

'Forensic Science: A Bog Body Mystery'



Session Outline

This session provides pupils with knowledge of the real-life applications of science and also first-hand experience of using laboratory equipment. By analysing the available clues and completing a scientific practical, students take on the role of a Forensic expert to solve the mystery of some unknown human remains.



This workshop aims to deliver the knowledge that is required by students for GCSE separate and combined science, but it can also be adapted as an introductory session to the concept of DNA for KS3 students.

This session lasts **3 hours**. There is a 15 minute break during the session. Groups are welcome to spend time looking at the other exhibitions either before or after the practical session, if booked in advance and appropriately supervised.

The session will be led by either a PhD student from The University of Manchester or one of our Museum Science Educators. As current or former students of the University of Manchester our demonstrators provide pupils with the opportunity to find out more about university life.

Before your visit to the Museum, you may find it helpful to discuss the following Learning Objectives with your class. This will give pupils an idea of what to expect on their visit and will provide them with a basic scaffold of information on which they can apply the knowledge they will acquire over the course of the session.

Key Points covered in this session:

- Forensic science as a method of using genetic information to solve problems (crimes)
- Uses of the periodic table in understanding the reactivity of metals
- Soil composition and its effect on the degradation of organic and inorganic materials
- Knowledge and understanding of the uses of the periodic table
- Common forensic techniques including DNA analysis
- The structure of DNA, and how scientists make use of its properties in forensic analysis
- Understanding the use of restriction enzymes and their relationship to DNA
- The basic principles of DNA analysis using gel electrophoresis.

Skills/Practical Techniques

- Over the course of the session, pupils will:
- Learn to measure small quantities of liquid using a micropipette
 - 'Cut' DNA by adding restriction enzymes to DNA samples provided, then incubating them
 - Load DNA onto an agarose gel and separate DNA samples using electrophoresis
 - Learn to stain DNA specifically within the gel and visualise DNA samples
 - Undertake an archaeological finds analysis
 - Understand how different soil conditions contribute to differences in how organic and inorganic material breaks down/decomposes
 - Solve a 'crime' using several sources of evidence
 - Develop a greater understanding of the importance of accuracy and reliability in experimental science.