

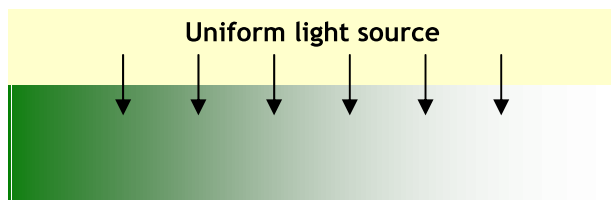
Brief Guide to Light and Colour

EFFECTIVENESS OF LIGHT

The amount of light reflected back from a surface, and therefore the effectiveness of the light source, depends on the colour and texture of the surface.

Light-coloured glossy surfaces such as white melamine and even white walls can reflect as much as 70% of the light back, whereas bare brick walls reflect at best 25-35% and dark-coloured surfaces such as dark textiles as little as 5-15%.

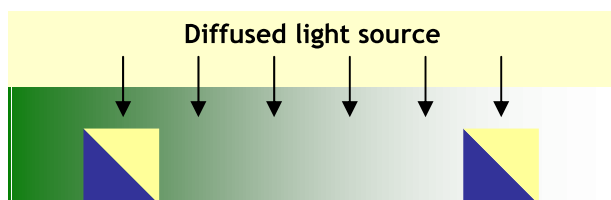
In practice this means that in order to achieve the same perceived level of ambient lighting, you need considerably more lights in a dark-coloured room.



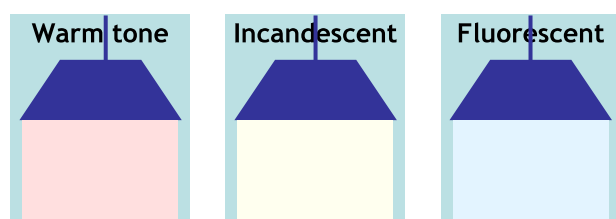
The same light source appears less 'powerful' in a dark-coloured room. Conversely, more lights are required in a dark-coloured room to achieve the same perceived lighting levels.

LIGHT AND COLOUR

General lighting tends to emphasise dark colours against a dark background, and vice versa.



Artificial light (ie. anything other than natural sunlight) comes in different 'colours', ranging from the yellowish ('warm') light of the incandescent light bulb to the blueish ('cold') of the fluorescent tube. There are also special 'warm tone' bulbs which can be fitted to most luminaires. LEDs, which are becoming increasingly common in household use, come in a wide range of colours.



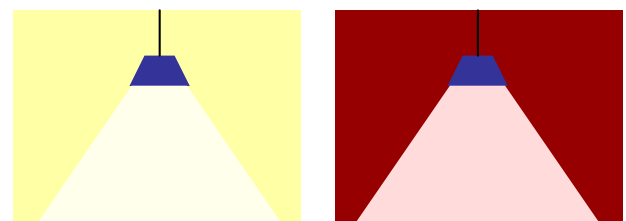
The same colour object appears differently depending on the colour of the light source.

LIGHT AND SPACE

The perceived space, ie. size and shape of a room, can be influenced by the positioning and type of light used.

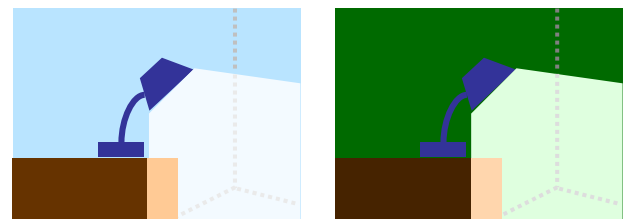
A pendant ceiling light which disperses the light in all directions creates a uniform space where the perimeter does not stand out.

A pendant ceiling light which focuses the light downward reveals in a light-coloured room the perimeter of the room and makes the ceiling stand out creating a sense of lofty space. The same type of light in a dark-coloured room forms a 'space within a space' which can be cosy, but which also makes the rest of the room feel gloomy and brooding.



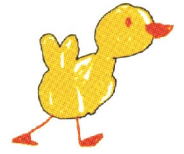
Downward light in a light-coloured room creates general ambient light, whereas in a dark-coloured room it creates a 'space within a space' underneath the light source.

Using a spotlight or other highly focused light source tends to de-emphasise and blur the area outside its 'light cone'. In a light-coloured room this means that the perimeter of the room is not clearly visible. In a dark-coloured room the rest of the room almost disappears from sight.



Focused light causes the area outside its beam to disappear, the more so the darker-coloured the room is.

