KS2 Lesson Plan

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Lesson 7	Introduction to Solar Photovoltaics (PV)		
Level	Key Stage 2	**Time required**	30 minutes
National Curriculum Links Science, English, D&T, ICT (view scheme of work for full details of links)			
Aims • Students will learn how solar photovoltaic panels can be used to generate electricity from sunlight			
Resources required Pen, paper, PC with internet access			
Web search keywords Solar panel, photovoltaics, PV, solar power, sun electricity			

Introduction to Solar Photovoltaics (PV)

Explain to the students that voltage is like the water stored at the top of a tower. The taller the tower, the more pressure in the pipe at the bottom of the tower. The water pressure is like the voltage.

The word current, as used in electricity, can be compared to the quantity of water descending the pipe. The wider the pipe in the tower, and the taller the tower, the faster the water will flow down it.

Resistance in electricity is a similar to a narrowing of the pipe. The narrow pipe will prevent the water from flowing down the pipe so quickly.

When we generate electricity we are pushing electrons into the wire. When we generate electricity from the sun we are using the photons produced by light to excite the electrons and force them to move into the wire. We call this solar photovoltaic (solar PV). *Photo* meaning light and *voltaic* the energy potential.

The solar panels have to be very carefully made. Ask the students to find a web site that shows how solar panels are made.

What do they think about the process? Will solar panels be cheap to manufacture or expensive? What happens at night?

Task 1

Divide the students into groups and ask them to create a list of applications for solar PV (e.g. calculators, mobile phone chargers, road traffic safety signs, battery chargers, radios, torches, navigation buoys at sea, space exploration)

Ask the students to consider the advantages and disadvantages of photovoltaic power.

Task 2

Ask the groups to come up with a design for a solar powered appliance. Ask them to draw their design and annotate it.