Math 9H major project

Overview of project

For this project you will take a picture of an actual object (not something mythical – it would be preferable to use something that exists in nature) and find as much math in the object as you can. It is expected that you will find math that is at grade level and possibly above the current level of study. It is not expected that students will have a strong understanding of the material above grade level(you should be able to explain it but not defend it). You will then produce a short presentation (powerpoint, prezzi, etc) that you will present to the class.

Rational for project

All students in this course are planning to enter the IB program. One of the two main indicators in IB Math is a project that uses the same marking rubric. The purpose of this project is to prepare students for this type of a project in a less stressful environment.

Steps to consider:

1) Take picture
   - Take measurements (dimensions, distance from item, angles, etc)
2) Research math that can be related to the item

   Math 10 units –measurement, trigonometry, algebra, exponents, graphing, functions & relations, systems of equations

   other thoughts – symmetry, quadratics, sine and cosine waves, cubic functions, quartic functions, absolute value functions, the golden ratio, the Fibonacci sequence, sine law, cosine law, circles, combinations, fractals, permutations and calculus (if you really want to confuse me)

   - there is no need for a bibliography. However, I will do a search for your project to check for plagiarism.
   - if plagiarism is detected, the evidence will be forwarded to the IB selection team for sanctions which could include disqualification from the IB program.

3) Create a presentation (A short video, powerpoint or prezzi)
   - Start with the picture of your object
   - Then a visual connector, for all the math you were able to find (mind maps are good for showing connections)
   - then produce a written explanation of each kind of math with a brief oral explanation of how the math is used with relation to your picture.
4) Present your presentation to another student and have them give written feedback

Time frame

1) your picture should be Emailed to me at rfriesen@sd35.bc.ca by October 31st.(you may change after this with permission)
2) It is encouraged you complete your research by the end of January.
3) All projects must be sent to Mr. Friesen by April 15th

Marking

This project will have no effect on your mark. It will simply be a pass/ fail assignment which must be passed to continue in the honours program. A pass will be a final mark of 70% or higher. Students who do not pass have 1 month to add to their project and re- present.