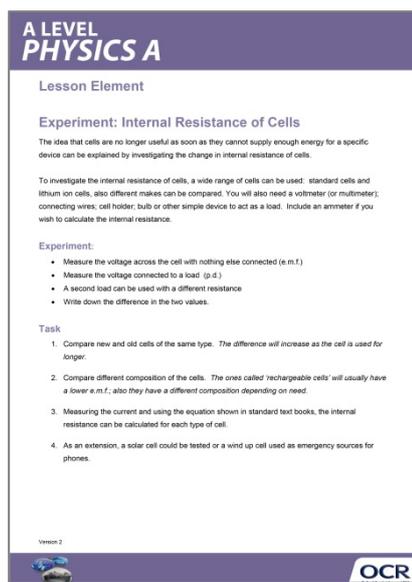


## Lesson Element

### Experiment: Internal Resistance of Cells

#### **Instructions and answers for teachers**

*These instructions should accompany the OCR resource 'Experiment: Internal Resistance of Cells' activity which supports OCR A Level Physics A*



#### **The Activity:**



*This activity offers an opportunity for English skills development.*



*This activity offers an opportunity for maths skills development.*

#### **Associated materials:**

'Experiment: Internal Resistance of Cells' Lesson Element learner activity sheet.



# A LEVEL PHYSICS A

To investigate the internal resistance of cells, choose a wide range of cells: standard cells and lithium ion cells, also different makes can be compared. You will also need voltmeter (or multimeter); connecting wires; cell holder; bulb or other simple device to act as a load. Include an ammeter if you wish to calculate the internal resistance.

## Experiment:

- Measure the voltage across the cell with nothing else connected (e.m.f.)
- Measure the voltage connected to a load (p.d.)
- A second load can be used with a different resistance
- Write down the difference in the two values.

## Task

1. Compare new and old cells of the same type. *The difference will increase as the cell is used for longer.*
2. Compare different composition of the cells. *The ones called 'rechargeable cells' will usually have a lower e.m.f.; also they have different composition depending on need.*
3. Measuring the current and using the equation shown in standard text books, the internal resistance can be calculated for each type of cell.
4. As an extension, a solar cell could be tested or a wind up cell used as emergency sources for phones.

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