

Example 15: The SIR model in relation to world epidemics

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Assessment

Criterion	A	B	C	D	E (SL)	E (HL)	Total (SL)	Total (HL)
Achievement level awarded	3	3	3	2	6	4	17	15
Maximum possible achievement level	4	3	4	3	6	6	20	20



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



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



[Comments](#)

Comments

Criterion A: Communication

A3—The exploration is well organized, coherent and easy to follow. More explanation for the derivation of “alpha” and “gamma” on page 6 would have helped. The use of Euler’s method did not add greatly to the exploration and made it less concise.

Criterion B: Mathematical presentation

B3—A good mix of mathematical presentation including text, notation, graphs and tables were used. Although the main data table using iteration was in the appendix this was a good decision by the student, since it was used to produce the graphs and these were clearly referenced to the table. The addition of the long table in the body of work would have detracted from communication.

Criterion C: Personal engagement

C3—The creation of their own excel spread sheet to model the disease was an example of good personal engagement.

Criterion D: Reflection

D2—Meaningful reflection throughout however the student did not critically reflect on the veracity of the model.

SL Criterion E: Use of mathematics

E6—Mathematics goes beyond the syllabus, is correct and thorough knowledge and understanding is demonstrated.

HL Criterion E: Use of mathematics

E4—The mathematics used is correct and sophisticated. More rigour was required in



the application of the model. The final example given needs to be more carefully examined to determine where the SIR model could be applied in this case.

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