Meden School Curriculum Planning							
Subject	Chemistry	**Year Group**	7	**Sequence No.**		**Topic**	Acids & Alkalis

Retrieval	Core Knowledge	Student Thinking
What do teachers need **retrieve** from students before they start teaching **new content**?	What **specific ambitious knowledge** do teachers need teach students in this sequence of learning?	What real life examples can be applied to this sequence of learning to **development of our students thinking, encouraging them to see the inequalities around them** and 'do something about them!'
KS2: planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary Year 5: 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 burning and the action of acid on bicarbonate of soda.	**L1: Testing for acids and alkalis.** By way of a practical. **Acids** turn red litmus paper blue and **alkalis** turn blue litmus paper red. **Litmus paper** can be used to identify whether a substance is an acid, alkali or neutral. The word **neutral** is used to describe substances that are neither acidic or alkaline. Citrus fruits, coca-cola, battery acid, vinegar are examples of acids. Washing-up liquid, soap, antacids, toothpaste, bicarbonate of soda are examples of alkalis. **L2: Properties of acids & alkalis.** Acids & Alkalis can be used at home as well as in the laboratory. Acids & alkalis can be orgnaised as **strong** or **weak.** Weak acids tase **sour**, strong acids are **corrosive**. Strong alkalis can be described as **caustic**, they can **burn skin**. Weak alkalis feel **soapy**. **L3: Indicators.** An **indicator** is used to identify whether a substance is **acidic, alkaline, or neutral**. Indicators can be made from natural sources, such as red cabbage. Red cabbage can be made into an indicator by boiling with water, then collecting the filtrate. The indicator changes colour not the acid/alkali. **L4: Comparing indicators.** Indicators must change colour with acidic and alkaline substances, and the colours should be easy to differentiate. By way of a practical. Some indicators change colour depending on the strength of an acid or alkali. Red cabbage and universal indicator display a range of colours to differentiate strong and weak acids/alkalis. Litmus only indicates whether a substance is acidic, neutral or alkaline. Phenylphthalein turns pink in alkaline solutions. **L5: The pH scale.** The pH scale can be used to **measure the strength** of an acid or alkali. pH stands for 'potential of hydrogen' because all acids contain hydrogen ions. The pH scale goes from 0 to 14. Acids have a pH <7, alkalis have a pH >7 and neutral substances have a pH of 7. Strong acids have a pH of 0, strong alkalis have a pH of 14. Universal indicator has a range of colours to display how weak/strong an	Using corrosive chemicals as a weapon especially against women. inspirational women in Parkistan setting up beauty palours for attack victims https://www.theguardian.com/global-development/2020/jul/14/now-im-independent-the-pakistan-beauty-salons-employing-acid-attack-survivors

	acid or alkali is. Acids turn universal indicator; yellow, orange or red. Alkalis turn universal indicator blue or purple. Neutral substances turn universal indicator green. **L6: Neutralisation.** Reacting acids with alkalis will produce a **neutral substance**, this can be observed using universal indicator. **Reactants** are the chemicals at the start of a reaction. **Products** are what is produced in a reaction. Acid + Alkali produces a **salt** and water. **L7 and 8: GPA Vinegar investigation.** The more **dilute** an acid is, the less acid there is present in the solution. Identifying the **concentration** of different samples of vinegar using an indicator. Using **phenylphthalein** as it has a more obvious colour change for neutral substances. Phenylphthalein turns pink in alkali solutions. It is **colourless** in acidic and neutral solutions. **Independent variable** is the thing we change, **dependent variable** is the thing we measure. **Control variables** are anything that is kept the same. Set out a plan for the practical using the headings: aim, variables, equipment, method, safety and results table. **L9: Reactions of acids with metals.** By way of a practical. The reaction between magnesium and hydrochloric acid produces **heat**. The reaction between magnesium and hydrochloric acid produces **hydrogen gas**, this can be tested for with a lit splint **(squeaky pop test).** Naming salts from the acid used: chloride salts from hydrochloric acid, sulfate salts from sulfuric acid, nitrate salts from nitric acid. Sulfate and nitrate end in -ate because the formulas contain oxygen. When naming salts, the metal is first followed by the type of salt. **L10: Reactions of acids with carbonates.** Metal carbonates react with acid to form a salt, water and **carbon dioxide.** This is a **neutralization reaction**. By way of a practical, comparing the vigorousness of sodium bicarbonate and magnesium carbonate when reacted with water. Safety precautions of carbonates before they can be used as bath bomb ingredients. **L11: Neutralisation in action.** Adding an acid to acidic stings will make them worse, adding alkali to an alkaline sting will make it worse. Bees have acidic stings so can be treated with alkalis, wasps have alkaline stings so can be treated with acids. Dock leaf sap is not alkaline so will not neutralize the acid in nettle stings. **L12/13:** Revision, assessment and development task.	Using neutralisation to improve the soil in less developed countries to help boost crop yield.
