Pelikan

Teaching art in practice

Children discovering art

- Colour theory
- Colour contrasts
- Tints – shades – tones
- Painting and drawing techniques (opaque paints, felt-tip pens, wax crayons)
- Applying paint and colour

NEW

Suitable for teachers and non-specialists!

Information, exercises and aids for all aspects of art teaching

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Foreword

The colours of humanity

Rock paintings in shades of red, black and ochre are probably the oldest form of media developed by humans. They were followed by many more colours and, today, modern TV screens can display more than 16 million of them. Although we have leaped ahead in time by more than 10,000 years and despite rapid digital developments, colours have not yet lost any of their significance when it comes to conveying information (cf. Kahler 2015, 23ff).

Pelikan's colour theory

So, humans have already been studying this topic for a long time; however, in the beginning, it was merely about reproducing the colours they had seen in some way or other. Although Democritus had already been philosophising on this topic as early as in 400 B.C., educational approaches towards teaching colour theory in the German-speaking world did not take shape until the beginning of the 19th century. In fact, Goethe laid the first foundations for understanding colours with his colour wheel (Goethe 1810), which was followed by many others. Pelikan's 12-tone colour wheel (colour model: cyan blue (C), magenta red (M), yellow (Y) and black (K)) forms the basis for a skills-based discussion of the colours in schools, suitable for teaching colour theory in line with the curriculum.

Range of topics

Alongside the central topic of teaching colour theory, this brochure is about different artistic techniques, from the simplest printing techniques to working with wax crayons.

This is why students, tutors and teachers, but also instructors who are not specialists in this topic, will find easily understandable information, proven suggestions and aids for working creatively in the fields of art and teaching art in schools.

By the way: Pelikan's tried and tested Circle of Colour will enhance the way you work, together with the colour wheel poster and the Colour Card for wax crayons.

Have we made you curious? Then come with us on an exciting journey through a topic that has been fascinating humans for hundreds of thousands of years.

Dr Maiko Kahler
Primary and secondary school teacher
Leibniz University Hanover

Kahler, M. (2015): Das Medium. In: Kahler, M./Müller, J.: Praxis Pädagogik: Kinder entdecken Medien. Kompetenz bei Nutzung und Gestaltung. Westermann: Braunschweig, 23-34.

Goethe, Johann Wolfgang von (1810): Zur Farbenlehre. Bd. 1. Tübingen, 388.

Please send any suggestions or questions you may have about this brochure to:
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Imprint

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Annual overview on Pelikan Teacher Info

Topic and event-based online and offline offerings

		Preschool	Year 1 / 2	Year 3 / 4	Sec. 1	One hour	Several hours	Whole year	Autumn	Winter	Spring	Summer	Culture-hist. context	Perception	Creativity
Painting, crafts, gluing															
Halloween	Roly-poly doll		●			●			●					●	
	Pumpkin mask	●	●			●			●						●
	Fun Halloween puzzle			●		●			●					●	●
	Halloween marble spinning top	●	●			●			●					●	●
	Halloween			●	●		●		●					●	●
	Funny masks	●	●			●		●							●
	Stone mask	●	●			●		●							●
Christmas	Colourful table lanterns			●		●				●					●
	Decorative Christmas pegs			●		●				●					●
	Christmas pegs Angel			●		●				●					●
	Motif spindle Christmas tree			●	●	●				●					●
	Cloud mobile			●	●	●	●			●					●
	Christmas crafts		●	●						●					●
	Beautiful Santa Claus and Christmas tree ensemble		●	●		●				●					●
	Multi-purpose angel		●	●		●				●					●
	Folding Christmas box		●	●		●				●					●
	Angel with candle house			●		●				●					●
	Decorative stars		●	●		●				●					●
	Santa Claus gift-wrap decoration			●		●				●					●
	Christmas candleholders		●	●		●				●					●
	Christmas stars			●		●				●					●
	Delicate turtles made of nutshells		●	●		●			●	●					
	Candle carousel				●		●			●				●	●
	Christmas lanterns		●	●		●			●	●					
	Mobile advent calendar		●	●		●				●					
	Christmas gingerbread house			●			●			●					●
Carnival	Painting – crafts – finished! “Carnival glasses”	●	●			●									●
	Dancing wool figures		●	●			●		●						●
	Witch masks	●	●			●					●				●
Easter	Funny egg flowers			●		●					●				●
	Easter egg painting machine			●	●	●					●				●
	Easter egg ducks			●		●					●				●
	Mini-drummer / Easter drummer				●	●		●							●
	Easter houses		●	●		●					●				●
	Ink-painted eggs				●	●					●				●
	Easter crafts		●	●		●					●				●
	Easter bunny with integrated basket			●	●	●					●				●
	Easter bunny with a kick		●	●		●					●				●
	Easter hen egg cup		●	●		●					●				●
	Colourful Easter hens for one school lesson		●	●		●					●				●
	Easter cart			●	●	●					●				●
	Quick Easter bells		●	●		●					●	●			
	Paper basket	●	●	●	●	●									
Mother’s day	Heart-shaped box for different occasions		●	●			●	●		●					●
	Charming serviette rings		●	●			●	●							●
	Mother’s day: Heart-shaped box		●	●			●				●				●
	Mother’s day Puzzle		●	●			●				●				●
	Mother’s day Serviette rings		●	●			●				●				●

		Preschool	Year 1 / 2	Year 3 / 4	Sec. 1	One hour	Several hours	Whole year	Autumn	Winter	Spring	Summer	Culture-hist. context	Perception	Arts and crafts
Painting, crafts, gluing															
Movement	Role players			●	●	●		●						●	●
	Motif spindle clown, carousel, birthday cake, colour wheel			●	●	●		●						●	●
	High-bar gymnast			●	●	●		●						●	●
	Swimmer in action			●	●	●		●						●	●
	Making a flying boat			●	●	●		●						●	●
	Finger butterflies	●	●			●			●		●	●		●	●
	Balloon motor				●	●		●						●	●
	Moving animals: birds, elephant, duck	●	●			●		●						●	●
	Moving animals: colourful parrot		●			●		●						●	●
	Moving animals: monkey		●	●		●		●						●	●
	Transport: steam train, steam boat, historic racing cars			●	●	●		●							●
	Transport: helicopter and double-decker bus			●	●	●		●						●	●
	Paper aircraft – colour Zeppelin	●	●			●		●						●	●
	Colourful winter flower	●	●			●		●						●	●
	Crafts: animals on wheels, fish and frog	●	●	●		●		●							●
	Craft tip: motif seesaws			●		●		●						●	●
	Revealed: the woodpecker with a special function!		●	●		●		●	●		●	●		●	●
Nature-related	Weather frog			●	●	●		●						●	●
	Blinking owl		●	●		●		●						●	●
	Teal dragonfly		●	●		●		●						●	●
	Do-it-yourself weather station			●	●	●		●						●	●
	Craft idea: totem poles		●	●			●	●						●	●
Experiments	Making your own green paint				●	●	●	●				●	●		●
	Making your own violet paint			●	●		●	●	●				●		●
	Egg-tempera paint			●	●	●			●				●		●
	Magic can		●	●		●		●							●
	Ink pictures			●	●		●		●						●
	Magic cards				●	●		●						●	●
Colour theory															
Mixing in primary colour prints		●	●				●	●	●						●
Complementary colours			●	●			●				●				●
Complementary contrast				●	●		●				●				●
Complementary contrast with neighbouring colours				●	●	●						●		●	●
Intentional clashing in complementary contrasts			●	●	●		●	●						●	
Tints and shades				●	●		●			●		●			●
Using grey to mix tones				●	●		●	●						●	
Cold-warm contrast			●			●		●							●
Working with browns			●				●	●							●
Aleatoric techniques	●	●			●		●							●	
Water colours for beginners				●		●	●								●
Famous artists (K12 – The Original)															
Claude Monet				●	●		●	●						●	●
Paul Cézanne				●	●		●	●						●	●
Franz Marc				●	●		●	●						●	●
Georges Seurat				●	●		●	●						●	●
Pablo Picasso				●	●		●	●						●	●
Andy Goldsworthy				●	●		●	●						●	●
Piet Mondrian				●	●		●	●						●	●
Salvador Dalí				●	●		●	●						●	●
Paul Klee				●	●		●	●						●	●
Henri Matisse				●	●		●	●						●	●

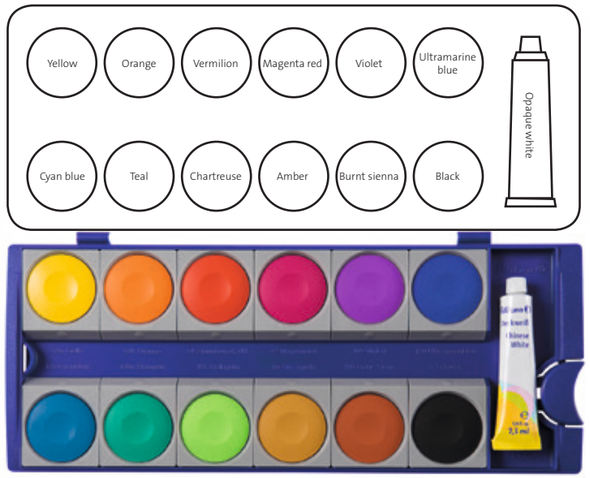
DIN 5023, the opaque paintbox standard

What is DIN 5023?

DIN 5023 took effect in 1989. It was prepared by the working committee on colour at the German Institute for Standardization (DIN). A crucial contribution was made by primary (sec. 1) and university art educators, as well as by paint specialists from manufacturing, public agencies and associations. Three years of work were accompanied by a number of practical tests.

What does DIN 5023 set down? The most important points:

Colour scale
DIN 5023 precisely defines the 12 paints and their arrangement in the paintbox. The primary colours magenta red, cyan blue and yellow can be used to mix all of the other colours. This makes it easy for learners to understand colour theory in a practical way – i.e. using paint and paintbrushes.



Paint quality
DIN 5023 ensures that the paints provide good opacity. It precisely defines colour saturation (intensity), hues and blackness values colourimetrically. Strict manufacturing tolerance values ensure the consistency of the hues, which is important during classwork and when buying replacement paints. All hues have a lightfastness rating of at least 5 on the Blue Wool scale of 1-8.

Paint quantities
DIN 5023 defines the shape and volume of the paint discs (Ø 30 mm, 3.5 cm). The tube of opaque white paint contains at least 5 ml.

Chemical properties / child safety
The opaque paints are harmless/do not pose a risk to child health, in line with the European standard DIN EN 71 (toy safety) and the German Federal Ordinance on Hazardous Substances (Gefahrstoffverordnung).

The Pelikan Circle of Colour

Pelikan Circle of Colour

The Pelikan Circle of Colour is a practical colour theory companion for teachers and students! It playfully presents concepts such as the primary colours, complementary contrast and colour temperature.

Try it out for yourself!
You will find your personal copy in this brochure.
You can order class sets of 30 directly from Pelikan (www.pelikan-lehrerinfo.de).

Working with the opaque paintbox

Mixing correctly

Mixing opaque paints is child's play. But mixing paints to create a particular colour requires some skill in the use of brushes and paints. Of course, it is precisely children who want to experience a feeling of success in their work.

So what is the correct way to mix paints?

Let's take a closer look at Pelikan's opaque paintbox: There are a number of mixing areas in the lid of the paintbox.

This is how it is done:

1. The colour yellow is stirred up in the paintbox using a paintbrush and then transferred to the mixing area.
2. The paintbrush is then cleaned and used again to stir up the cyan blue paint in the paint tray, which is then transferred into a second mixing area.
3. The third step is now to actually mix the two colours together in a third mixing area. The two pure hues are stirred into each other in equal parts, creating the colour green.

