PRIMARY & SECONDARY COLOURS

Most non-painters know something about colour, for example many people can name the colours of the spectrum (which are those you see in a rainbow). There are seven of these: violet, indigo, blue, green, yellow, orange and red; they are produced by the dispersal of white light through a prism – different colours have different wavelengths. But while this kind of knowledge may have its uses in photography or colour printing, it cannot be applied usefully when it comes to painting. The colours of light are absolute, there is just one red, yellow, blue and so on, but artist's pigments are not.

MIXING SECONDARIES

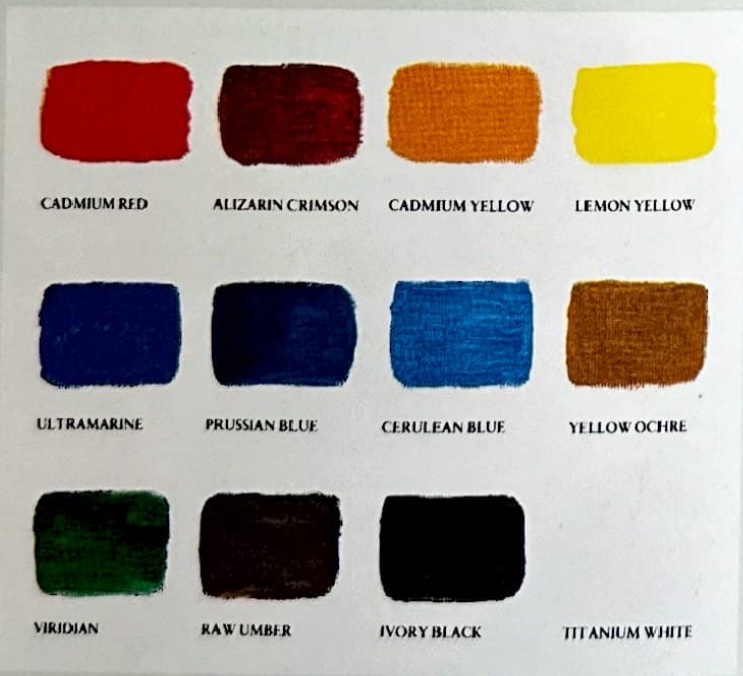
The spectrum colours have given rise to the well-known belief that it is possible to mix any colour under the sun from the three primary colours alone: red, yellow and blue. The colour pictures in this book are indeed produced from just these three colours (plus black), but paints simply do not work in this way. In colour printing a series of tiny dots of pure colour mixes in the eye (optical mixing), but paints have to be physically combined. More important still, pigments are not pure; there are different versions of each primary colour, so which red, blue and yellow would you choose for mixing up another colour?

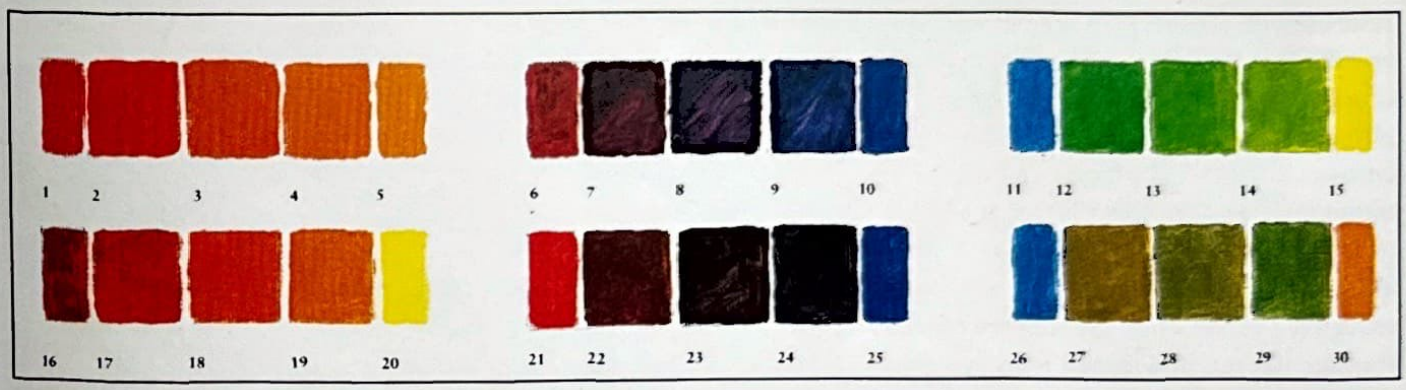
The first step to successful colour mixing is to recognize the differences between the primary colours; only then can you discover how to mix the best secondary colours – mixtures of two primaries. If you look at the reds, yellows and blues on the starter

Mixing secondary colours
(Opposite) The top row shows mixtures of "like" primaries – those with a bias towards each other – and the bottom row shows the more muted colours produced by mixing unlike pairs of primaries. In each case the primary colours are shown on the right and left, and the mixtures in the three central divisions. The mixtures nearest to the primary colours have a higher proportion of this colour, while for the central division the colours have been mixed in equal proportions.

