

Example 20: Model a cooling cup of Tea

General guidance

[How to use this teacher support material](#)
[Teacher responsibilities](#)
[Skills and strategies required by students](#)
[Developing the exploration](#)
[Use of technology](#)
[Planning](#)
[Authenticity](#)
[Assessment criteria](#)
[Record keeping](#)

Assessed student work

[Overview](#)
[Examples of explorations](#)
[Example 1](#)
[Example 2](#)
[Example 3](#)
[Example 4](#)
[Example 5](#)
[Example 6](#)
[Example 7](#)
[Example 8](#)
[Example 9](#)
[Example 10](#)
[Example 11](#)
[Example 12](#)
[Example 13](#)
[Example 14](#)
[Example 15](#)
[Example 16](#)
[Example 17](#)
[Example 18](#)
[Example 19](#)
[Example 20](#)
[Example 21](#)
[Frequently asked questions](#)

Assessment

Criterion	A	B	C	D	E (SL)	E (HL)	Total (SL)	Total (HL)
Achievement level awarded	4	2	3	3	6	4	18	16
Maximum possible achievement level	4	3	4	3	6	6	20	20



[Student work \(PDF\)](#)



[Annotated student work \(PDF\)](#)



[Comments](#)

Comments

Criterion A: Communication

A4—Brief aim. Easy to read, logical, detailed. Clear aim (although the student does stray from it slightly). Coherent work through transformations required to obtain model. Returns to original question at end to fulfil aim – complete.

Criterion B: Mathematical presentation

B2—Tables displaying data and units and clear. Labels on axes not always clear but appropriate graphs throughout. Misuse of words “scatter graph”, “constants”. Variables clearly defined.

Criterion C: Personal engagement

C3—Application of area of mathematical interest to real-life situation. Conducts own experiment. Comparison of different approaches to produce models. Looks for different ways to explore problem.

Criterion D: Reflection

D3—Reflects on nature of problem. Reflects on degree of accuracy of results. Constantly comparing models. Reflects on possible reasons for discrepancies between model and real-life data and considers ways to analyse this.

SL Criterion E: Use of mathematics

E6—Good initial analysis of results. Understanding of transformations of graphs and exponentials/natural logarithms (commensurate with syllabus) clearly demonstrated. Correct calculations throughout.

HL Criterion E: Use of mathematics

E4—Good initial analysis of results. Understanding of transformations of graphs and exponentials/natural logarithms (commensurate with syllabus) clearly demonstrated.



Correct calculations throughout. Lacks sophistication and rigour expected.

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