

The Light Bulb



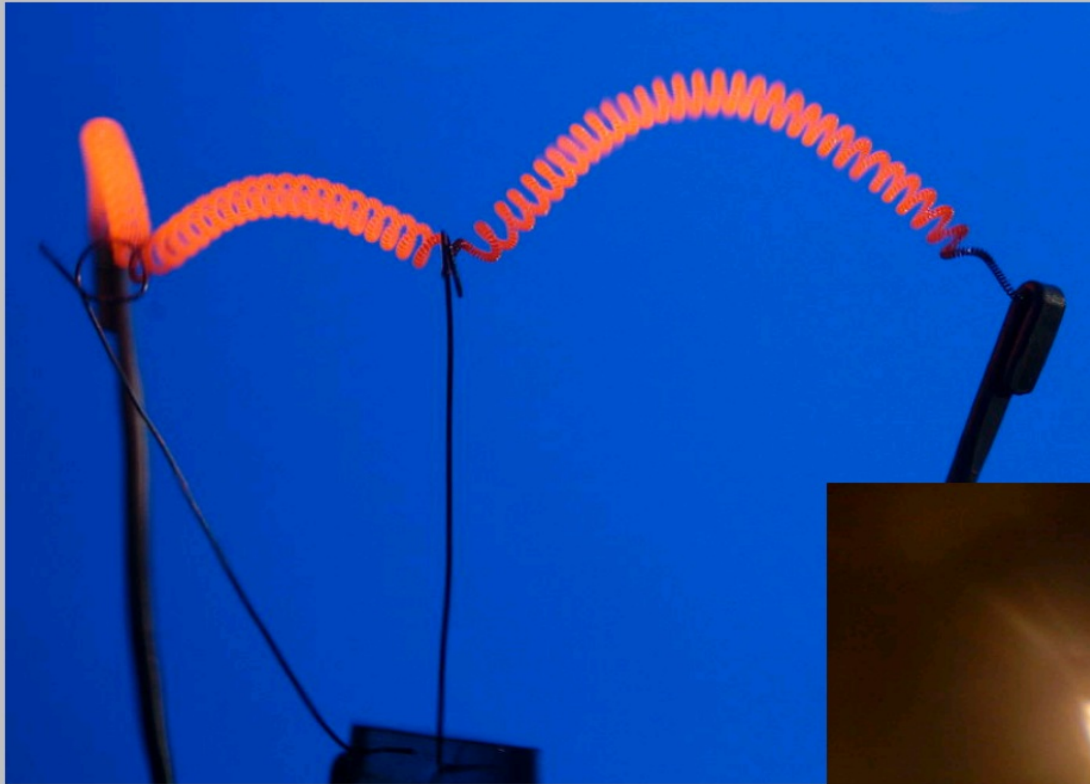
Incandescent bulbs:

- The "original" lightbulb
- Use a **filament** to create light
 - But they also create heat, which is wasted energy

