

Quick guide to lightbulbs

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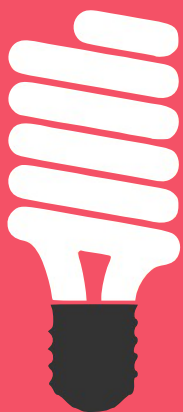
Standard tungsten or GLS bulbs*



- Warm yellow-white light
- Watts as a measure of brightness.

*no longer sold in the UK

Compact fluorescent lamps (CFL) bulbs

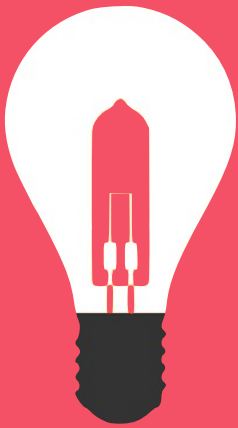


- CFLs most common on the market
- Many disliked blue-white light and slow start-up
- Modern colour and 'fast-start' options
- Good life and energy-saving
- Not always dimmable
- May not be suitable for high-risk or cold areas.

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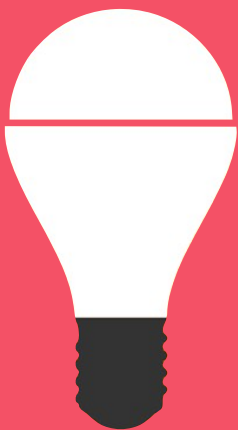
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Halogen bulbs



- Halogen bulbs cheapest but least long-lived on the market
- Significantly less energy-saving
- Similar colour light to old GLS bulbs
- Dimmable with no start-up lag.

Light emitting diode (LED) bulbs



- LED bulbs most expensive but most energy-efficient and long-lived on the market
- Light in a range of colours
- No start-up lag
- Require specialist dimmer switch
- New and evolving technology.

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Lumens



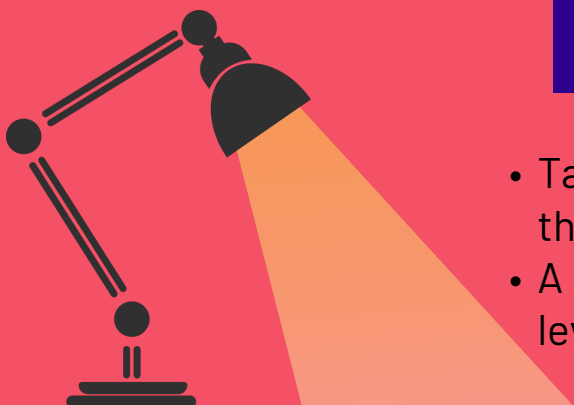
- Since 2012, lumens is the standard unit for luminance
- Advise patients to look for this instead of watts
- General lighting must be optimised to avoid eye strain
- Use the Thomas Pocklington Trust guide for lumen ratings by room size.

Inverse square law

The inverse square law, which is applied to lighting, states that illuminance is inversely proportional to the square of the distance between the object and light source.

$$E = I/d^2$$

(illuminance = luminous flux/distance²)

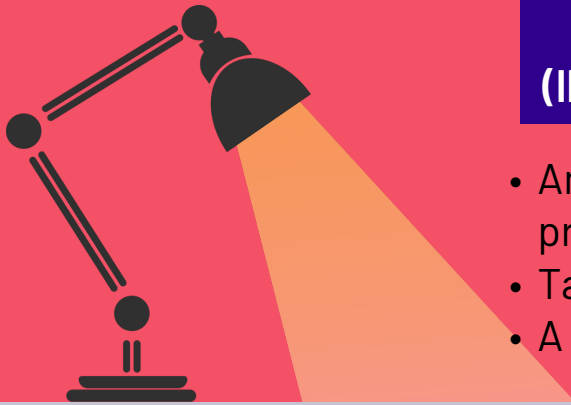


- Task light within 60cm will provide 25 times the light of a ceiling light 3 meters away
- A 60-year-old may require three times the level of light as a 20-year-old.

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Cosine law

The cosine law, which states that the illuminance starts to reduce where a surface moves away from the optimum 90 degree incidence to a light source, applies to task lighting.



$$E = I \times \cos\theta$$

(Illuminance = luminous flux x cosine θ)

- An angle may be advisable if the patient prefers to read glossy material
- Task lights may be adjustable and portable
- A flexible solution.

Task light bulbs may be CFL, halogen or LED

CFL bulbs	Halogen bulbs	LED bulbs
Don't get too hot	Get hot	Don't get hot
Can provide either warm yellow white or a cool blue 'daylight' white	May not be comfortable to use for close up tasks	Energy-efficient
CFL bulbs without an outer glass envelope emit small amounts of UV light		Don't give off as much light as halogen or CFL bulbs
Patients should be advised not to be closer than 30cm for extended periods		