جيمس مدرسة فاوندرز دبي GEMS Founders School DUBAI

Key Stage 3 Curriculum Map 2020-21

Term 1

Year Group: 8	Subject: Chemistry		
Focus/Topic	**Objectives**	**Key Skills/ UAE Links**	**Home Learning/ Recommended Reading**
• Induction, expectations, baseline assessment, lab safety, reaction time investigation and analysis and test feedback.			
<u>Chemistry: A) Structure & Bonding</u> • 1) Covalent Bonding	• Use your knowledge to explain why atoms bond. • Discuss the formation of a covalent bond. • Create bonding diagrams to show covalent bonds.	• Recall, working scientifically • Working scientifically, application • Apply and evaluate • Graphene in the UAE	• Guided reading
• 2) Giant Covalent Structures	• Use your knowledge to list examples of giant covalent structures. • Discuss the formation of a giant covalent structure. • Summarise the properties of giant covalent structures.		
• 3) Atoms into Ions	• Use your knowledge to describe how ions are formed.		

• 4) Ionic Bonding • 5) Metallic Bonding • 6) Application of Bonding	• Create diagrams showing the electron arrangement of ions. • Predict the ion formed by different atoms. • Use your knowledge to describe the type of elements that form an ionic bond. • Discuss the formation of an ionic bond. • Construct dot and cross diagrams to show ionic bonds. • Apply your knowledge to describe the arrangement of atoms in a metal. • Create a diagram to describe the formation of metallic bonds. • Predict the properties of metallic structures. • Use your knowledge to describe the structure and bonding in carbon nanotubes. • Summarise the important uses of carbon nanotubes in medicine. • Analyse the properties of a metal to determine a suitable use.	• Sea water analysis in the UAE • Infrastructure/ Building materials for Burj Khalifa	

• 7) Introduction to the Chemistry Fair • 8) Test • 9) Feedback	• Apply your knowledge to discuss the chemistry associated with your model • Create a model to represent a type of bonding and its structure • Justify your choice of materials • Evaluate your knowledge. • Recognise areas of improvement and what went well. • Reflect on your knowledge. • Evaluate your knowledge. • Recognise areas of improvement and what went well. • Reflect on your knowledge.		
<u>Chemistry: B) Chemical Reactions</u> • 1) Signs of a chemical reaction • 2) Representing a Chemical Reaction	• Apply your knowledge to determine if a scenario is a chemical reaction or a physical change. • Summarise the different signs of a chemical reaction. • Conduct an experiment to demonstrate signs of a chemical reaction. • Write the molecular formula for simple substances. • Construct word equations that represent a chemical reaction.	• Working scientifically, application • Recall, application and working scientifically • Revise and reflect • Chemicals in the UAE	• Guided reading

• 3) Effect of Surface Area	• Construct chemical equations that represent a chemical reaction. • Use your knowledge to describe the conditions required for a reaction to take place. • Summarise how changing surface area effects the rate of a chemical reaction. • Conduct an experiment to demonstrate the effect of surface area on reaction rate.		
HALF TERM			
• 4) Effect of Temperature • 5) Reporting a Rate Investigation	• Apply your knowledge to describe the relationship between temperature and energy • Summarise how changing temperature effects the rate of a chemical reaction • Conduct an experiment to demonstrate the effect of temperature on reaction rate • Apply your knowledge to determine the variables for an investigation • Construct a table and/or graph to present your results	• Factories and catalysts in the UAE	• Guided Reading

• 6) Effect of a Catalyst • 7) Test • 8) Feedback	• Evaluate your results to write a valid conclusion supported by evidence • Use your knowledge to define the term catalyst • Summarise how adding a catalyst effects the rate of a chemical reaction • Compare the advantages of using a catalyst to changing other factors to increase the rate of a reaction • Evaluate your knowledge. • Recognise areas of improvement and what went well. • Reflect on your knowledge. • Evaluate your knowledge. • Recognise areas of improvement and what went well. • Reflect on your knowledge.		
<u>Chemistry: C) Acids and Alkalis</u> • 1) The pH Scale • 2) Identifying Acids and Alkalis	• Use your knowledge to describe the ions responsible for making a solution acid, alkali or neutral • Write the molecular formula for simple acids and alkalis • Calculate the RFM of simple acids and alkalis	• Recall, application and working scientifically • Water treatment in the UAE/ Comparing pH of water around the world	• Guided reading

• 3) Concentration • 4) Neutralisation • 5) Products of Neutralisation • 6) Test	• Use your knowledge to describe the ions responsible for making a solution acid, alkali or neutral • Write the molecular formula for simple acids and alkalis • Calculate the RFM of simple acids and alkalis • Use your knowledge to define the term concentration • Connect the concentration of an acid to its pH • Calculate the concentration of a solution using n = c x v • Use your knowledge to state what is meant by neutralisation • Conduct an experiment which would demonstrate a neutralisation reaction • Predict if everyday substances are acid or alkali and give examples of real life neutralisation reactions • Use your knowledge to name the salt produced in different neutralisation reactions • Write chemical equations for neutralisation reactions • Evaluate separation techniques to determine the best method for collect salts from water • Evaluate your knowledge.		

• 7) Feedback	• Recognise areas of improvement and what went well. • Reflect on your knowledge. • Evaluate your knowledge. • Recognise areas of improvement and what went well. • Reflect on your knowledge.		
<u>Chemistry: D) Real world Chemistry</u> • 1) Chemistry for Fuels • 2 & 3) Renewable Energy • 4) Chemistry & Farming • 5) Chemistry & Plastics	• Apply your knowledge to discuss the process of oil forming • Summarise the process of combustions • Evaluate the use of oil as a fuel • Use your knowledge to describe the formation of bioethanol • Construct the chemical equation for the formation of biofuel • Evaluate the use of bioethanol and its impact on the environment and society • Use your knowledge to discuss the structure and bonding of ammonia • Summarise the process of making ammonia for use in fertilisers • Justify why fertilisers are an important in the UAE and evaluate their use • Use your knowledge to define the term monomer and polymer	• Working scientifically, apply, evaluate • Renewable energy resources in the UAE • Fossil fuels (oil) in the UAE • Plastic production in the UAE	• Guided reading

• 6) Analytical Chemistry • 7) Test • 8) Feedback	• Summarise the process of polymerisation and represent using an equation • Debate the use of biodegradable and non-biodegradable plastics • Use your knowledge to explain how paper chromatography works • Conduct paper chromatography to separate coloured substances • Interpret results of paper chromatography to compare and contrast different inks • Evaluate your knowledge. • Recognise areas of improvement and what went well. • Reflect on your knowledge. • Evaluate your knowledge. • Recognise areas of improvement and what went well. • Reflect on your knowledge.		
Winter Break			