Mathematical SL Proposal: The Exploration—Initial planning	Due:

1   Mathematical area of interest

Various mathematical functions on the coordinate graph.

2   Your specific topic and aim of exploration

I will consider the famous piece of artwork, the Mona Lisa, find a way to display the artwork abstractly using various equations on a coordinate graph.

3   Reason for choice (personal engagement is part of Criteria A)

I am an Art enthusiast! Not only would I like to design a way to display the Mona Lisa graphically, I could then make a few pages of paint by number for a children's book.

4   Three areas you plan to explore

  1. Explore various graphs on a coordinate grid: linear, quadratic, cubic, many different polynomials, exponential, logarithmic, rational, etc and trig functions. Explore composition and transformation of these functions.
  2. Use technology to change the parameters of my functions to make the most appropriate fit.
  3. Extend my investigation by considering making a paint by number children's book.

5   How will you explore these areas mathematically

1. I will start by taking the Mona Lisa and impose a coordinate grid over the top of it. I will then try to come up with equations that will represent the artwork in an abstract manner. This will all be done by hand, showing all work, and stating restrictions when needed.

2. I will use Autograph, Grapher, Geogebra, or Desmos to create my next piece of artwork. I will use various functions, trying to find a more appropriate fit for the artwork. I will mathematically predict and also "play" with the various parameters in the functions to get the appropriate fit to the artwork.

3. I will also use this artwork to design a few pages of "paint by number" for a children's book.

6   Resources / Sources

http://nrich.maths.org/7021

a computer graphing program

Mathematics Standard Level – Oxford Uni Press, Buchanan, Fensom, Kemp, LaRondie, Stevens.