic understanding of circuit components	Needs guidance with circuit construction and readings
Emerging	Limited understanding of electrical concepts	Struggles to build or interpret circuits

WAVES – Y7 and Y8

	Knowledge (Conceptual understanding)	Skills
Strong	Clear understanding of wave properties, sound/light behaviour, EM spectrum	Accurately interprets wave diagrams and calculates wave speed
Confident	Good understanding with minor gaps	Works with wave data with minor errors
Developing	Basic recall of wave types and properties	Needs support with diagrams and calculations
Emerging	Limited understanding of wave concepts	Struggles with wave representation and analysis

SPACE – Y7

	Knowledge (Conceptual understanding)	Skills
Strong	Detailed understanding of solar system, life cycles of stars, universe models	Interprets astronomical data and models confidently
Confident	Good understanding of key space concepts	Uses models and data with minor support
Developing	Basic recall of planets and space phenomena	Needs guidance with space models and interpretation
Emerging	Limited understanding of space science	Struggles to interpret space-related information

Year 9 Physics descriptors (GCSE related)

	Knowledge	Skills
Strong	Demonstrates mastery, secure understanding and applies knowledge confidently. Demonstrates a secure understanding of how energy is stored and transferred in different situations. Understands how particles behave in solids, liquids and gases and can explain changes of state accurately. Applies particle theory effectively to explain pressure in gases and related phenomena.	Can solve problems independently, explain scientific ideas clearly and use mathematical skills accurately in a range of contexts. Uses standard scientific units accurately and consistently. Converts between units confidently in most situations. Applies ratios, fractions and percentages confidently during calculations. Selects and applies the correct equations effectively. Completes calculations accurately and uses appropriate units. Interprets and presents data effectively using a range of graphical methods. Confidently moves between tables, graphs and numerical data.
Confident	Shows a good understanding of key concepts. Can answer most questions successfully but may require occasional support when applying knowledge to more complex or unfamiliar situations. Understands that energy is conserved and can explain where energy is transferred, though more complex examples can still be challenging. Can explain how heating affects particles and internal energy, with some support needed for more demanding questions.	Usually identifies patterns and trends correctly and can make sensible conclusions from evidence. Usually presents calculations appropriately but occasionally makes errors in rounding. Understands and uses scientific notation accurately in most contexts. Can describe the method and interpret results from practical activities. Calculates efficiency successfully in familiar contexts.
Developing	Has developed a foundation of understanding but does not yet apply knowledge consistently. Further practice is needed to improve confidence when tackling extended reasoning, calculations and unfamiliar questions. Understands the main energy resources but needs greater confidence evaluating their advantages, disadvantages and environmental impact. Can use simple models effectively but is still developing confidence in applying them to unfamiliar situations.	Requires further practice when changing the subject of equations. Can solve simple examples but needs greater confidence with more complex problems. Understands the practical work but needs support to analyse results independently. Beginning to consider wider implications of scientific developments and technologies.

Emerging	Beginning to develop understanding in this subject. There are significant misconceptions or gaps remain. They would benefit from additional support and practice to strengthen their knowledge	Would benefit from further opportunities to discuss, justify and evaluate scientific ideas using evidence. Needs further support to evaluate evidence critically and discuss ethical considerations in science.
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