



Scheme of Learning	Y8 Chemistry: Metals and the reactivity series
Learning Outcomes	1. Describe properties of metals and non-metals 2. Explain how to distinguish between metals and non-metals 3. Investigate the reaction between metals and oxygen 4. Investigate the reaction between metals and water 5. Investigate the conditions needed for rusting of iron 6. Investigate the reaction between metals and acids 7. Explain why metals have different reactivity 8. Investigate displacement of metals 9. Predict the order of reactivity and hence reactivity series of metals 10. Explain how a pure sample of metal can be obtained from its oxide 11. Explain how the extraction method depends on the reactivity of the metal 12. Relate the physical and chemical properties of metals to their uses
Key Question	How are chemical reactions used to determine the order of reactivity of metals?
Knowledge	Learn that metals and non-metals have different properties which determine their uses Learn that not all metals react in the same way Develop practical skills by carrying out several different reactions of metals Key terminology: Reactivity series, Order of reactivity, Corrosion, Displacement reactions
Ongoing Assessment	Retrieval questions at the start of every lesson. Worksheets for all major concepts to be used for self and peer assessment. Homework set to consolidate learning as the topic progresses Revision checklist at beginning of handout pack and revision worksheets at the end.
Final Assessment	End of topic test, 30 marks in 35 minutes. Including a mixture of MCQ, short answer and long answer questions.
Content	This unit introduces pupils to the reactivity series of metals by carrying out a series of reactions of metals and using their results to determine the order of reactivity of metals There is time to develop safe and effective practical skills in this topic – with an aim to have confidence in handling laboratory equipment correctly. There are many opportunities to build on skills of word and symbol equations – a key chemistry skill. This topic lays the foundation for work on ‘predicting chemical reactions’ in GCSE Chemistry unit 4.1 and ‘improving processes and products’ GCSE unit 6.1
Link to careers	Use of the reactivity series to determine a method for extraction of metals from their ores.

NHSG Key Stage 3 Unit Overview for Y8 Chemistry: Metals and Reactivity



	Geology, geopolitics and mining industries use these principles. Industrial chemists and chemical engineers need a deep knowledge of the reactivity series, to extract metals efficiently, with minimal energy input and a low carbon footprint.
Diversity and Inclusion	History of Iron pillar in Delhi, India – a 4th century rust-resistant structure. Discussion – the pillar has attracted the attention of archaeologists and materials scientists because of its high resistance to corrosion and has been called a "testimony to the high level of skill achieved by the ancient Indian iron smiths in the extraction and processing of iron". The corrosion resistance results from an even layer of crystalline iron(III) hydrogen phosphate hydrate forming on the high-phosphorus-content iron, which serves to protect it from the effects of the Delhi climate.
Support	Learning checklist and key terminology are highlighted throughout. Online textbook via Kerboodle includes working scientifically, glossary and literacy support. Adaptive teaching in the classroom supports all learners.
Challenge	Stretch and challenge question on end of topic test to encourage students to apply their knowledge in new and challenging situations. Discussion point – linking to geography and geopolitics as large international mining companies buy up land to extract resources. For example Australia has a large mining industry but has now limited the percentage of land that can be owned by overseas industries. Ethics question – should Australian Aboriginal land be protected from mining industries? Link – terminology used in the popular game – Minecraft.