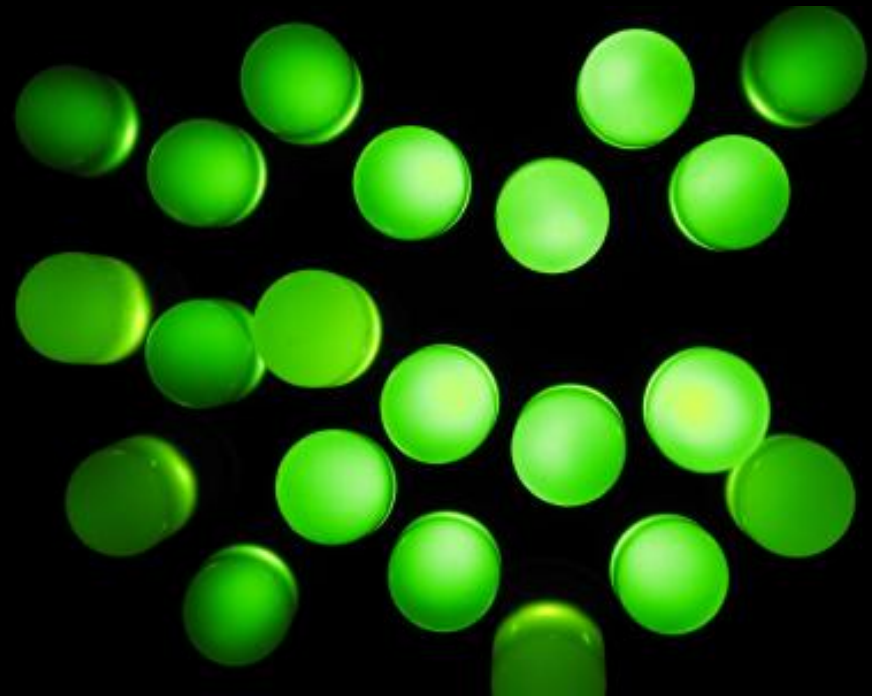
HOUSEHOLD LIGHTING



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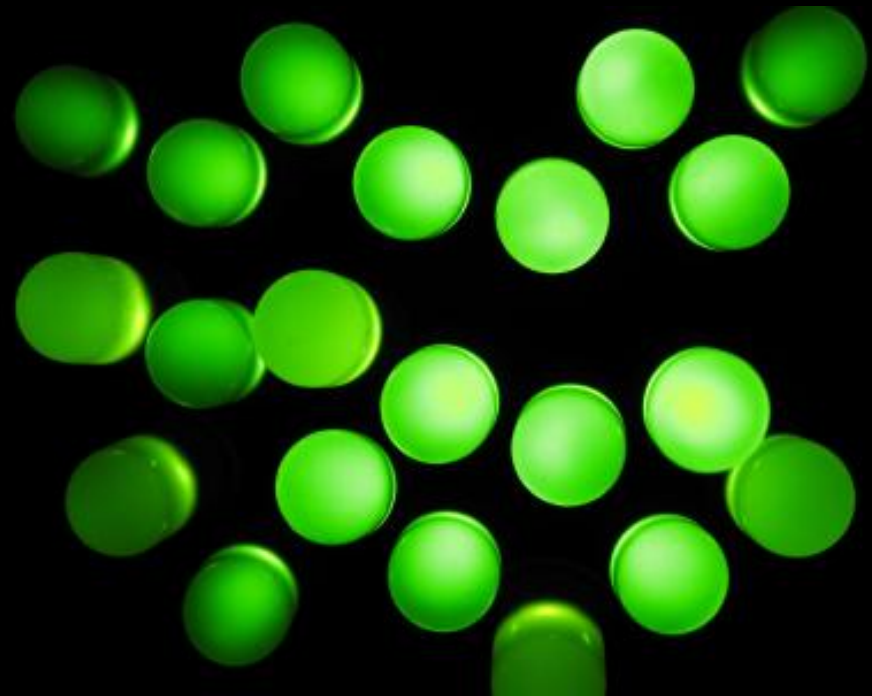
WHAT IS LIGHT

We need light to see the world around us. Light is a natural phenomenon vital to our very existence.

