Scheme of Learning: Acids and Alkalis

Topic Sequence:

1	2	3	4	5	6	7	8	9
Acids & Alkalis	Motion & Pressure	Photosynthesis & Respiration	Metals & Materials	Waves	Inheritance & Evolution	Earth & Atmosphere	Space	Ecosystems & Interdependence

Topic Overview:

In year 5, students should study that some materials will dissolve in liquid to form a solution; and explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with the action of acid on bicarbonate of soda.
This topic then includes:
defining acids and alkalis in terms of neutralisation reactions
the pH scale for measuring acidity/alkalinity; and indicators
reactions of acids with alkalis to produce a salt plus water

Lesson Sequence:

This topic begins by recapping the necessity of completing risk assessments when working with chemicals (covered in the particles topic in year 7). We then move onto looking at the definition of concentration and how this will affect the speed of a reaction (qualitatively). Students will then use a range of indicators to investigate strength and pH. Finally, looking at neutralisation reactions, naming slats and balancing symbol equations.

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:		Resources:	
1	Hazards and risks	1	A selection of household acids and alkalis in original containers Keyword wordsearch
2	Concentration	2	0.1M HCl with irritant label, 0.1M NaOH with irritant label, 2M HCl with corrosive label, 2M NaOH with corrosive label Flasks with 3 obviously different concentrations of squash Magnesium ribbon
3	Indicators	3	The same selection of household chemicals to test from lesson 1 with pipettes, spotting tiles, pre-chopped red cabbage
4	Strength	4	The same selection of household chemicals to test from lesson 1 with pipettes, spotting tiles, UI solution, UI paper, pH probe (if working), small bottle fizzy water, blue litmus paper
5	pH	5	1M HCl, 1M NaOH, UI solution
6	Neutralisation	6	UI solution, 0.5M hydrochloric acid (for demo) and bicarbonate solution, 0.1M hydrochloric acid (for class expt), selection of indigestion tablets
7	Salts	7	Mg ribbon and 0.5M HCl, molymods or sweetie balancing For sweetie balancing – 1st reaction - each group needs 2 pots of sweets, one colour per pot and 10 of each sweet. 2nd reaction each group needs 3 pots of sweets, one colour per pot and 5 of each plus cocktail sticks to join them together. Worksheet for sweetie balancing
8	Assessment	8	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