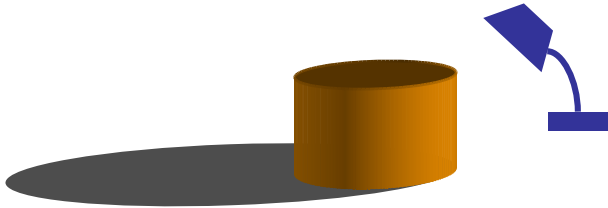
You can of course make very good use of this 'closing in' phenomenon by using confined areas of light in an otherwise dark room, thereby creating a 'cosy' feel.



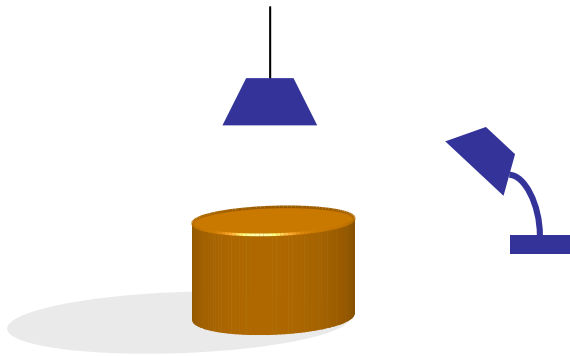
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LIGHT AND SHAPE

A single light source creates a strong contrasting shadow and makes it difficult to discern shapes accurately - especially the shadow behind the object can cause an optical illusion which makes the object appear longer/deeper than it is. On the other hand, textures are easier to see.



Two or more light sources lessen the shadows and help discern shapes accurately, although textures may be more difficult to detect.



ILLUMINANCE

Illuminance, or the intensity of light, is measured in units called Lux (LX). The eye's ability to see colours increases from total darkness where no colours are visible, to dim light where mainly blues and greens are, to bright light where all colours are clearly visible (and where yellow is typically emphasised).

Full moon on a clear night gives approximately 1 LX, while the sun at its brightest gives 30-100,000 LX. Colours become visible at around 10 LX, which is the illuminance of most nightlights, 'mood lights', or a single candle at a distance of 12 inches or 30 cms. Reading requires a minimum of 100, preferably 300-500 LX, while focused work requires tasklighting giving a minimum of 500 and possibly over 1,000 LX.



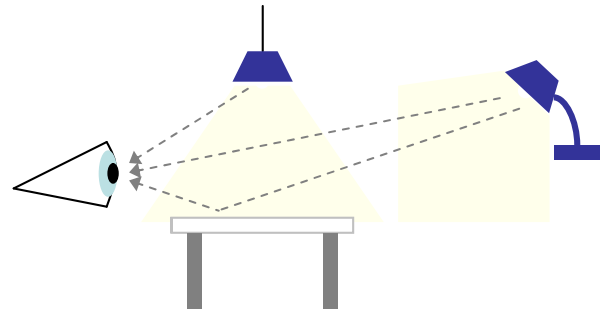
Desk light is up to 10 times brighter than a general (eg. ceiling) light, which in turn is 10 times brighter than a baby's nightlight.

LIGHTING ERGONOMICS

Glare from incorrectly positioned lights is one of the most common complaints and can be unpleasant and even dangerous.

Always position and direct lights so that they are not in the direct field of vision when carrying out usual tasks in the room: eg. do not position a light behind a TV or computer monitor so that it faces you as you view the screen.

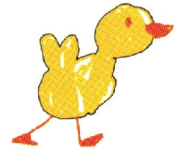
Indirect glare can also cause problems. Remember that light reflects from light-coloured and glossy surfaces, glass, etc.



Situations where you must shift your focus from a dark to brightly-lit area and back can cause momentary blinding. You should therefore ensure that where spotlights or other focused task lighting is used, there is also sufficient levels of general light outside the brightly-lit areas.

Where the only light source is positioned behind you, this helps avoid glare. However, your own head or body will cast a shadow in front of you, which can be a problem especially where you need good task lighting. Unless you can place the light source at the side, it is best to use several lights to fill in the shadows.





Brief Guide to Light and Colour

COMPLEMENTARY OR OPPOSING?

Colours can either complement each other, in which case they form a harmonious combination, or they can oppose and 'fight' each other.

The closer together colours are on the 'colour wheel', the better they complement each other. At the same time the border between them can seem blurred.



Opposite colours, such as green and red or yellow and purple, clash. The border between them is emphasised, especially if one is darker than the other.