The purpose of lighting installations is to allow people to adequately perform physical or visual tasks.

Lighting installations should be designed primarily for the comfort of the occupants. Energy efficiency and aesthetic value should be secondary considerations.

Lighting is fifty percent fact, and fifty percent Psychology – perception is important.



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LIGHTING TERMS

Wattage – the amount of electricity used per hour by a lamp

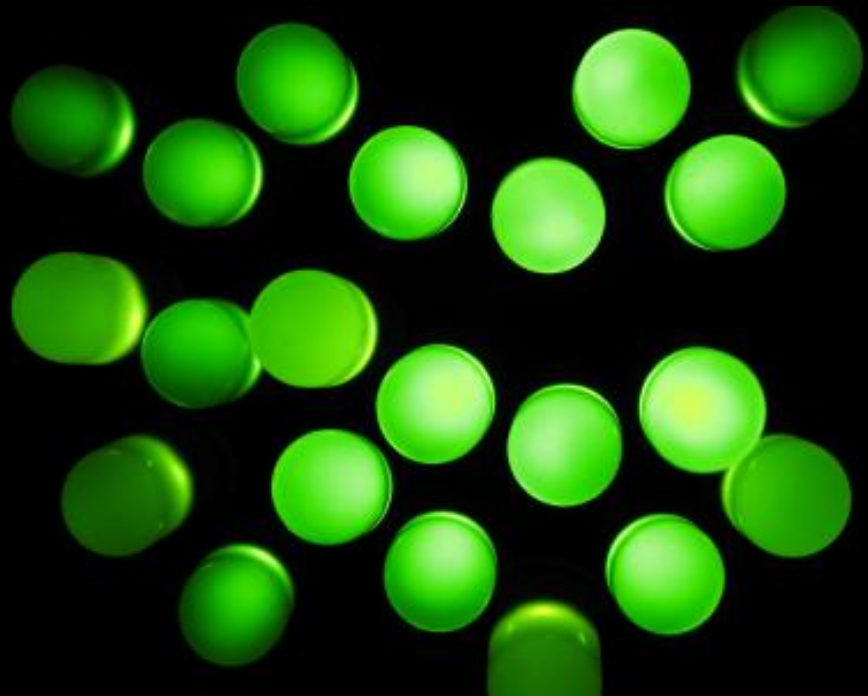
Kelvin – the “temperature” of the light produced by a lamp

Colour rendering index – how well a lamp shows accurate colour

Lumens – refers to the brightness of a lamp

Efficacy – lumens per watt

Fittings – ES, BC, MR16, GU10



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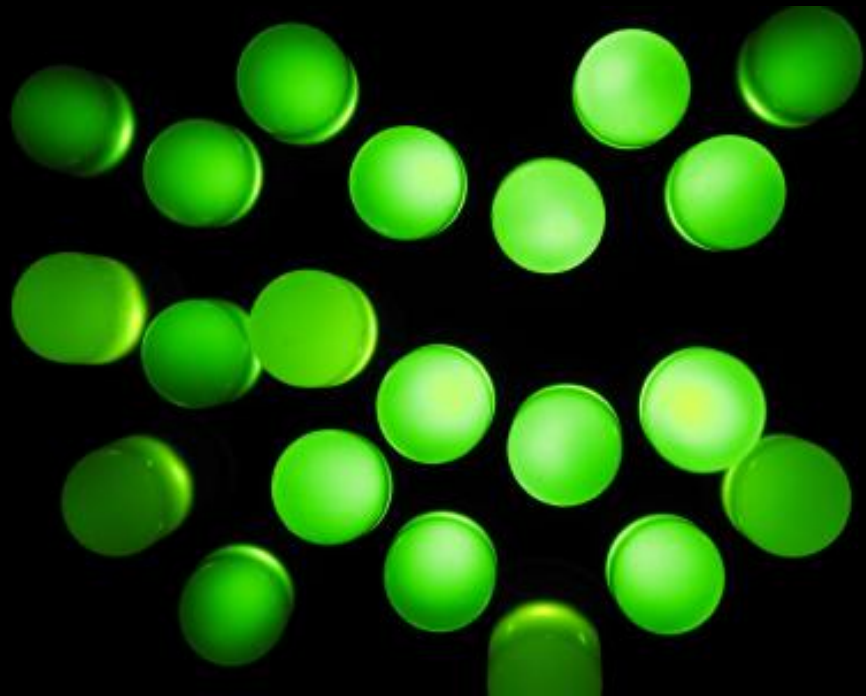
DIFFERENT TYPES OF LIGHT

