Westfield Academy - Curriculum Information

In year 10 your child will begin GCSE content.

Science

Head of Department	Ms Zainab Khan & Mr Benjamin Waite
Head of Department email	ZKH@westfield.academy BWA@westfield.academy
Lessons per 2 week cycle	8 lessons
Specification/Board details/Key stage	AQA Combined science KS4

WESTFIELD ACADEMY
believe | strive | achieve

Term by term

Autumn 1	Autumn 2	Spring 1
Yr10 – Cell biology & particle model	Yr10 –Electricity & Infection and response	Yr10 – Atomic structure (radiation) & Quantitative chemistry
Spring 2	**Summer 1**	**Summer 2**
Yr10 – chemistry of the atmosphere & Organic chemistry & Waves	Yr10 – Using resources + ecology	Yr10 Mock preparation

Key Skills developed	**Biology**: Students learn about cells. They will develop their KS3 knowledge further looking at the three ways molecules move (diffusion, osmosis, active transport). Student will perform a microscopy investigation and they learn about exchange surfaces. They also learn how cells differentiate from stem cells and how this might be useful technology for medicine in the future. Students study infection and response. They develop their understanding of different pathogens and their effects on the body. They learn how we develop immunity to pathogens and how drugs are tested and developed. Students learn how ecosystems are arranged. They give examples of biotic and abiotic factors. Students learn adaptations of cold and hot climate animals. Students

	perform a field investigation and learn how to estimate a population. **Chemistry**: Students earn about the composition of the atmosphere. They can explain how harmful pollutants are generated and the consequences of those harmful pollutants. Student develop their understanding of how the composition of the atmospheric gases evolved over time. Students study in quantitative chemistry the concentration equation and how to manipulate it. Higher tier students learn about the mole and develop its use to become proficient with a number of calculations. Student learn about hydrocarbons and how they are separate from crude oil. They learn how hydrocarbons are cracked to produce shorter chained hydrocarbons for fuels. **Physics**: manipulate the density equation to find mass and volume, explain how to calculate density of irregular shaped objects, calculate the specific heat capacity, explain how substances change state. Students learn what the magnetic field of a magnet looks like and how to investigate it. They learn how to create an electromagnet and factors that affect the strength of the electromagnet. Students study waves. They develop their understanding from KS3 on transverse and longitudinal waves and their properties. They use the wave equation to calculate wave speed. They learn about electromagnetic radiation and their uses in communication. Students develop their understanding of KS3 electricity. They will draw circuits and understand components as well as the difference between series and parallel. They investigate the differing component characteristics. Student also learn about efficiency of the national grid and electricity in the home. Students will also study atomic structure as it relates to radiation. They will learn that some atoms are unstable and how they gain stability. They learn about half life and how it is calculated.
Useful Websites	Senecalearning.com BBCbitesize.co.uk Carousel learning kuizical.com Physics and maths tutor Freescience lessons or Cognito *YouTube channels
Reading/Literacy requirements	In our curriculum we have in-house textbooks which students can take home for revision. Keywords or phrases

/Key Words	are highlighted and/or underlined so students know what terminology they should be prioritising.
Homework requirements	Teacher will post weekly homework tasks using *seneca-learning* or *carousel-learning* websites
Personal Development Links	An example of how Science contributes to Personal Development is by encouraging our students to have a growth mindset and attempt all tasks to the best of their ability. We also have a number of schemes of learning linking to topics on the PD curriculum; one example is when we study chemistry of the atmosphere. We look at the consequence of pollution on human health. In the energy topic we discuss renewable vs non-renewable forms of energy generation. In the ecology topic we learn about the carbon cycle, global warming, biodiversity and water and land pollution. These topics lead to positive student discussions. We promote equality and diversity by exposing students to famous scientists of different genders and ethnicities throughout our curriculum.
Trips/Visits (If applicable)	Kings college London lab visit Women in Physics tournament