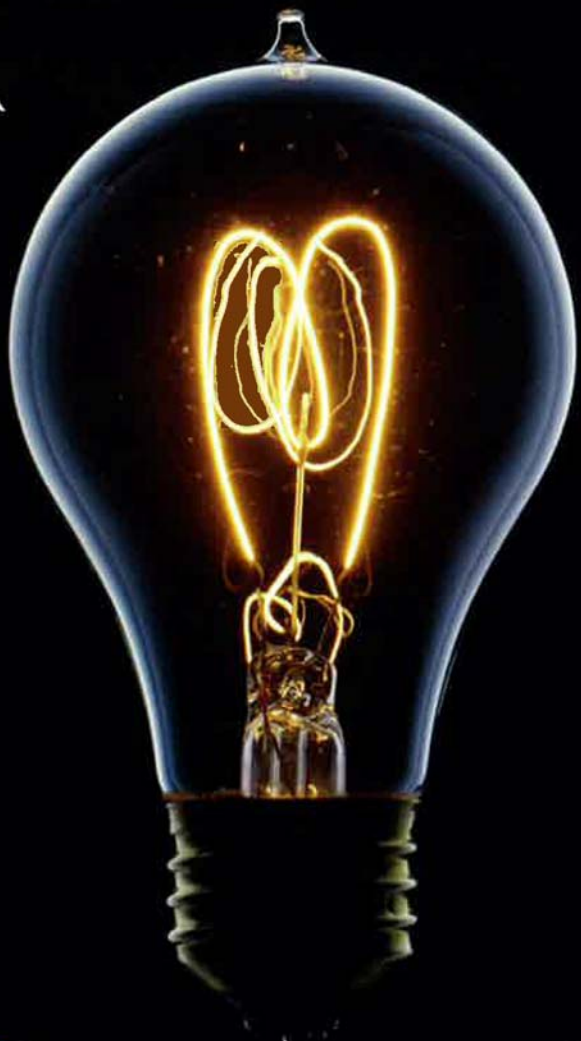
Who was the Greatest Electrical Inventor?



Meet CLEVER inventors that CHANGED the world with electricity

Sharon Parsons

Nelson Literacy Directions

Who Was the GREATEST Electrical Inventor?

For teachers' inspection ONLY



Dear Reader

Imagine arriving home to find that the power was not on. You wouldn't be able to switch on the lights, the TV, or your computer. Everything in the fridge would be warming up, and everything in the freezer would be slowly starting to thaw. If it was winter, you wouldn't be able to put on the electric heater.

> **WE SHOULD REMEMBER THE CLEVER PEOPLE IN THE PAST WHO INVENTED ELECTRICAL TECHNOLOGY.**

When we think about this, it becomes very clear how important electricity is in our lives. We enjoy using our electrical appliances because clever people in the past invented electrical technology to make our lives easier today.

I hope you enjoy reading about some of the electrical inventors who have helped to make our lives easier!

Sharon Parsons

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1 Electricity as Energy

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The **Energy** in **Water**

Electricity is a form of energy. Electricity results from the movement of tiny particles called electrons. When electrons move between atoms, the flow of energy is called electricity.

ELECTRICITY

The word "electricity" was first used in 1646 by an English scientist, Sir Thomas Browne.

Water Energy

It takes energy to make electrons move. There is a lot of energy in the force of running water, especially in rivers. The energy of moving water can be changed into electrical energy in three main ways:

- **Rivers:** used in hydro-electric dams, which produce about 25% of the world's power.
- **Tides:** used in tidal power stations, which are less common.
- **Waves:** used in wave power stations, which are less common.

