



HIGHLAND PARK SENIOR HIGH

INTERNATIONAL BACCALAUREATE WORLD SCHOOL



Intermediate Algebra

MYP Level 3

Instructors: Ghebregzi, Martin, McKay, Moreno

I. Course Description:

This is a high school algebra course that meets MYP Aims and Objectives and the priority standards for algebra selected from the Minnesota Mathematics Standards.

The course incorporates the MYP fundamental concepts of holistic learning, intercultural awareness and communications, in that connections between mathematics and other subjects are emphasized. The IB learner profile is used as a guide in developing and implementing the curriculum. The cultural aspects are shown in that mathematics is embedded in all cultures.

Focus will be placed on inquiry and reflection, which enables students to better develop, understand, and apply and algebraic concepts. This course will extend from polynomials, through quadratic and exponential functions, as well as developing mathematical reasoning. Finally, students are expected to be able to show what they know in a variety of manners.

II. A. Units of Study

- Chapter 4: Functions: How are functions represented?
- Chapter 5: Linear Functions: What do slopes and intercepts tell us about a linear function? (AOI: Health and Social Education)
- Chapter 6: Systems of Equations and Inequalities: How is graphing linear inequalities different from graphing linear equations? (AOI: Health and Social Education)
- Chapter 7: Exponents and Polynomials: How are exponents used to simplify expressions? (AOI: Approaches to Learning)
- Chapter 8: Factoring Polynomials (AOI: Approaches to Learning)
- Chapter 9: Quadratic Functions and Equations (AOI: Human Ingenuity)
- Chapter 10: Data Analysis and Probability: How are data and probabilities represented? (AOI: Action)
- Chapter 11: Exponential and Radical Functions: How are exponential functions used to solve problems? (AOI: Environments)

II. B. State Standards, MYP Aims and Objectives

The state standards identified as priority standards by St. Paul Public Schools in Algebra are:

- 1) Understand the concept of function, and identify important features of functions and other relations using symbolic and graphical methods where appropriate.
- 2) Recognize linear, quadratic, exponential and other common functions in real-world and mathematical situations; represent these functions with tables, verbal descriptions, symbols and graphs; solve problems involving these functions, and explain results in the original context.
- 3) Generate equivalent algebraic expressions involving polynomials and radicals; use algebraic properties to evaluate expressions.
- 4) Represent real-world and mathematical situations using equations and inequalities involving linear, quadratic, exponential and n^{th} root functions. Solve equations and inequalities symbolically and graphically. Interpret solutions in the original context.
- 5) Display and analyze data; use various measures associated with data to draw conclusions, identify trends and describe relationships.
- 6) Calculate probabilities and apply probability concepts to solve real-world and mathematical problems.

The MYP aims of teaching and learning mathematics include encouraging students to:

- 1) Appreciate the usefulness and power of mathematics
- 2) Enjoy math and develop perseverance
- 3) Be able to communicate using mathematical notation
- 4) Develop knowledge, and thinking skills
- 5) Recognize the presence of mathematics in their lives

Over the course of the year students will achieve the MYP objectives of:

- 1) Acquiring knowledge and understanding
- 2) Be able to recognize and investigate patterns
- 3) Communicate effectively using mathematical language and notation
- 4) Reflect upon their work and conclusions.

III. Areas of Interactions

Throughout the course, the areas of interaction (Approaches to Learning, Action, Human Ingenuity, Environments, Health and Social Education) will be used as a way to insure that students have meaningful learning experiences. It is desired that every area of interaction be utilized at least once during the year to focus the students learning. It will be used as a lens in which students will view a particular unit of study.

IV. Texts and Materials

1. Holt Algebra 1 textbook.
2. Students must supply a folder and notebook solely for Algebra and a pen/pencil.
3. A scientific calculator is strongly recommended.

V. Methodology

In MYP, teachers work collaboratively to develop a variety of techniques, focusing on approaches to learning, especially critical thinking and reflection. Students take responsibility for their learning through individual and group work, addressing unit and guiding questions, expanding on their critical thinking skills/problem solving skills, and building on their self-advocacy.

VI. Methods of Assessment

Teachers will regularly use both formative and summative assessments to gauge and guide student success. Formative assessments will be routine, informative and on going. Among other strategies teachers may choose to use exit cards, math review, visual checks for understanding (thumbs up, note cards, etc.), quick writes, discussion, or practice problems. Quizzes within a unit might also be used to evaluate student progress and adjust instruction. Summative assessments will commonly take the form of chapter tests, unit tests, and/or group or individual projects. Cumulative final exams may also be given.

VII. Grading and Reporting

Grades will be given at the conclusion of each quarter with 1 progress grade given over the course of the semester. Grades will consist of 70% summative assessments and 30% formative assessments, as stated by the Highland Park Senior High Grading Policy. The assessments will be based upon the aforementioned objectives and will include the MYP assessment criteria.

- A: Knowledge and understanding
- B: Investigating patterns
- C: Communications in mathematics
- D: Reflection in mathematics

Viii. Other course information

Students will be expected to adhere to the following classroom principles:

1. Respectful – I will demonstrate respect for myself, others, school, and the community
2. Responsible – I will be a responsible member of my school community
3. Safe – I will help create a school environment where every student feels safe