



THE POWER OF LIGHT

A Bright Future

Light. It is all around us. It is a natural and powerful resource. Light is the brightness of the sun and the heat that comes from it. Imagine, just for a second, a universe without light. The world would certainly be a cold, dark and lifeless place. Brrr!

Celebrating light

For thousands of years humans have tried to understand light and harness its amazing power. From the first use of fire a million years ago to the development of light-based technology today, humans have come a long way in our quest, don't you think?

Light touches our lives more now than at any other time in history. And do you know what? We celebrate light every day without even knowing it when we interact with nature and technology!

Science and Light

Computer screens, smart phones, high-power research lasers and optical fibers are just a tiny-fraction of the many technologies powered by light. What makes light so special? Well, light is really good at carrying **information** and **energy** so it can be used a zillion different ways.

Scientists use light to gather information about far-away stars with **telescopes**. Modern telescopes not only can detect visible light from planets and stars, but also light that is invisible to the human eye. This research is helping to unlock the mysteries of the universe.

Light helps scientists study how **atoms** are put together. Atoms are super-tiny pieces of matter that make up everything in the universe. (Even humans!) The light an

atom emits is sort of a fingerprint. Materials on earth and in space can be analyzed based on how they interact with light. Awesome!

Because light is so good at delivering energy, humans can use the sun to make electricity. This is called **solar energy**. Sunlight is absorbed on special materials which causes **electrons** to move around and create an electrical current that can be used to heat or cool buildings. Oh, and solar power can operate things like wristwatches, calculators, street lights and just about anything imaginable!

Lasers are another cool tool that harness the power of light. Lasers can deliver incredible amounts of energy to a very precise location. Small lasers solder electronic components together while more powerful lasers cut through or weld metal. Lasers are also used to perform surgery, read bar codes, play DVDs and to carry telephone and television signals over strands of very thin glass.

We are living in the century of light

Many scientists consider the 21st century to be the century of light. People working with light energy in optics make new discoveries every day. Ideas about light that may sound crazy one day can turn into a new invention the next! If you like imagining how things could work using the power of light then you would love working in optics, too.

Explore the science of optics.
Ask your teacher about light
or visit www.optics4kids.org today!

make waves - discover science

explore the science of light and open
your eyes to a whole new world

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