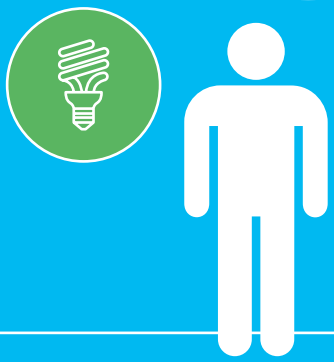
Guide to Energy Saving Light Bulbs

Confused about all the different light bulb options? Simply follow this **5 Step Guide** on how to choose the right light bulb for your home!



Myth Busters

1.

If there is a sticker on my lamp shade that says MAX 40W, I have to replace the light bulb with a 40W bulb.

FALSE - You can use a lower watt bulb. 'MAX 40W' just indicates the maximum wattage that is safe to use for the specific lamp shade. Simply choose an energy efficient light bulb such as an LED and compare the light output (lumens) to that of a 40W traditional incandescent bulb, using the table in Step 4 of this guide.

2.

If my light bulb is dead and still in the fitting, it is still using electricity.

FALSE – A dead light bulb does not use any electricity. However, you should replace a flickering, dim or defective light bulb, as it can use more energy than a normal bulb.

3.

LED lights are only available in in bright white colours.

FALSE - You can get LEDs in different degrees of brightness from warm white to cool white and these colour differences can change the general ambience of a room. Light colour is measured in degrees Kelvin (K), which means that a bulb marked 2,700K will give a warm white, while one marked 3,400K will produce a cool white light. You will find degrees Kelvin printed on the light bulb packaging or on the light bulb itself. LEDs are also available in other colours (e.g. red, blue).

4.

LEDs do not provide enough light.

FALSE - You can choose LEDs based on their light output (lumens). This means that a 7-10W LED can produce as much light as a 60W traditional incandescent light bulb.

5.

LED lights are not dimmable.

FALSE - LEDs are available for dimmer switches. However, please read the manufacturer's packaging properly to ensure you have chosen a dimmable light bulb. Note that they can also be more expensive than a non-dimmable LED bulb.

6.

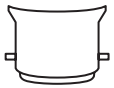
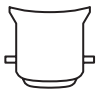
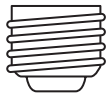
Energy-saving light bulbs contain hazardous mercury.

FALSE - LED bulbs contain very low levels of hazardous substances such as arsenic and lead; however, the levels of these substances are very low. Only CFL light bulbs contain mercury and require some care when handling and disposing of them. However, CFLs typically only contain approximately three to five milligrams of mercury, which is about one hundredth of the mercury content found in the older thermostats still used in some homes. Please read the manufacturer's packaging for guidelines on proper handling and disposal. The WEEE recycling scheme accepts both LEDs and fluorescent lamps, while halogen and incandescent bulbs should go in your household bin.

Step 01

Pick Your Cap Type

Each light fixture in your home requires a specific light bulb cap. Before heading to the shop to purchase your replacement bulb, make sure to take a note of the cap type you require to ensure it fits! The most common cap types can be found in the table below.

Bayonet Cap (BC)	Small Bayonet Cap (SBC)	Edison Screw (ES)	Small Edison Screw (SES)	GU5.3	GU10
 22mm	 15mm	 27mm	 14mm	 5.3mm	 10mm
Also known as B22	**Also known as B15**	**Also known as E27**	**Also known as E14**	**Also known as two-pin or bi-pin cap or an MR16**	**Also known as two-pin or bi-pin cap**
This is the most common bulb cap used in Ireland.	This bulb cap is not very common. It is mainly used on low wattage candle bulbs and 'golf ball' bulbs.	This bulb cap is widely used throughout Europe and is sometimes referred to as a 'screw-in' bulb.	This bulb cap is widely used in low wattage bulbs e.g. candle lamps, R50 reflectors.	This bulb is a low voltage (12V) spot light, which is most commonly associated with your typical down lighter in your home.	This bulb is a mains voltage (240V) spot light, which is also associated with your typical down lighter in your home. It is sometimes referred to as 'Twist-lock'.

