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Creative Science gets together with IT

UK (Wales)

Project name:
Creative Science Investigation

Teacher:
Alessio Bernardelli

School:
Croesyceiliog School, Cardiff

Learning areas:
Chromatography

Objectives:
Describe the importance and usefulness of chromatography of ink using information technologies

Outcomes:
Better understanding of chromatography, new IT skills and improved team work among the students

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— Alessio Bernardelli, Croesyceiliog School

Students in Wales carried out a Chromatography experiment, acting as real Forensic Scientists in a role-play classroom project in which a crime scene has been set up before the lesson. At the end of the investigation the children reported their results and conclusions in one of three forms: a forensic report in a Word document with embedded sentence starters, a Power Point presentation, and a documentary or news report made in Photo Story.

Situation

Croesyceiliog School is situated on the outskirts of Cardiff, the capital of Wales, and hosts a catchments area of middle class with few disadvantaged families. The ethos of the school has been praised in the last inspection, when also Teaching and Learning were recognized as exceptional. The number of pupils on roll is about 1,300. The school is renowned to be a highly inclusive community, in which Special Educational Needs pupils are catered for very well and any effort is made to keep such in mainstream education.

Alessio Bernardelli is currently teaching in Croesyceiliog School as the Deputy Team Leader of Science, in charge of Key Stage 3 Science and A-level Physics. He has been teaching for four years and during this time he has gained

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experience in Thinking Skills activities, Assessment for Learning issues and ICT Skills. In all this areas he has actively participated to the development of the whole school by providing training sessions, seminars, informative booklets and sample resources. He has become proficient in the use of various Microsoft software (in particular PowerPoint), and in the academic year 2006-07 he developed his own website.

Objectives

The goals of the Creative Science Investigation project are to teach Chromatography to 7th year pupils (age 11 to 12) in the engaging context of a murder crime scene. The learners should learn that different pens contain different dyes which can be separated using chromatography and that this technique can be employed to match the ink, i.e. for faked signatures.

The key point for the success of this project is how it is dressed up. In other words it is essential that the teacher sets up the scene very thoroughly. "The learners should be told that they are not entering a classroom, but a forensic lab", explains Alessio Bernardelli. The lab should contain an area in which the crime scene has been set up, e.g. the outline of a body should be drawn on the floor and the surroundings taped off. The learners should be given lab coats, gloves and nice safety glasses to help them entering the part. Photos of the crime scene and of the significant parts of the investigation should be taken throughout the activity by either learners in each group or the teacher. These photos will be then used by the pupils in their reports. "What I wanted to provide them was different learning format suiting different learning styles of different types of students", says Mr. Bernardelli.

Outcomes

As the pupils worked in groups, a level was awarded to the group, rather than to the individual pupil. This resource is very effective as a class activity and provides good opportunities for formative assessment. However, for summative assessment other types of activities might be considered. New format of report were introduced, oriented towards IT, so the students learned to use various Microsoft programs, like Photo Story, PowerPoint or Word, in a creative way.

"I think that the main advantage is raising the awareness of IT skills, and motivating the pupils through giving them a choice to have their own way of learning. I think that's what made them enjoy the project more and what made them excel in the project. As a teacher I think I could prove to myself, and eventually to my colleagues, the advantages of using ICT effectively, because I could see how much the project raised the motivation of the pupils and their understanding of those scientific processes," emphasizes Alessio Bernardelli, an innovative teacher from Wales, UK.