Complementary



Opposing

This does not of course mean that you cannot combine opposing colours, as long as you are aware of this and of their combined effects.

Many people consider 'earthy', natural colours to go together well, even when they are not strictly speaking complementary.



THE EFFECT OF COLOUR

Colours affect us in many ways. Most of us have our 'favourite' colours, as well as ones we don't like so much. In addition to that, colours also have a direct effect on our moods:

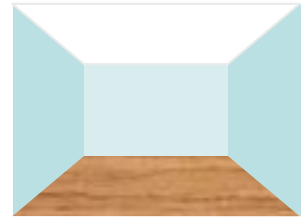
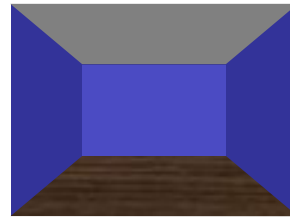
- Red and its different shades (orange, burgundy, etc.) feel very warm and are emotionally very stimulating.
- Yellow is warm and uplifting, delighting and exciting us.
- Blue and green are cold and calming.
- Brown is neither cold nor warm but can be depressing.
- Purple is cold and can feel restless.



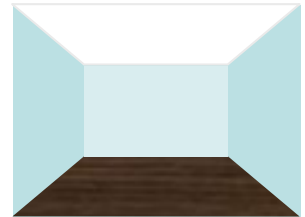
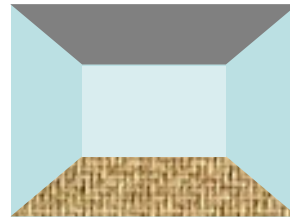
Warm and stimulating
Cold and calming

COLOUR AND SPACE

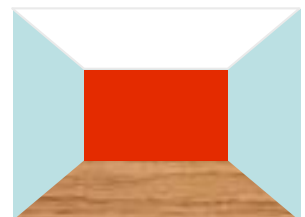
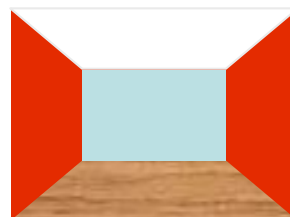
Colours also affect the way we perceive space, for example dark colours make a room feel smaller than light colours.



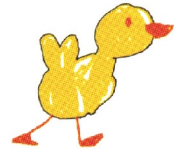
The relative darkness of the floor and ceiling can change the feel of a room quite dramatically. Dark ceiling and light floor can feel as if the ceiling is pressing down. Dark floor and light ceiling, on the other hand, create a sense of loftiness and emphasise objects placed on the floor.



Red, orange, yellow, purple and brown typically appear close, whereas blue and green (especially lighter shades) or grey seem to us further away. Consequently, you can change not only the perceived size but also the perceived shape of a room by the use of colours.



These rooms are exactly the same shape and size, but in the one on the left the red walls at the sides of the room and light blue at the far end make the room appear narrower and deeper.



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LIGHTING IN CHILDREN'S ROOMS

- The overriding consideration must always be children's safety - see the next section.
- One ceiling light in the middle of the room (or wherever it was arbitrarily placed when the house was built) is seldom ideally positioned or adequate. Unless it can be repositioned you are better off considering it a merely decorative light, and adding other lights for optimal functionality and aesthetics.
- Spotlights are great where you need a concentration of light, but be sure to supplement them with other lights to provide good ambient lighting levels throughout the room.
- Children spend much of their time playing on the floor, and good lighting should therefore illuminate the floor area especially well. They also view things from a much lower height than adults, therefore lights should be of such construction and/or positioned and directed so as not cause glares even when viewed from low level.

SAFE LIGHTING FOR CHILDREN

- Lights which are within reach of children (including which they can reach by climbing on furniture etc.) must not become hot, or at least the bulb must not be within reach.
- Lights which are of such design/construction that a loose object such as a toy or piece of clothing can enter the shade or other enclosure and rest on top of a hot bulb should be avoided to minimise fire hazard.
- It is strongly recommended that all lights within reach of babies or small children operate on extra low voltages, ideally no more than 24V current.
- Freestanding lights must be stable enough not to be easily knocked over, and ceiling and wall lights must be fixed securely so that they don't fall (and cannot be pulled) down.
- 'Candle' shaped light bulbs can have inherent structural weaknesses causing them to explode more easily than normal round bulbs, and their use in children's rooms should therefore be avoided. In most cases you can use a small round bulb or a small low-energy bulb instead.
- Low-energy bulbs and low-voltage lights help cut down your energy bills - and help preserve the planet for your Little Ones!