



# Training lighting

Victory Light

## TYPES OF LIGHT BULBS



### HIGH PRESSURE SODIUM BULBS

High pressure sodium bulbs have a 15,000 hour average life. Up to 85% less energy use than incandescent: low operating costs, high upfront costs. HPS lamps give off golden/white light - don't use near entryways.



### COMPACT FLUORESCENT (CFL)

CFL bulbs have 10,000 hour average life. Up to 75% less energy use than incandescent: CFLs have low operating costs, high upfront costs. CFLs give off cool or warm white light.



### QUARTZ HALOGEN

Halogen bulbs have 1,500 hour average life. Up to 15% less energy use than incandescent: Halogen light bulbs have high operating costs, low upfront costs. Halogen lamps give off warm light - good for entryways.



### INCANDESCENT

incandescent light bulbs have 1,000 hour average life. These light bulbs can be used with Lutron dimming controls to increase efficiency. They have high operating costs and low upfront cost and give off a warm, white light.



### LIGHT EMITTING DIODES (LED)

LED light bulbs have up to 50,000 hour average life. Low energy use: LED bulbs have very low energy consumption and high upfront costs. LEDs give a variety of different light colors from cool to warm.

DEL MAR FANS & LIGHTING

# Light Bulb Shapes



GLOBE LED BULB



TWISTED FLUORESCENT LAMP



INCANDESCENT LAMP



COMPACT FLUORESCENT LAMP



MERCURY LAMP



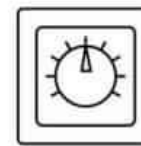
TUBE FLUORESCENT LAMP



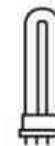
FLAME SHAPE BULB



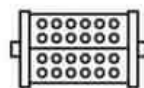
LED BULB



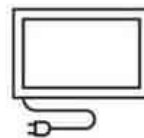
DIMMER SWITCH



FLUORESCENT LAMP



SPOTLIGHT BULBS



LED PANEL



HALOGEN LAMPS



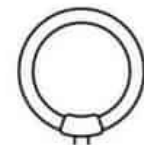
CORN LAMP



DIODE



ADAPTER



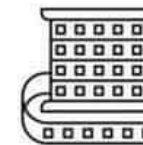
CIRCULAR FLUORESCENT LAMP



SODIUM LAMP



REFLECTOR



LED STRIP LIGHT

# LIGHTBULBS

In the age of incandescent bulbs, people chose a lightbulb based on the number of watts it produced. Today, lighting choices have expanded, and people shop according to lumens, a unit of brightness. Look for the Lighting Facts label (at right) when shopping for bulbs.

Lighting Facts Per Bulb	
Brightness	800 lumens
Estimated Yearly Energy Cost	\$1.57 <small>Based on 3 hrs/day, 11c/kWh Cost depends on rates and use</small>
Life	9 years <small>Based on 3 hrs/day</small>
Light Appearance	Warm <span style="display: inline-block; width: 100px; border-bottom: 1px solid black; position: relative; top: -5px;"> <span style="position: absolute; left: 0; top: -5px; width: 100%; height: 100%; background: linear-gradient(to right, yellow, orange, red);"></span> </span> Cool 2700 K
Energy Used	13 watts



**INCANDESCENT**



**FLUORESCENT**



**LED**

HOW IT WORKS	Tungsten filament heated to 4,000 degrees Fahrenheit (2,200 degrees Celsius)	Heated gas produces ultraviolet light converted to visible light by bulb coating	Light-emitting diodes
COST PER BULB	\$0.50	\$4.00	\$25.00
LIFESPAN	1,000 hours	8,500 hours	25,000 hours
NUMBER OF 60-WATT EQUIVALENT BULBS REQUIRED TO SUPPLY 20 MILLION LUMEN-HOURS	22	3	1
EQUIVALENT BRIGHTNESS:			
2,600 lumens	150 watts	32-35 watts	25-28 watts
1,600 lumens	100 watts	23-26 watts	16-20 watts
1,100 lumens	75 watts	18-22 watts	13+ watts
800 lumens	60 watts	13-15 watts	8-12.5 watts
450 lumens	40 watts	9-11 watts	6-9 watts