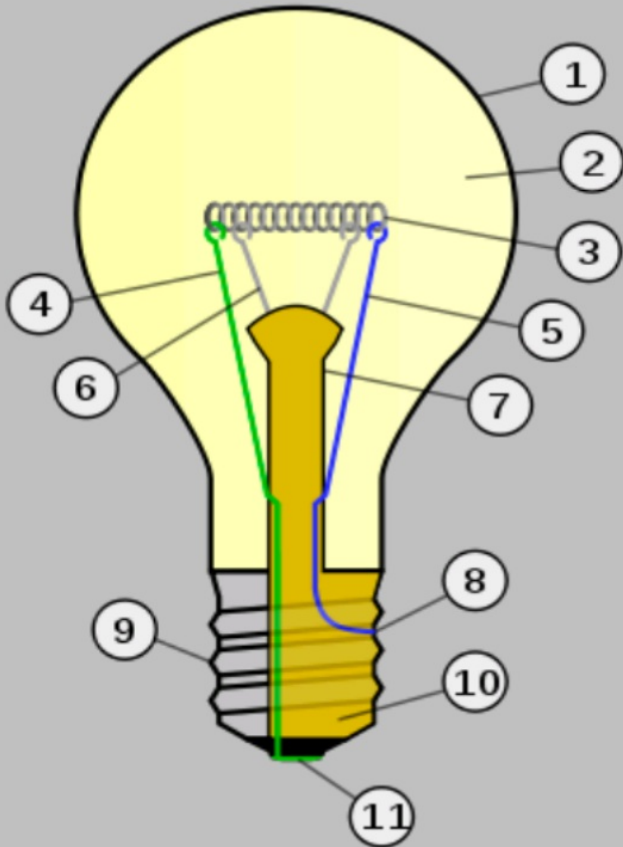


Filament: A long, thin, wire coil that glows when electricity flows through it





Parts of an Incandescent Light Bulb



1. Outline of Glass bulb
2. Low pressure inert gas (argon, neon, nitrogen)
3. Filament
4. Contact wire (goes out of stem)
5. Contact wire (goes into stem)
6. Support wires
7. Stem (glass mount)
8. Contact wire (goes out of stem)
9. Cap
10. Insulation
11. Electrical contact