Important!

- Do not mix in the paint disc.
- Do not mix any opaque white into the paint disc.
- Use clean water.

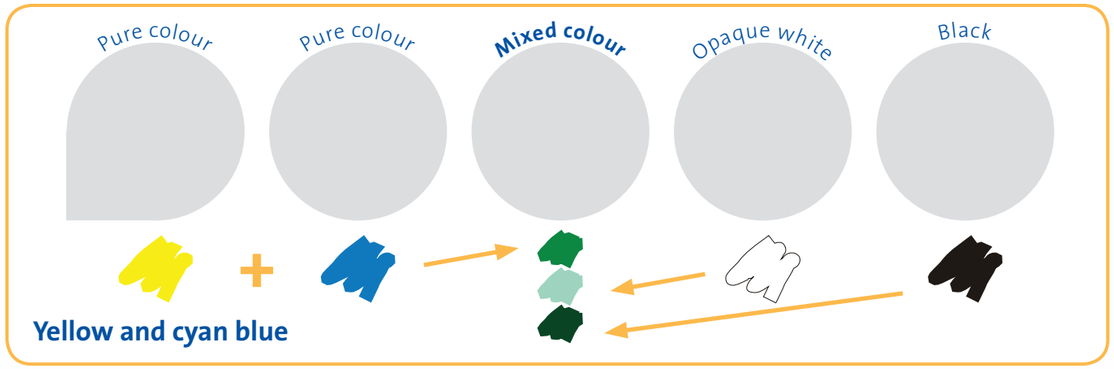
Here are some more practical tips:

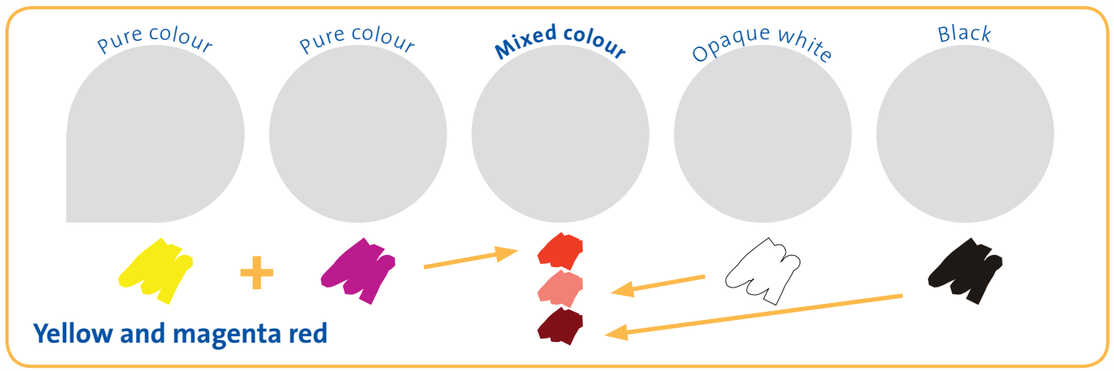
- The surface of the opaque paints should be stirred up using a slightly damp, but not dripping, paintbrush.
- Any water that drips onto the disc or the box should be wiped away using a paper towel or something similar after use.
- If possible, the paintbox should be left open until it is completely dry.

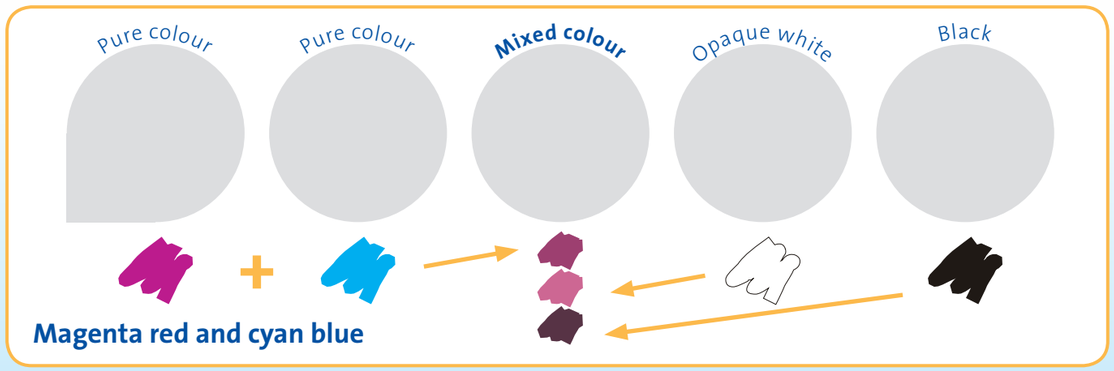
Photocopy templates for mixing aids

The mixing aids present the most important primary colour combinations, including tints and shades. A blank template where learners can record their own mixed colours is available as a download in the Pelikan teachers' portal (see QR code).
Pelikan's mixing aids provide children with a well-founded introduction to mixing techniques.

You will find more information including downloads at: www.pelikan.com/mischhilfen







Mixing
Transfer the opaque paint into the "Pure colour" mixing area. Mix the pure colours to create mixed colours in this mixing area.

Tints
Transfer some opaque white into the mixing area. Lighten the mixed colour there using opaque white.

Shades
Transfer some black into the mixing area. Darken the opaque paint there to create a mixed colour.

Colour theory

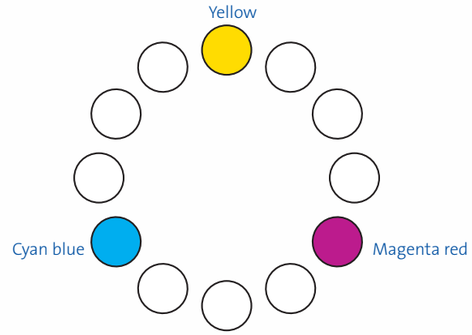
People usually use simple models to help them better understand complex contexts and situations.
In colour theory, a colour wheel is usually used, upon which all existing colours are arranged. The colour wheel is a clockwise "ordering system" that depicts the overall relationships between the colours. In principle, there is an infinite number of colours, but in our case, we will be limiting ourselves to 12.

The 12-colour colour wheel

Primary colours

The three base colours are yellow, cyan blue and magenta red. They cannot be created by mixing other colours and are therefore referred to as the "primary colours". In theory, these three colours can be used to mix all other colours.

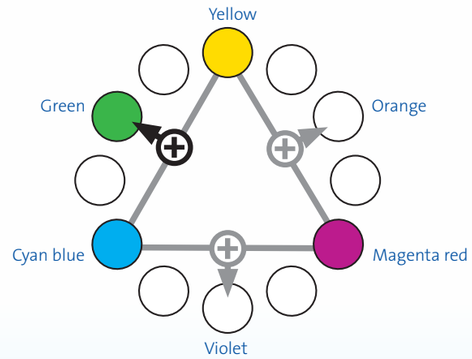
All colours can be mixed from yellow, cyan blue and magenta red.



Secondary colours

The three primary colours yellow, cyan blue and magenta red form the starting point. When two of them are combined, it creates
a secondary colour.

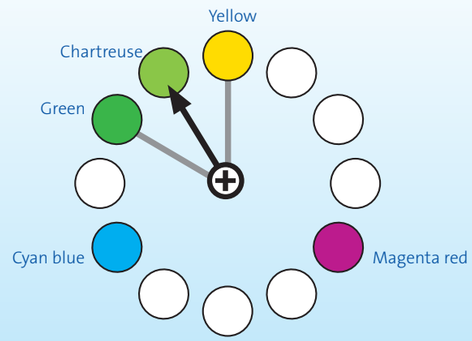
In our example, the primary colours cyan blue and yellow are being used to create the secondary colour green.



Tertiary colours

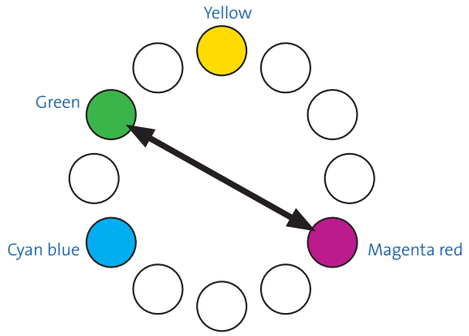
If you mix a secondary colour with the next primary colour, you create what is referred to as a tertiary colour. In our example, the primary colour yellow and the secondary colour green are being used to create the tertiary colour chartreuse. In theory, we could keep creating mixtures and colours until the Latin terms run out.

Tertiary colours are created by mixing primary and secondary colours.



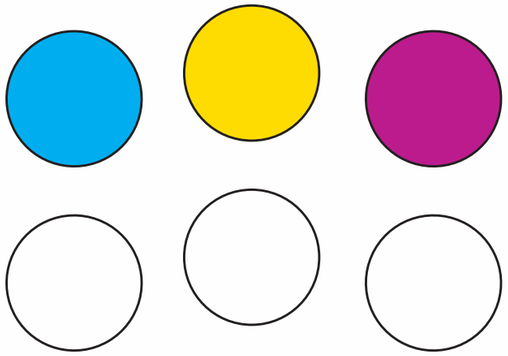
Complementary colours

Complementary colours are located furthest from each other in the colour wheel, that is, on opposite sides of it. In our example, green and magenta red are complementary colours.



Complementary colours are located on opposite sides of the colour wheel.

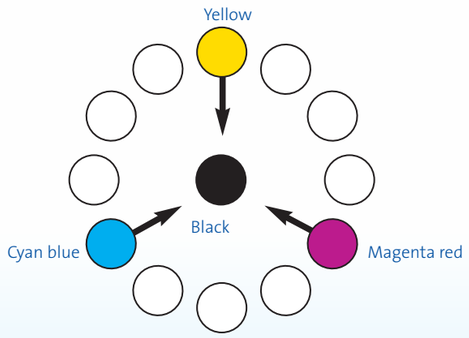
Successive contrast



With the help of a small, astonishing example, you can see for yourself how complementary colours are formed, also known as the successive effect. If you look at the three primary colours in the circles for approx. 20 seconds without blinking or moving your eyes, and then look at the white surface beneath them, the complementary colours orange-red, violet and green will briefly appear.

The colour black

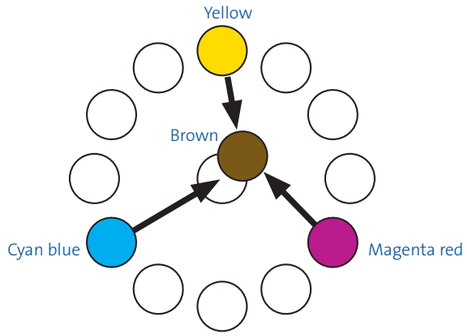
When we speak of colours, we mean the “chromatic” colours, in particular the primary colours cyan blue, yellow and magenta red.
Magenta red Apart from the previously mentioned chromatic colours, there are also white, black and grey – which are referred to as achromatic colours. Our eye has both a chromatic system and a complete black and white system. This becomes apparent when we try to see at night, when we are no longer captivated by colours and see the world in grey tones instead. The absence of light results in the condition described as black. In contrast, black is also created when all primary colours converge in equal parts. However, the colour black is missing from our model. All you need to do to create it is to mix all of the primary colours in equal parts.



Black is created by mixing the primary colours in equal parts.

The colour brown

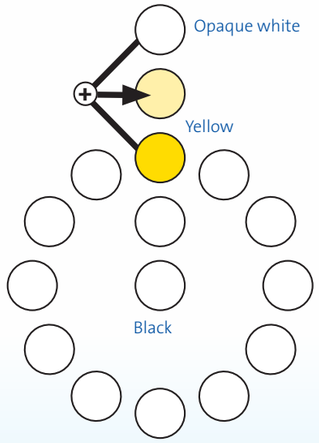
The proportions of primary colours in a mixed colour are interesting because they result in a wide range of different mixed colours. As a comparison, we have created the following mixed brown colour by reducing the proportion of cyan blue.