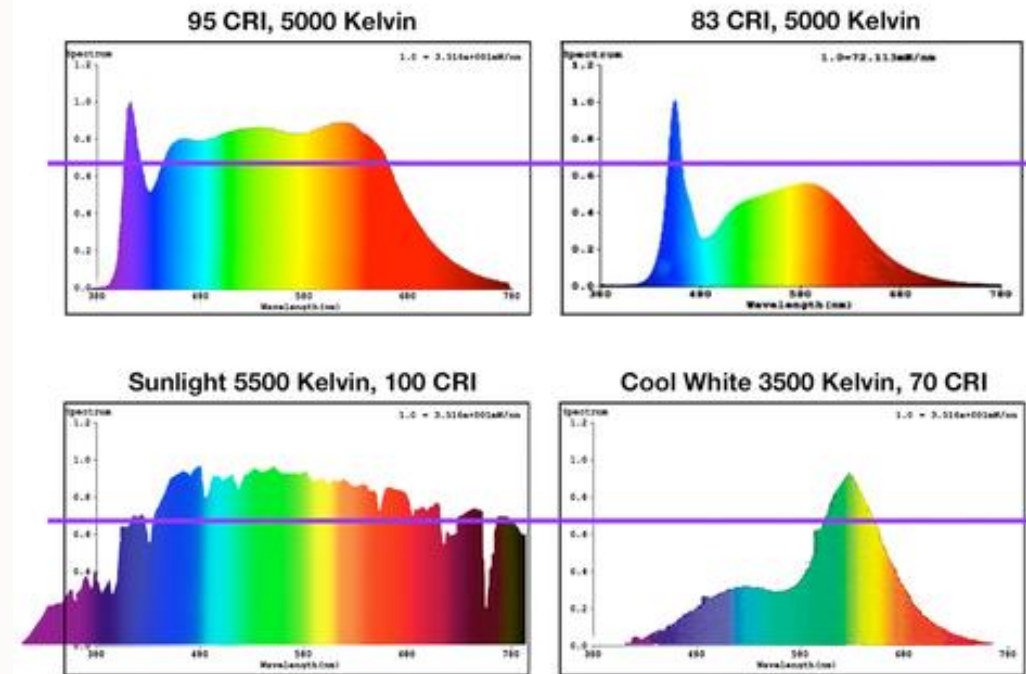
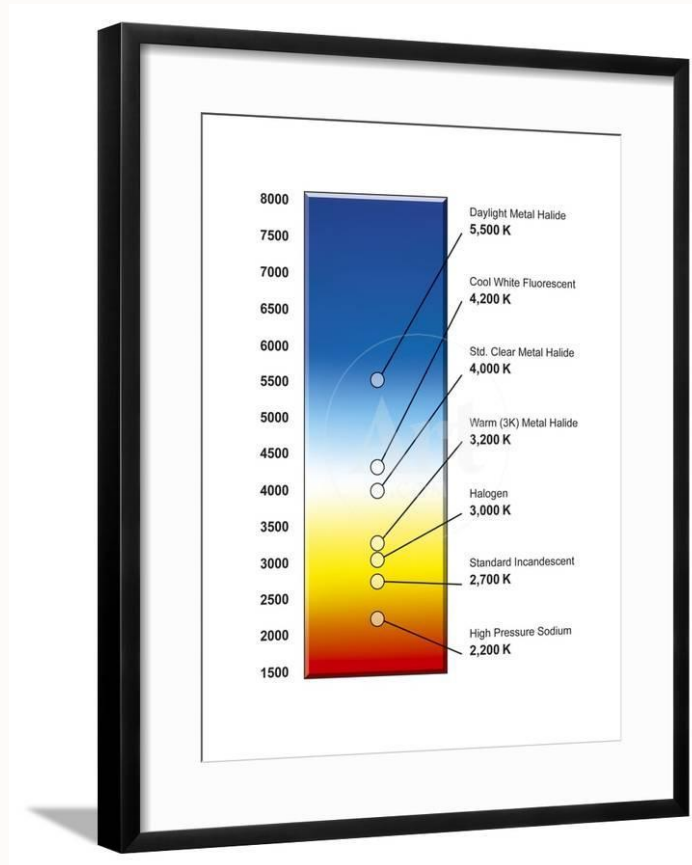
SOURCES: ENERGY.GOV; BULBAMERICA.COM; PLANETBULB.COM; SHUTTERSTOCK

