

Teaching –learning module compiled by the PARSEL consortium
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Popularity and Relevance of Science Education for scientific Literacy



Which is the Best Fuel ?

A grade 10-11 science (chemistry) module on
Heat of Combustion



Abstract:

This script describes an activity to determine the 'best' fuel, but also asks students to reflect on the meaning of best in this situation. In particular it asks the student to decide whether best refers to the 'least amount of fuel' used for heating a certain amount of water, or whether it refers to the fuel that heats the water 'the fastest'.

The unit is designed to be used as part of the topic on fuels. It can also be a component of a topic on petroleum.

Sections included		
1.	Student activities (for students)	Describes the scenario in more detail and the tasks the students should perform
2.	Teaching guide	Suggests a teaching approach
3.	Assessment	Gives suggested formative assessment strategies
4.	Teacher notes	Gives possible student worksheets

Developer: Jack Holbrook

Institute: ICASE
Country: UK



Overall Objectives/Competencies: The students are expected to:

- * appreciating that 'best' can have more than one interpretation and to suggest the most appropriate meaning in this context;
- * planning an investigation, interpreting experimental instructions and carrying out an experimental procedure;
- * undertaking calculations to determine the link between amount of fuel, temperature changes and time taken;
- * cooperating as a member of a group;
- * communicating orally and by means of a written conclusion;
- * explaining the meaning of fuel and heat of combustion.

Curriculum content: Heat of combustion, Calorific value, rate of reaction

Kind of activity: Planning and carrying out an investigation to determine the calorific value of different fuels.

Anticipated time: 4 lessons

This unique teaching-learning material is intended to guide the teacher towards promoting students' scientific literacy by recognising learning in 4 domains – intellectual development, the process and nature of science, personal development and social development.

Its uniqueness extends to an approach to science lessons which is designed to be popular and relevant. For this the approach is intentionally from society to science and attempts to specifically meet student learning needs.

This uniqueness is specifically exhibited by:

1. a society related and issue-based title (supported in the student guide by a scenario);
2. student-centred emphasis on scientific problem solving, encompassing the learning of a range of educational and scientific goals;
3. including socio-scientific decision making to relate the science acquired to societal needs for responsible citizenship.

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