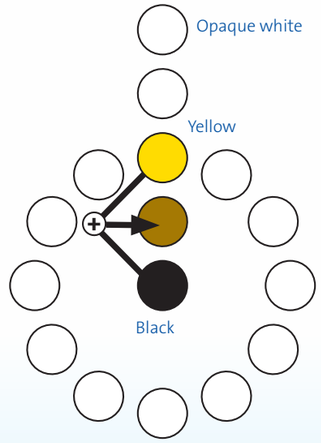
Browns are created by mixing different proportions of primary colours.

Tints and shades

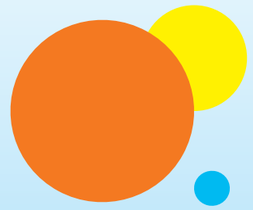
Using opaque white to mix tints and black to mix shades is a further essential component of mixing colours. We will now explain this system, this time using the example of the primary colour yellow. In principle, there is also an infinite number of colours that can be created here.



Mixing a colour with white creates a tint.



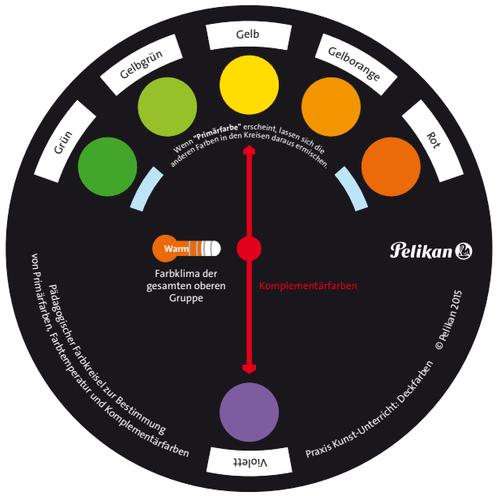
Mixing a colour with (a little) black creates a shade.



Pelikan Circle of Colour

The Pelikan Circle of Colour model can be used to playfully understand the "ordering system" for colours mentioned on page 9. As an educational complement to Pelikan's opaque paintbox, it helps to entrench colour theory and creates more awareness about using Pelikan's opaque paints to mix different colours.

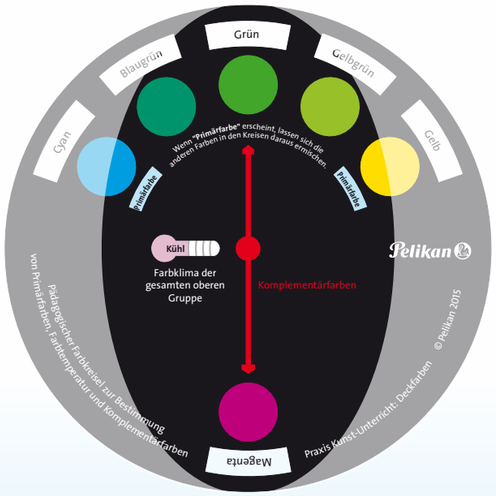
The Pelikan Circle of Colour is characterised by its easy handling and clear presentation.



Primary colours and complementary contrast

Pelikan's educational Circle of Colour provides quick orientation within the colour wheel. If, for example, two primary colours are selected, the Circle of Colour shows which mixed colours (secondary and tertiary colours) they can be used to create. Of course, the proportion of each of the primary colours required to create the colour must be observed. But the Circle of Colour does not just allow users to find out more about the colours that can be created from mixing two primary colours, rather, the large arrow in the middle always shows the colours' complementary contrasts as well. In our example, green and magenta red are displayed as complementary colours.

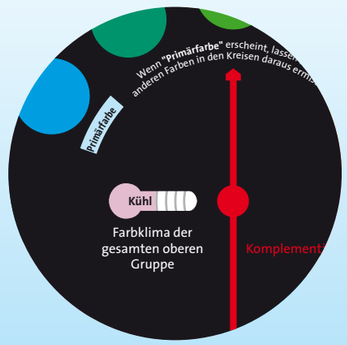
Only when "primary colour" is displayed can they be used to mix the colours in the remaining circles. Here, the secondary colour green and the two tertiary colours teal and chartreuse are created by mixing cyan blue and yellow.



Colour temperature

To provide additional support, the colour family displayed is assigned a colour temperature. Of course, defining a colour temperature is a judgment call, but it can be used as an aid to provide quick orientation.

"Cool" appears as the colour temperature for this colour family.



CMYK colour model

People often ask which colour model Pelikan's colour theory is based on. It is built upon the CMYK printing colour model. These letters are taken from the colours that form the foundation of the industrial printing industry. What are referred to as the primary colours – cyan blue (C), magenta red (M) yellow (Y) and black (K) – are used to mix all remaining colours. Black is required to mix different shades, but also gives images the depth of field that they require. Print cartridges also contain these colours, which clearly shows that even home printers mix all colours using the primary colours. The CMYK colour model is applicable to the Pelikan K12 opaque paintbox, which contains these primary colours in line with DIN 5023. This means that everybody has the opportunity to learn about colour theory and experiment with the bright paints.

In theory, it is possible to get along in painting using only the primary colours cyan blue, yellow and magenta red. However, home-made shades and tints don't have the brilliance of perfectly formulated industrial colours. Pre-manufactured paints are purer and a little more intense in colour. This is why Pelikan's opaque paintbox also contains a number of mixed hues, alongside the primary colours cyan blue, yellow and magenta red.

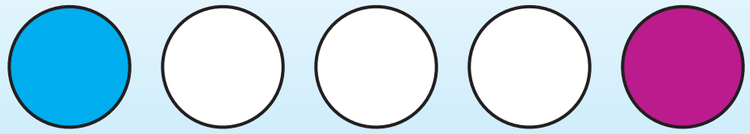
This colour print is the result of layering cyan blue, yellow, magenta red and black.

Mixing ratios

In order to get as close to colour ideals, secondary and tertiary colours must be mixed carefully using the correct ratios. Using a computer model, it is enough to simply enter the quantity of each colour – but in a practical experiment, it might be necessary to vary the quantities used. This is due to the pigments' different intensities, the varying amounts of water added and the fact that it is not possible to attain consistent quantities using a paintbrush.

Simply try it out with your students: On the following couple of pages, you will find the teaching unit "Do-it-yourself colour wheel".

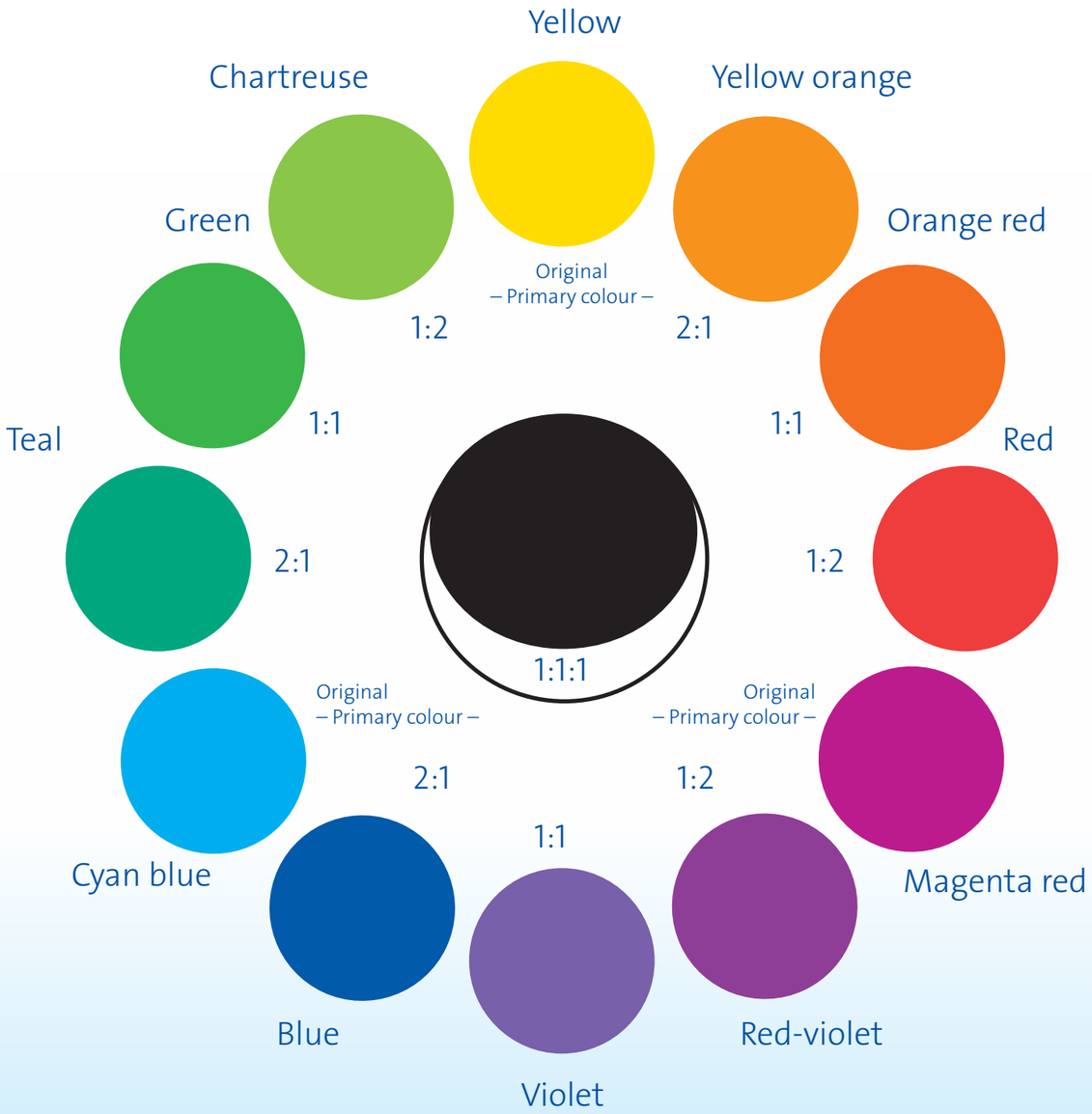
Please note: On the photocopy template you will find the primary colour quantities required for each of the mixed colours. This is why the circles with the description "Original" have been coloured in with each of the pure primary colours (as in our example). For the mixed colours, the proportions specified are transferred into one of the mixing areas in the opaque paintbox lid and mixed there, for example, for blue, by adding two parts cyan blue, one part magenta red. The circle is then coloured in using the colour that has been created.



Example of the proportions required to mix colours using cyan blue and magenta red.