Incandescent light

Range	25-300 watt
Kelvin	2700k
Life	1000 hours
CRI	100
Efficacy	12 lumens/watt

Pros – immediate on, cheap initial cost, immediate full light output

Cons – very expensive to operate, low colour temperature, short lamp life.



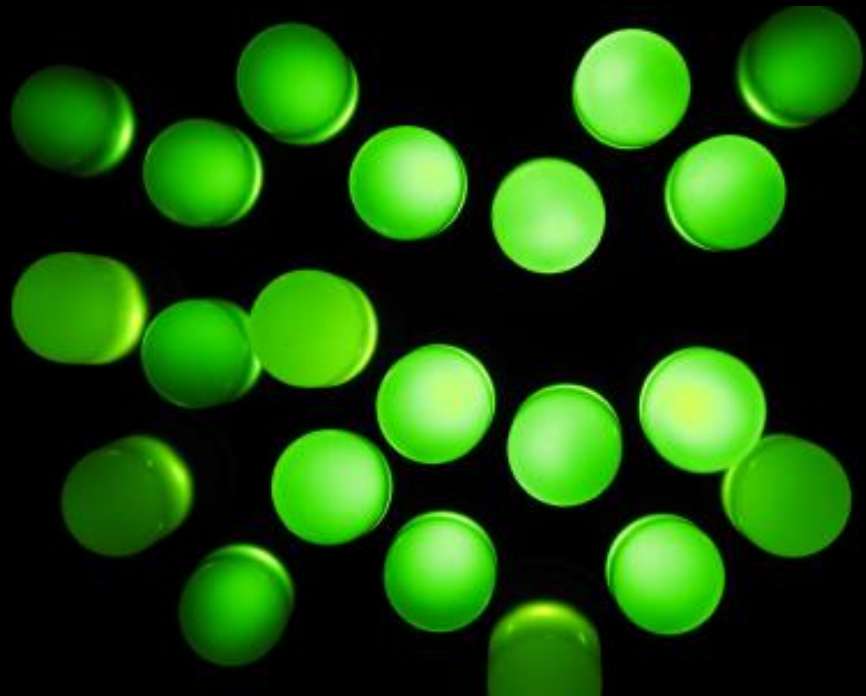
DIFFERENT TYPES OF LIGHT

Fluorescent light

Range	5-50 watt
Kelvin	2700K – 6500K
Life	Up to 15,000 hours
CRI	76-92
Efficacy	33-65 lumens/watt

Pros – economical to operate, large colour range, cool to operate, long life

Cons – more expensive, slow to full brightness, often unattractive.



