

'Nature's Palette'



Session Outline

The world around us is myriad of bright and vibrant colours. But how do we see them and where does that colour come from? Using a range of museum objects from the mineralogy, zoology, human cultures and live animal collection, this session explores the role of colour in our lives and how living organisms around the world use colour for a range of different purposes. Students will understand the physics behind colour, explore its role in the lives of animals and humans and carry out an experiment investigating different photosynthetic pigments in a range of plants using a scanning spectrophotometer.



This session lasts **3 hours** and there is break during the session. Groups are welcome to spend time looking at the other exhibitions either before or after the practical session, but **please ensure your pupils are supervised**. Owing to the type of equipment, level of supervision and space restrictions in the laboratory involved in this practical **20 students** is the maximum class number for this workshop. This session is suitable for both **KS3 and KS4 students**.

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.

Session Learning Objectives

Students will:

- Understand the concept of light as a wave and visible light as part of the electromagnetic spectrum
- Appreciate the importance of colour and pigments to human culture and in the animal world and its different purposes, using specific examples
- Use gallery displays to deepen knowledge and understanding
- Understand the critical importance of pigments in photosynthesis and how it works

Skills/Practical Techniques

Over the course of the session, students will:

- Undertake up-close and hands on analysis of museum specimens
- Learn how to use a scanning spectrophotometer and generate an absorption spectrum
- Isolate and analyse photosynthetic pigments from two different sources
- Learn how to use a centrifuge for separating mixtures and its applications
- Analyse natural and artificial pigments from food stuffs
- Solve a problem from their newly generated scientific data
- Evaluate experimental design and the best way to collect their desired data
- Gain confidence in scientific enquiry skills and ability
- Increase team-working skills