Scheme of Learning: Energy

Topic Sequence:

1	2	3	4	5	6	7	8	9	10
Lab Skills	Particles and Separation Techniques	Forces	Cells and Organisation	Elements and the Periodic Table	Energy	Health and Human Body	Chemical Reactions	Electricity and Magnetism	Reproduction

Topic Overview:

Energy is a new topic at KS3 as no content has been covered at KS2. This topic looks at energy as a mathematical concept, the idea that energy allows us to work out if something could happen.
The topic includes:
Calculation of fuel uses and costs in the domestic context
Energy changes and transfers - simple machines; heating and thermal equilibrium; changing motion, dropping an object, stretching a spring, metabolism of food, burning fuels.
Changes in systems - energy as a quantity that can be quantified and calculated; the total energy has the same value before and after a change

Lesson Sequence:

We begin with a summary of the different stores and pathways. Then move into the detail of how the stores can be calculated and the processes involved in the transfer of energy (pathways).
We cover the calculations of work done, power and the cost of electricity. We also look at the means of representing energy transfers in Sankey diagrams.
Finally, we look at the resources used to generate the electricity we use in our homes, including the advantages and disadvantages for each resource.
Please note: some of the lessons will take more than the 1 hour lesson slot. Please account for this in your advanced planning.

Sequence of Lessons:	
1	Energy stores
2	Chemical stores
3	Pathways
4	Conduction and convection
5	Heat and temperature
6	Sankey diagrams
7	Non- renewable resources
8	Renewable resources
9	Power and cost
10	Assessment

Resources:	
1	Energy stores table
2	Combustion of food experiment – different foods, tin lids, mounting pins + basic lab equipment
3	Work done calculations sheet
4	Conduction experiment – metal rods, drawing pins, Vaseline + basic lab equipment Convection experiment – potassium permanganate 'tea bags' + basic lab equipment Chimney demo
5	Image sheet for defining vocabulary
6	Sankey diagrams sheet
7	Power station worksheet
8	Renewables table sheet Resources posters (laminated)
9	Power calculations
10	Quiz sheet Assessment sheet

Supportive Reading:

Comprehension activity	TBC

Assessment:

Knowledge:	20 question multiple choice quiz
Application of Knowledge:	Extended writing task evaluating the use of an energy resource