

Position Statement

The identity of chemistry as a discipline in the curriculum

Last reviewed: May 2019

Summary

All learners should gain an understanding of the nature of chemistry by the end of compulsory schooling. To this end, documentation setting out intended curricula at state level should define and describe chemistry as a discipline, encouraging teachers to pass on that understanding.

Curricula should additionally demonstrate the links and overlaps between chemistry and other subjects, including how scientific and other disciplines can work together to solve problems.

Key recommendations

- **The label ‘chemistry’ should be used in curricula for all stages of education** to identify related content. This demonstrates to teachers how curriculum content is related to the discipline and how ideas progress through the stages of education.
- **Learners should study chemistry as either a separate subject or an identifiable component of a combined subject** in the course of secondary education, and before the end of compulsory learning of the sciences. At earlier stages of education (primary, and potentially initial years of secondary) it is normal and appropriate for teaching of sciences to be combined; learners need not be aware they are studying ‘chemistry’ at this stage.
- From the point that chemistry is taught as an identifiable discipline, it **should be taught by teachers with appropriate disciplinary expertise**.
- **Curricula should additionally make clear where chemistry shares substantive and disciplinary knowledge with other sciences**. Curricula should support an understanding of how the viewpoints offered by different disciplines can be brought together.

Rationale

Chemistry, like other sciences such as biology and physics, is a well-defined discipline, providing a distinct way of understanding the material world. Understanding in any discipline is supported by a coherent and deep understanding of the principles at its heart. Learners are supported in their understanding by being taught in a disciplinary context for at least some of their education. From that foundation, useful connections can be made to other sciences and beyond, allowing appreciation of the interconnectedness of chemistry and the multidisciplinary nature of many modern issues and advances.

We see the continued existence of post-16 qualifications, university degrees and learned societies in the sciences identified through the names of core scientific disciplines. Even where degrees in the sciences are broader (eg Natural Sciences or Integrated Science), these are generally taught as a collection of specified subjects with specialisation over time. Explicitly recognising scientific disciplines at school level is imperative in allowing learners to make informed choices about further study and careers – they need to know whether they find the subject interesting, useful and enjoyable.

School-level curricula that blur or disregard the identities of the sciences up to the point at which learners make subject choices are currently seen in Northern Ireland and Scotland. The draft Curriculum for Wales 2022 takes a similar route. We invite governments in devolved nations to take note of the recommendations in this statement for future reforms.

In England, the conceptual content in the science curriculum is clearly ascribed to the core sciences of Biology, Chemistry and Physics, though inclusion of earth science themes under the heading ‘chemistry’ gives a misleading impression. However, there is no clear identification of shared knowledge and how learning in the disciplines can be aligned. Additionally, there is no indication of how the content within ‘working scientifically’ can be applied in each discipline, bringing out the methodologies and ways of reasoning that characterise each of the sciences. These issues should be addressed in a future reform.

For any queries relating to this position statement, please contact the Education Policy team:
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