Step 02

Choose Your Light Bulb Shape

Before choosing the shape of your light bulb, consider what you would like the bulb to do. It is not simply about the look of the bulb, but rather how it throws light. The design of the bulb determines the direction of the light. The table below provides an overview of some commonly-used light bulb shapes and their uses.

	Traditional / A-lign	Spiral	Candle	Spot	Downlight	Globe	Stick / Tube
Lamp	✓	✓	✓				✓
Pendant Fixture	✓					✓	✓
Ceiling Fixture	✓						✓
Track Lighting				✓			
Recessed Can				✓	✓		
Wall Sconce		✓	✓				✓
Outdoor Covered	✓	✓	✓				

What is a beam angle?
The beam angle refers to the measure of the spread of the light source and is stated in degrees. Choose a wider beam angle for the living room, dining room and bedroom and a softer and narrower beam angle for targeted lights or specific areas for decoration.

Step 03

Pick an Energy Efficient Light Bulb

When choosing your light bulb, don't just buy the cheapest option, as they can cost you more in the long-term. Take into account the energy efficiency of the light bulb and its running cost. The table below provides an overview of different light bulbs with their power consumption, brightness, lifespan and cost. Most light bulbs on the market are now LEDs as they offer substantial energy savings and the cost has decreased significantly over recent years.

	Most efficient LED	Standard LED	CFL	Traditional (incandescent)***
Consumption Power	4W	7W	14W	60W
Brightness	840 lumens= 60W	806 lumens= 60W	760 lumens= 60W	710 lumens= 60W
Energy Efficiency*	A	E	G	N/A
Lifespan	50,000hrs= 50 years	15,000hrs= 15 years	10,000hrs = 10 years	1,000hrs = 1 year
Cost per bulb	€14.50	€6	€4	€3
Yearly Running Cost**	€0.92	€1.61	€3.22	€13.80
50-Year Lifetime Cost	Yearly Running Cost + 1 bulb =€60.50	Yearly Running Cost + 3.3 bulbs =€100.50	Yearly Running Cost + 5 bulbs =€181	Yearly Running Cost + 50 bulbs =€840

* A= most efficient, G= least efficient. Due to the new rating scale introduced in 2021, standard LED bulbs have moved down the scale, to encourage the use of even higher efficiency LED bulbs.
** All calculations are based on 1,000 hours per year at 23c/kWh
***General purpose incandescent light bulbs are no longer sold in the EU, however they are included for comparison purposes. Various types of fluorescent and halogen bulbs are also being phased out.

Step 04

Pick the Right Brightness

There is a lot of confusion around the wattage and the light output (lumens) of light bulbs. Did you know that you can purchase a lower watt light bulb with the same brightness of a traditional 60W bulb? Please see the table below to compare.

Lumen	LED	CFL	Traditional
220+	4W	6W	25W
400+	5W	9W	40W
700+	7W	14W	60W
900+	11W	15W	75W
1300+	15W	20W	100W

