MATH SL INTERNAL ASSESSMENT CRITERIA EXPLAINED

Criterion A: Communication

What is the difference between an introduction and a rationale?	Introduction is about the idea of the topic. Rationale is to explain some background and argument about the topic. Rationale explains the reason of the choice of topic. The Underlying principles. Rationale - justifies why a topic is chosen.
What is the difference between an organized piece of work and a coherent piece of work?	Develops logically and easy to follow. Don't need to reread several times to work out what is happening. Interconnections between parts-coherent (fits together as a whole): organized implies titled paragraphs not necessarily in logical sequence. Coherent - nice, logical flow, transitions from paragraph to paragraph.
Can an exploration be well organized and have no coherence?	If parts contribute to a whole the exploration will be coherent. If more than one topic treated in systematic individual ways could be considered not coherent but could fit loosely within a theme.
What defines a complete Exploration?	Thorough treatment of all aspects with clear communication at every level and conclusions that encapsulate essential questions and portray understanding with no repetition of previous statements.
Does an exploration have to be less than 13 pages long to be concise?	No. No, but as the pages add up the potential for 'busy work' increases.
How will you discriminate between each descriptor in level 4?	Must meet all • Strong introduction (which includes the context of the exploration) and conclusion • **Mathematical and/or non mathematical explanations are clear and concise.** • Includes rationale (why topic chosen) and aim which is clearly identifiable. • Exploration is logically developed. • All appropriate avenues explored. • Graphs and tables are appropriately placed within the exploration, extra large tables are summarized in paper and then added in an appendix • Easy to follow (written for a peer audience) • Proper citations and referencing where appropriate.

Criterion B: Mathematical Presentation

What is appropriate mathematical language?	Ability to move between different forms of representation - words to graphs, charts, tables etc. Universal symbols and notation (symbols on the DP guide?). Organized Appropriate use of math terminology Concise and easy to understand and follow (no irrelevant information)
What constitutes "key terms"? Do all terms need to be defined?	No...as there are a range of acceptable terms that may vary around the world. But it may be helpful to define terms that are more obscure in use. Another consideration is to limit any doubt of a moderator's impression of the student's level of understanding
Is the use of technology compulsory?	No…. but it could enhance the report As long as it contributes to presenting an idea more clearly or more vividly Not compulsory but it could be a way to validate the findings. Should Enhance!
Does an exploration have to be word-processed?	No. But word processing does allow students to practice for university and gain experience in the styles of writing they may see in mathematical journals
Can an exploration get a good mark for criterion B if it doesn't have any graphs, charts or tables?	Yes, as long as it uses multiple (and appropriate) forms of communication Perhaps an algebraic one; sequences….
How will students' mathematical presentations of topics that have not been taught yet, or that will not be covered at all in the syllabus, be assessed?	It will not improve the students' mark but it should be correct and explained in the student's' own words (and at an appropriate level).

Criterion C: Personal Engagement

List some attributes or skills that constitute personal engagement	Collecting own data/doing own research Relating exploration to something in their life Evidence must be **seen** in the exploration. Something that could reasonably be interesting; e.g. not how many grains of sand on the beach! Not trivial.
How should personal engagement be *evident* in the exploration?	Passion. Reflection and improvement. Choose a topic that is REAL in YOUR life. Teacher annotation Getting information off-line, and shows personal input or responsibilities at different phases of the exploration.
What is the difference between significant (3) and outstanding (4) in terms of quality and/or quantity?	Wow factor. Avoid textbook problems unless adapted to student's viewpoint. Difference of 3 and 4: Example 3: There is significant evidence of personal engagement especially when using Geogebra to simulate the problem. Example 4: The student showed initiative in using still photographs to plot curves. The interest of the student in the topic studied is evident throughout. One-of-a-kind

Criterion D: Reflection

What constitutes superficial reflection?	Opportunities to reflect are not taken throughout the exploration, instead there's just a small conclusion containing reflection. The reflection does not offer ways to improve and does not consider further questions.
What do we look for when looking for good reflection?	Reflection on the process and how to improve the process. Limitations Reflection throughout, not only at the end. Future Recommendations. Relation to other subject areas. A reflection leads to more refinement on the IA. Links to other areas of mathematics and other subjects Further questions
What is the difference between a conclusion and a reflection?	A conclusion summarizes content, but reflection considers wider implications and continues to question. It links to the next part A reflection is personal. Incorporate what it looks like, sounds like, feel like, etc.
Can any reflection be included in the conclusion?	Yes Perhaps emotional responses should not be included. If relevant Connect/compare with real world information.
What is the difference between 'meaningful' and 'substantial' reflection?	Substantial is frequent while high quality. **Meaningful:** a valid method of reflection, which allows the student to see some of the limitations of the inquiry. **Substantial:** a range of different methods of reflection, not necessarily all mathematical in nature which allow a student to reflect on the exploration from a range of perspectives allowing for a much fuller understanding of the limitations and scope of the exploration. Substantial - perhaps relate to TOK's Ways of Knowing? Reflection throughout on all results.

Criterion E: Use of Mathematics

Why is prior learning not commensurate with either course?	Because the exploration guide states that the mathematics must be commensurate to the level of mathematics in either course. And prior learning or content is clearly spelled out in the syllabi guide already, and therefore, that will eliminate it from being commensurate with the level of mathematics expected for the course.
Can an exploration get a good IA grade at SL even if the mathematics is not commensurate with SL level?	Possible. Either the level of mathematics showcased is way beyond SL course, or the other extreme of the spectrum where the mathematics is too simplistic, the student could still get a decent result of 14 out of 20 (max) through fulfilling the other criteria. What counts as "good"? A Level 5 is 12-14 out of 20. Good as in Level 5+?
What is the difference between 'some', 'good' and 'thorough' knowledge and understanding, qualitative and quantitative?	Some is limited - subjective decision. Thorough - after showing a near-flawless write-up, it is evident that student has reflected on the validity of the work and shown reflections on how this work can be further improved or applied in other contexts. Creativity and originality is shown. A simple way is to track the amount of mathematical errors made, but that does not and should not be the only yardstick to discern between these three adjectives. Evidence of thorough understanding must be seen from the manner that the student reflects, critics or putting forward new suggestions along the development of the exploration, on top of the mathematical procedures illustrated in their work.
What does *demonstrated* mean in the context of knowledge and understanding?	What is shown is relevant, this shows understanding in knowing which maths to use, and the maths is correct, thus showing knowledge. Demonstrated implies that there must be evidence that the student is fully able to articulate the process of the working/derivation from his/her perspective, spelling out the limitations and/or assumptions made with respect to the context and to be able to justify the use of certain mathematical procedure(s) over another, etc.