

NEW JERSEY DAILY NEWS

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What is a light bulb?



Is it time to throw out our candles, gas and oil lamps? Local inventor Thomas Edison (32) has invented a new way to light our homes - by electric light! He uses a glass bulb inside which is a thin coil of wire or thread (a filament). He passes an electric current through this coil. The electric current causes the filament, to glow white hot. It can be switched on and off by breaking the current using a switch. This bulb lights a room better than many candles. Another advantage is that, even if a lamp falls over, there is no flame to start a fire.

The invention of the electric light bulb was difficult. Edison spent over \$40,000

trying different materials to find the right one. He started his experiments with a platinum filament but, after 1,200 experiments, he chose carbon as the best material. He also took the air out of the bulb so that oxygen did not cause the filament to be burnt away.

Asked where he thought his light bulbs might be used he said, " On ships, in houses and for lighting the streets of New York at night." He wants to build a power station to make electricity to do these things.

One black cloud over this invention is that the British inventor, Sir Joseph Swan, says he invented a light bulb in 1860 and that Edison has just improved on it. Swan also used a carbon filament

1. Using information from the article, fill in the gaps.

Before the electric _____ bulb was invented people used _____, _____ and _____ lamps to light their homes. Thomas _____ put a _____ inside his light bulb that would not be _____ away. His first filament was made of _____ but the best one he found, after _____ experiments, was made of _____. He wanted to build a _____ in New York so that electricity could light the city's _____.

2. Who also claimed to have invented the light bulb?

3. In pairs, discuss why it was that two people, living thousands of miles apart, both came up with an idea for a new way of lighting homes. Each write down one idea and be ready to share it with the class.

Great Science - Great Scientists 500BC - 2002AD (Electricity)

4. **Light comes from a light source.** Underline examples in this list of light sources

Sun windows candles torch wood stars

Explain why the examples you have not underlined are not light sources

5. This information comes from the packaging on a long-life light bulb (W= watts; h=hours and the letters on the third picture tell us about how efficiently this bulb uses electricity. A lumen is a measure of light output per second.)

60w ≈ 11W

10 x 1000 h = 10000 h*

*Measured according to IEC 969 standard

Energy

A ← A

B

C

D

E

F

G

559 Lumen
11 Watt
10000 h

What wattage is the long-life light bulb?

What is the equivalent wattage of an ordinary light bulb?

How long will the long-life light bulb last? _____

How many years is that if it is used from 9am to 5pm each day? ____

How energy efficient is this bulb? letter _____

How does energy efficiency help with an electricity bill? _____

How much light does the bulb give? _____

6. Underline any of these words and phrases that show how persistent Edison was when he was looking for the right material for a filament.

Persevere	Persist	give in	single-minded	purposeful	unwavering
Keep trying	Dogged	tenacious	half hearted	resolute	determined

7. Write a sentence that explains why you need to be all of these things if you want to be a scientist or inventor.