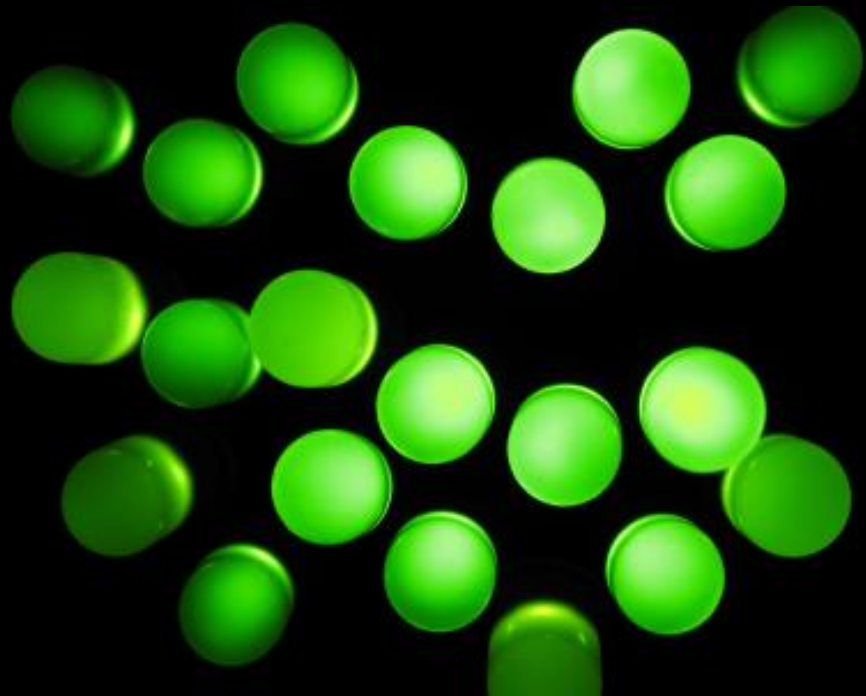
DIFFERENT TYPES OF LIGHT

LED light

Range	0.1+ watts
Kelvin	2700K – 6500K
Life	Up to 50,000 hours
CRI	80
Efficacy	40-80 lumens/watt

Pros – instant on, very long life, high efficiency, solid state, zero mercury

Cons – expensive, not always compatible as a retrofit, colour rendering not as good



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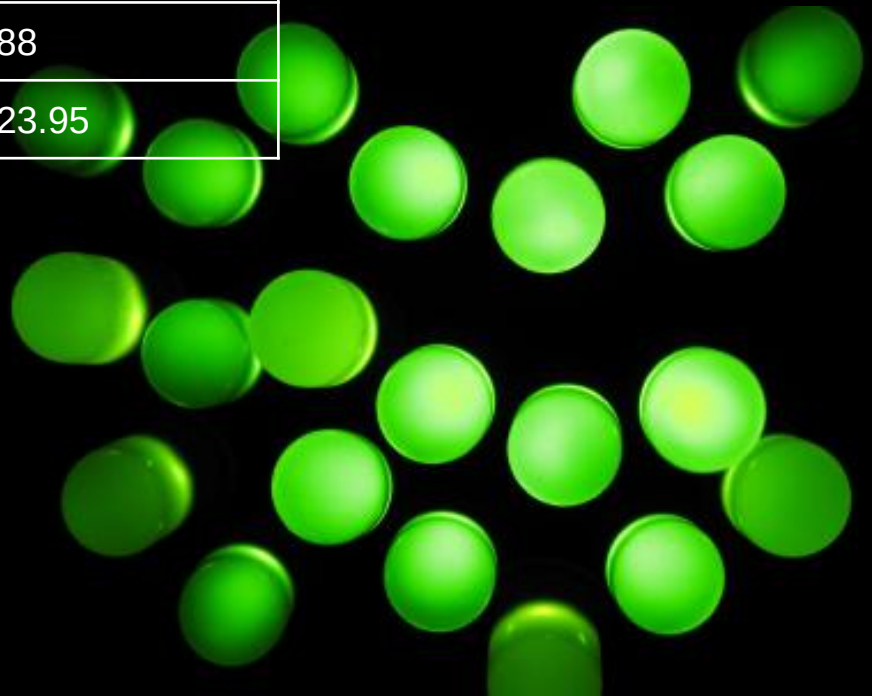
CASE STUDY

GLS versus Halogen GLS versus CFL

Wattage	60W GLS	42W Halogen	11W CFL
Life	1,000 hours	2,000 hours	10,000 hours
Cost	$1.95	$5.95	$8.95
Power Per Annum	66kW	46kW	12kW
Cost Per Annum	$16.43	$11.50	$3.00
Black balloons per annum	1,584	1,104	288
Cost over 5 years	92.82	$73.78	$23.95

Assumes 3 hours usage per day, electricity tariff of $0.25 per kW/h, 1.2 tonnes of carbon per MW of electricity, 1 black balloon = 50g carbon. Prices are constant.



