Tech for Everyone Logo

GREEN TECH SERIES LIGHTING EDITION

Shuji Nakamura

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Name: .....

Date: .....

The Bright Idea That Saved Energy

Take a look at the lights shining in your classroom or home. There is a very good chance those bulbs are saving the planet, all thanks to a brilliant scientist named **Shuji Nakamura**!

For over 100 years, people used "incandescent" lightbulbs. These old bulbs had a big problem: they wasted almost 90% of their energy making *heat* instead of light! They were very bad for the environment because they used up so much electricity. Scientists knew that **LEDs** (Light Emitting Diodes) were a much better, cooler, and greener way to make light.

There was just one problem. Scientists had already invented red and green LEDs, but to make pure **white** light for our homes, you need to mix red, green, and *blue* light. For decades, the blue LED was a giant mystery. Nobody could figure out how to invent it!

In the 1990s, Shuji Nakamura worked tirelessly in a laboratory and finally did the impossible. He invented the world's first bright **blue LED**! This incredible breakthrough meant we could finally create white LED lightbulbs. Today, LED bulbs use up to 85% less energy than old bulbs and last for years! Nakamura's invention saves massive amounts of electricity around the globe, making him a true hero of Green Technology. He even won a Nobel Prize for his work in 2014!

Reading Check

1. **What was the big problem with old "incandescent" lightbulbs?**

2. **What color LED did Shuji Nakamura invent?**

   - ◯ Red
   - ◯ Green
   - ◯ Blue

3. **Why was his invention the "missing puzzle piece" to making white light?**

4. **How do LED bulbs help protect the Earth's environment?**

Energy Savings Math

Energy is measured in units called **Watts**. The lower the watts, the better it is for the environment! Let's calculate how much energy Shuji Nakamura's invention saves.

An old, hot lightbulb uses **60 Watts** of energy to light up a room. A new LED bulb gives you the exact same amount of light, but only uses **10 Watts** of energy!

How many Watts of energy do you save by switching to the LED bulb? Show your math!

Show your work here:

Answer: _____ **Watts saved!**

Design an LED Display!

Because LEDs are tiny and don't get hot, they can be used for fun and colorful lighting! Design your dream bedroom or a cool city building lit up by colorful LED light strips.

Draw your creative LED lighting design here!

✨ BRILLIANT LEDS ✨