Fluorescent Lightbulbs

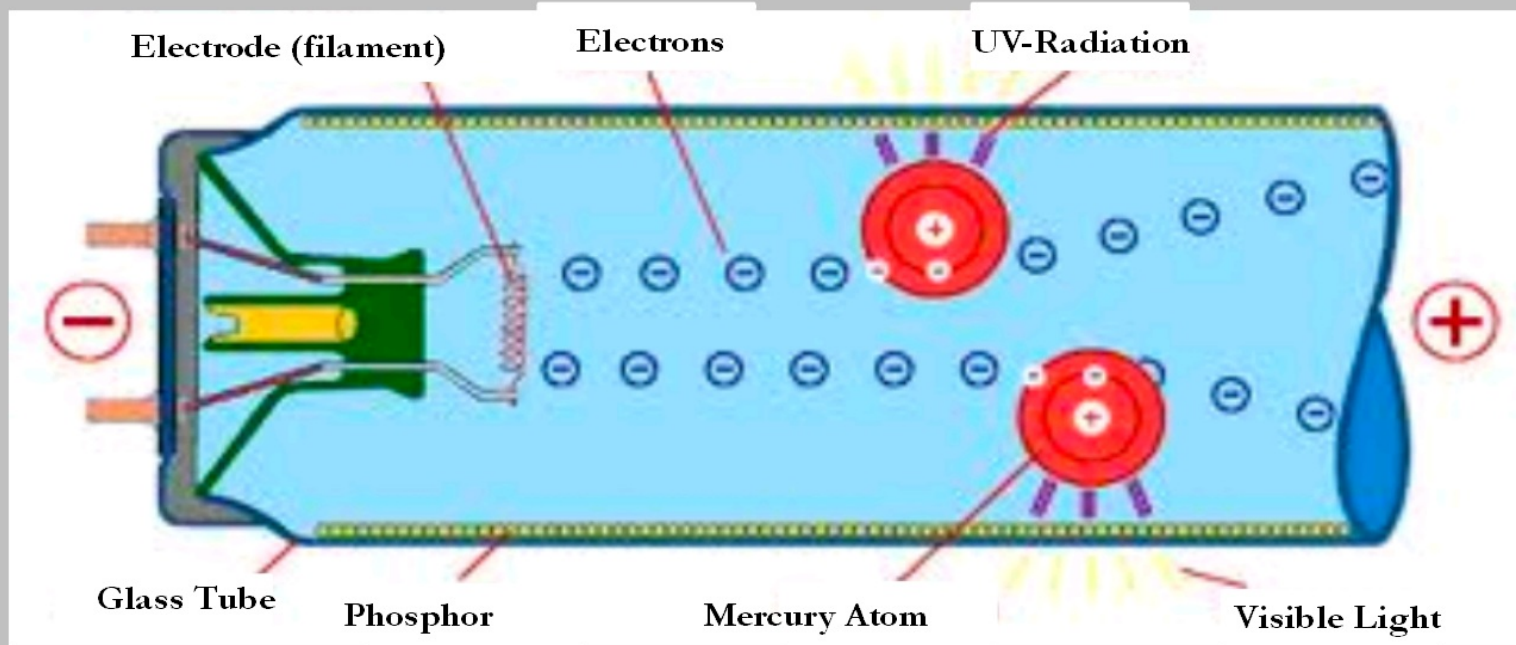


Fluorescent Lightbulbs

- The lights found in the ceiling above you.
- Don't use a filament like Incandescent bulbs do...
 - So they make less heat (and are energy efficient)



How a Fluorescent Bulb Works



Fluorescent Bulbs: Electricity is used to change one type of light into another.

How they stack up

A compact **fluorescent bulb** activates phosphor to produce light. A phosphor coating inside the lamp gives off light when it is exposed to ultraviolet radiation. The bulb doesn't use heat to create light, which makes it more energy efficient.



COMPACT FLUORESCENT (23 watt)

Average life:
10,000 hours

Cost:
\$11

Comparable lighting:
1,500 lumens

THREE-YEAR COST COMPARISON

Electricity cost*: \$8.06

Bulb cost: \$11
(1 bulb for 6.8 years)

Total cost: \$19.06

Regular (incandescent) bulbs produce light by heating a filament inside the bulb. Electric current passes through the filament, heating it to the point that it becomes white-hot and emits light. Most of the electric energy incandescent bulbs use is converted into heat.

INCANDESCENT (100 watt)

750 hours

75 cents

1,690 lumens



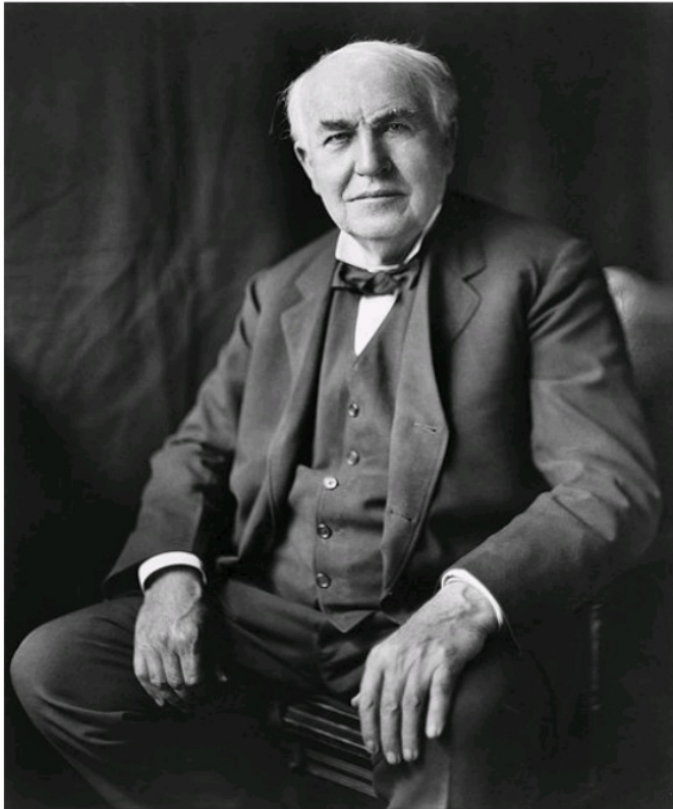
\$35.04

\$4.50
(6 bulbs for three years)

\$39.54

**At 8 cents/kilowatt-hour, four hours burned per day*

Thomas Edison



Given the patent for the incandescent bulb we use today.

Lewis Latimer



Worked for Edison. He invented the longer-lasting carbon filament.

1 Light bulb used in demonstration at Menlo Park, Christmas week, 1879
From E. S. Wardlaw Jr.
NMHT 1878



1



