

The following is a brief journal of the ideas and activities in MBF3C to increase engagement.

The course was broken into 4 units:

1. Geometry and Trigonometry
2. Data Management and Probability
3. Mathematical Models
 - a. Quadratic Relations
 - b. Exponential Relations
4. Personal Finance and Money Management

The rationale to have 4 units instead of 7 or 8 units was to Chunk concepts and expectations so that students could make multiple connections across curriculum expectations.

In each unit an assignment or theme was used as a foundation for the building of each lesson.

Unit 1 Geometry and Trigonometry

The Geometry and Trigonometry the unit started with a Gingerbread house assignment.

This project allowed students to use existing background knowledge to create a 2D pattern of a Gingerbread house and then extend the design to Orthographic Projections and Isometric Drawings. Unit conversions were incorporated using a Gingerbread Recipe from Imperial to Metric Dimension.

Unit 2 Data Management and Probability

The Data Management and Probability unit incorporated a school survey assignment to analyze School Spirit. Student had an opportunity to great a survey using Google Forms and conduct the survey across students of different grades and the community. The collected data was analyzed using graphs created in Google Sheets. Students then used the results to make recommendations.

In the specific expectations from Probability there was an opportunity to do a cross curricular activity from College Biology on gene analysis. Students were exposed to the Punnett Square to analyze gene selection and understand how offspring inherit certain physiological traits based on the genes of the parents.

Unit 3 Mathematical Models

The Quadratic Relations part of this unit was taught using traditional math pedagogy. There were no special assignments nor activities except the use of graphing technology when analyzing graphs of real life Quadratic Relations.

The Exponential Relations allowed cross curricular connections to be made. The first 20mins of the movie Contagion was viewed on the first day. This provided a forum for class discussion to understand how diseases spread/growth and the science behind it. The math aspect was then introduced by

discussing the R_0 (growth rate of a contagious disease). Students were able to gain an appreciation of the growth rates of the various diseases that have plagued humans – H1N1, Measles, Ebola etc. This became the foundation for exponential growth and exponential calculations. Throughout the unit the growth rates of diseases was used as a context for other exponential relations.

Unit 4 Personal Finance and Managing Money

Personal Finance and investing was a natural progression from the Exponential unit. Instead of growing diseases students investigated how to grow money. Engagement was natural in this unit as students could relate to this topic. Students appreciated the prospect of being able to plan for retirement by investing savings in various investment products.

An assignment was given to investigate the use of Credit Cards to emphasize the importance of managing debt. Students visited various bank websites to research credit card products and choose one they were interested in. They analyzed the effect of making only minimum payment and how that affected the length of time to pay off the credit card debt.

Finally students were able to investigate purchasing and owning a vehicle in an activity using the internet to research new and used cars and research insurance.

The college curriculum MBF3C did not have many direct connection to the specific expectations to the college Biology SBI3C and Chemistry SCH4C curriculum. More collaboration required to find common ground across the two subject areas to allow more connections to be made so that students experience relevance to the subject areas.