Newport Girls' High School **Y7-11 Learning Overview**

Subject:	Chemistry	Lead Teacher:	Mr R Wright	Year:	10

Curriculum organisation

Chemistry is taught in mixed groups of approximately 30 students for 2 hours per week

Overview of Topics & Key Information

Term	Unit(s) of Work	Key Enquiry Questions	Key Content/ Terminology	Skills developed	How will your child be learning?
Autumn Term	• Quantitative chemistry (2)	• How do you calculate the number of moles of a substance given the mass of that substance? • What is meant by the term limiting reactant? • How is the concentration of a solution calculated? • What is meant by % yield and atom economy?	• Moles • Amounts of substances in equations • Using moles to balance equations • Concentration of solutions • % yield and atom economy • Volumes of gases	• Make and record observations and measurements. • Present observations and data appropriately • Evaluate data to identify sources of error	• Whole class discussion • Pair work • Practical activities • Problem-solving tasks • Watching short video clips • Research tasks
	• Chemical changes	• What is meant by the reactivity series? • How do acids react • What is meant by electrolysis?	• Extraction of metals, oxidation and reduction • Reaction of acids with metals, pH, neutralisation and salts • Electrolysis and half-cells	• Use appropriate techniques, apparatus and materials to carry out practical work safely. • Make and record observations and measurements.	
Spring Term	• Energy changes	• Why are energy changes in chemical reactions important? • What are chemical cells and fuel cells?	• Exothermic and endothermic reactions • Reaction profiles • Cells and batteries • Fuel cells	• Select plan and carry out investigations to test predictions	
	• The rate and extent of chemical change	• What factors affect the rate of chemical reactions? • How do you use collision theory to explain how the various factors affect reaction rates? • What are reversible reactions and what is meant by equilibrium? • How can you predict the effect of changing conditions on the position of equilibrium?	• Rate of reaction • Collision theory and activation energy • Catalysts • Reversible reactions and dynamic equilibrium • The effect of changing conditions on equilibrium	• Use appropriate scientific vocabulary and theory correctly • Describe patterns in data • Make prediction using scientific knowledge and understanding	
Summer Term	• Organic chemistry (2)	• How are carbon compounds used as fuel and feedstock? • What are the reactions of alkenes and alcohols? • What are synthetic and naturally occurring polymers?	• Crude oil, hydrocarbons and alkanes • Fractional distillation • Cracking and alkenes • Alcohols and carboxylic acids • Polymers, amino acids and DNA	• Evaluate reliability of methods and suggest possible improvements	

Equipment needed for lessons	How will learning and progress be assessed?
• Standard school stationery • Exercise book • Calculator	• End of unit tests (subject knowledge focus) • Formal assessment week (May) • Peer and self assessment • Homework tasks • Retrieval practice activities

Extension & Enrichment opportunities	What can you do to support your child?
• Revision guides/cards are available from CGP to help with exam preparation • Suggested websites include https://www.bbc.co.uk/bitesize https://www.freesciencelessons.co.uk/ https://www.physicsandmathstutor.com/ • Podcasts to inspire wider interest https://www.thenakedscientists.com/ https://www.scientificamerican.com/podcasts/ • Work is sometimes taken beyond the limits of the specification in order to provide greater depth of knowledge and understanding of material • Extension tasks are provided within the course which generate greater interest in the subject and help prepare students for A level	• Take an active interest in their learning • Quiz them on what they have learned that day or week • Encourage studying little and often throughout the year with focussed revision leading up to assessments • Work with them to produce a study timetable that is flexible and realistic

Inclusion	
In lessons	**Subject specific**
• Teachers follow student passports to ensure that the needs of all students with SEND are met. • Work is enlarged to the necessary size for visually impaired students. • Teachers will ensure that classrooms are quiet learning environments where possible and will dim lights to support students with sensory needs. • Students have the use of laptop if they have a SEND need whereby use of a laptop supports them. • Hearing impaired students are supported through use a radio aid and teachers ensure that students can lip read at all times during lessons. • Dyslexic students are encouraged to use coloured overlays when they are required to read long passages. • Use of dyslexic friendly fonts and coloured backgrounds used in PowerPoints/resources. • Students with ADHD are given movement breaks, fidget toys and lessons are 'chunked' to aid concentration. • Students are seated according to their needs, students work with the SENDCo to decide upon this.	• For pupils with visual impairment, enlarged graph paper for plotting graphs during experiments • Physical impairment – where possible we amend practical equipment or provide a magnifying glass to view instruments • Hearing impaired – show videos with subtitles • Some laboratories have height-adjustable benches for wheelchair access • Cater for latex allergies by providing disposable gloves

If you have any questions about this Learning Overview, please contact the named Teacher above.