Meden School Curriculum Planning							
Subject	Chemistry	**Year Group**	8	**Sequence No.**		**Topic**	Applications of chemistry

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. **KS3 Y7 (Laboratory Safety):** How to keep safe in the laboratory by wearing goggles, tying hair back, tucking ties and lanyards in blazer, putting stools and belongings under the desk. **KS3 Y7 (Physical and chemical changes)** Observing chemical reactions – If a chemical reaction has occurred there may be; a colour change, a change in	**L1: Chemical Reactions.** During chemical reactions new substances are made. The **atoms** rearrange to form new **substances,** the atoms at the start of a reaction are still there at the end. Starting substances are called **reactants,** the new substances formed are called **products**. **Word equations** are used to show a chemical reaction. **Symbol equations** give more information about a reaction, including how many atoms are involved. **L2: Chemical formulae. Symbols** and **formulae** are used to represent **elements** and **compounds**. Chemical symbols can be found on the **periodic table**. For multiple atoms of an element, the number is written in subscript. **L3: Conversion of mass.** In chemical reactions the atoms rearrange in different ways to form the products. The total **mass** of the reactants is the same as the total mass of the products. Atoms cannot be **created** or **destroyed**. Mass can appear to decrease in an open system where gas can escape. Mass can appear to increase in an open system where the reactants react with the air. **L4 and 5: Temperature changes. Energy** is transferred during chemical reactions, either to the surroundings or from the surroundings. **Exothermic** reactions release energy and **endothermic** reactions absorb energy. By way of practical; potassium chloride reacts with water in an endothermic reaction, sulfuric acid reacts with magnesium in an exothermic reaction **L6: Using endothermic/exothermic reactions.** Examples of exothermic reactions include; **combustion, oxidation, neutralisation**, handwarmers and self-heating tins of coffee/hot chocolate. Examples of endothermic reactions include; **photosynthesis, thermal decomposition**, sports-injury packs. **Insulating**	

temperature, light emitted or a gas produced.	material can be used to minimise loss of thermal energy during experiments, this allows the temperature changes to be compared between different chemical reactions. **L7: GPA Graph drawing.** Temperature change reactions can be plotted in a graph. The change in temperature will be on the Y -axis as it is the **dependent** variable. **L8: What is a catalyst.** Reactions occur at different **rates** (speeds). **Catalysts** speed up the rate of a reaction by lowering the **activation energy.** Activation energy is the energy needed to start a reaction. Catalysts are not used up in a reaction so can be re-used. Enzymes are an example of biological catalysts and can be found in our cells. By way of practical, investigating the effect of different catalysts of the **decomposition** of hydrogen peroxide. **L9: Catalysts in industry.** Many industrial processes use catalysts to speed up the reactions and make them more profitable. Many industrial catalysts are **transition metals.** Catalysts reduce the time, money and energy needed for industrial processes. Catalytic converters in cars use platinum and rhodium to remove harmful gases such as nitrogen oxide from exhaust gases.	The concept of catalysis was invented by chemist Elizabeth Fulhame in 1794, based on her oxidation-reduction experiments