Subject: Science Academic year: 2022-2023

	Year 7	Year 8	Year 9	Year 10	Year 11
Autumn term 1	How Science works **B1** Chapter1: Cells Chapter2: Structure and functions of body system **WS**: Research, Planning, Recording, Analysing data. **BHM - Black Scientists**	**B2** Chapter1: Health and lifestyle Chapter2: Ecosystem processes. Food test practical Ecology practical How science work **BHM- Black Scientists**	**AQA GCSE course** B1: Cell structure and transport B2: Cell division **Required practical** B1.8 **WS**: Research, Identify, Interpret, Analyse, Calculate, Evaluate **Numeracy**: calculations of magnification, surface area to volume ratio. **BHM - Black Scientists**	P.2 Particles at work P.3 Forces in action P.4 Electric Circuits P.5 Electricity in the home **Numeracy**, calculations using physics equations **Required Practical** P2.4 Determining Specific Heat Capacity P2.1 Investigating Thermal insulators P4.3 & P4.6 Resistance P4.4 Electrical Components **BHM - Black Scientists**	B7 Non communicable diseases B8 Photosynthesis B9 Respiration **Practical**- RP B8.2 Effects of light intensity on the rate of photosynthesis **Numeracy**- inverse squares **WS**: Research, Identify, Interpret Analyse, Calculate, Evaluate P8 Forces in Balance **Numeracy:** calculations using physics equations **BHM – Black Scientists**
	Assessment	End of unit tests	End of unit/Past papers	End of unit / past papers	End of unit test / past papers
Autumn term 2	**B1** Chapter2: Structure and function of body systems **C1** Chapter1: Particles and their behaviour	Chapter2: Ecosystem processes Chapter3: Adaptation and inheritance **Numeracy**: Graphs and charts	B3: Organisation and the digestive system. B4: Organising animals and plants. **WS**: Research, Identify, Interpret, Analyse, Calculate, Evaluate **Numeracy**: Charts, graphs, data handling, mean, mode. *National Food around the world- link between the food and national mortality data*	C.4 Chemical Calculations C.5 Making Salts C6 Electrolysis **Required Practical** C5.5 Prepare a salt from an insoluble metal carbonate or oxide C6.4 Investigate the electrolysis of a solution C7.1 Investigating temperature changes P.6 Molecules and Matter Required Practical: P6.1 Calculating Density P.7 Radioactivity	**PHYSICS** P9 Motion P10 Forces and Motion P.12. Waves and Properties P.13. Electromagnetic Waves P.15. Electromagnetism *Muslim scientist: Ibn Firnas* **CHEMISTRY** C12. Chemical Analysis **Required Practical** P10.8 Force and extension spring P10.1 Force and acceleration P12.4 Plane waves in a ripple tank and wave in a solid P13.2 Infrared radiation *Muslim scientist: Ibn al-Haytham*

	Assessment	End of unit & term test	Mid-year exams	Mid- year exams	Mid- year exams
Spring term 1	C1- Chapter1: Particles and their behaviour Chapter2: Elements, atoms and compounds. Science models.	C2 - Chapter1: The periodic table Chapter2: Separation techniques **Practical:** How to use periodic table, Filtration	C1: Atomic structure C2: The periodic table **WS**: Research, Identify, Interpret, Analyse, Calculate, Evaluate **Required practical** C12.2 Periodic table/trends **Numeracy**: Electronic configurations.	B.2 Cell Division B.3 Organisation of The Digestive system B.4 Organising animals and plants **ICT**- Research **WS**: Research, Identify, Evaluate	**CHEMISTRY** Analysis and Earth's Resources C13. The Earth's atmosphere C14. The Earth's resources B10. The human Nervous System **BIOLOGY** B11. Hormonal Coordination *Read article in pubmed.gov* *The position of Islamic tradition on contraception*
	Assessment	End of chapter test		End of unit test/past paper	End of unit test / past paper
Spring term 2	C1 Chapter2: Elements, atoms and compounds Chapter3: Reactions Chapter4: Acids and alkalis **Practical:** Identify acids and alkalis	Chapter2: Separation techniques Chapter3: Metals and acids Chapter4: The Earth **Practical:** Chromatography Student presentations.	C3: Structure and bonding C4: Chemical calculations **WS**: Research, Identify, Interpret, Analyse, Calculate, Evaluate **Numeracy**: Equations and calculations, masses and moles.	B5. Communicable Diseases B6. Preventing and Treating Diseases B7 Non communicable diseases **WS**: Research, Identify, Interpret, Analyse, Calculate, Evaluate **Numeracy:** inverse squares *Muslim Scientist: Al-Zahrawi*	B13. Genetics and Reproduction B14. Variation and Evolution B15.Genetics and evolution Research task Exam practise Essay writing
	Assessment	End of unit and terms test		End of unit test / past paper	End of unit test / past paper exam
Summer Term 1	P1 Chapter1: Forces Chapter2: Sound **Numeracy**: Identify, Evaluate	P2 Chapter1: Electricity and magnetism Chapter2: Energy Food and fuels (Practical) How machines work	P1: Conservation and dissipation of energy P2: Energy transfer by heating. **WS**: Research, Identify, Interpret, Analyse, Calculate, Evaluate **Numeracy**: Rearranging the equations and %. **Required practical** P2.1 Thermal insulators P2.4 Specific heat capacity	B8 Photosynthesis B9 Respiration **Required Practical** B8.2 Investigating light intensity on the rate of photosynthesis **Numeracy**: calculations using physics equations **WS**: Research, Identify, Interpret, Analyse, Calculate, Evaluate	B16. Adaptation B17. Organising an ecosystem B18. Biodiversity and ecosystem **Required Practical**: Quadrat sampling Research task Exam practise Essay writing Revision
	Assessment	End of topic tests	End of unit/past paper	End of unit / past paper	