Colour wheel model (CMYK*)

Colour theory using Pelikan's K12 opaque paintbox in line with DIN 5023



Outer circle: Colour names

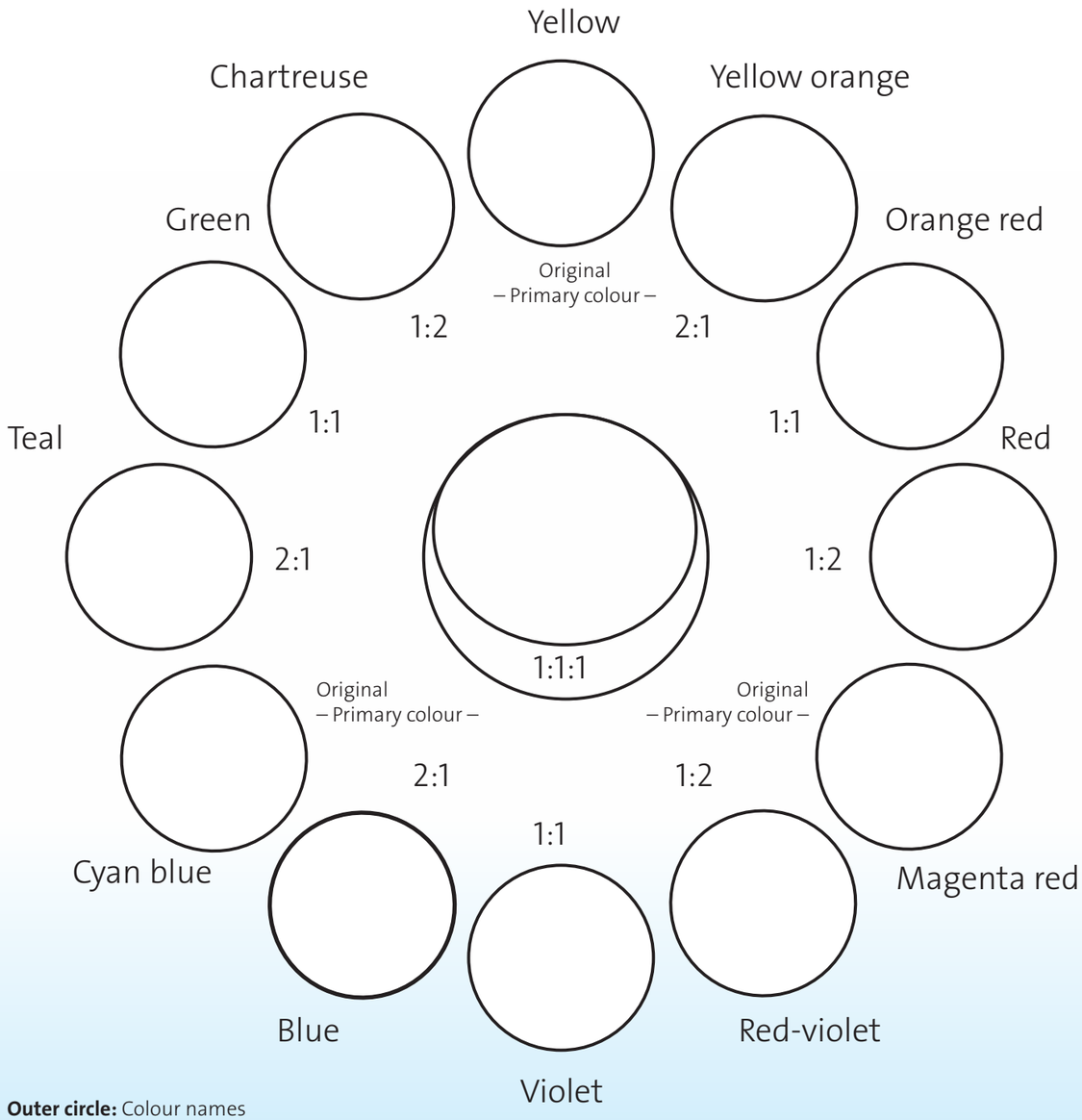
Inner circle: Mixing ratios
(In proportion)

(*CMYK = cyan blue, magenta red, yellow and black)

You will find more information including downloads at: www.pelikan.com/farbkreis

Photocopy template for do-it-yourself colour wheel

Colour theory using Pelikan's K12 opaque paintbox in line with DIN 5023



Outer circle: Colour names

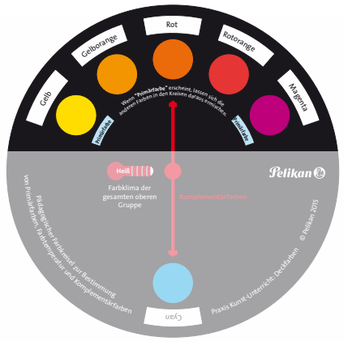
Inner circle: Mixing ratios
(In proportion)

CMYK* colour wheel model
(*CMYK = cyan blue, magenta red, yellow and black)

Mixing different colours when limited to primary colours

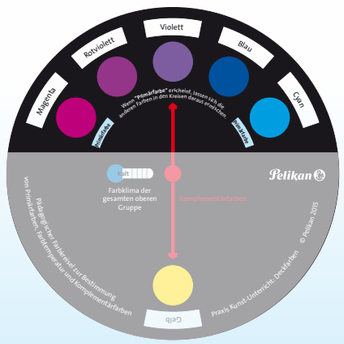
Students should limit themselves to two primary colours each in the following mixing activities, in order to find out about different uses of colour. To provide orientation, the clearest pure intermediate shades can be read off the Pelikan Circle of Colour.

Yellow and magenta red



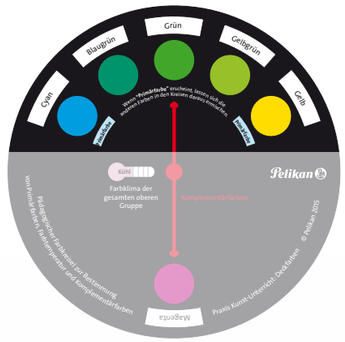
Other motif suggestions:
- Rumpelstiltskin dancing around the fire
- Forest fire
- Camp fire
- A rocket taking off
- A volcanic eruption

Cyan blue and magenta red



Other motif suggestions:
- A magician who uses magic to turn everything violet (or blue or...)
- A carnival
- Aubergines, plums or something similar as a fruit still life

Yellow and cyan blue



Other motif suggestions:
- A water spirit's daughter with a yellow lily
- Seeing a landscape from an aeroplane
- In amongst water plants
- In the jungle
- A flower bed seen from above
- Cyan blue meets yellow
- Yellow moves away from cyan blue

You will find more information including downloads at:
www.pelikan.com/primaerfarbdruck

Colour contrasts in colour theory

One hundred years ago, Adolf Hölzel (1853 – 1934) forged a theory about the most important aspects of colour. It was later described by his student Johannes Itten (1888 – 1967) as the systematic "seven colour contrasts" model. Other important contrasts expand on the ones from back then, and are still used to explain colour effects.

The chapter about colours needs to be re-edited from time to time.
J. W. Goethe (1810)

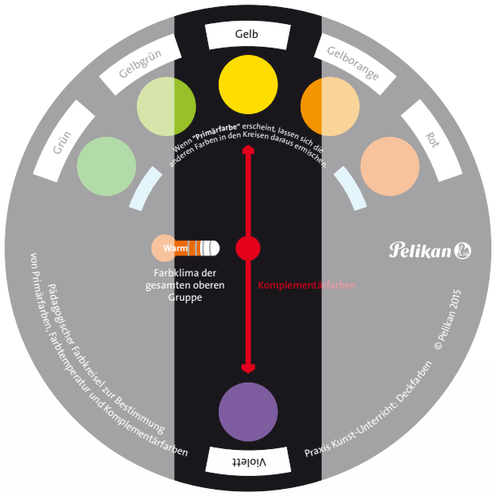
Since then, the theory of primary colours has established itself worldwide, making it possible for millions of people
to achieve standardised printing quality. Using Pelikan's opaque paintbox is a practical way to find out which colours can be mixed using the primary colours. Its colour effects form the foundation of modern colour theory.

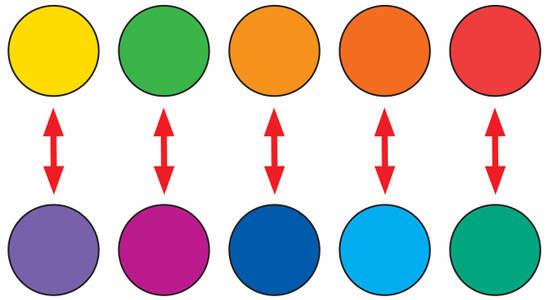
No.	Name	Alternative name	Pure colour contrast	Contrast effect	Seven colour contrasts	Reference
1.	Successive contrast	–	–	●	–	See page 10
2.	Complementary contrast	–	–	●	●	See page 19
3.	Colour contrast	Contrast of hue	●	–	●	See page 20
4.	Quality contrast	Saturation contrast; intensity contrast	●	–	●	See page 20
5.	Chromatic-achromatic contrast	–	●	–	–	See page 21
6.	Quantity contrast	Contrast of extension; proportional contrast	●	–	●	See page 22
7.	Light-dark contrast	Brightness contrast	●	–	●	See page 23
8.	Cold-warm contrast	Temperature contrast	●	–	●	See page 26
9.	Simultaneous contrast	–	–	●	●	See page 27

Complementary contrast

A colour that complements another existing colour can be used to create a maximum contrast effect. The further apart the colours are (on the colour wheel), the greater the effect. This means that opposite colours on the colour wheel generate the strongest contrast.

The middle arrow on the colour wheel displays the complementary colours in each position.

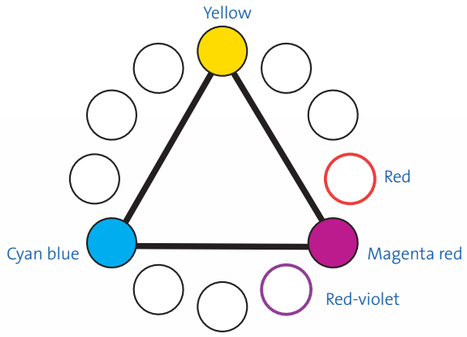




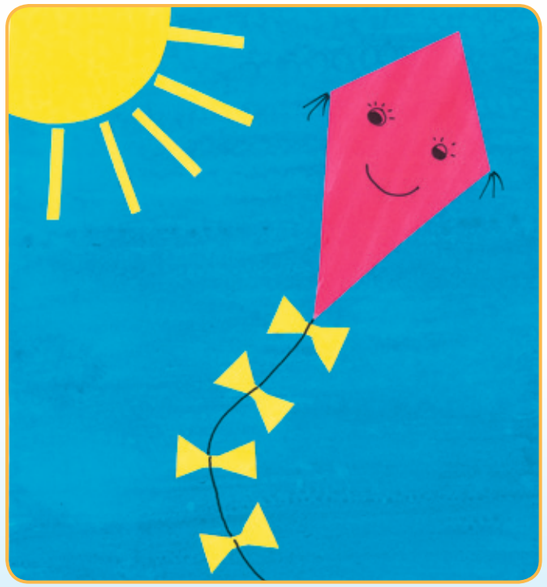
You will find more information including downloads at:
www.pelikan.com/komplementaerfarben

Colour contrast

Our dragon picture shows a beautiful contrast of hue. In terms of the colour wheel, the three primary colours cyan blue, magenta red and yellow are furthest away from each other and form an equilateral triangle.



The further apart the colours in the colour wheel are from each other, the stronger the contrast of hue.

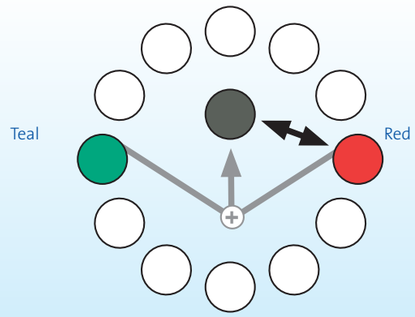


Colours that are next to each other in the colour wheel, such as red-violet, magenta red and red, only generate a weak contrast of hue (see colourful outer ring in the colour wheel). There is little difference between them. This changes as soon as the distance between the colours is increased, until they are opposite each other in the colour wheel.

Quality contrast

The intensity of the chromatic colour wheel colours is also described as strong saturation. If highly saturated colours are used next to one another, there is no quality contrast due to the intensity of all of the colours.

