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## 1. Fuel Cell Car Science Kit

Construct a hydrogen fuel cell car and teach the principles of fuel cell technology. Explore how the PEM (Proton Exchange Membrane) fuel cell converts the chemical energy of hydrogen and oxygen into electrical energy to power the motor. Once constructed, the car uses a steering mechanism to drive around obstacles.

Contents:

- Reversible fuel cell
- Car chassis and wheels
- Electric motor
- LED lights
- Water vessels
- Gas collectors
- Connector cables
- Syringe
- Battery pack
- User manual

Code	Pack	Price
FCJJ-11	Each	£125.48

## 2. Malvern Energy Conversion Devices

Separately available units which enable the user to show conversions of one form of energy to another.

### Fly Wheel Unit

For use with a large motor/generator and a lamp unit to demonstrate the conversion of electrical energy to kinetic energy and back again. Comprising an iron flywheel 115mm diameter, mass 1.2kg in cast bracket with bearings. Shaft has an aluminium 44mm diameter pulley for driving. Spring belt supplied.

Code	Pack	Price
PH0467D	Each	£53.90

### Turbine/Pump Unit

Use as a water turbine to drive a generator producing electricity or as a pump driven by a motor, raising a head of water to produce potential energy. The rotor has eight bucket blades and is housed in a block turbine chamber 50 x 50 x 25mm with a clear Perspex front. Two inlet (for turbine and pump) and one outlet tubes are provided. The shaft carries a 15mm diameter pulley. A driving belt is supplied.

Code	Pack	Price
PH0467G	Each	£32.59

### Mounted Lamp

12v 24w SBC bulb in a metal socket, mounted on a base with pair of 4mm sockets to tie into solar cell. For energy transfer experiments.

Code	Pack	Price
PH0467MN	Each	£13.18

## 3. Malvern Motor Generator

Mounted driving unit or dynamo. Great for use as a tool for studying the input/output of larger motors on a comparative level. 2 - 6V DC motor and 15mm V pulley. Mounted on base size is 6" x 4" with 4mm terminal socket.

Code	Pack	Price
PHY1030	Each	£19.25

## 4. Malvern Spring Unit

For showing potential energy in a wound-up spring and its conversion to electrical energy by driving a dynamo and lighting a lamp. Can be used to wind up a weight on a cord showing the change from potential energy to kinetic and back. The steel shaft carries a clock spring with a free wheel device and winding ratchet, also an aluminium "V" pulley 56mm Ø. One end of the shaft overhangs the base for use as line shaft. Dimensions 220 x 100 x 100mm.

Code	Pack	Price
PHY1024	Each	£28.07

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