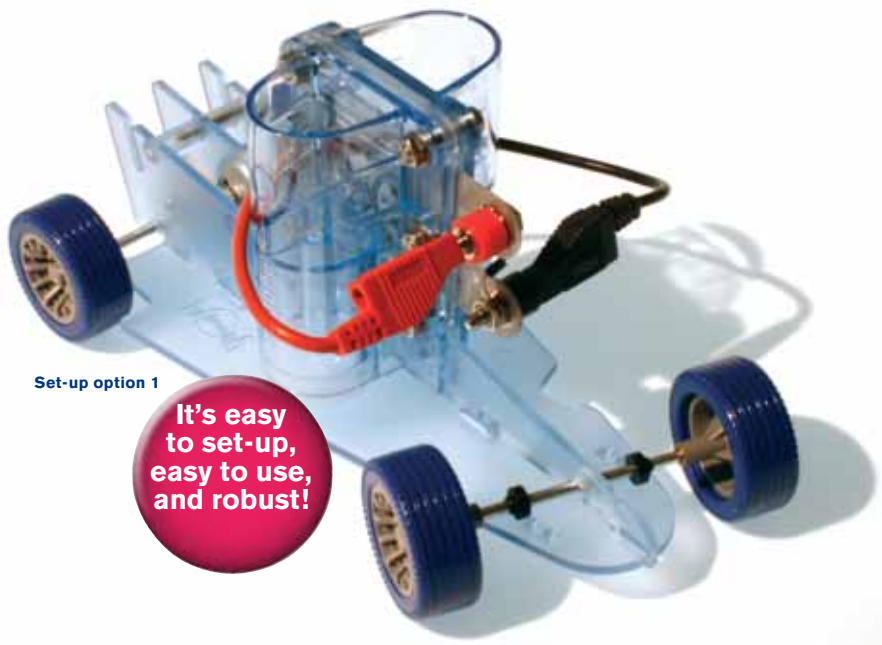


Dr FuelCell™ Model Car

For grades 5 – 10 science classes



Set-up option 1

It's easy to set-up, easy to use, and robust!



Set-up option 2



Chassis

Expose your students to the car of the future with this fun and innovative science kit. Made from durable, high quality components, the DrFuelCell™ Model Car provides a working demonstration of a fuel cell using hydrogen generated from solar energy.

Classroom use:

The robust design, easy set-up and included experiment guide make this kit a perfect choice for classroom use.

Written by teachers for teachers, the experiment guide includes 8 investigations targeting middle school science curricula. Each investigation includes sections on the theoretical principles of the experiment, a **student guide** with questions targeting the learning objectives of the experiment, and a **teachers guide** with hints for the teacher, sample results with interpretation of the experiment and answers to the student questions.

Dr FuelCell™ Model Car-Complete

- **Solar module**
- **Reversible PEM fuel cell**
(operates as both an electrolyzer and a fuel cell)
- **Car chassis with electric motor**
- **Load measurement box:**
Contains Ammeter, Voltmeter, 7-position variable resistance, lamp and motor
- **Experiment Guide**
Ring-binder
- **Stopwatch and cables**
- **Box for storage**

Dr FuelCell™ Model Car-Demo

- **All items as DrFuelCell™ Model Car-Complete EXCEPT the load measurement box and stopwatch**

Dr FuelCell™ Cell Model Car-Basic

- **All items as DrFuelCell™ Model Car-Demo EXCEPT the solar module**

Dr FuelCell™ Model Car

Technical Data

| | | |
|--|---|-------------------------------------|
| Experiment Guide | Ring-binder with Investigations (100 pages) | |
| | Investigation 1: Observing, Predicting and Questioning | |
| | Investigation 2: Solar Panel Orientation | |
| | Investigation 3: Simple Electrolysis | |
| | Investigation 4: Understanding Electrolysis | |
| | Investigation 5: Hydrogen Power! | |
| | Investigation 6: Hydrogen Power in Motion | |
| | Investigation 7: Energy Efficiency | |
| | Investigation 8: What is a Hybrid? | |
| Solar module | | |
| | Dimensions (LxWxH) | 2¾" x 4¾" x 2" (70 x 120 x 52 mm) |
| | Open circuit voltage | 3.0 V DC |
| | Short circuit current | 245 mA |
| | Voltage (at maximum power point) | 2.4 V DC |
| | Current (at maximum power point) | 200 mA |
| | Power output | 0.48 W |
| | Note: Solar module output data based on standard conditions (1000 W/m ² , 25 °C) | |
| Reversible PEM fuel cell | | |
| | Dimensions (length x width x height) | 3" x 3¼" x 3¼" (72 x 80 x 80 mm) |
| | Electrolyzer operation: | |
| | Required voltage | 1.4 – 1.8 V DC |
| | Storage volume of hydrogen and oxygen | 15 ml each |
| | Fuel cell operation: | |
| | Power output | 0.4 W |
| | Voltage output | 0.4 – 0.9 V |
| Car chassis with electric motor | | |
| | Dimensions (length x width x height) | 8½" x 4½" x 1¾" (210 x 110 x 45 mm) |
| | Voltage requirement for motor operation | 0.5 – 3.0 V |
| | Rate of hydrogen consumption in drive mode | 3 – 5 ml/min. |
| | Running time of car | 3 – 5 min. |
| Climatic conditions | | |
| | Required ambient temperature for operation | 10 – 35° C |
| | Required storage temperature | 10 – 35° C |