**September 2nd to September 5th**

Standards:

SL 5.7 Content Guidance, clarification and syllabus links The second derivative. Graphical behavior of functions, including the relationship between the graphs of f , f ′ and f ″. Use of both forms of notation, d 2y dx2 and f ″(x). Technology can be used to explore graphs and calculate the derivatives of functions. Link to: function graphing skills (SL2.3).

SL 5.8 Local maximum and minimum points. Testing for maximum and minimum. Using change of sign of the first derivative or using sign of the second derivative where f ″(x) > 0 implies a minimum and f ″(x) < 0 implies a maximum.

Optimization. Examples of optimization may include profit, area and volume. Points of inflexion with zero and non-zero gradients. At a point of inflexion, f ″(x) = 0 and changes sign (concavity change), for example f ″(x) = 0 is not a sufficient condition for a point of inflexion for y = x 4 at (0, 0). Use of the terms “concave-up” for f ″(x) > 0, and “concave-down” for f ″(x) < 0.

Learning Targets:

I am learning about what is happening with a function given the original function, first derivative and second derivative.

I am learning about the local maximum and minimum.

I am learning how to use the first and second derivative to text the maximum and minimum.

I am learning about optimization and how to find optimization and how it relates to the second derivative.

Success Criteria:

I can find what is happening with a function given the original function, first derivative and second derivative.

I can identify the local maximum and minimum.

I can use the first and second derivative to text the maximum and minimum.

I can figure out how to find optimization and how it relates to the second derivative.

**Week at a Glance IB Analysis and Approaches Year 2**

Monday:

Tuesday: Optimization and Curves in Calculus Guided Notes/Practice

Wednesday: Function, First Derivative, and Second Derivate Graphing Task

Thursday: Lesson KL Increasing, Decreasing, Max and Min/Practice

Friday: Lesson M Second Derivative Test/ Practice