

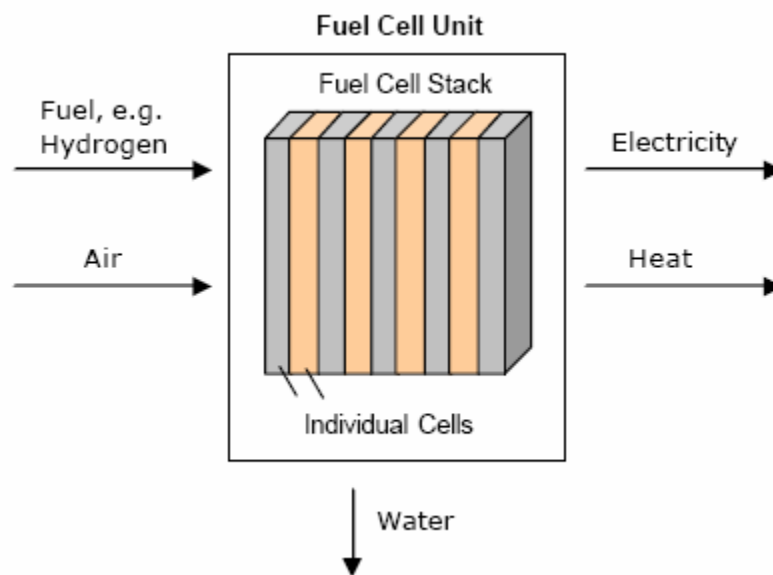


## THE BASICS

### Fuel Cell Today – Education Kit 1

Fuel cells generate electricity from an electrochemical reaction in which oxygen (air) and a fuel (e.g. hydrogen) combine to form water. There are several different types of fuel cell but they are all based around a central design. The electricity produced can be used to power all sorts of devices, from cars and buses to laptops and mobile phones. The by-product heat is also used in some applications, for example to keep houses warm.

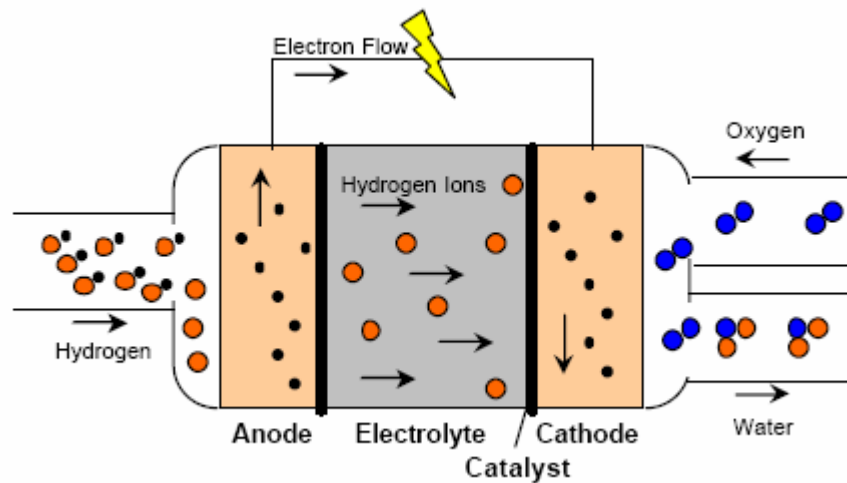
What we describe as the fuel cell itself consists of a so-called fuel cell stack. A stack is basically built up of a number of individual cells.



Each individual cell within this stack has two electrodes, one positive and one negative, called the cathode and the anode. The reactions that produce electricity take

place at the electrodes. Every fuel cell also has an electrolyte, which carries electrically charged particles from one electrode to the other, and a catalyst, which accelerates the reactions at the electrodes.

The electrolyte plays a key role. It must permit only the appropriate ions to pass between the anode and cathode. If free electrons or other substances could travel through the electrolyte, they would disrupt the chemical reaction.



*Typical system shown*