KARL TATE / © LiveScience.com

Light	Colour temperature
Incandescent lamp	2800 K
Halogen lamp	3000 bis 3200 K
Flourescent lamp, cold white	4000 K
Xenon lamp/ metal halid lamp	4500-500 K
White led, warm white	2700-300 K
White led, cold white	5000-5500 K
Day light in the mornings + afternoons	5500 K
Blue sky	7000-12000 K

## What doe CRI mean and why is it important?

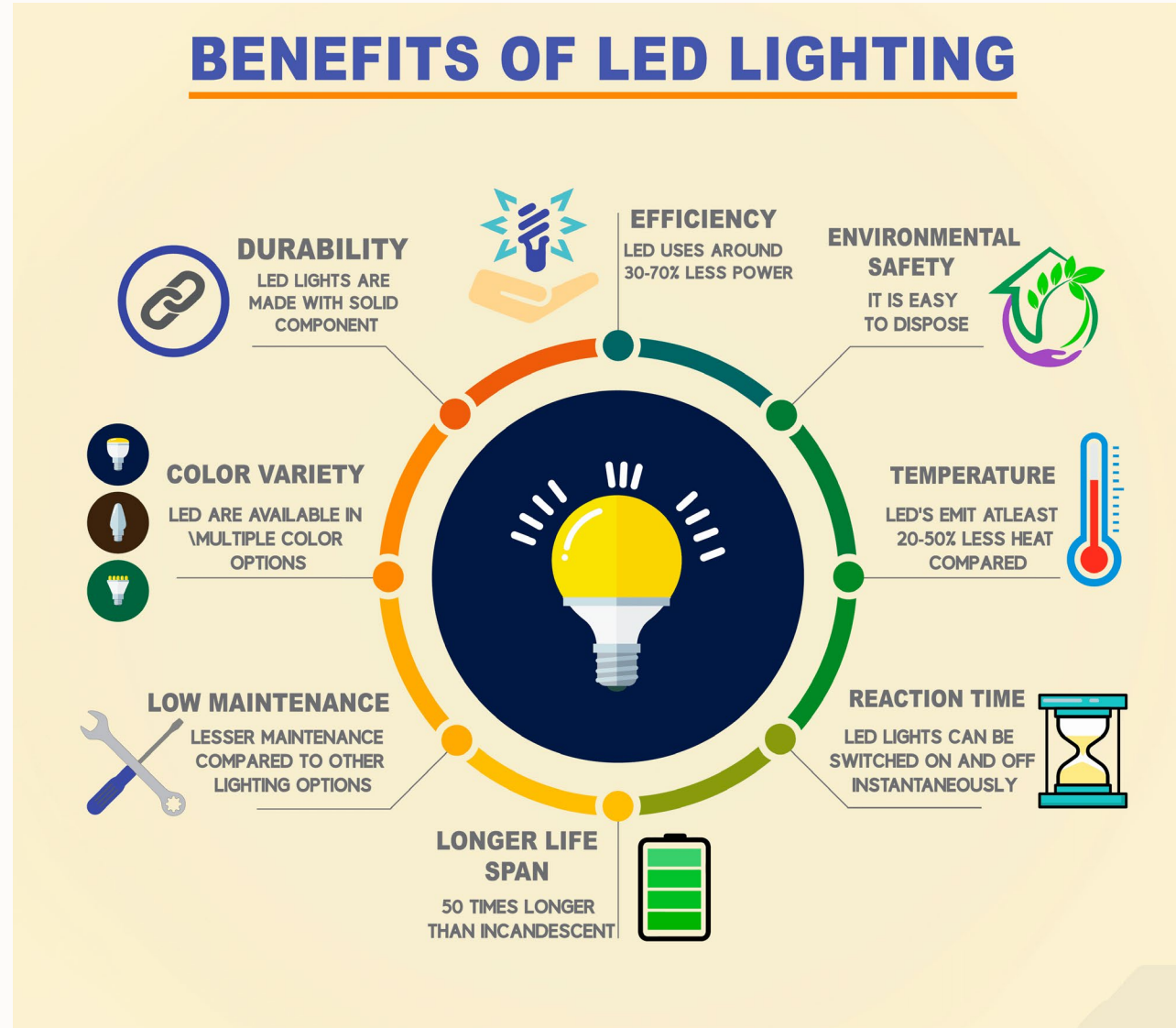
**CRI stands for Color Rendering Index.** CRI essentially refers to how different types of illumination, or light, affects the color of objects as they are perceived when the light hit them. Simply put, the lower the CRI, the less accurate the true colors will be depicted. Therefore, if you are shining a light on a table where your food will be placed, you'd want a higher level CRI. The same goes for a piece of art—if the light shining on your painting or photo has a low CRI, the colors that you used or captured are not going to appear as you intended. The closer the CRI rating is to 100, the more the colors will appear as they would in perfect natural, true lighting.



