

St Mary's University

Research & Literature Summary

Title and Author

Ofsted Science Research Review (2021)

<https://www.gov.uk/government/publications/research-review-series-science/research-review-series-science>

Summary

- The review highlights the national context of science education, the factors that can impact the quality of science education and explores factors such as curriculum, pedagogy, assessment and leadership.
- EYFS: foundational knowledge developed through gaining understanding of the world, building vocabulary and learning basic science concepts.
- Primary: concern that science is being 'squeezed out' of the curriculum alongside the removal of statutory testing in this subject, finding that science is taught less in younger year groups and only a third of leaders view science as a very important subject (disproportionate amount of time spent on maths and English).
- Secondary: students sitting for qualifications in science (GCSE, EBacc, A Level) is encouraging, however many pupils still leave school without a desire or value for science, consideration that the choice to study science comes too early, disadvantaged pupils are disproportionately impacted in this subject.
- Importance of interplay between disciplinary and substantive knowledge highlighted by the report and careful sequencing of knowledge to promote learning at all phases of education.
- Consideration of connections between maths and science should be considered to scaffold learning and application in science.
- Misconceptions are an essential consideration in the effective teaching of science and should be a priority for teachers as these can have a significant impact on learning.
- Emphasis on the importance of practical work, teacher demonstrations, teacher-directed instruction, enquiry-based teaching, using talk in science learning and effective assessment in this subject.
- In summary: "A high-quality science education is rooted in an authentic understanding of what science is."
- What you learn is affected by how you learn it and this forms an important aspect of the delivery of this subject.

Key Considerations for Practice

- Teachers must consider how they plan and deliver this subject to promote engagement and enthusiasm in this subject, as there are many factors that can impact a pupil's desire to continue their learning in science.
- Time and priority are two important considerations for schools to promote the value of this subject in the curriculum and ensure that it is able to be taught to a high standard across phases.
- Factors that can affect the learning of substantive and disciplinary knowledge must be considered carefully to ensure that all learners are afforded the opportunity to make progress in this subject?

Prompts for Professional Dialogue and Reflection

- What are your observations of science learning in your context?
- To what extent does this report resonate with your observations in your setting?
- What is the impact of the way the subject is taught on learners?

- How is science taught in your setting and when do you see it being most effective? Why?
- What areas for development exist in the teaching of science and how could these be addressed?