Summer Term 2	P1 Chapter3: Light Chapter4: Space Research, presentations	Chapter2: Energy Chapter3: Motion and pressure Speed practical.	P3: Energy resources P4: Electric circuits.	C7 Energy Changes C8 Rates and Equilibrium C9 Crude oils and Fuels **ICT**- Research Model Making	GCSE exams
	Assessment	**End of year exams**	**End of year exams**	**End of year exams**	

Cross curricular links		
Year 7	**Year 8**	**Year 9**
Maths: calculations, formulae (current=potential difference/resistance, power= energy/time), work done=force x distance, graphs (draw the line and curve of best fit) and measurements. Work done, Force, Resistance. **ICT**: excel, data collection and manipulation, presentations, word processing, internet research, e-safety **PSHEE**: Recycling, global warming, energy in food and health and fitness **English**: comprehension, research, presenting, group discussions, writing reports and for different audiences.	**Maths**: calculations, formulae (speed=distance/time, average speed calculations, Pressure= force/area) , graphs (draw the line and curve of best fit and measurements. Speed, charges, Potential difference. **ICT**: excel, data collection and manipulation, presentations, word processing, internet research, e-safety **PSHEE**: Recycling, global warming, energy in food and health and fitness. Drug and Alcohol abuse, Contraception **English**: comprehension, research, presenting, group discussions, writing reports and for different audiences.	**Maths**: calculations, formulae, graphs (draw the line and curve of best fit) and measurements (surface area, volume, magnification, moles, charge, resistance). Energy, Power, Current, Charges, Potential difference. **ICT**: excel, data collection and manipulation, presentations, word processing, internet research, e-safety **History**: History of the atom, periodic table and evolution and genetics. Rutherford, Newton, Mendeleev, Darwin **English**: comprehension, research, presenting, group discussions, writing reports and for different audiences.
GCSE Biology	**GCSE Chemistry**	**GCSE Physics**

Release of energy in respiration is an important fact in sport, as is diet and digestion. Links to food tech when teaching diet and digestion **Maths**: calculations, formulae, graphs and measurements (quadrat sampling, volume, surface area, magnification) **Physics**: energy in food. **PSHE**: Drug and Alcohol abuse, contraception, infertility treatment, Healthy Eating **History**: Discovery of DNA and the nobel prize, antibiotic (Flemings), microorganism (Semmelweis, Snow and Pasteur), Darwin and genetics **PE**: respiration, health, and fitness **RS**: contraception, pregnancy, and abortion.	**PSHEE**: Recycling, global warming, energy in food and health and fitness. E-safety, acid rain and reaction with rocks. Hydrogen fuel and environment. careers, awe etc **Biology** Natural Polymers, DNA, mutations and disease. Eutrophication and Haber process, combustion, fuels and food. **History**: Franz Haber and ammonia, history of the universe and earth, Big Bang, history of the Earth and Universe, life on earth. **Geography**: Seismic waves and links to geography in terms of structure of the earth and rocks and Global warming **Physics**: Atoms and nuclear energy, energy in fuels, fuel and energy transfer, Rutherford experiment. **Maths**: calculations, formulae, graphs and measurements. (moles, density, volume, surface area, endothermic/ exothermic bond breaking/making) **ICT**: excel, data collection and manipulation, presentations, word processing, internet research, e-safety. **RS**: natural disaster, evil and suffering	**PSHEE**: Nuclear energy debate, reaction time and effects of alcohol and car safety. E-safety. **Biology**: adaptation and heat transfer, Blood pressure, specific heat capacity of water **Art**: colour and light **History**: Isaac Newton, Roentgen and X-rays **Maths**: calculations, formulae, graphs and measurements, speed, acceleration, pressure, vectors or forces, density. **ICT**: excel, data collection and manipulation, presentations, word processing, internet research, e-safety. Optical fibres and communication. **Chemistry**: Rutherford experiment, nuclear physics **RS**: philosophy, Expansion of the universe and design argument.