# Highwood High School



# Mathematics 9

### Teacher: Ms. Mulholland

**Semester:** Fall Semester

**School Year:** 2016/2017

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**Classroom:** Rm 212

**General Course Outcomes**

* Develop number sense
* Use patterns to describe the world and to solve problems
* Represent algebraic expressions in multiple ways
* Use direct and indirect measurements to solve problems
* Describe the characteristics of 3-D objects and 2-D shapes, and analyze the relationships among them
* Describe and analyze position and motion of objects and shapes
* Collect, display and analyze data to solve problems
* Use experimental or theoretical probabilities to represent and solve problems involving uncertainty

**Mathematics 9 Common Specific Course Objectives**

Unit: **Exponents** (Text Chapter 1)

* + You will demonstrate an understanding of powers with integral bases (excluding base 0) and whole number exponents
  + You will demonstrate an understanding of operations on powers with integral bases (excluding base 0) and whole number exponents
  + You will determine an approximate square root of positive rational numbers that are non-perfect squares.

Unit: **Rational Numbers** (Text Chapter 2)

* + You will demonstrate an understanding of rational numbers
  + You will explain and apply the order of operations, including exponents, with and without technology

Unit: **Equalities** (Text Chapters 3 & 4)

* + You will model and solve problems, using linear equations
  + You will explain and illustrate strategies to solve single variable linear inequalities with rational coefficients within a problem-solving context.

Unit: **Linear Relations**  (Text Chapters 5 & 6)

* + You will generalize a pattern arising from a problem-solving context, using a linear equation, and verify by substitution
  + You will graph a linear relation, analyze the graph, and interpolate or extrapolate to solve problems

Unit: **Polynomials**  (Text Chapter 7)

* + You will demonstrate an understanding of polynomials (limited to polynomials of degree less than or equal to 2)
  + You will model, record and explain the operations of addition and subtraction of polynomial expressions, concretely, pictorially and symbolically (limited to polynomials of degree less than or equal to 2)
  + You will model, record and explain the operations of multiplication and division of polynomial expressions (limited to polynomials of degree less than or equal to 2) by monomials, concretely, pictorially and symbolically

Unit: **Circle Geometry**  (Text Chapter 8 & 9)

* You will solve problems and justify the solution strategy, using the following circle properties:
  + the perpendicular from the centre of a circle to a chord bisects the chord
  + the measure of the central angle is equal to twice the measure of the inscribed angle subtended by the same arc
  + the inscribed angles subtended by the same arc are congruent
  + a tangent to a circle is perpendicular to the radius at the point of tangency

Unit: **Similarities and Transformations**  (Text Chapter 8 & 9)

* You will describe and analyze position and motion of objects and shapes.
  + They must draw and interpret scale diagrams of 2-D shapes
  + They must demonstrate an understanding of line and rotation symmetry

Unit: **Data Analysis**  (Text Chapter 8 & 9)

* You will collect, display and analyze data to solve problems.
  + You will describe the effect of:
    - bias
    - use of language
    - ethics
    - cost
    - time and timing
    - privacy
    - cultural sensitivity
    - on the collection of data
  + You will select and defend the choice of using either a population or a sample of a population to answer a question
  + You will develop and implement a project plan for the collection, display and analysis of data by:
    - formulating a question for investigation
    - choosing a data collection method that includes social considerations
    - selecting a population or a sample
    - collecting the data
    - displaying the collected data in an appropriate manner
    - drawing conclusions to answer the question.
* You will use experimental or theoretical probabilities to represent and solve problems involving uncertainty
  + - You will demonstrate an understanding of the role of probability in society

Unit: **Surface Area**  (Text Chapter 8 & 9)

* You will describe the characteristics of 3-D objects and 2-D shapes, and analyze the relationships among them.
  + You will determine the surface area of composite 3-D objects to solve problems
  + You will demonstrate an understanding of similarity of polygons

**Tentative Schedule**

|  |  |  |  |
| --- | --- | --- | --- |
| Text Chapter | Units of Study | Approx # of Classes | Final Weighting (%) |
| 2 | Exponents |  |  |
| 3 | Rational Numbers |  |  |
| 6 | Linear Equalities and Inequalities |  |  |
| 4 | Linear Relations |  |  |
| 5 | Polynomials |  |  |
| 8 | Circle Geometry |  |  |
| 7 | Similarities and Transformations |  |  |
| 9 | Data Analysis |  |  |
| 1 | Surface Area |  |  |
|  | **Final Exam** |  | **30** |

**Unit Evaluation**

Units will be evaluated on Journals, Performance Tasks, Quizzes, Assignments, Unit Assignments, and Unit Tests.

**Course Evaluation**

Course Material 70%

Final Exam 30%

**Required Materials**

* Textbook
* Binder with Paper
* Pencil(s)
* Ruler
* Eraser
* Graph paper
* Scientific calculator

**Classroom Expectations**

1. Always have your binder, textbook, calculator, pencil and eraser in class. All work is to be in **pencil**, otherwise it won’t be marked.
2. Be at your desk with your materials ready to work when the bell rings.
3. If you are unprepared for class on a regular basis, your parents will be contacted.
4. Respect the environment, teacher, peers, and yourself

**Extra Help**

Extra help can be obtained outside of class time if needed. Here is where you can find it.

* **Focus Block** – Math help is available every Wednesday and Thursday during Focus Block. Please ensure you are using this time effectively to enhance your understanding on concepts.
* **Your Teacher** – Talk to me to schedule extra help sessions or try stopping by the classroom before or after school, or at lunchtime to see if I am available on short notice.
* **Other Teachers** – Other teachers in the math department are often available for extra help if I am not. Please do not hesitate to ask other teachers for help.
* **Website** – Please visit [mulhollandmath9@weebly.com](mailto:mulhollandmath9@weebly.com) for extra help, notes, and videos

**Internet Resources & Extra Practice**

There are several good websites and Internet resources available to help you practice.

Try some of the following (Links available on class website: mulhollandmath9.weebly.com)

* + - **[IXL](https://ca.ixl.com/math/grade-9" \t "_blank)**: Website where concepts are broken into outcomes, practice q
    - **[Learn Alberta](https://www.learnalberta.ca/content/mychildslearning/grade9_math.html" \l "0" \t "_blank)**: Website that indicates what students are learning, how
    - **[Khan Academy](https://tapintoteenminds.com/mpm1d-khan-practice/" \t "_blank)**: Vid