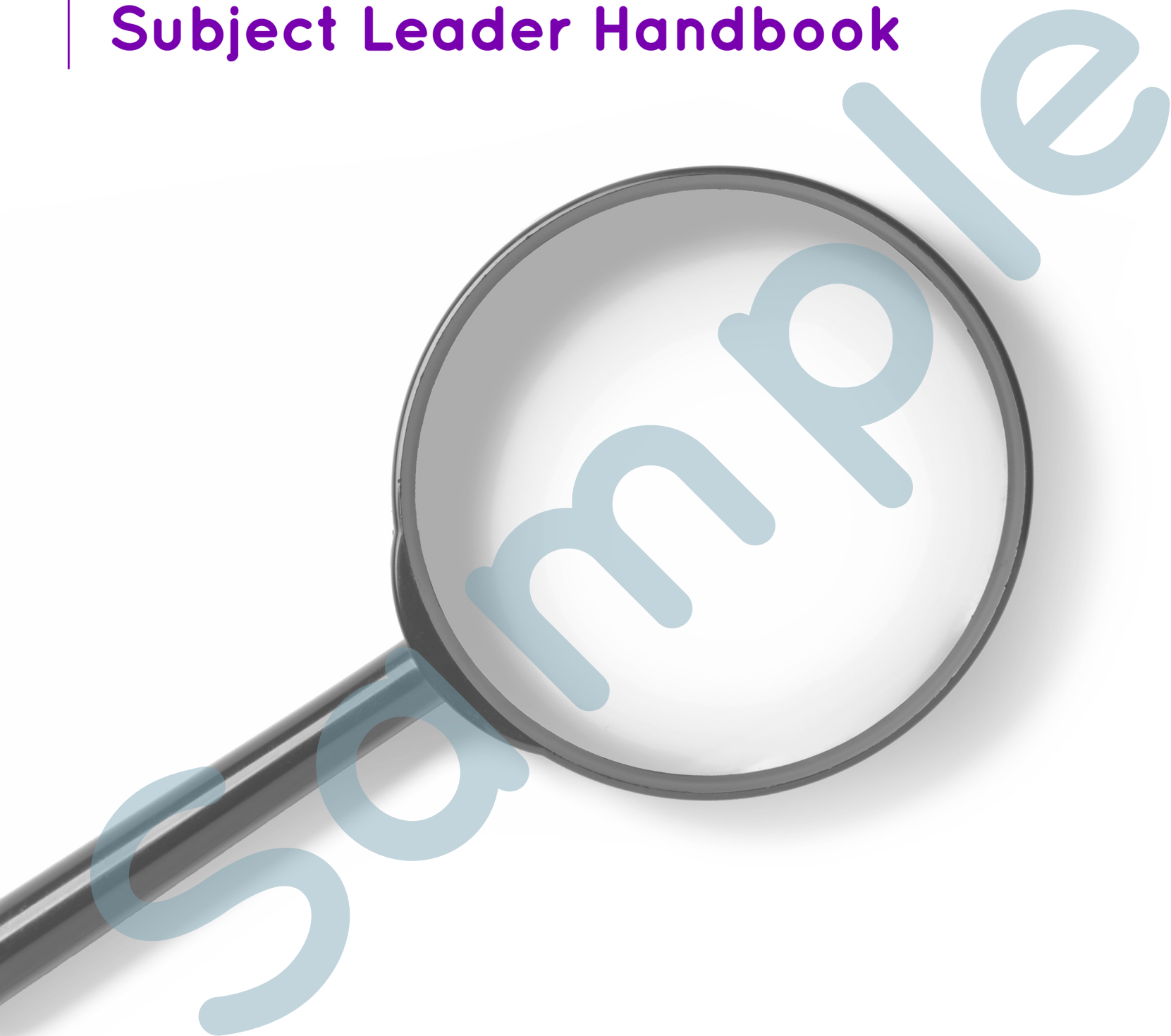


THE EDUCATION
PEOPLE

Primary Science
Scheme of Work

Subject Leader Handbook



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Rationale

This scheme of work was reviewed and updated in line with research from the worlds of science education and cognitive science to ensure it meets the requirements of the Education Inspection Framework and National Curriculum.

The national curriculum for science aims to ensure that all pupils:

- develop scientific knowledge and conceptual understanding through the specific disciplines of biology, chemistry and physics
- develop understanding of the nature, processes and methods of science through different types of science enquiries that help them to answer scientific questions about the world around them
- are equipped with the scientific knowledge required to understand the uses and implications of science, today and for the future

In line with the aims of the National Curriculum, this scheme of work will give pupils the opportunity to learn about the products of science so that they can explain the material world and 'develop a sense of excitement and curiosity about natural phenomena' (National Curriculum). Pupils will also learn about the practices of science so that they know how scientific knowledge becomes established through scientific enquiry. Through this programme of study, pupils will combine these two distinct types of knowledge to ensure their substantive and disciplinary knowledge are building with context and purpose.

Knowledge and skills in this scheme of work have been carefully sequenced across units and years because we know that, 'when knowledge is well structured, it becomes meaningful, flexible and easier to access. This knowledge can then be used to solve complex, and interesting, scientific problems without overloading working memory' (Ofsted research review series: science). Within this scheme of work, therefore, sequential component knowledge is clearly broken down into steps and composite tasks outlined through which pupils will embed that knowledge. Although they are taught together, there is clarity about which knowledge is disciplinary and which is substantive.

Revisiting prior learning and carrying out retrieval practice is an important aspect of learning and will support pupils to commit their knowledge to their long-term memory. This scheme of work, therefore, outlines for each unit the prior knowledge that pupils will need to inform this unit.

'In science, pupils need their knowledge to be organised around the most important scientific concepts, which predict and explain the largest number of phenomena' (Ofsted research review series: science). Therefore, within this scheme, **ten big ideas** have been identified, underpinned by key concepts. As they move through this scheme of work, pupils will build comprehensive schemata for each of these big ideas so that new knowledge connects with prior knowledge and can be committed to the long-term memory.

This scheme of work makes the distinction between substantive and disciplinary knowledge and ensures that pupils use these side by side to develop expertise, apply and make sense of the knowledge learnt and understand how the knowledge developed and became accepted:

- **substantive knowledge** (knowledge of the products of science, such as concepts, laws, theories and models): this is referred to as scientific knowledge and conceptual understanding in the national curriculum