



Middlewich High School Science Department – 5 Year Curriculum Intent

Science Curriculum	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 7	Introduction to Lab Safety We learn how to operate safely in the lab, a very different classroom to any you have been in before! Organisms Part 1 Discover cells, and how our body works	Matter Part 1 What is everything made of? How do substances change state and how do we separate particles?	Forces part 1 Understand balanced and unbalanced forces Genes Part 1 The variety of life on earth is huge. What determines why organisms are all so different?	Reactions Part 1 Test for acids and alkalis and learn what happens when metals react	Electromagnets Part 1 & 2 Explore how electricity powers our world Energy Part 1 Discover how food and fuel are used to provide energy	Ecosystems Part 1 Appreciate how organisms depend on one another and the environment for survival
Year 8	Earth and Space Part 1 Marvel at what is inside the earth, and what is in our galaxy and beyond.	Waves Part 1 & 2 How do sound and light travel and how can we detect them?	Organisms Part 2 Learn more in depth how our organs function to keep us alive	Forces Part 2 Develop your understanding of forces by investigating contact and non-contact forces	Matter Part 2 What is the periodic table and why is it so fundamental to Chemistry? We discover the importance of elements, atoms and compounds	Ecosystems Part 2 Develop your understanding of biochemistry and the fundamental processes of life – respiration and photosynthesis
Year 9	Reactions Part 2 In what ways can chemicals react with each other? Energy Part 2 We investigate how energy is used to power machines and how heat energy is transferred	Genes Part 2 DNA is the universal symbol of Biology – but what is it and why is it so important in driving evolution?	Earth Part 2 Gain a deeper understanding of our climate, and how we use the Earth's resources End of KS3	B1 - Cell Biology What is inside our cells and how do they keep us alive?	C1 - Atomic Structure Everything is made of atoms – but what are atoms made of?	P1 – Energy What are renewable and non-renewable types of energy?
Year 10 Biology	B1 - Cell Biology Developing our understanding of cells further, we look at how cells replicate and how substances move into and out of cells	B2 - Organisation Discover more about how organs in animals and plants work together to function	B2 – Organisation Discover how non-communicable diseases affect our bodies	B3 - Infection and Response How does our body defend itself against disease?	B4 – Bioenergetics Deepen your knowledge of biochemical processes inside cells	B7 – Ecology All species live in interdependent communities and are adapted to particular conditions
Y10 Chemistry	C2 - Structure and Bonding Chemists use theories of structure and bonding to explain the physical and chemical properties of materials.	C3 - Quantitative Chemistry Chemists use quantitative analysis to determine the formulae of compounds and the equations for reactions	C3 - Quantitative Chemistry Chemical equations represent chemical reactions and are a key way for chemists to communicate chemical ideas.	C4 - Chemical Changes Knowing about different chemical changes means scientists can predict what new substances can form and use this to develop a range of different materials and processes.	C5 - Energy Changes Energy changes are an important part of chemical reactions. The interaction of particles often involves transfers of energy due to the breaking and formation of bonds	C6 – Rate and Extent of Chemical Change Whilst the reactivity of chemicals is a significant factor in how fast chemical reactions proceed, there are many variables that can be manipulated in order to speed them up or slow them down

Y10 Physics	P1 – Energy Building on our previous knowledge of energy, we learn to calculate how much energy objects have	P2 – Electricity Understanding the difference in the microstructure of conductors, semiconductors and insulators makes it possible to design components and build electric circuits.	P3 – Particle Model of matter The particle model is widely used to predict the behaviour of solids, liquids and gases and this has many applications in everyday life.	P4 - Atomic structure Although radioactivity was discovered over a century ago, it took many nuclear physicists several decades to understand the structure of atoms, nuclear forces and stability.	P5 – Forces Engineers analyse forces when designing a great variety of machines and instruments, from road bridges and fairground rides to atomic force microscopes.	P5 – Forces Recent developments in artificial limbs use the analysis of forces to make movement possible.
Year 11- Biology	B5 - Homeostasis and Response Humans can only survive within narrow physical and chemical limits – how do we control this?	B6 - Inheritance, Variation and Evolution Understand how mutations in our DNA are the driving force behind natural selection.	Revision	Revision	Revision – final GCSE exams begin	
Year 11- Chemistry	C7 - Organic Chemistry The chemistry of carbon compounds is so important that it forms a separate branch of chemistry. C8 - Chemical Analysis Analysts have developed a range of qualitative tests to detect specific chemicals.	C9 - Chemistry of the Atmosphere The Earth’ s atmosphere is dynamic and forever changing C10 - Using Resources Industries use the Earth ’ s natural resources to manufacture useful products	Revision	Revision	Revision – final GCSE exams begin	
Year 11- Physics	P6 – Waves Wave behaviour is common in both natural and man-made systems	P7 - Magnetism and Electromagnetism Electromagnetic effects are used in a wide variety of devices.	P8 - Space Physics (Separate Science Only) In the past century, astrophysicists have made remarkable progress in understanding the scale and structure of the universe, its evolution and ours. Revision	Revision	Revision – final GCSE exams begin	