

NE712 Linking STEM curriculum learning to careers

Case study: Science and dentistry

One of six curriculum projects developed by Pingle Academy in South Derbyshire involved year 10 students learning about, *'Hazards of radiation, irradiation and uses of radiation in medicine and uses of nuclear radiation.'* The teacher stated that this topic is, *'difficult to safely demonstrate. Lack of appropriate equipment and resources in school. Models and demonstrations tend to be less interactive and too abstract for students to fully understand.'*

The GCSE specification requires students to, *'... describe and evaluate the uses of nuclear radiations for exploration of internal organs, and for control or destruction of unwanted tissue'* and *'evaluate the perceived risks of using nuclear radiations in relation to given data and consequences.'*

Alexandra Dental Care is an award-winning practice in the town and responded positively to an invitation to engage with this local school. Using a mobile phone, a short informal video recorded a young dental nurse from the practice showing the X-ray machines used as part of patient treatment. She also talked about how staff are protected from radiation and about her own apprenticeship training. Not only could this resource be easily used - and reused - in a classroom setting, but it showed the workplace environment, which would have been difficult for a guest speaker to convey.

Other background information was provided from PowerPoint slides and patient information sheets that are published for patients by the practice. This included an explanation that:

Intraoral X-rays are the most common type of radiograph taken in dentistry. They give a high level of detail of the tooth, bone and supporting tissues of the mouth. These X-rays allow dentists to:

- *Find cavities*
- *Look at the tooth roots*
- *Check the health of the bony area around the tooth*

- *Help diagnose periodontal disease*
- *See the status of developing teeth*

Alexandra Dental Care is a very busy practice, with all staff fully occupied during working hours. Involvement in this project did not require any staff to leave the workplace.

Students were challenged to produce an information leaflet about the use of X-rays. These were sent to the practice from where a short video message by the dental nurse and the practice manager provided positive feedback to students.

In her feedback, the practice manager explained which pieces of work were informative and eye-catching, stating that, *'We do hope we can possibly use some of this information that's been collected in one of our newsletters ... so I will be keeping hold of it and sharing with the dentists here.'*

The Physics teacher involved also has the role of Raising Aspirations Coordinator, so the project enabled him to share good practice with colleagues about contributing to Gatsby career benchmarks 4 and 5 from his personal experience. Involvement of the practice manager and a dental nurse, who had completed her apprenticeship training, presented students with great roles models for different career paths within the sector.

From the students' perspective, a potentially academic and theoretical topic was connected with a community health service that they are all likely to have experienced. Their feedback included pride in, *'Finding out new things about the dentist'*.