# Visual Guide to Color Temperature & CRI - measured in Kelvins (K)

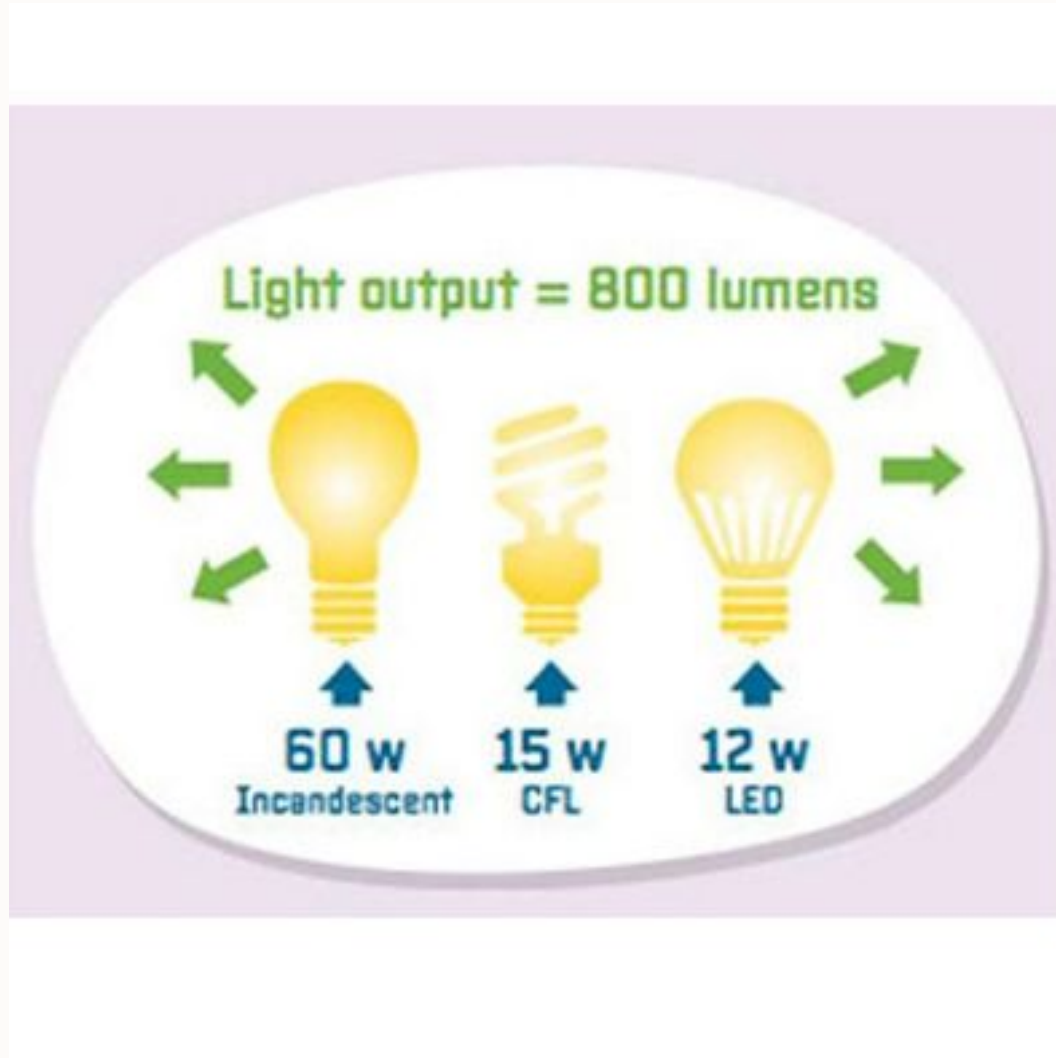


# Benefits of LED Lighting



## What are lumens?

A lumen (lm) is a measurement of how much light is emitted.