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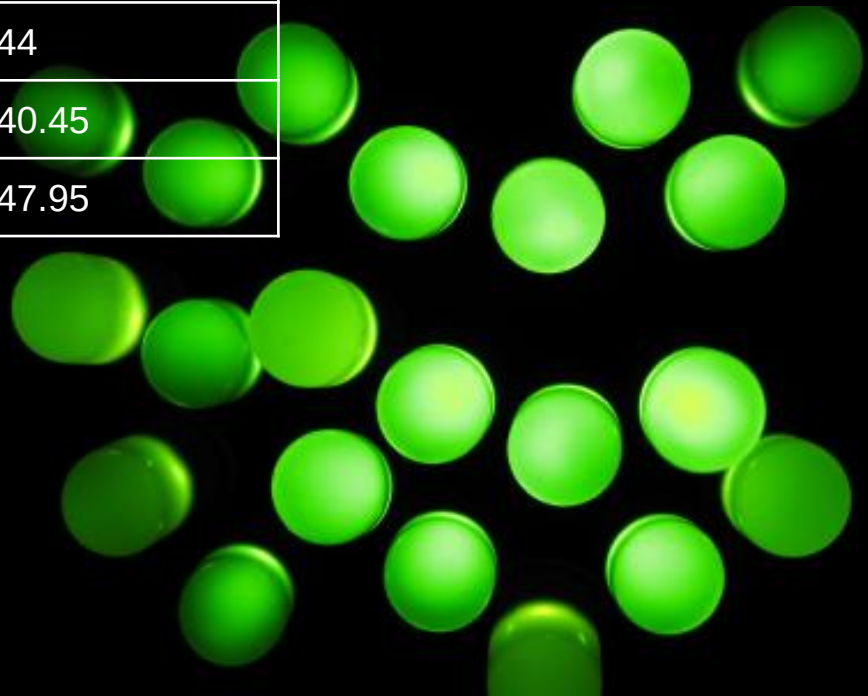
CASE STUDY

Halogen vs CFL vs LED Downlight

Wattage	50W Halogen	15W CFL	6W LED
Life	2,000 hours	10,000 hours	30,000 hours
Cost	$12.95	$15.95	$32.95
Power Per Annum	55kW	16kW	6kW
Cost Per Annum	$13.75	$4.00	$1.50
Black balloons per annum	1,320	384	144
Cost over 5 years	$104.20	$35.95	$40.45
Cost over 10 years	$208.40	$55.95	$47.95

Assumes 3 hours usage per day, electricity tariff of $0.25 per kW/h, 1.2 tonnes of carbon per MW of electricity, 1 black balloon = 50g carbon. Prices are constant.