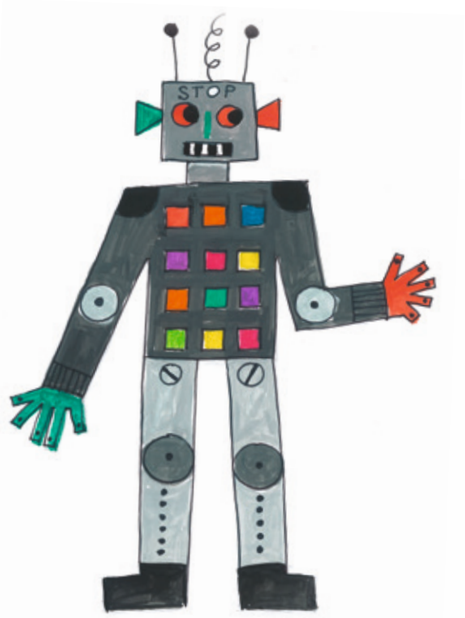
The only way to generate quality contrast is if colours of strong intensity are used alongside weakly saturated colours, for example, like the lighthouse in contrast to its environment. In order to generate this intensity, saturated colours are mixed with their complementary colours, grey, white or black (see also “Tints – shades – tones” on page 24/25).

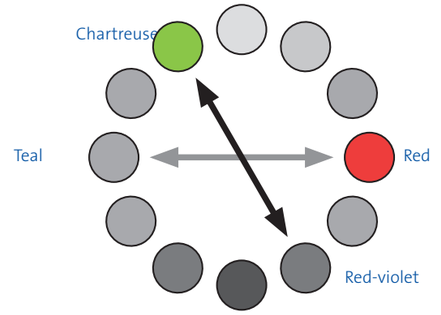


Saturated colours generate a quality contrast if they are used alongside diluted colours. In our example, the highly saturated red is placed next to the weakly saturated grey-brown.

Chromatic-achromatic contrast

The radiance of colours becomes particularly apparent when they are converted into greyscale (tonal values).



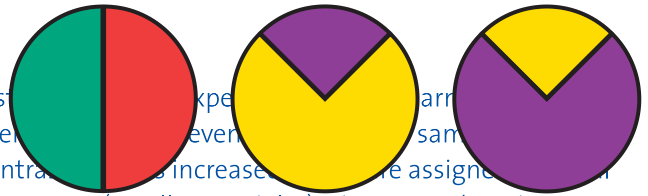


Colour wheel in tonal values with their corresponding opposite colours.

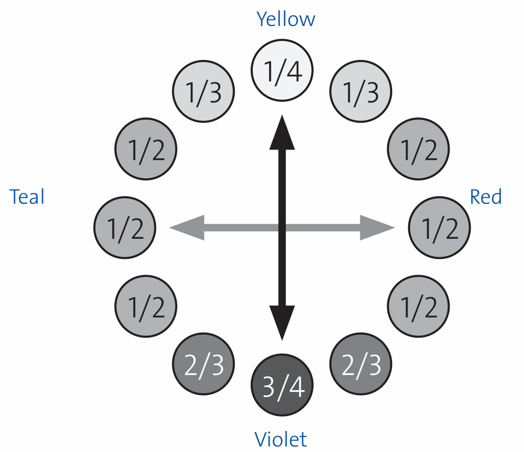
When an image is created using tonal values, it only results in a strong chromatic-achromatic contrast if, in addition, only few colours are used as complements to their tonal value: chartreuse with the corresponding tonal value of red-violet, red together with the tonal value teal etc.

Moreover, a colour loses its radiance when it is diluted with grey – until it fades completely (right). For more information, see page 25, “Using grey to mix tones”

Quantity contrast



Defining tonal values also has an effect on the quantity contras[…]xpe[…]arr[…] area designs. If colours are of a similar intensity, two colours see[…]even[…]sam[…] as in our example using teal (½ share) and red (½ share). The contra[…] increase[…]e assign[…] shares of the surface area. The middle circle thus seems rich in contrast (¾ yellow, ¼ violet). Vice versa, there is a harmonious colour effect emanating from the right-hand circle, as the yellow is more intense than the violet (¼ yellow, ¾ violet).



Presenting colours in greyscale makes it easier to measure their intensity.

You can see this harmonious colour effect in the image with the cat and the brightly lit windows. Due to its intensity, yellow has been used sparingly (max. ¼ share), showing a correspondingly low quantity contrast.

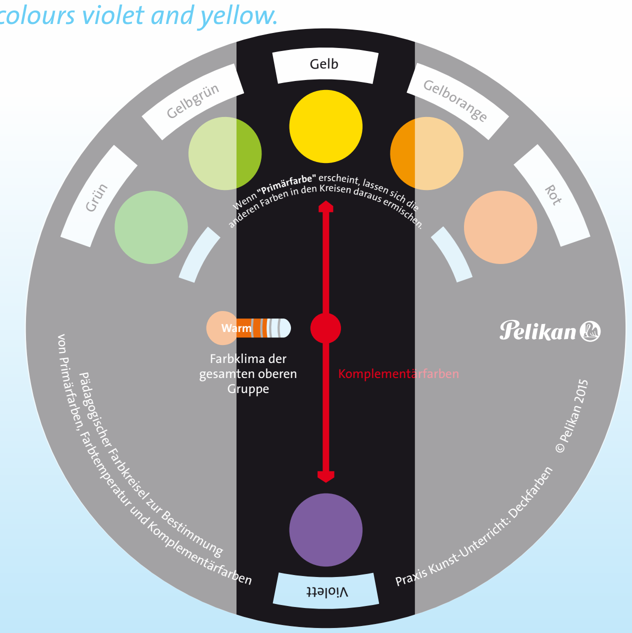
The colour wheel presented in tonal values shows the (rough) distribution of the proportion of colours in the harmonious surface area design using opposing colours. The colour proportions are simply changed to increase the contrast effect.

Contrast of light and dark

This means, firstly, the difference in brightness between two purely chromatic colours, e.g. light green/dark blue, light blue/dark brown etc. In the field of graphics, black and white contrast also plays an important role, because this is where differences between light and dark are the most pronounced.

In the picture of the magician, complementary contrast also plays a role alongside the contrast of light and dark. Sometimes, it is not even possible to make specific statements about contrast, as several different types of contrast appear at the same time.

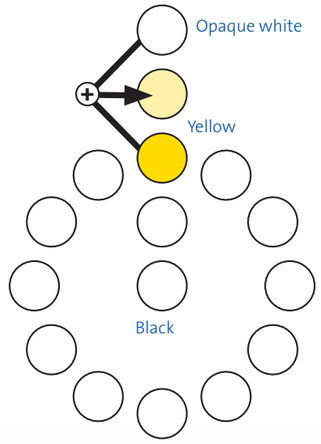
In this example, the arrow in the middle indicates the complementary contrast. However, at the same time, there is a visible difference in brightness between the two colours violet and yellow.



Using white to mix tints

Opaque white can be used to lighten a colour to create a range of different tints. There is a smaller scale for bright colours like yellow, for example, while there is a larger scale for dark colours like violet.

Lightening a starting colour also changes its character: Depending on the proportion of white being used, the colour now seems light, bright, delicate, pale, sweet; this is referred to as the colour's expressive value.



A colour is lightened by mixing it with opaque white.

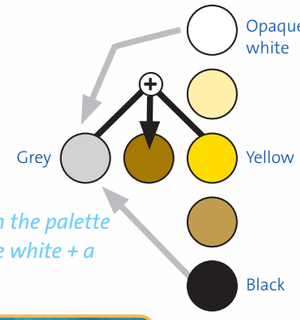
Other motif suggestions:
- At the cake shop: cream cakes etc.
- Milk shakes
- Pale-green dragonfly on a delicate petal
- Faded laundry items
- South Sea atmosphere

Technical information:
In order to mix delicate tones, first transfer opaque white to the palette / the mixing area and then cautiously add the colour – not the other way around.

You will find more information including downloads at:
www.pelikan.com/aufhellen-und-abdunkeln

Using grey to mix tones

Many grey tones can be mixed out of black and white, for which we have only few names, such as light grey, medium grey, dark grey, anthracite.
Mixing tones using grey is technically a little more complicated, as a suitably light grey tone needs to be mixed in the lid of the paintbox first, before the desired chromatic hue is added (in our example, the primary colour yellow). When mixing tones using grey, the colour effect changes. The colour seems more reserved and, depending on the amount of grey mixed in, dull, dreary, rainy, sad.



The grey is mixed on the palette beforehand (opaque white + a little black).

Other motif suggestions:
- A foggy day
- A rainy day in November
- A bleak landscape with dead trees
- In the industrial area: a building is being repainted
- An abandoned mountain village with derelict houses
- Thistles on stony ground

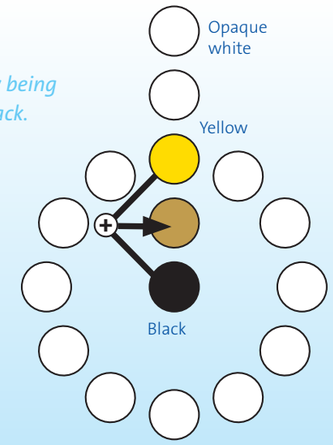
You will find more information including downloads at:
www.pelikan.com/trueben-mit-grau

Using black to mix shades

Just like when mixing colours with white, when you mix them with black (also referred to as darkening), it significantly changes the character of the starting colour: depending on the amount of black used, the colour now seems heavy, dark, gloomy and also dirtier.

A selection of motifs:
- The jungle getting thicker and gloomier
- A storm brewing
- A street between factory chimneys
- A wolf in the dark forest

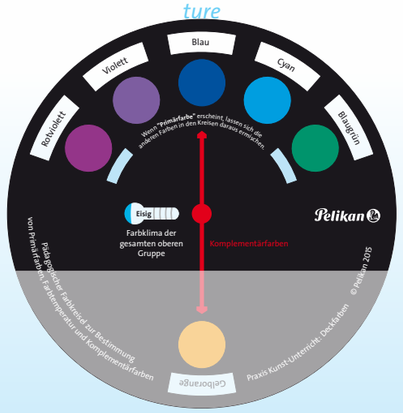
A colour is darkened by being mixed with (a little) black.



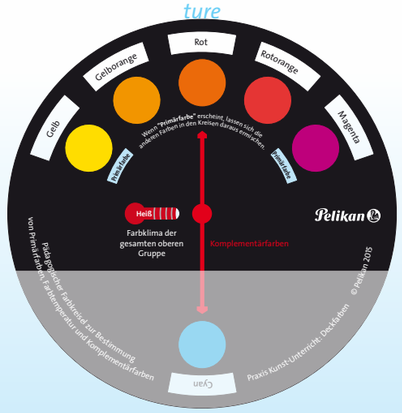
Contrast of cold and warm

The contrast of cold and warm plays a unique role, as “cold” and “warm” aren't actually colour descriptions. They are derived from associations that relate to the elements sun, fire, snow, water and ice. This is why feelings can also be incorporated into the overall design of the picture. Colour theory can provide a theoretical background. In the Pelikan Circle of Colour, the description “icy” for the cold colours and “hot” for the warm colours appears in the window “colour temperature”.

