PHILIP ALLAN FOR HODDER EDUCATION

IB review

Volume 2, Number 1, September 2015

Group 5: mathematics

MSSL project criteria explained

Peter Blythe

Criterion A

This can be summarised as, 'What, how, why'.

What you are going to do

State the task, and be precise. The statement, 'To investigate whether age affects the healthiness of meal choice', is vague and tells me (the marker) nothing. The statement should be phrased in mathematical terms: 'To determine whether age and the healthiness of meal choice are independent' at least guides me towards a chi-squared project.

Title your project, making the title the statement of the task. 'MSSL Project' is not a title, yet it is one of the most common ones I see from the least successful attempts.

How you are going to accomplish the task

If you have thought through your project, you should have, from the outset, a list of techniques that you are going to apply. This ordered list (preferably bullet-pointed) needs to be stated in your conclusion.

Why you are applying these techniques.

Again, before starting the project you should have a clear idea of its purpose and direction. This not only determines the techniques to be applied but also the reasons behind using them. If there is no reason for using a technique it should be omitted.

Criterion B

Your data/information must be relevant to what you want to accomplish, and must be sufficient. Looking at figurate numbers or the frogs puzzle, tables of data need to be shown at each stage. In a chi-squared test, the sample must be large enough to guarantee that all expected values are at least five. For a graphical project, the graphs of the functions are the data and so enough must be shown to illustrate the point being made.

Some projects require more data and some fewer. A judgement will be made that compares the work required to acquire the data. In general, primary data requires more work and so will carry more weight.

Criterion C

This can be summed up as 'relevance'.

Every bit of maths that you use in your project must be relevant to your stated task and have a purpose. You must be able to justify each mathematical technique — and you should do so in the

introduction (the 'why' part) and when you use the technique. If I ask, 'What was the point of doing that?' and there is no answer to that question in the project, then the maximum score in this criterion is 2. This is the biggest pitfall in the project. To avoid it takes planning, which needs foresight, which in turn requires that initial interest.

Criterion D

When you find out something of importance, tell the marker. Tell me at the time you find it out — do not wait for the conclusion.

Criterion E

If you think that there is something wrong with the mathematics that you have used, say so, and then correct it. Do not say so and then do nothing.

Criterion F

This assesses how focused your project is. Has the plan as stated in the introduction been followed (going back to criterion A, a plan not followed is not a plan)? Does the conclusion follow from the mathematics that has been used? Is the project concise and to the point or does it ramble?

Criterion G

Be precise at all times.

Incorrect notation is penalised: *x*^2, when not in a spreadsheet, is penalised; 1.2E5 is used by some calculators but is not acceptable; X^2 is not the correct notation for the χ^2 test.

Incorrect terminology is penalised — the most common abuse of terminology is 'correlation'. 'To investigate whether there is a correlation between age and the healthiness of meal choice' is an impossible task. It is impossible because 'meal choice' is categorical, whereas numerical data is required to measure correlation. Nor does correlation mean 'connection' — it has a strict mathematical meaning.

In general, when you use a mathematical term, make sure that you know exactly what it means.