Diploma Programme subject outline – Group 5: mathematics			
School Name	High Point Central High School	School Code	0875
Name of DP Subject	Mathematics SL		
Level	Higher ☐ Standard completed in two years ☐ Standard completed one year ☒		
Name of teacher who completed this outline	Daniel Myers	**Date of IB Training**	
Date when outline was completed	9/20/2017	**Name of workshop**	

1. Course outline

- Use the following table to organize the topics to be taught in the course. If you need to include topics that cover other requirements you have to teach (for example, state standards), make sure that you do so in an integrated way, but also differentiate them using italics. Add as many rows as you need.

- This document should not be a day-to-day accounting of each unit. It is an outline showing how you will distribute the topics and the time to ensure that students are prepared to comply with the requirements of the subject.

- This outline should show how you will develop the teaching of the subject. It should reflect the individual nature of the course in your classroom and should not just be "copy and paste" from the subject guide.

- If you will teach both higher and standard level, make sure that this is clearly identified in your outline.

	Topic (as identified in the IB subject guide) *State the topics in the order you are planning to teach them*	Contents	Allocated Time One class is: 90 minutes In one week there are: ____ classes	Assessment instruments to be used	Resources *List the main resources to be used, including information technology if applicable*
Year 1	Algebra Functions and Algebra	Sequences and Series Exponents and Logarithms Binomial Expansion Functions Basics Inverse Functions Transforming functions Quadratics Other functions	9 classes (13.5 hours)	Class discussions Homework Quizzes Exam (made from former IB questions)	TI-nSpire
	Circular Functions and Trigonometry	Right Triangle Trig Non-Right Triangle Trig Arclength Area Angle Measures Unit Circle Trig Equations Trig Graphs	7 classes (10.5 hours)	Class discussions Homework Quizzes Exam (made from former IB questions)	TI-nSpire

	Vectors	Vector Operations Geometric Proofs Dot Product and Angles Linear Equations and intersections Vector Application	7 classes (10.5 hours)	Class discussions Homework Quizzes Exam (made from former IB questions)	TI-nSpire
	Statistics and Probability	Types of Data Histograms/Ogives Numerical Summaries Boxplots Bivariate Data (scatterplots, correlation, linear regression) Probability rules and diagrams Conditional Prob. Discrete Random Variables Normal Distributions	13 classes (19.5 hours)	Class discussions Homework Quizzes Exam (made from former IB questions)	TI-nSpire

	Calculus	Graphical limits Algebraic Limits Definition of a Derivative Gradient Function Tangents and Normals Derivative Short-Cuts Graph Analysis (extrema, concavity) Anti-Derivative Rules u-substitution Definite Integrals Kinematics	21 classes (31.5 hours)	Class discussions Homework Quizzes Exam (made from former IB questions)	TI-nSpire

2. IB Internal assessment requirements to be completed during the course

Briefly explain how and when you will work on them. Include the date when you will first introduce the internal and external assessment requirements, when they will be due and how students will be prepared to complete them.

Internal assessment will be introduced late November and will be completed by Mid-March

3. Links to TOK

You are expected to explore links between the topics of your subject and TOK. As an example of how you would do this, choose one topic from your course outline that would allow your students to make links with TOK. Describe how you would plan the lesson.

Topic	Link with TOK (including description of the lesson plan)
Algebra	Pascals triangle and binomial coefficient linkage.

4. Approaches to learning

Every IB course should contribute to the development of students' approaches to learning skills. As an example of how you would do this, choose one topic from your outline that would allow your students to specifically develop one or more of these skill categories (thinking, communication, social, self-management, or research).

Topic	Contribution to the development of students' approaches to learning skills (including one or more skill category)
Calculus	Students will develop basic power rule derivatives through an investigation of the "first principals" They will work in groups to develop patterns and apply it to higher order functions.

5. International Mindedness

Every IB course should contribute to the development of international-mindedness in students. As an example of how you would do this, choose one topic from your outline that would allow your students to analyze it from different cultural perspectives. Briefly explain the reason for your choice and what resources you will use to achieve this goal.

Topic	Contribution to the development of the attribute(s) of the IB learner profile
Trigonometry	Investigation between different ideas from various cultures about trigonometry and unit circle links.

6. Development of the IB learner

Through the course it is also expected that students will develop the attributes of the IB learner profile. As an example of how you would do this, choose one topic from your course outline and explain how the contents and related skills would pursue the development of any attribute(s) of the IB learner profile that you will identify.

Topic	Contribution to the development of the attribute(s) of the IB learner profile
Vectors	IB learners are reflective and inquiring. Students should be able to draw connections between linear equations from the Cartesian plane and the vector equation of a line based on a new parameter.

7. Resources

Are instructional materials and other resources available in sufficient quality, quantity, and variety to give effective support to the aims and methods of the courses? Briefly describe what plans are in place if changes are needed.

We currently have an adequate number of books and calculators to develop student growth.