Cold colours in the Circle of Colour, “icy” colour temperature



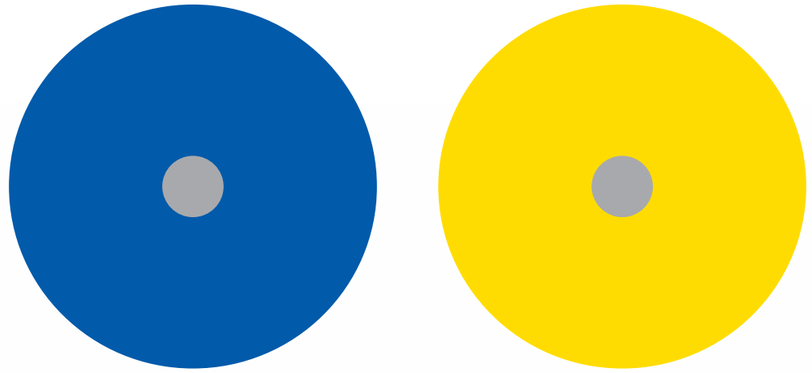
Warm colours in the Circle of Colour, “hot” colour temperature



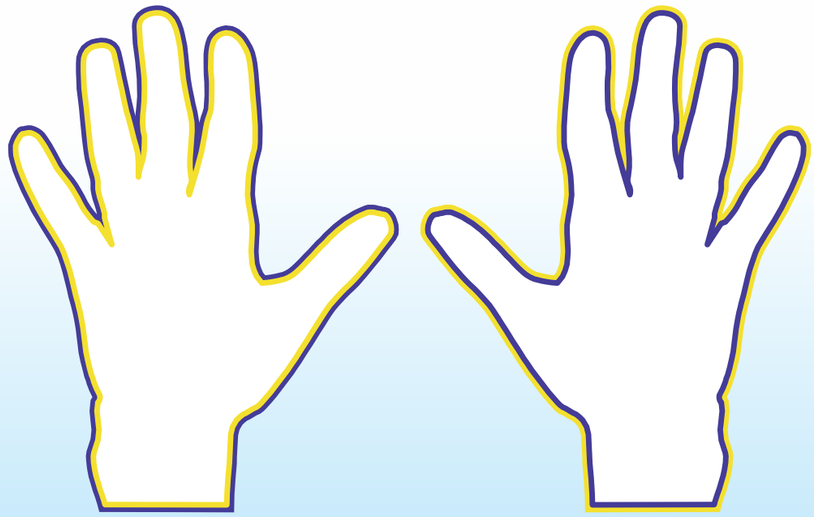
You will find more information including downloads at:
www.pelikan.com/kalt-warm-kontrast

Simultaneous contrast

If two colours are viewed next to each other (simultaneously), each of them takes on something of the complementary colour of its neighbour. In the following example, the grey centre dot on the left seems brighter than the one in the yellow circle. The grey dot on the right also seems to be smaller than the one on the left, although both are the same size and the same colour.



Simultaneous contrast also has an effect on the way we perceive shapes. If the contour colour (the outer line of the double line) is changed, it creates a water colour illusion. The dark, violet contour makes the hand on the left seem out of focus, somewhat spacious and a little colourful. The bright, yellow contour on the right, on the other hand, delimits the hand a lot more sharply and makes it seem brighter, almost pure white.



Mixing different shades of brown

The earth colours in the opaque paintbox, amber and burnt sienna, can be varied in a diverse range of ways by mixing them with black, yellow, orange, vermilion, magenta red, violet and chartreuse. In connection with this, the students are provided with an opportunity to mix diverse brown tones using suitable motifs.

Other motif suggestions:
- Hedgehog in dry foliage
- Squirrel gathering nuts for the winter
- Bears
- The bread shelf at the bakery
- Neanderthals in the cave
- The old town wall

Amber

Burnt sienna

Amber + Yellow

Amber + Burnt sienna

Amber + Chartreuse

Amber + Violet

Amber + Black

Amber + chartreuse + (a little) black = a typical umber

You will find more information including downloads at:
www.pelikan.com/arbeiten-mit-brauntoenen

Mixing olive tones

Shades of brown (earth tones) can be very easily varied, as seen on page 28. However, combining them with the colour cyan blue provides further artistic possibilities. Mixtures of greens and earth tones are generally referred to as “olive”.

Other motif suggestions:

- In the jungle
- Snakes’ nest
- Brown hides in green

Cyan blue

Orange

Gradients of cyan blue + orange

Painting artistically using the K12 opaque paintbox

"K 12 – the Original" is a collection of teaching ideas based primarily on famous artists – that is, on originals. The way that the paintings and drawings of artists are presented in classic art classes is often demotivating for students. Copying the image is usually an impossible task for them.

But we would like to suggest another method, i.e. not introducing students to the artist's work until after the actual activity has been completed. What is special about this is that the children examine the working methods of a famous artist by creating similar colour effects in their own work. One example of this is the painting "Icarus" by the French painter Henri Matisse.

The idea:

- Download the outline templates for the figure of Icarus and the stars.
- Students can create a new figure and a completely new image from these individual parts.

A great achievement by a school child, created using the outline template (small picture).

The material packages for each artist contain:

- Templates or other materials
- The artist's biography
- Teaching tips and alternatives

Have we made you curious?
Material packages for the following artists are available online:

- Henri Matisse
- Paul Klee
- Salvador Dalí
- Piet Mondrian
- Andrew Goldsworthy
- Pablo Picasso
- Georges Seurat
- Franz Marc
- Paul Cézanne
- Claude Monet

You will find more information including downloads at:
www.pelikan.com/k12-das-original

Potato and sponge-rubber prints

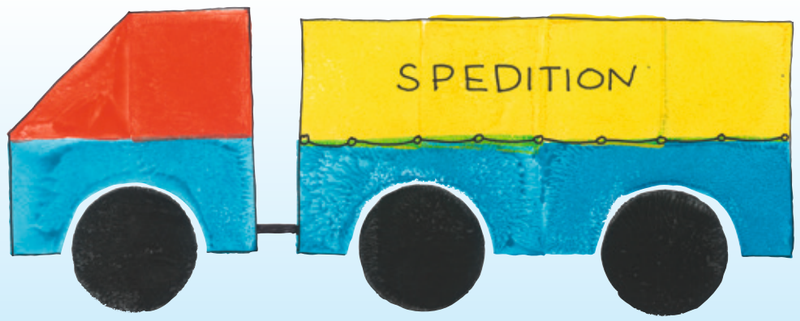
One popular printing technique is direct printing using potatoes. In its simplest variant, the tubers are cut in two, creating surfaces that are dipped into opaque paint. By pressing them onto the paper, the opaque paint directly reproduces the surface of the potato.

Potatoes are particularly suitable for printing (direct prints) as they are extremely versatile. After they are cut in two, further slices and pieces can be cut from them, changing the shape of the printing block. A kitchen knife can be used to cut original shapes into potatoes, which can then be used as stamps to print again and again.

Once they have dried, the printed shapes can be decorated using the simplest of means. A black fineliner can be used

Potato man, accentuated with fine lines

to turn the potato prints into vibrant characters with just a few lines. A dab of opaque white provides an additional flash in their eyes and teeth.



Sponge rubber can also be used to create colourful surfaces in direct printing. The motifs are simply cut out using scissors and then glued onto materials such as disused bricks. In our example, the shapes of the bricks have also been utilised directly. It is also possible to create long-lasting letters and numbers thanks to the hard-wearing rubber.

Possible combinations

Because potato and sponge-rubber stamps are so easy to make, they can be used to experiment with colour layering.

After drying out the first print, it can be printed over using another colour. The layered surfaces can also be used to identify mixed colours, which have been created in our example using the three primary colours cyan blue, yellow and magenta red. Children learn about professional multi-colour printing, and the combination of different printing techniques creates surprising effects. The clouds have been created using potatoes, while the treetop was dabbed on using a sponge. In contrast to repeated printing, this variant is known as “single printing”, because the print is unique and cannot be repeated.

Aleatoric techniques

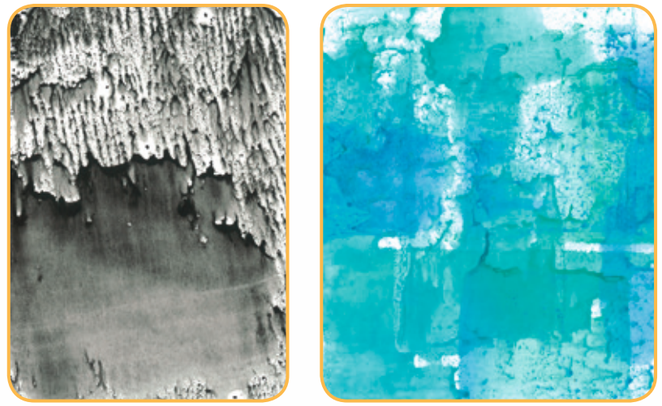
The treetop was created by applying paint with a sponge, making it somewhat random. As an artistic means, chance is a unique, interesting teaching topic. Aleatoric techniques could include (see QR code):

- spray pictures
- puff pictures
- decalcomania
- frottage and action painting

You will find more information including downloads at:
www.pelikan.com/zufallstechniken

Decalcomania and roller painting technique

Both paintbrushes and paint rollers (e.g. for linocutting) can be used to work with opaque paints in an effective, child-friendly way. This requires a disused glass or smooth plastic sheet that opaque paint is dripped onto using a paintbrush, which is then distributed using the rubber roller. A larger piece of drawing pad paper is now placed onto the rolled out paint, smoothed down a bit and then quickly pulled up again. The print created is immediately put to the side to dry out so that the paint does not spread any further around the paper.



Decalcomania and roller painting technique

The rolling technique also works the other way around: The opaque paint can be, as described above, dripped onto the glass or plastic sheet and then distributed using the roller. But the paint is then rolled onto the paper using the roller. The benefit of this technique is that a second layer of paint can be rolled out over the first one. The surface seems even more vibrant if you roll in a different direction.

The colourful printed surfaces can provide further artistic possibilities as a background, as our examples show. The April calendar page was created using a decalcomania technique. Dark-blue clouds ripped out of paper have been used to depict the stormy weather; the snow was dabbed on using the opaque white tube. The background for the May calendar page was created using a two-tone roller technique.

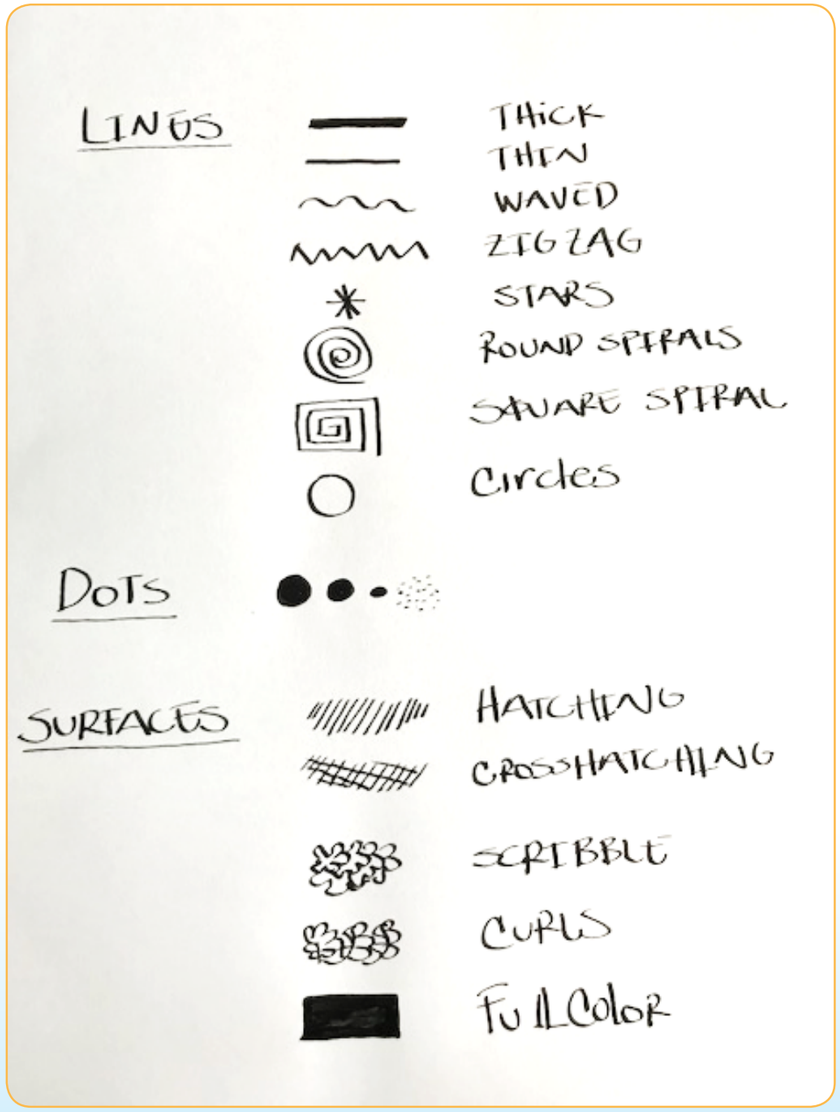
Collage artworks using decalcomania and roller painting techniques

The letters in both examples were cut out of newspapers, the sun from yellow construction paper.
In order to prevent the colours from rubbing off, pictures printed using opaque paints can be worn down using a tea light.
The wax layer this creates makes the colours appear even more intense and is even water repellent.

