

Name: Dr Lesley J Yellowlees **Job:** Colour Chemist

Lesley works as a research chemist, exploring the changes that take place when electric charge is added or removed from compounds containing metal atoms. The metals that Lesley experiments with are called transition metals – some of their compounds are vividly colourful.

The job involves carrying out experiments with a series of substances. A simple change in positive or negative electric charge can have big end results in terms of the colour of the end-product

Benefit of the work: The intense colours of products resulting from some of these reactions are used commercially as permanent chemical dyes for plastics, rubber, fabrics and woodstains.

Personal skills or aptitudes:

- Curiosity and an interest in how reactions occur
- A love of naturally-occurring and artificial colours
- Patience and ingenuity.

Key skills:

- Problem solving – you've got to want to explore and test out ideas
- Teamwork – these chemical experiments draw together lots of different technical specialists who pool their expertise
- ICT – you must be computer-literate to store results and to predict their validity/usefulness.

Skills Build

First steps – moves you can take now

Colour experiments can be fun. You can try separating coloured pigments in crushed leaves or black ink by drawing the molecules out to different distances across filter paper (that's simple chromatography). You can also have fun with colourful marbling of paper, cooking with colour, separating white light into its differently-coloured components and – for firework-like colour effects – mixing solutions of different metal salts. You do these kinds of experiments in science clubs or science lessons.

Third floor

The vocational or applied route would be a BTEC National Diploma in Science, a vocational A level in applied science. If you want to take the more general academic path, study for chemistry and physics or maths at A level – perhaps adding art and design or biology.

On to the second level

Take double science at GCSE, design technology, IT and maths – for starters. English language is always necessary for scientists, to make sure they spell things out to other people. Some people prefer to go the practical route – taking a vocational GCSE in applied science (worth two GCSEs).

Fourth floor

You can study chemistry at university for a BSc degree – sometimes, with another subject like maths. Undergraduate work can be fascinating, with talks or seminars about other people's work, demonstrations and practicals. Time whizzes past on projects. Soon you could be trying to find new ways of harnessing the energy from the transfer of electrical charges – besides enjoying the colourful light emissions!



Think you might be interested? Here are some of the skills you might need.