

The following points highlight what we do well and what we need to continue to improve in the sciences 3-18 in Scotland. They will help practitioners to reflect on Scotland's strong practice and engage in discussions on aspects for development. By using our online blog bit.ly/sciences3-18 or joining the STEM professional learning community bit.ly/stemhome within CPDCentral, practitioners can join in debate about the sciences and share good practice from across the country. They can also share what did not work and help others to avoid the pitfalls.

Key strengths

1. Most children and young people enjoy and are motivated by their learning in the sciences.
2. Across all sectors, staff are becoming increasingly familiar with, and more confident in using the sciences experiences and outcomes in planning for the broad general education.
3. The use of interdisciplinary learning (IDL) which offers opportunities for children and young people to experience learning from different subject and curriculum areas in motivating and relevant contexts is an increasing feature of learning across all sectors.
4. Staff across all sectors are increasingly using the local environment and wider community and are extending partnerships to enhance and support learning well within the sciences. Outdoor learning in particular is emerging as a strong feature of learning in the sciences.
5. Overall in secondary schools, curriculum plans for the senior phase are in place and continue to be reviewed with the sciences continuing to have a central place.
6. Learning and teaching in the sciences in the classroom is continually improving. Much progress has been made in developing and embedding new and improved learning and teaching approaches in everyday educational practice.
7. Most staff are increasingly planning more active learning experiences in the sciences and increasingly using more relevant and innovative contexts for learning.
8. Increasingly, children and young people are engaging in productive collaborative working within the sciences.
9. Overall, most children and young people are progressing well from prior levels of attainment. At the senior phase, the sciences continue to be popular subject choices and most young people are achieving well.
10. Teachers are highly committed to developing the sciences curriculum and improving outcomes for learners. Subject specialists, at the secondary stages in particular, are generally knowledgeable and enthusiastic about their subject area.
11. Increasingly teachers are working collegiately and supporting each other through professional learning activities such as engaging in professional dialogue and sharing good practice.



Aspects for development

1. Staff across all sectors need to ensure that all children and young people's entitlement to a broad general education is being met. The sciences element of the broad general education is currently not always successfully contributing to achieving this.
2. Children and young people are not often enough experiencing sufficient depth in their learning across all key areas in the sciences. One contributing factor is insufficient awareness of Sciences: Concept development in the sciences (2009) paper.
3. In primary schools, learning in the sciences is too often predominantly or exclusively delivered through an interdisciplinary approach which is not planned sufficiently well to ensure breadth and to develop children's knowledge and skills in a progressive way.
4. Stronger curricular links between pre-school centres and primary schools and between primary and secondary schools should be developed further to build effectively on children and young people's prior experiences and to ensure continuity in learning.
5. Secondary schools need to continue to review their plans for the senior phase and ensure that learning at the broad general education phase articulates well with their senior phase.
6. Staff in secondary schools need to recognise and act on gender imbalance in physics and the biologies where it exists.
7. Staff should ensure that feedback to children and young people is regular and of a high enough quality to make them aware of their strengths and what they need to do to improve their learning.
8. Schools need to continue to develop approaches to assessing, tracking and reporting on progress in the sciences.
9. There is a need to ensure that all staff involved in teaching the sciences have access to high-quality science-specific professional learning related to their development needs. There is a need to increase early years, primary and special schools staffs' confidence in particular in teaching the sciences.
10. More primary schools need to make development of the sciences a key priority in their improvement plan.

Talk with us about The Sciences 3-18