# Types of lighting

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graph TD; A[Types of lighting] --> B[Ambient]; A --> C[Task]; A --> D[Accent]; B --- B1[- Illuminates the room]; B --- B2[- Not harsh]; C --- C1[- Direct and intense lighting]; C --- C2[- Used to enhance visibility]; D --- D1[- Directs attention to a specific area]; D --- D2[- Can be adjusted to create focal points];
```

## Ambient

- Illuminates the room
- Not harsh

## Task

- Direct and intense lighting
- Used to enhance visibility

## Accent

- Directs attention to a specific area
- Can be adjusted to create focal points



## 3 different types of lighting



**ambient lighting** provides a room with overall illumination, giving a comfortable level of light to the whole room.

**task lighting** is designed to help you perform specific tasks that need direct light, such as reading.

**accent lighting** uses light to highlight points of interest in a room such as paintings or plants.

## Understanding Diopter & Magnification

**Diopter** refers to the curvature of the lens. As the diopter increases, the lens become thicker and the curvature greater. As the curvature increases, the object look bigger.

**Power (magnification)** refers to how much larger an object is made to look through a magnifying lens. Power is typically indicated by an X such 2X or 4X. Daylight uses the most common formula to calculate power:  $\text{diopter} / 4 + 1$

For example, to calculate the magnification (power) of a 3 diopters lens:

3 dioptries divided by 4 = 0.75 + 1 = 1.75X (the original object appears 75% bigger)

5 dioptries divided by 4 = 1.25 + 1 = 2.25X (the original object appears 125% bigger)

12 dioptries divided by 4 = 3.0 + 1 = 4.00X (the original object appears 300% bigger).

Common diopter/magnification		
Magnification = (Diopter / 4) +1		
Diopter	Magnification	%Bigger
3	1.75	75%
5	2.25	125%
7	2.75	175%
8	3.00	200%
11	3.75	275%
12	4.00	300%
15	4.75	375%





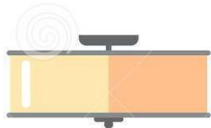
SINGLE PENDANT



TRIPLE PENDANT



CHANDELIER



CEILING LIGHT



SPOTLIGHTS



DOWN LIGHT



WALL LIGHT



BATH LIGHT



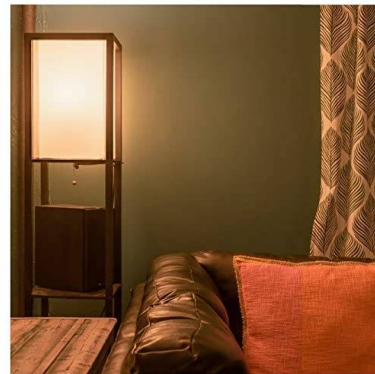
FLOOR LAMP



TABLE SHADE LAMP



OFFICE LAMP



**2700K**

**Warm White**

Relaxing,  
everyday light,  
great for dinnertime



**3500K**

**Neutral White**

Fresh,  
stimulating light,  
great for lunchtime



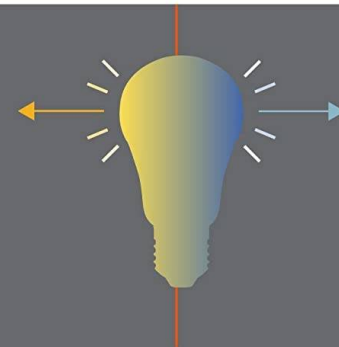
**5000K**

**Daylight**

Brisk,  
clear light,  
great for working

