

Analysis of Fuels Report B E L O W L E V E L 1

Teacher's Notes

The following is a list of characteristics found in student work that was submitted for this task and assessed at “below level 1”. (Samples of student work are not included.)

Degree of achievement can vary widely in student performance that falls below level 1. Consequently, the following list includes characteristics of achievement at various degrees below level 1. Taken together, some or all of the characteristics outlined below may justify assessment at “below level 1”. Most of the characteristics noted relate to the criteria specified in the task rubric, but some are more broadly defined.

Knowledge/Understanding

The student:

- does not construct a diagram of the calorimeter, or constructs an incomplete diagram that lacks significant components;
- constructs a very small diagram that is difficult to interpret;
- constructs a diagram that lacks proper labelling;
- provides an erroneous explanation of how the calorimeter functions;
- does not provide enough information to describe how the calorimeter functions.

Inquiry

The student:

- provides either no data or only one set of data for each type of change;
- performs calorimetry calculations with serious inaccuracies;
- describes physical and chemical changes with thermochemical equations that have serious inaccuracies;
- fails to provide enough data to describe the physical and chemical changes accurately;
- provides no assessment or an ineffective assessment of the accuracy of the experimental results;
- interprets the experimental results with little or no effectiveness;
- fails to provide sufficient information about the experimental results to permit an interpretation.

Communication

The student:

- presents observations and results in a table that lacks important components;
- presents observations and results in a table with little or no clarity (e.g., data disorganized, units incorrect);
- does not use scientific language effectively in the report;
- uses little or no scientific language in the report.

Making Connections

The student:

- does not choose a fuel;
- states the chosen fuel but does not support the choice;
- provides little or no information about the benefits of hydrocarbon fuels to society and risks to the environment;
- does not clearly analyse the benefits and risks of hydrocarbon fuels.

Comments

If several components of the task are not completed, or are scored below level 1, then the overall score will be below level 1.

Next Steps

In order to improve his or her performance, the student needs to:

- provide a more accurate and clearly labelled diagram;
- research more fully and explain more effectively how the calorimeter functions;
- perform calorimetry calculations more accurately;
- describe physical and chemical changes more accurately with thermochemical equations;
- assess and interpret experimental results more effectively;
- provide a table that contains all relevant information in an organized fashion;
- use scientific language more effectively;
- describe the importance of the chosen fuel;
- describe the risks and benefits of hydrocarbon fuels with greater clarity.