



Scheme of Learning Title: Cell Structures		Year 9:	
Learning Outcomes	Subject content:	Skill set:	
	Knowledge and understanding of - the main features of the particle model in terms of states of matter and change of state - the distinction between physical changes and chemical changes - the limitations of the particle model	- to visualise and represent 2D and 3D forms including two dimensional representations of 3D objects - to understand how scientific methods and theories develop over time use models to solve problems, make predictions and to develop scientific explanations and understanding of familiar and unfamiliar facts - to explain the power and limitations of science - to observe changes of state with comparison to chemical changes	
Key Question		How are particles arranged in different states of matter? What is an element? How is the atom structured?	
Knowledge	Key concepts and skills	Key terminology	
	- What are particles? - What is the Particle Model? - To identify chemical and physical change - To identify how the particles change – in structure or arrangement - Appreciate the size of an atom - Identify limitations of the Particle Model - What are atoms and molecules? - What is inside an atom? - To identify the type and number of subatomic particles in an atom - To identify isotopes - To identify ions	➤ Particles ➤ Chemical change ➤ Physical change ➤ Limitations ➤ Protons ➤ Neutrons ➤ Electrons ➤ Atoms ➤ Isotopes ➤ Models ➤ Nanometer	

NHSG Key Stage 3 Unit Overview for C1 Particles



	To appreciate the Scientific Model and the role of Dalton, Thomson, Rutherford and Bohr.	
Ongoing Assessment	Retrieval questions at the start of every lesson. These questions refer to previous knowledge of atoms, elements and compounds from Y7 and 8 which will help them develop further knowledge in Y9. Assessment in the form of questions and tasks in the topic book, including ➤ Balancing equations ➤ MCQ practice ➤ Orders of magnitude ➤ Particles in atoms ➤ Electronic structure Key misconceptions: ➤ Particles change shape in physical change ➤ All sub-atomic particles are the same size and charge ➤ Scientists work alone in isolation to make discoveries Homeworks: ➤ Orders of magnitude worksheet ➤ Three states of matter worksheet 1.1.2 ➤ Complete the key terms ➤ The Atom worksheet ➤ Exam style questions Revision checklist: Specification used as revision checklist in front of topic booklet. Knowledge organisers review topic on one page.	
Final Assessment	Practical assessment: Class practical to identify chemical and physical change, personalised feedback and safe practice and accurate use of equipment. End of topic test. Closed book 30 marks in 30 minutes.	

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	Test will assess key skills and content from specification of this unit, using past GCSE style questions. The test includes multiple choice questions, practical knowledge question and mathematical application. This is an in-class assessment which will be marked by teachers and feedback provided in the form of next steps which students will respond to. Data is analysed and a colour is given based on the spread of grades outlined in the T&L policy.
Content	This is the first Chemistry topic in Y9 KS4. It recaps and builds upon some of the concepts covered at KS3 such as particles, Particle Model, Elements, compounds and mixtures. The concepts from this topic will be built upon in future Y9 topics such as C2 Elements, compounds and mixtures and C3 Chemical reactions. The concepts from this topic also underpin many topics throughout the GCSE and A-level Chemistry.
Careers	Opportunities to discuss the life of a research scientist, especially during the late 19th and early 20th century. Why the dominance of men?
Diversity and Inclusion	Celebrating women in Science: LISE MEITNER, (1878- 1968). Meitner was an Austrian physicist who co-discovered nuclear fission, the process whereby an atom's nucleus is split, producing two different nuclei and releasing huge amounts of energy. Meitner worked in Berlin until 1938, as a Jewish woman she was forced to flee Nazi Germany for her own safety. She continued her work in Sweden. Until recently, Otto Hahn was accepted as the sole discoverer of nuclear fission. Though Nobel Prizes cannot be awarded posthumously, in 1992 element 109 was named 'meitnerium' in Meitner's honour.
Support	Every student receives topic booklets including specification. Knowledge Organiser shared. Retrieval questions available for the start of each lesson. Remote Learning Guide for each lesson is available on SharePoint with links to Bitesize videos. OUP GCSE Chemistry textbook on Kerboodle for all. Chemistry Drop-in club for support – voluntary and guided intervention. Some students will be provided with CGP revision guides and workbooks.
Challenge	2 Zigzag Stretch and Challenge Articles with questions to go alongside are provided at the back of the topic booklet: Elements (and Compounds) of Life Aurora Borealis