Physical Science

Magnets and Generators

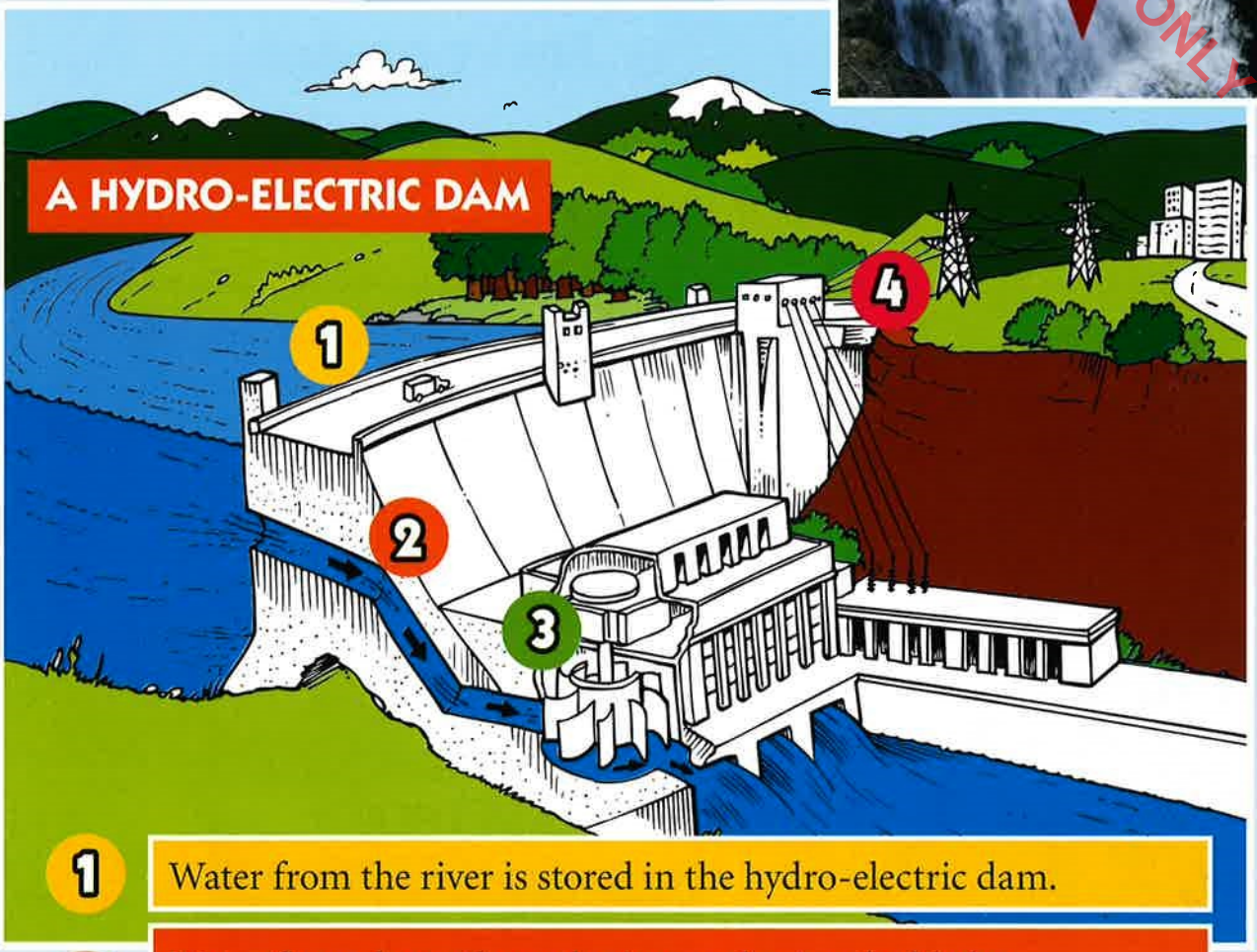
The energy of moving water is changed into electricity using magnets. The water's energy spins a magnet near a wire. The movement of the magnet, powered by the energy of moving water, makes electrons move between atoms in the wire. As a result, electricity flows along the wire. A machine like this that changes one form of energy into electricity is called a generator.

Case Study: A Hydro-Electric Dam

A hydro-electric dam uses the energy of a river to turn huge magnets in huge generators.



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1. Water from the river is stored in the hydro-electric dam.
2. Water flows down through pipes and spins the blades of a machine called a turbine.
3. The turbine is connected to a generator. The spinning turbine moves a magnet in the generator, which produces electricity.
4. The electricity travels through electrical wires and transformers to homes, schools, transport facilities and many other places.

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2 Renewable Energy Sources

Using the Energy in our **Environment**



a wind turbine

Wind, sunlight and moving water are forms of "renewable" energy. They can be reused and renewed, unlike coal or gas, which can only be used once. It is better for our environment to use more energy from renewable sources rather than non-renewable sources.

Wood is also a renewable energy source, because it can be grown over and over again – but this can take many years.

BIOMASS ENERGY

Energy from trees, or crops grown for fuel, is called biomass energy.

Wind Energy

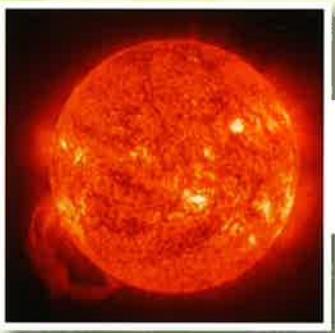
Wind is moving air. The wind's energy is used to generate electricity through wind turbines. Wind energy is a fast-growing energy source for people around the world.