As an alternative to drawing pad paper, the saturated opaque paint can be rolled onto rainbow paper or applied using a very thick hair paintbrush. After it has dried, the smooth undersurface makes it possible to scratch out delicate patterns using a skewer or toothpick.

Scribbling

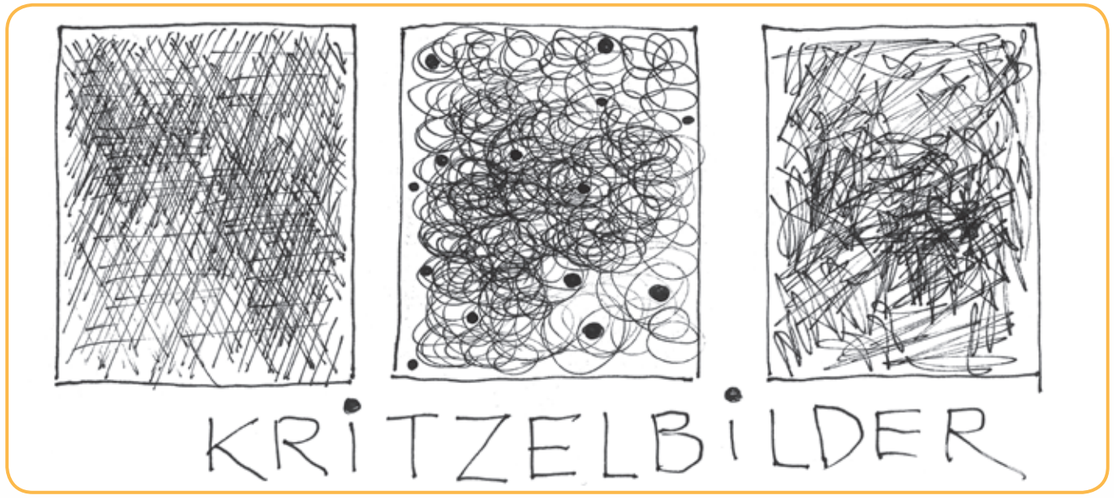
Fineliners are perfect for accentuating images (see potato man on p. 31), but also provide a wide range of artistic possibilities themselves. Even a small selection of different patterns shows what is possible with simple dots and lines:



"Scribble pictures" are created in the blink of an eye and turn into interesting surface designs. For a positive (black lines on a light background), three boxes are drawn on drawing pad paper, in which the different hatches are then tried out.

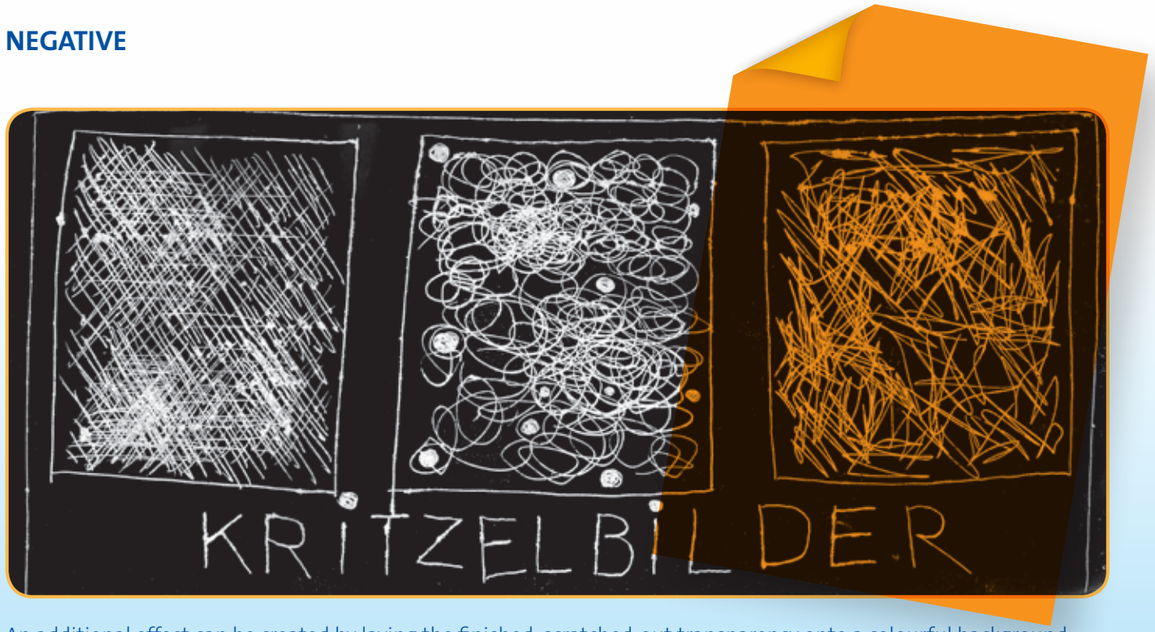
POSITIVE

To create a negative (white lines on a dark background), rich black opaque paint (thick application of paint using a little



water and a thick hair paintbrush) is applied onto a thick transparency (photocopying or overhead transparency). Individual lines are scratched into the transparency through the dried paint, for example, using a toothpick. However, the writing must be scratched out back-to-front. Using a damp cotton bud, additional, larger dots and thicker lines can be drawn.

NEGATIVE



An additional effect can be created by laying the finished, scratched-out transparency onto a colourful background with its blank side up (see third picture on the right).

Delightful scribble pictures can also be created using felt-tip pens held at an angle. An irritating housefly (see red circle) could be one possible subject matter. The surfaces that are created can then be filled in with different scribbling patterns, for which felt-tip pens, coloured pencils or wax crayons are suitable.

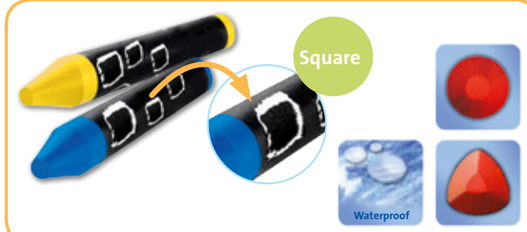
Working with wax crayons

Hardly any other colouring material covers such a diverse range of uses as crayons. It can be used in a wide range of drawing techniques, from kindergarten right through to the artist's studio. Crayons are also the first drawing and writing utensils a child uses. They are ideal for playfully learning movement sequences (e.g. looping exercises).

Pelikan wax crayons are characterised by their easy colour application and their intense beeswax colours, and they are particularly child-friendly. Clear markings on the wrappers of the crayons and their cases make it easy to differentiate between water-soluble and waterproof crayons.

Water soluble

Waterproof

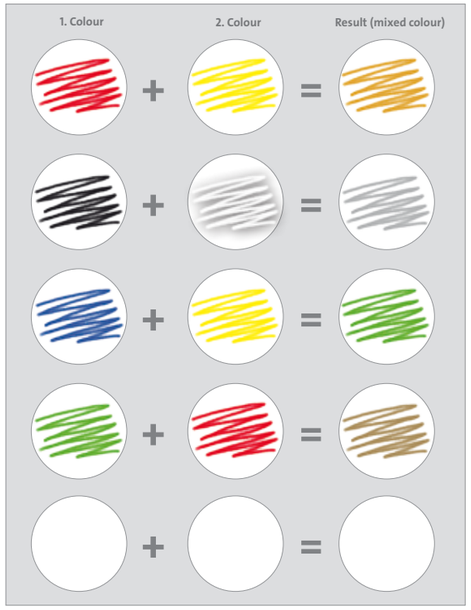


Colour Card

Colour Card for wax crayons

The Colour Card is a mixing aid that illustrates the individual components of a mixed colour. Different mixtures can be tried out on the Colour Card. The first circle is drawn in a dark colour (colour 1) and the second circle is drawn in a light colour (colour 2). In the third circle (result), the dark colour is applied first, then the light one. This creates a mixed colour.

Colour Card
for wax crayons



You will find the photocopy template for the Colour Card on p. 40.

Layering

The materials used in dark Pelikan wax crayons are softer than in the light ones. This is why they can be used to easily draw over and cover light colours.

Mixing

If light colours are applied onto dark ones, the two colours will mix with each other. The existing colour selection can be expanded by mixing them.

Tints

In order to make a colour lighter, it is mixed with white. To do so, the dark colour is applied first, and only then is the white applied on top. The following mixture has been created using the example of blue:

Original blue – addition of white in different proportions

Diluting

Water-soluble wax crayons can also be "lightened" using water. The colours are diluted and become transparent. If too much water is added, the colour disappears altogether.

Original green – addition of water in different quantities.

Shades

In order to darken a colour, it is mixed with black. In our example, the colour orange has been darkened. In line with the rule "light is mixed with dark", black is applied first. Otherwise black will cover up the orange colour. Please note: By adding even more colour, the orange will become lighter again!

Black – addition of orange darkens, further addition of orange lightens it up

Colour Card photocopy template for wax crayons

1. Colour		2. Colour		Result (mixed colour)
	+		=	
	+		=	
	+		=	
	+		=	

Lines and line arrangements

It is very easy to draw lines using Pelikan wax crayons.
However, it becomes more difficult, depending on how similar these lines are intended to look later on. This is why drawing lines requires some skill.

Lines can also be used to depict natural processes such as rain, lightening and sunshine.

Outlines

In the beginning, image elements are created using outlines, as in our example of the tree and the house. Afterwards, other lines are added to the basic shape, which should not touch each other.

Line arrangements

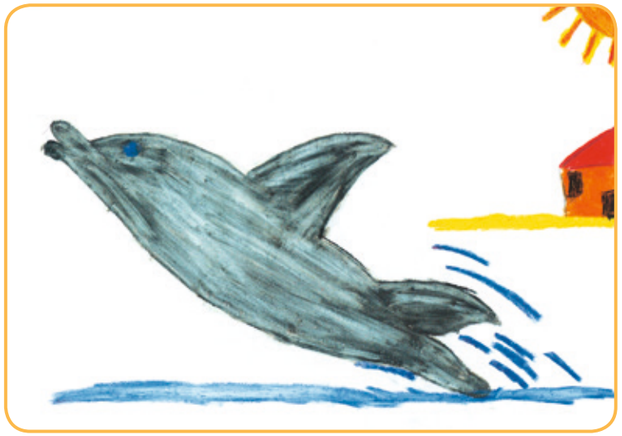
In this line arrangement, the individual lines form the branches of the tree. Many lines together are then referred to as a line arrangement. The intensity of the white wax crayon is particularly obvious on black cardboard.

