



Oxford City Schools

# Proficiency Scale

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**GRADE LEVEL: 10/11      COURSE NAME: IB Chemistry**  
**MEASUREMENT TOPIC: Analyze Energy in Chemical Systems**

**4**

In addition to Score 3, the student makes in-depth inferences and applications.

- Investigate energy changes for chemical systems

**3**

The student will:

- Analyze energy changes for chemical systems
- Calculate enthalpy change for reactions from:
  - $\Delta H^\circ$
  - $Q = mc\Delta T$
  - Average bond enthalpy
  - Hess's Law

**2**

The student will:

- Explain how a fuel cell can be used to convert chemical energy directly to electrical energy.
- Understand the difference between renewable & non-renewable energy sources.
- Understand how temperature change (decrease or increase) accompanies endothermic & exothermic reactions.

**1**

With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.

**Key Vocabulary:**