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IMPROVING EFFICIENCY

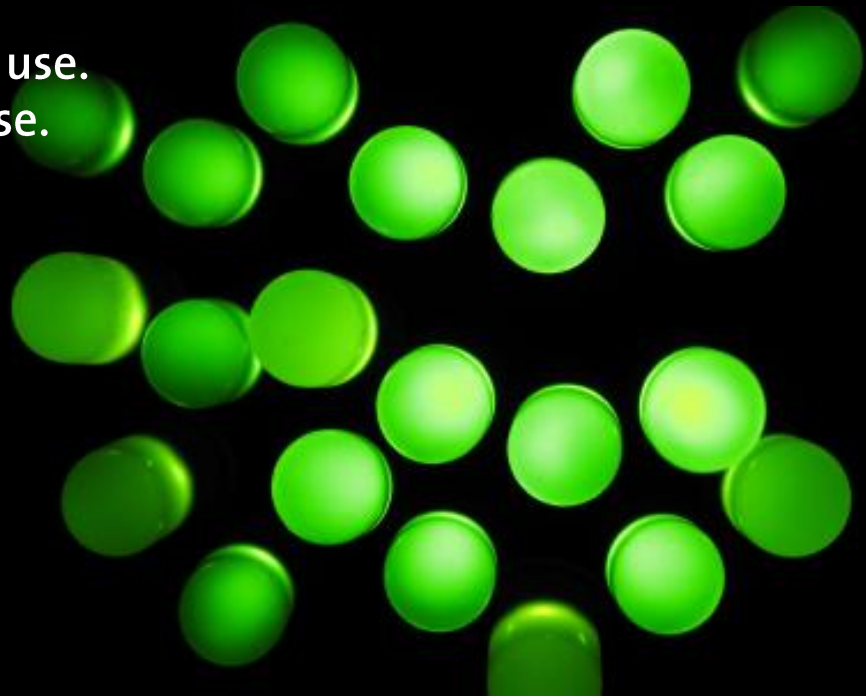
Think about the activities in the space, then choose the lamp and fittings.
Buy a reading lamp. Halogen downlights may be suitable for some spaces.

Do not light a room too brightly – rooms that are too bright are also problematic. Use the dimmer, or better still – switch to a lower wattage.

Colour temperature is important – different temperatures for different spaces. Living – 2700K, kitchen 4000K, etc.

Lighting constitutes 5-15% of total household energy use.
Lighting is only one of many ways to reduce energy use.

Switch off when out of the room!



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LED COMPATIBILITY ISSUES

LED MR16s are not compatible with all transformers

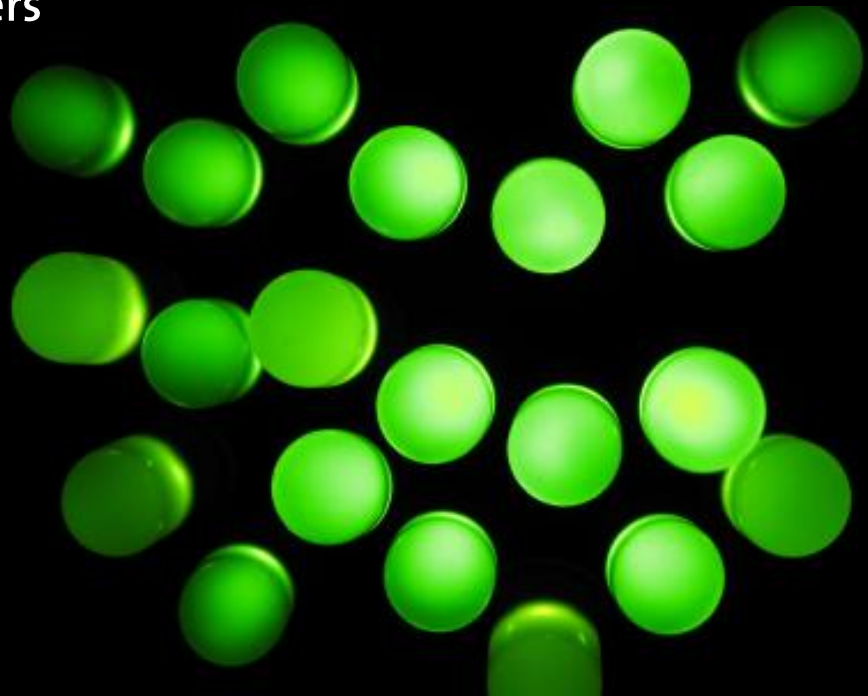
Most LEDs work fine with “Iron Core” transformers

LEDs are more temperamental with “Electronic” transformers

Some LEDs require a separate driver (some have this built in)

Can always use a GU10 LED – no transformers or drivers

Best option – purchase from store that will refund!



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