Opaque colour application

By applying light pressure to the wax crayon, colour can be applied opaquely when drawing. If light and dark wax crayons are used together, it generates a contrast of light and dark. This increases the crayons' intensity.

In order to darken the colour brown, the hut's planks are primed using a pastel-like technique (see p. 43 "pastel-like colour application") in black and then mixed with the brown wax crayon. The dark brown can be tested on the Colour Card first.

The colour in this dolphin has also been applied opaquely. In our example, the colours black and white mix together to form a grey.



Layered drawing

In layered drawing, the base colour is first applied opaquely, in our case the colours blue and green. A darker colour is then drawn over the top of the base colour, in our example the colours brown and black. Black cardboard is good for making the colours of the wax crayons shine. This is referred to as layered drawing, as, in this case, the light wax crayon colours cover the black cardboard.

Pastel-like colour application

Pastel-like colour application is achieved by applying light pressure to the wax crayon. In our example, the background has been applied in a pastel-like way; the man and the cars, on the other hand, have been created using an opaque method.

Blurring using plastic erasers

Plastic erasers are well suited to making the object of an image appear more dynamic. First, an image is drawn using wax crayons. The colour is then “blurred” using the plastic eraser. The eraser is used directly on top of the colour, which is blurred in the desired direction. The eraser lines create the impression of movement. The boy on the skateboard looks like he is moving very quickly.

This technique can also be used to depict fog, wind and spotlights.

This blurring technique also creates new colours.

In our example, a new mixed colour always appears at the intersection between two colours:

Green + red = brown

Red + yellow = orange

Blue + yellow = green

Blending using water

When using water-soluble wax crayons, the applied colour can be smeared using a damp finger, paintbrush or cloth. It is easier to apply colour to larger surfaces using this technique, as it is not necessary to draw over the entire surface using a wax crayon. In our example, the “water area” is only drawn on using rough lines and then smeared using a little water. But if too much water is used, the colours become transparent. Once they have dried, this area can be drawn over using wax crayons.

If wax crayons are smeared using a lot of water, the intense hue disappears and the colours become transparent. In this image, the blue has been diluted using water, the shiny fish have been drawn over the top.

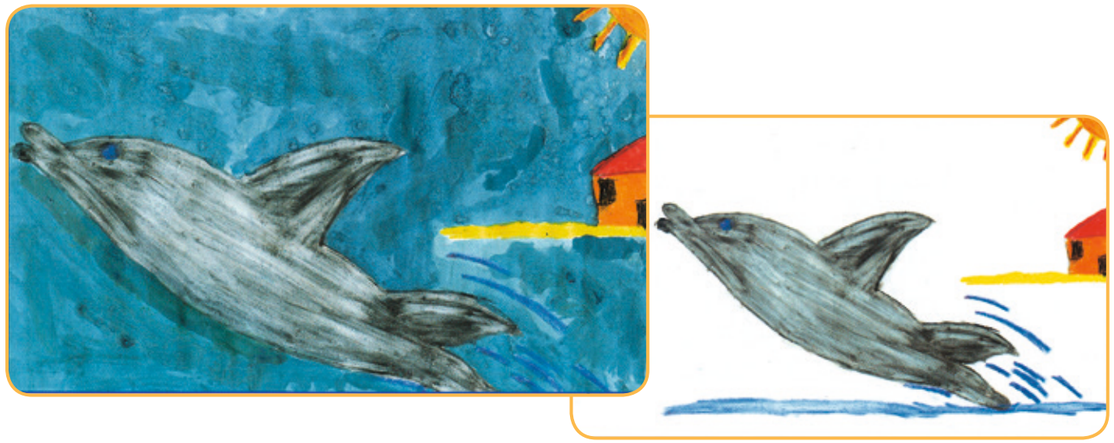
Although the colours become transparent when water is added to them, they can be reapplied during this process – as long as the paper is not wet. Using this “wet” technique, the loss of colour can be nicely balanced out while still retaining the smearing effect. This becomes particularly apparent with the intense green tones of the lily pads. The “wet” technique significantly increases colour gradation, here of the colour green. The colour gradient ranges from light green to a very dark green.

Painting over using opaque paints/paper batik

16The man on the air mattress was drawn at the beginning using waterproof wax crayons. The shark, the sun, birds, waves and clouds were also drawn opaquely using waterproof wax crayons. This is important to ensure that the colour intensity of the wax crayons is retained during the next step. The image is then painted over using opaque paints. The watered down opaque paint rolls off the “wax surfaces”. If this rolling-off effect is not desired, the opaque paint can be blotted up using an absorbent paper towel.

In this image, waterproof wax crayons were also used first, before diluted opaque paint was used to paint over them. The intense hue reinforces the intensity of the wax crayons.

The type of background can make a situation seem different. Here, blue opaque paint was mixed with opaque white straight on the paper. The uneven distribution of colour churns up the water, the image “lives”.



Sgraffito technique using wax crayons or Plaka paint

The Sgraffito technique means working with two different layers of colour. The drawing paper is first primed opaquely using wax crayons. The colours can be arranged as free-standing patterns, stripes, dots etc. Of course, if a colour is to appear in a certain place later, this must be taken into account, like with the green parachutist.

Afterwards, the entire paper surface is drawn over, either using black wax crayon or using diluted black Plaka paint (only with waterproof wax crayon background). Once it has dried, individual parts of the black crayon or the dried Plaka paint can be scraped off using a scraper.

The wax crayon colours beneath appear, which seem particularly intense due to the dark contrast.

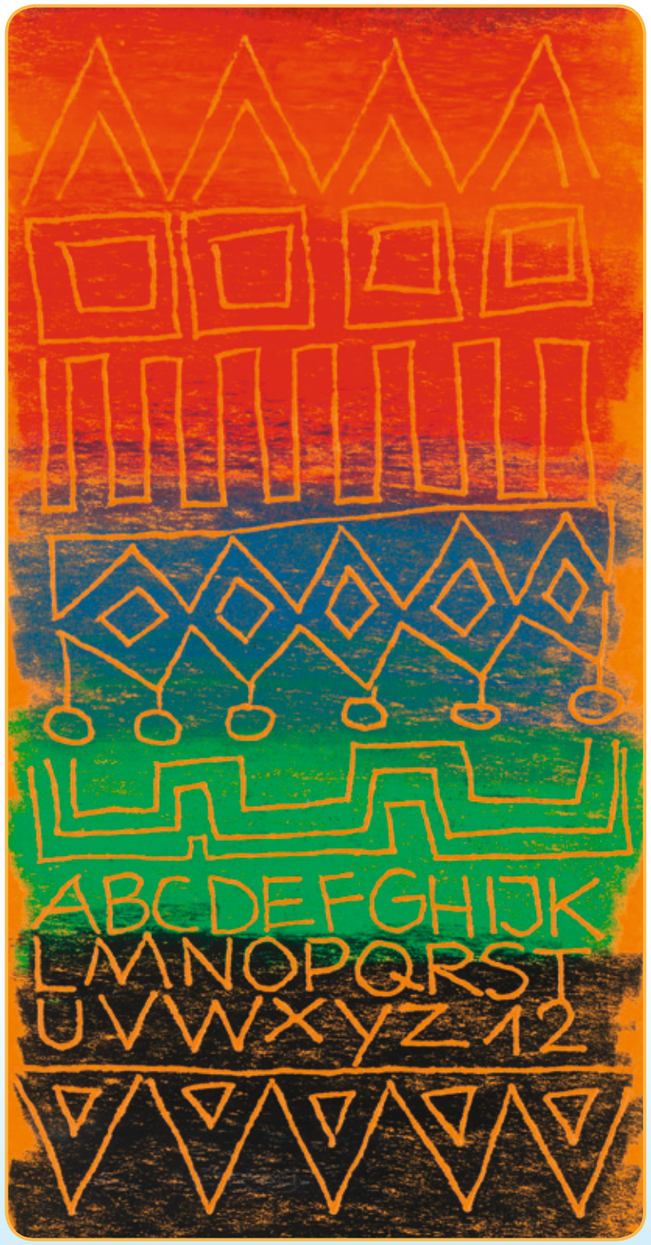
When using the Sgraffito technique, other effects are generated if colours other than black are used, like blue, for example. Blue can be scraped off or used as an artistic element, like in our example, as the sky. Another possibility is to not completely apply the paint to the wax surface. For example, border areas can be kept clear. Emphasised in this way, they then become an important element of the image layout.

Wax engraving

Due to its material properties, empty packaging can be used for a wide range of artistic purposes. Cardboard is usually a lot thicker than construction paper; juice cartons are lined with moisture-protection film and are colourfully printed on the outside. Both sides provide creative opportunities, although the method is always the same.

First the packaging is separated, cleaned and dried. Motifs are engraved into the surface by applying pressure to a fine but blunt instrument (for example the tip of a knitting needle).

Afterwards, the surface is painted over using the softer, water-soluble wax crayon held at an angle. The lines of the inside of the packaging now appear in their background colour. The printed exterior, on the other hand, transforms into colourful patterned lines when they are painted over in one colour using wax crayons.



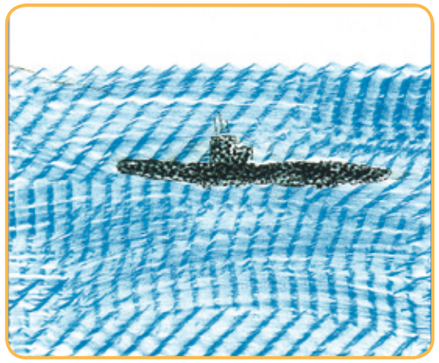
The motifs seem even more vibrant when different wax crayons are used. There are no limits to the motifs selected, which can be anything from simple patterns to letters. This is also a way to quickly and individually make postcards. Colourful construction paper is also suitable for this activity.

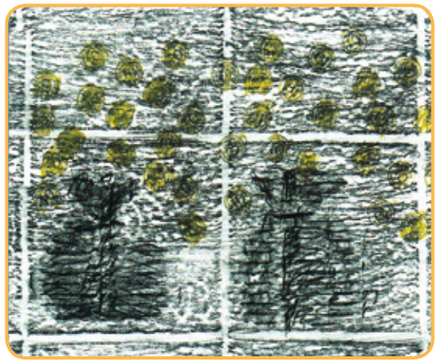
Material frottage

In material frottage, a sheet of drawing paper is worked with directly on top of a structured undersurface. This could be e.g. a doormat, fabric, structured wallpaper or a tiled wall. In our example, the blue background was created on top of a metal lattice. We worked with the flat side of the wax crayon using a pastel-like drawing technique. The submarine was drawn by applying strong pressure to the black wax crayon; the undersurface here was a stone slab.

For the background of this image, we used the flat side of the wax crayon to lightly draw on the paper; the bags of gold were created by applying stronger pressure to the crayon. We only worked with the pointed side of the yellow wax crayon when it came to drawing the coins and darkened the colour by mixing it with black.

Openness to experimentation leads to the most surprising results.





Natural materials are also well suited to material frottage. In this image, the structures can be recognised as different leaves. Thinner paper and applying gentle pressure to the wax crayons are crucial to creating this effect.

By skilfully utilising different undersurfaces and colours, individual parts of the image can be emphasised. This pastel-like river landscape was created in a short period of time.

Combining different techniques

Lines

Lines here have two functions: They serve to depict the outline of the house and natural processes like rain, lightning, sunshine.

Opaque colour application

So that the background can be painted over using opaque paints at the end, all surfaces are created by drawing opaquely using waterproof wax crayons.

Mixing

The grey surfaces are created by drawing over the black wax crayon using a white crayon.

Painting over using opaque paints

After the wax drawing work has been done, the remaining white surfaces are painted over using opaque paints. Using this
technique, excess paint can be removed from the wax drawing surface very easily using a cloth.

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