**WARMER**

Soft,  
Calming,  
Dimmer



**COOLER**

Brisk,  
Energizing,  
Brighter

# CHOOSING THE RIGHT LIGHT ONE ROOM AT A TIME

Choosing lighting for your home is a detail you need to plan carefully. Read our tips below to help transform your space at the flick of a switch with our modern lighting.

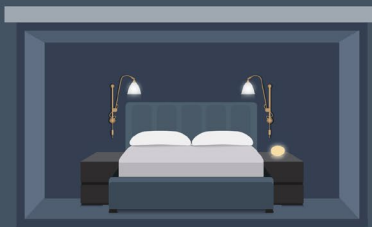
Used in the right way, lighting can change the atmosphere and mood of any space. Light has a positive impact on your general well being and health too. Layering lighting generally offers a more ambient interior. People tend to use one large focal pendant, though with today's choice there's a better way.



## BEDROOM

Wall lights with adjustable arms are easily angled and free up space on dressers and bedside tables.

Bedside table lights can offer a soft and ambient glow to your bedroom. With the right styling they can also add a designer touch to your bed-sides.



## BATHROOM

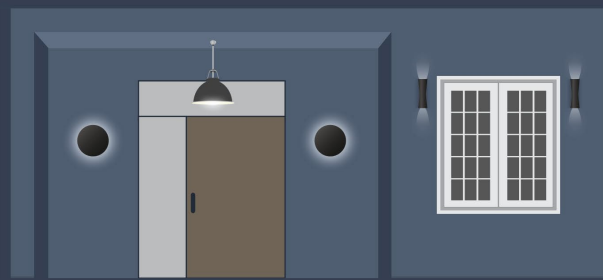
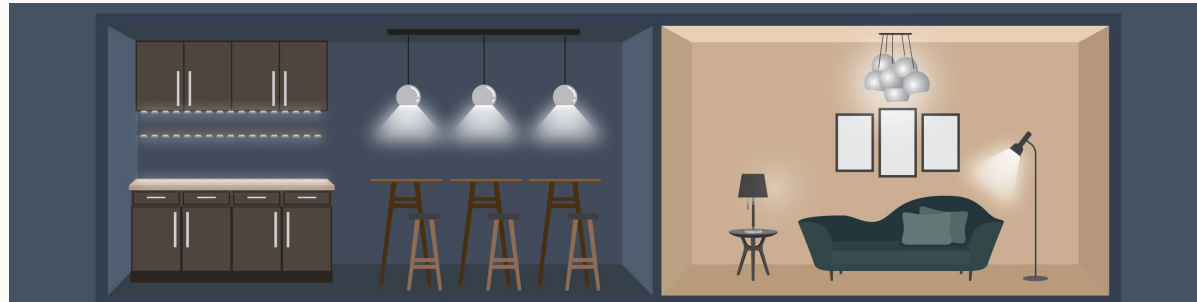
Use diffused wall and ceiling lights. Not only do they use a sealed diffuser protecting them from moisture, but they reflect less glare from mirrored surfaces too.



## STUDY

Look for desk and table lamps with flexibility.

