

Calculating Colours Overview

Aims

- Develop understanding of different ways in which proportion can be expressed
- Gain practical experience of combining solutions in varying proportions
- Describe solutions in terms of fractional (and percentage) composition
- Compare and order fractions
- Identify possible ways of analysing colour content of solutions (by eye, colorimetry or using mathematical analysis)

In the Calculating Colours session, through a mixture of explanation and practical work, pupils will look at how it is possible to give an accurate quantitative description of colours. There will be some examples of this, such as mixing coloured light from data projector bulbs to create the colours the pupils see on the screen. In their practical work, pupils will mix varying quantities of red and blue water to create a range of different shades of purple. These can be compared and ordered (it is generally possible to tell the difference by eye between shades that are '1/10 apart' eg. $\frac{2}{5}$ and $\frac{1}{2}$).

Pupils will be guided to calculate and measure the quantities needed to make up 300ml of purple solution in given proportions and will have a 'scale' against which other fractions (with different denominators) can be measured.

As the work develops, pupils should become aware that when making solutions containing fifths of different colours, 300ml is a suitable total volume, as it divides into five relatively easily.

Pupils can be encouraged to suggest a good 'total volume' for making a solution of eg. sevenths (280ml, 210ml etc).

Pupils should recognise that even though a smaller or larger amount of total solution may be made, it is the proportion of blue and red that determines the resulting colour.