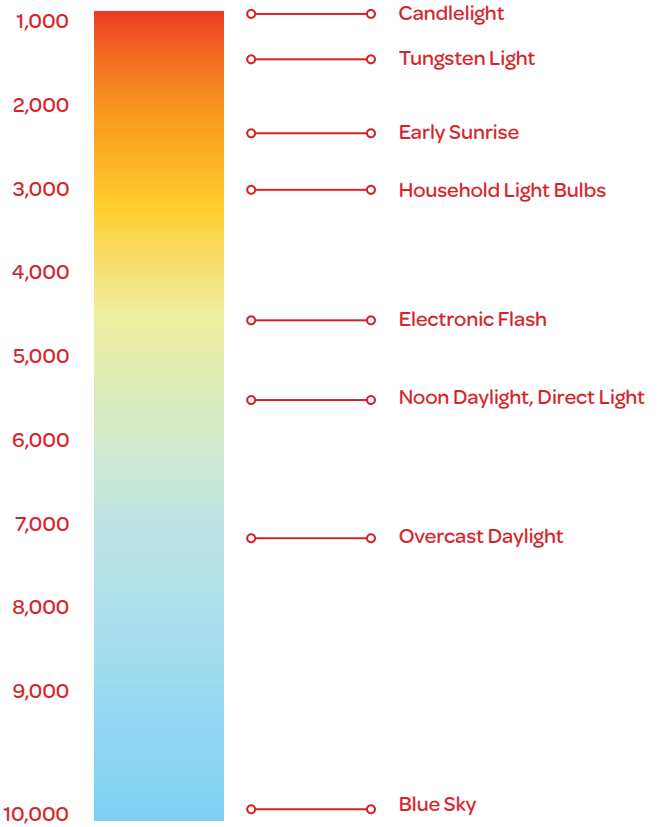
What is a Watt?
Wattage is a measure of the electricity used. Wattage is the traditional way of considering your light bulb replacement rather than a reliable way to understand the brightness of a bulb.

What are Lumens?
Lumens are a measure of brightness. Instead of picking your light bulb based on watt, you should consider its lumen output. For example, kitchens should have around 300 lumens per m^2, living and dining rooms 100-200 lumens per m^2, bathrooms 100-150 lumens per m^2 and bedrooms 50-150 lumens per m^2. So, if your bathroom is 6m^2, one bulb between 600-900 lumens should be adequate (providing the beam angle covers the whole room).

Step 05

Pick the Right Colour

There are a lot of concerns around the colour of energy-efficient light bulbs. However, most light bulb packaging now includes information on the bulb's colour. See the Kelvin scale below to ensure you pick the right light bulb for the desired atmosphere.



What is Kelvin?
Light colour is measured in degrees Kelvin (K). A bulb marked 2,700K will give a warm white equivalent to that of an ordinary bulb, while one marked 3,400K will produce a cool white closer to daylight.

Your Energy Calculator

The following formula will help you calculate the running cost of your bulb per year, based on the wattage of the bulb, the amount of time the bulb is typically used and the electricity unit cost.

Wattage of light bulb	÷	1,000 (to convert to kWh)	x	Hours of use per day	x	No. of days used per week	x	Electricity cost (€/ kWh)	x	Weeks per year	=	Running cost per year

Example

Traditional bulb

60W	÷	1,000	x	3 hours per day	x	7 days per week	x	€0.23 per kWh	x	52	=	€15.07

LED bulb

7W	÷	1,000	x	3 hours per day	x	7 days per week	x	€0.23 per kWh	x	52	=	€1.76

What is a kWh?
Kilowatt-hour (kWh) is a unit of energy equivalent to one kilowatt of power expended for one hour.

Why not count the number of light bulbs in your home and check how much they are costing you!

Continue your Energy-Saving Journey

If you'd like to get a better understanding of where you currently waste most energy in your home, why not borrow one of our Home Energy Saving Kits, which are free to borrow from a wide selection of public libraries in Ireland. Visit www.codema.ie/energysavingkit for more information. You can also check out our Think Energy hub at www.codema.ie/thinkenergy, which contains a range of handy energy-saving tips and resources for the home and workplace.

Home Energy Grants

The Sustainable Energy Authority of Ireland (SEAI) provides a range of home energy grants to help you upgrade your home's energy efficiency to make it more comfortable and cheaper to run. These include free energy upgrades for qualifying homeowners, a one-stop-shop service for a complete home energy upgrade solution and a selection of individual grants for home energy upgrades. Go to www.seai.ie/grants/home-energy-grants/ for further information or call 01 808 2004.

This leaflet was developed by Codema - Dublin's Energy Agency

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