

Main Criteria: Forward Education
Secondary Criteria: National Curriculum for England
Subjects: Mathematics, Science, Technology Education
Grades: 7, 8, Key Stage 3

Forward Education

Harnessing the Sun's Energy with Solar Panels

National Curriculum for England
Mathematics
Grade Key Stage 3 - Adopted: 2014

PROGRAMME OF STUDY	UK.MA.Y7-9.1.	Year 7-9 – Working mathematically
STRAND		Through the mathematics content, pupils should be taught to:
STATUTORY REQUIREMENT	MA.Y7-9.1.1.	Develop fluency

STATUTORY REQUIREMENT MA.Y7-9.1.1.2. Select and use appropriate calculation strategies to solve increasingly complex problems.

STATUTORY REQUIREMENT MA.Y7-9.1.1.4. Substitute values in expressions, rearrange and simplify expressions, and solve equations.

STATUTORY REQUIREMENT MA.Y7-9.1.1.5. Move freely between different numerical, algebraic, graphical and diagrammatic representations [for example, equivalent fractions, fractions and decimals, and equations and graphs].

PROGRAMME OF STUDY	UK.MA.Y7-9.1.	Year 7-9 – Working mathematically
STRAND		Through the mathematics content, pupils should be taught to:
STATUTORY REQUIREMENT	MA.Y7-9.1.2.	Reason mathematically

STATUTORY REQUIREMENT MA.Y7-9.1.2.5. Begin to reason deductively in geometry, number and algebra, including using geometrical constructions.

PROGRAMME OF STUDY	UK.MA.Y7-9.1.	Year 7-9 – Working mathematically
STRAND		Through the mathematics content, pupils should be taught to:
STATUTORY REQUIREMENT	MA.Y7-9.1.3.	Solve problems

STATUTORY REQUIREMENT MA.Y7-9.1.3.1. Develop their mathematical knowledge, in part through solving problems and evaluating the outcomes, including multi-step problems.

STATUTORY REQUIREMENT MA.Y7-9.1.3.2. Develop their use of formal mathematical knowledge to interpret and solve problems, including in financial mathematics.

STATUTORY REQUIREMENT MA.Y7-9.1.3.3. Begin to model situations mathematically and express the results using a range of formal mathematical representations.

PROGRAMME OF STUDY	UK.MA.Y7-9.3.	Algebra
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STRAND		Pupils should be taught to:
STATUTORY REQUIREMENT	MA.Y7-9.3.4.	Simplify and manipulate algebraic expressions to maintain equivalence by:

STATUTORY REQUIREMENT MA.Y7-9.3.4.1. Collecting like terms.

**National Curriculum for England
Science
Grade Key Stage 3 - Adopted: 2014**

PROGRAMME OF STUDY	UK.SC.Y7-9.WS.	YEARS 7-9 - Working scientifically
STRAND	SC.Y7-9.WS.3.	Analysis and evaluation
STATUTORY REQUIREMENT		Through the content across all three disciplines, pupils should be taught to:

STATUTORY REQUIREMENT SC.Y7-9.WS.3.4. Present reasoned explanations, including explaining data in relation to predictions and hypotheses.

PROGRAMME OF STUDY	UK.SC.Y7-9.C.	YEARS 7-9 - Chemistry
STRAND	SC.Y7-9.C.8.	Earth and Atmosphere
STATUTORY REQUIREMENT		Pupils should be taught about:

STATUTORY REQUIREMENT SC.Y7-9.C.8.4. Earth as a source of limited resources and the efficacy of recycling.

STATUTORY REQUIREMENT SC.Y7-9.C.8.7. The production of carbon dioxide by human activity and the impact on climate.

PROGRAMME OF STUDY	UK.SC.Y7-9.P.	YEARS 7-9 - Physics
STRAND	SC.Y7-9.P.1.	Energy
STATUTORY REQUIREMENT	SC.Y7-9.P.1.1.	Calculation of fuel uses and costs in the domestic context
STATUTORY REQUIREMENT		Pupils should be taught about:

STATUTORY REQUIREMENT SC.Y7-9.P.1.1.b. Comparing power ratings of appliances in watts (W, kW).

STATUTORY REQUIREMENT SC.Y7-9.P.1.1.d. Domestic fuel bills, fuel use and costs.

STATUTORY REQUIREMENT	SC.Y7-9.P.1.1.e.	Fuels and energy resources.
PROGRAMME OF STUDY	UK.SC.Y7-9.P.	YEARS 7-9 - Physics
STRAND	SC.Y7-9.P.1.	Energy
STATUTORY REQUIREMENT	SC.Y7-9.P.1.2.	Energy changes and transfers
STATUTORY REQUIREMENT		Pupils should be taught about:

STATUTORY REQUIREMENT SC.Y7-9.P.1.2.c. Other processes that involve energy transfer: changing motion, dropping an object, completing an electrical circuit, stretching a spring, metabolism of food, burning fuels.

**National Curriculum for England
Technology Education
Grade Key Stage 3 - Adopted: 2014**

PROGRAMME OF STUDY	UK.CO.	Computing
STRAND		Pupils should be taught to:

STATUTORY REQUIREMENT CO.2. Understand several key algorithms that reflect computational thinking [for example, ones for sorting and searching]; use logical reasoning to compare the utility of alternative algorithms for the same problem.

STATUTORY REQUIREMENT CO.3. Use two or more programming languages, at least one of which is textual, to solve a variety of computational problems; make appropriate use of data structures [for example, lists, tables or arrays]; design and develop modular programs that use procedures or functions.