



# SCIENCE

## INTENT

The Science curriculum ensures that children develop a curiosity and love of the world around them through offering a range of practical and theoretical learning. Pupils will understand the scientific problems facing the modern world and learn how to develop their scientific enquiries through their own and taught knowledge.

We aim to:

- excite and inspire pupil through practical lessons
- develop and understand a range of knowledge through the topics of biology, chemistry and physics
- ensure pupils have the scientific knowledge to use in the world today and the future

At KS3 we ensure that we build on the scientific knowledge and concepts taught in KS2. We develop the pupils' understanding of how to work scientifically in the following areas:

### Biology

- Structure and function of living organisms
- Material cycles and energy
- Interactions and interdependencies
- Genetics and evolution

### Chemistry

- The particulate nature of matter
- Atoms
- Elements and compounds
- Pure and impure substances
- Chemical reactions
- Energetics
- The periodic table
- Materials
- Earth and atmosphere

### Physics

- Energy
- Motion and forces
- Waves
- Electricity and electromagnetism
- Matter
- Space physics

In KS4 we follow the AQA combined science: trilogy. There are six written papers: two biology, two chemistry and two physics. Each of the papers will assess knowledge and understanding from distinct

topic areas covered throughout KS4. Each written paper is 1hr 15mins. The pupils' final Double award (eg 9-9, 9-8). is based on the total across all six papers.

## **IMPLEMENTATION**

Subject specialists have given consideration and thought to the sequence and rationale of the curriculum; why we teach the content we do and in the order that we do. This is to ensure knowledge is not isolated information; it is connected knowledge that enables comprehension.

At Key Stage 3, the full National Curriculum is delivered. The Science curriculum is organised into topics. Each topic builds on prior knowledge allowing connections to be made and enables knowledge to be transferable. In Science we believe this facilitates deeper comprehension. The topic content taught is chosen so lessons focus on developing deeper understanding and capacity for skilful performance.

At Key Stage 4, the full AQA Combined Science and separate Biology, Chemistry and Physics specifications are delivered. Content is structured into topics. The curriculum is designed to ensure students can demonstrate knowledge and understanding of:

- scientific ideas
- techniques and procedures,
- apply their knowledge and understanding of these scientific principles and analyse information and ideas to interpret and evaluate
- make judgments
- draw conclusions,
- develop and improve experimental procedures. Each lesson builds on prior learning,
- allowing connections to be made between content Units have been organised and designed to promote learning and provide depth and breadth of understanding

## **IMPACT**

In 2024, 100% of students achieved Grade 4 and above with 50% of students achieving Grade 5 and above. The course will cover a wide range of topics and will help to build skills and knowledge that will enable students to understand the living, material, and physical worlds, as well as a multitude of transferable skills that are invaluable for numerous routes post GCSE.

## **EXAMINATION**

AQA GCSE Combined Science: Trilogy (8464) Six papers - 75 minutes - all of equal weighting: two in each of Biology, Chemistry and Physics. Assessment is by 100% final examination.

## **HOW ARE STUDENTS SUPPORTED IN Science?**

Students at MEPA Academy are supported through a range of reasonable adjustments personalised to the student. The reasonable adjustments include but are not exhaustive to: providing templates for graph, tables, grids to students, use of Pencil grips/Easy Writer pens and pencils, scribing for students, providing extra time, use of writing slope, effective and appropriate seating, directed questions, use of Rest/calm/movement breaks. Teachers use a range of reasonable adjustments for each student to maximise their opportunities to learn.

## **EXTRA CURRICULAR AND ENRICHMENT**

To Read

- Horrible Science Book Series
- Our Planet: The official children's companion to the Netflix Documentary Series by Matt Whyman
- Guardians of the Planet: How to be an Eco-Hero. By Clive Gifford

- Kay's Anatomy: A Complete Disgusting Guide to the Human Body: A complete ( and Completely Disgusting) Guide to the Human Body. By Adam Kay
- Outdoor Maker Lab – Exciting Experiments for Budding Scientists. By Robert Winston
- Home Lab: Exciting Experiments for Budding Scientists. By Robert Winston
- Science Lab – Fantastic Projects for Young Scientists. By Robert Winston
- Earth Heroes: Twenty Inspiring Stories of People Saving our World. By Lily Cyu
- Newsround Science and Nature: <http://www.bbc.co.uk/newsround/15743115>
- BBC Science Twitter: <https://twitter.com/bbcscienceclub?lang=en>

To Listen

Podcasts:

- Brains on!
- Science Talk Radio
- Tumble Science Podcast for Kids
- The Show about Science
- BBC Science Podcasts
- To Watch
- Science Fair (Disney plus)
- Our Planet – David Attenborough (Netflix)
- Weird but True! (Disney plus)
- Climate Change the facts – David Attenborough (BBC iPlayer)
- Before the Flood – National Geographic (Disney Plus)
- To Visit
- Eureka Science Club! Tuesdays at 330 in Ag3.
- Natural History Museum – London
- Science Museum – London
- Port Lympne Zoo
- Howletts Wild Animal Park
- Royal Observatory Greenwich

### **SPIRITUAL, MORAL, SOCIAL AND CULTURAL AWARENESS AND LEARNING**

Understanding our environment, it's a Green World, natural resources, earth science, ecosystems, interdependence, medical ethics

### **CAREERS RELATED LEARNING**

Science has its obvious career links in the scientific world but also close links to working within specialist professional organisations like the NHS. However, science has many transferable skills including those involving analysis and critical thinking