Widely adjustable arms can focus light on a specific area on activity.



## DINING ROOM

Rise-and-fall lamps over the dining table are great!

Adjustable lighting provides focused or softer lighting, depending on the mood.

## OUTDOOR

Whilst sometimes overlooked, exterior lighting can look spectacular. When it comes to lighting your home, exterior lighting can style the outside of a property.

Consider using wall lights, rather than a single overhead bulb, to light and frame a front door.

## KITCHEN

Think spotlights, downlights and large shades. The focus of the light should slowly dim down from the work-surfaces.

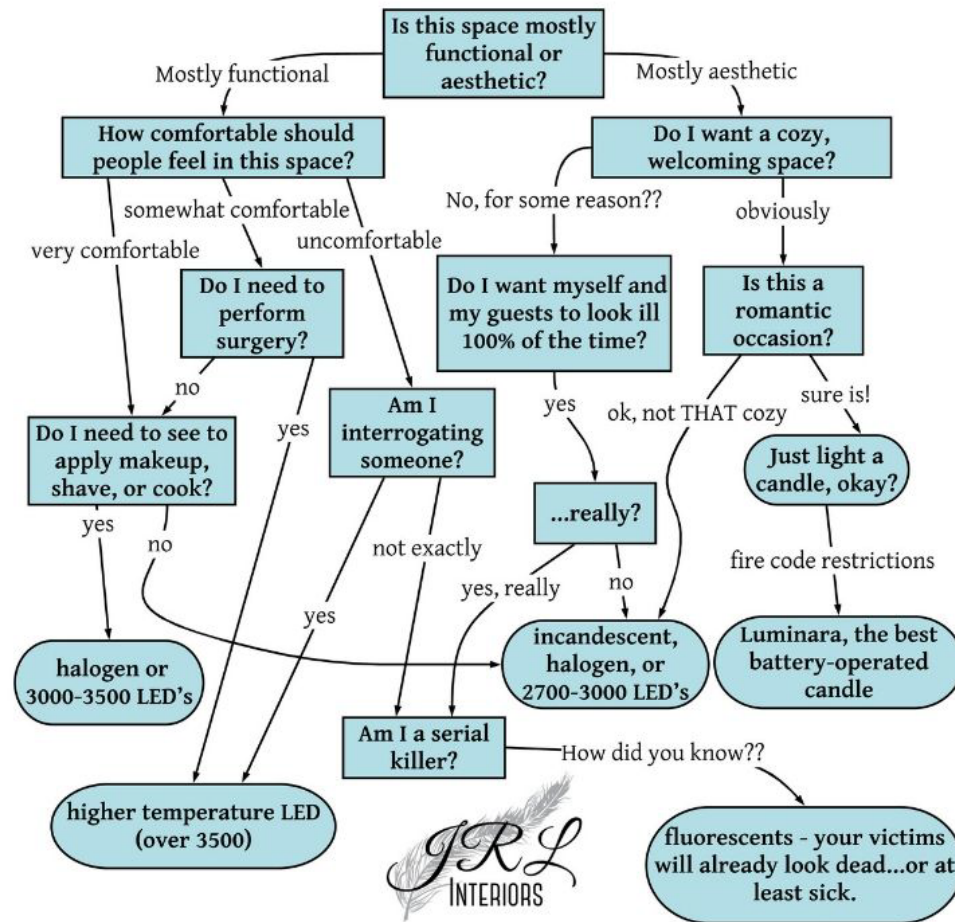
Consider LED tape to backlight shelves and add a soft glow above and below cabinets.

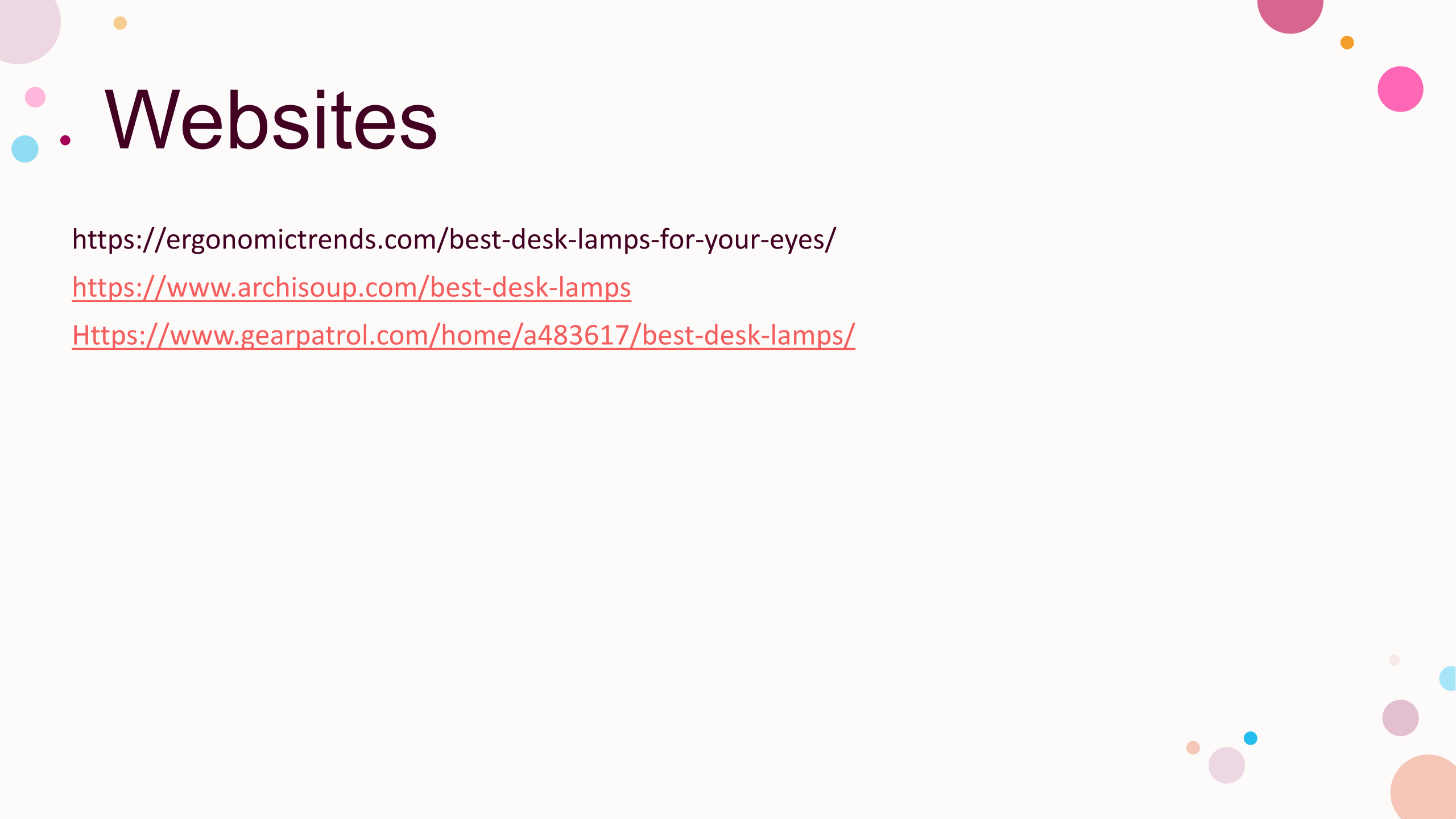
## LIVING ROOM

Use pendants in clusters to create a unique centrepiece. Perhaps go bold with a contemporary chandelier as a focal point for the room.

Table and floor lights create strong shadows. Also, when combined can create an eclectic look.

# WHICH LIGHT BULB SHOULD I BUY?





# Websites

<https://ergonomictrends.com/best-desk-lamps-for-your-eyes/>

<https://www.archisoup.com/best-desk-lamps>

<https://www.gearpatrol.com/home/a483617/best-desk-lamps/>