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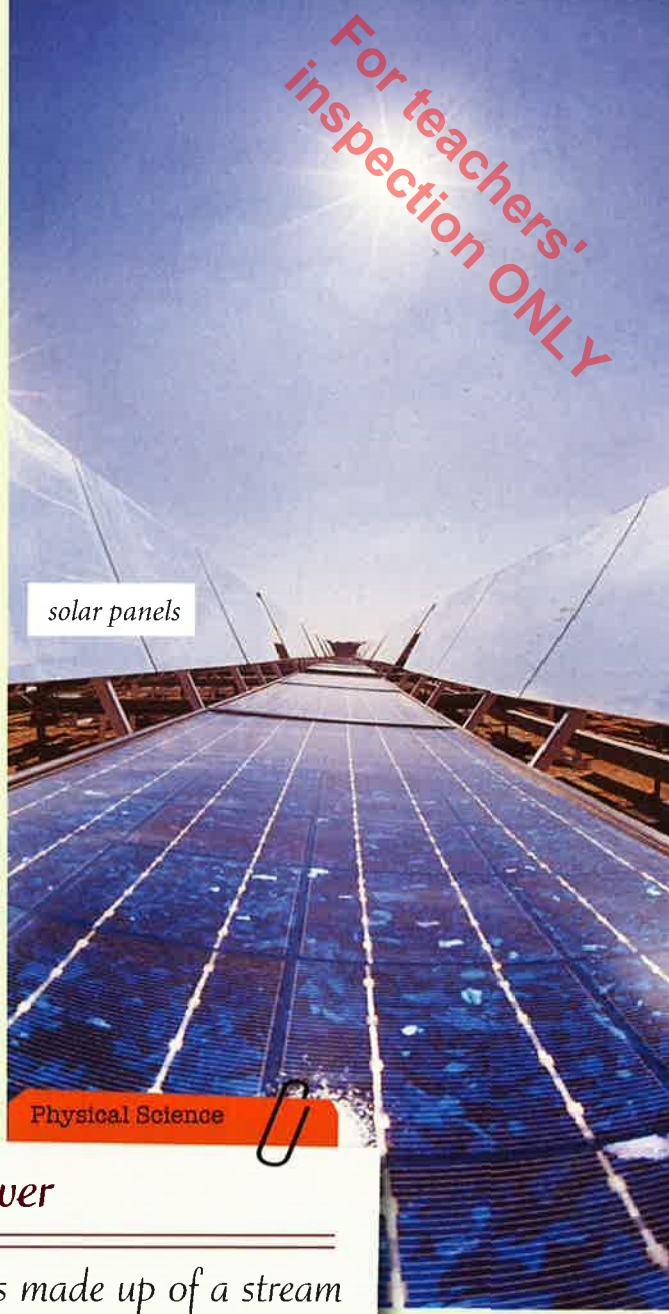
Solar Energy

The Sun produces heat energy and light energy. The Sun's energy is called solar power.

The Sun's energy can be changed into electricity using solar panels. Solar panels can be fitted to the roof of a house, where they can produce electricity to power lights and other electrical appliances.



The Sun produces an enormous amount of energy.



solar panels

Sunlight and Solar Power



solar panels

Sunlight is made up of a stream of light particles called photons. When photons hit a solar panel, they carry their energy into it and give this energy to the electrons in the solar panels. The electrons move and produce electricity.

3 Non-Renewable Energy Sources

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Energy for Light, **Heat** and Cooking

Non-renewable energy sources, such as oil, coal and gas, cannot be replaced once they have been used. Burning these resources produces greenhouse gases and can add to global warming and climate change.



coal storage

Before Power in Homes

Before electricity became available to homes in the early 1900s, people used the following energy sources.





Wood: a renewable energy source that is burned mainly for cooking and heating. But trees take many years to grow.

Oil: a non-renewable energy source that is burned mainly for cooking and heating.

Coal: a non-renewable energy source that is burned for cooking and heating. It can be burned to make steam for steam trains.



Gas: a non-renewable energy source made from coal or oil. It is burned for cooking and heating, and used in gas lamps.



Energy Sources Today

In some parts of the world, people still use these energy sources. But most people would prefer to use more renewable and less non-renewable energy sources.

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Saving Electricity



Whether electricity comes from renewable or non-renewable sources, it makes sense to use only as much as is needed.

Below are some ways to save electricity and conserve the resources used to make it.



1

New Products: only buy new products when they are needed. Factories and shops use electricity to make, transport and sell things. Recycling products and materials can save energy.

2

At Home: switch off lights and appliances, and have shorter showers. Install insulation so that less electricity is needed for heating and cooling. Use light globes and appliances that use less energy.



3

Switch Off: turn off TVs and computers at the wall to save electricity.



4

At School: turn off computers, lights and other electrical equipment when the classroom is not in use.