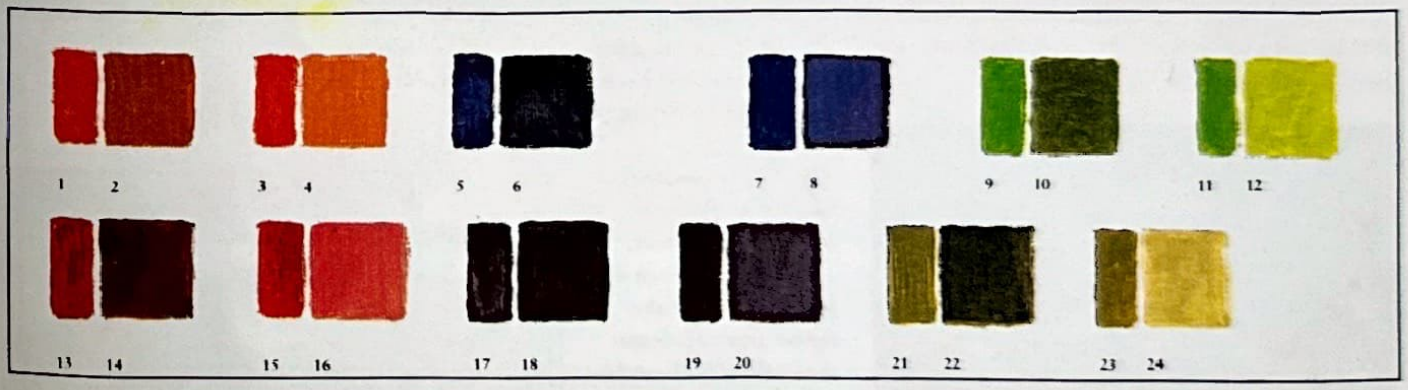
A STARTER PALETTE

As a general rule it is wise to begin with as few colours as possible and build up gradually. As you become more experienced you will discover which colours you find difficult or impossible to mix, and you can add to your range accordingly. It is virtually impossible, for example, to achieve good purples and mauves by mixing colours, so artists who specialize in flower painting usually have one or two purples as well as some special reds. The colours shown here will be quite adequate to begin with. They are available in both oils and acrylics, although some acrylic ranges use different names for the colours. For example, some makes of acrylic do not include viridian, but there is a similar colour called phthalocyanine green.





1 CADMIUM RED 2, 3 AND 4 MIXTURES 5 CADMIUM YELLOW 6 ALIZARIN CRIMSON 7, 8 AND 9 MIXTURES 10 ULTRAMARINE 11 CERULEAN 12, 13 AND 14 MIXTURES 15 LEMON YELLOW 16 ALIZARIN CRIMSON 17, 18 AND 19 MIXTURES 20 LEMON YELLOW 21 CADMIUM RED 22, 23 AND 24 MIXTURES 25 ULTRAMARINE 26 CERULEAN 27, 28 AND 29 MIXTURES 30 CADMIUM YELLOW



1 ORANGE (CADMIUM RED AND YELLOW) 2 PLUS BLACK 3 ORANGE 4 PLUS WHITE 5 PURPLE (ALIZARIN CRIMSON AND ULTRAMARINE) 6 PLUS BLACK 7 PURPLE 8 PLUS WHITE 9 GREEN (CERULEAN AND LEMON YELLOW) 10 PLUS BLACK 11 GREEN 12 PLUS WHITE 13 MUTED ORANGE 14 PLUS BLACK 15 MUTED ORANGE 16 PLUS WHITE 17 PURPLE BROWN 18 PLUS BLACK 19 PURPLE BROWN 20 PLUS WHITE 21 GREEN 22 PLUS BLACK 23 GREEN 24 PLUS WHITE

Adding black and white *(Above)* These "swatches" give an idea of the large range of colours which can be made by adding black or white to mixtures. The 50:50 mixtures of primary colours shown in the chart above have been taken as the basis, with first black and then white added.

palette, you will see that they have different biases. One red leans towards purple or blue, and the other is more orange; lemon yellow is greener than cadmium yellow; ultramarine is slightly redder than cerulean or Prussian blue. The most vivid secondary colours are made by mixing primaries which are biased towards each other. You cannot make a good, bright orange, for example, with lemon yellow and alizarin crimson, or a good purple with cadmium red and ultramarine.

Making charts like the ones shown here, using the six basic primary colours, first on their own and then with the addition of black and white, will teach you a great deal about colour. As well as finding out how to make bright secondary colours, you may discover some useful mixtures for more muted effects. If so, try to remember them, as many paintings are spoilt by muddy, characterless neutrals. For example, an interesting grey is often made from a mixture of colours, not black and white.