Implementation: Curriculum Narrative

Subject: Science	*Year: 9*	*Author: MDO*

Key Knowledge *Pupils will know*	**Key Skills** *Pupils will be able to*
Key Threshold Concepts: **Application of Knowledge and moving to from Key Stage 3 to GCSE** • **Growth: The cell cycle. The life processes of osmosis, active transport and diffusion.** • **Organ Systems: Cells into tissues and organs, and how they work effectively to support life processes in animals and plants.** • **Human interaction: The effects of humans on the natural world and how the natural world effects humans.** • **Periodic Patterns: The nature of atoms and how scientists have used evidence to develop theories over time.** • **Matter and Energy: Conservation of mass and reaction energy.** • **Using resources: metal Reactivity and lifecycle analysis.** • **Acceleration: using ideas about forces to introduce the three laws of motion** • **Heating: revisiting the concept of energy and beginning to quantify energy transfers using experimentation and calculation.** • **Waves: how waves transfer energy from place to place, and how this has been used by humans.**	**Subject Skills:** **Application of Skills and moving to GCSE** • **Understand key scientific principles that underpin understanding of the natural world.** • **Learn key facts about science, and apply them to familiar and unfamiliar situations.** • **Understand that scientists use evidence to make judgements and assess reliability of theories.** • **Use experiments to ..** • **Develop understanding of the scientific approach to enquiry.** • **Develop knowledge and understanding of the natural world.** • **Learn how to use laboratory equipment and carry out standard procedures**

Subject Specific Knowledge and Sequencing:	Prerequisites and Spiral Teaching:
• Students should have a solid grounding of these concepts from Key Stage 2 and 3. • However misconceptions are likely to remain from students formative experiences – in some cases misconceptions are formed from preschool activities. • Teachers will check for misconceptions and ensure that the critical ideas of cells, particles and energy are fully understood before moving on.	• An understanding of cells is critical for a good understanding of the biology topics in year 9. • The chemistry topics use ideas about particles and energy gained in Year 7. • Waves and Energy are powerful ideas in Physics. Students are encouraged to apply their knowledge to help broaden their understanding of physics topics studied in year 8. • Students will continue to have misconceptions about core concepts- teachers will watch for and challenge these.

Cross-Curricular Knowledge Links:

The Year Nine Science Curriculum uses and supports knowledge from other curriculum areas. Examples of this include, but are not limited to:

- *English –subject specific vocabulary and the skills needed to decode unfamiliar words.*
- *Maths – The use of calculations and graphs to process and explain data.*
- *Technology – the properties of materials and the understanding and explanation of forces.*

Teachers will take every opportunity to link learning to students' everyday experiences, and support them in making decisions that have an impact on their lives. An example of this would be the use of vaccinations and the study of lifestyle diseases by clinicians.

Reading Lists / Sources / Reading around the subject recommendations:

A good resource to use is BBC Bitesize (https://www.bbc.com/bitesize/levels/z4kw2hv). It has activities, videos and quizzes on all the ideas studied in Year 9.

For GCSE material https://www.bbc.co.uk/bitesize/subjects/zrkw2hv