



CHEMISTRY AND ART



ROYAL SOCIETY
OF CHEMISTRY

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Chemistry can be used to date paintings, conserve precious artworks or even spot fakes! Humans have expressed themselves through art for thousands of years and the precise paints, pigments and varnishes used in a painting can tell art historians a lot about when, where and how it was made.

True Blue

For example, a paint which looks 'blue' to the naked eye could contain a number of different blue pigments, perhaps ultramarine, azurite, Prussian blue, Egyptian blue or cobalt blue. A chemical technique called FTIR (Fourier transform infrared) spectroscopy can distinguish between these different blues. FTIR can measure which wavelengths of infra-red radiation the pigment absorbs and produce characteristic spectra, a bit like a unique 'fingerprint'. So FTIR can tell the difference between super-expensive medieval ultramarine and the cheaper modern alternatives, even if our eyes cannot.

The Mystery of the 'Master of Mornauer'

Chemical analysis recently revealed that the background on the National Gallery's *Master of Mornauer* portrait contained Prussian blue – a pigment which was unheard of when the artwork was originally painted! Art historians believe fraudsters made the change to convince collectors that the painting was a more valuable piece by the artist Holbein. You can find out more about the techniques used to solve this mystery on the Learn Chemistry 'Faces of Chemistry' website

<http://rsc.li/faces-of-chemistry>

Teachers – want more ideas for colour-related chemistry practicals and demonstrations? Visit the Learn Chemistry website at <http://rsc.li/learn-chemistry> and search for 'colour'

For a hands-on analytical chemistry experience why not arrange for a Spectroscopy in a Suitcase workshop in your school? Find out more here

<http://rsc.li/spectroscopy>

