

Course: Foundations of Mathematics 11

Teacher Name: Ken Pickthall

Contact information: kpickthall@sd44.ca

Course Description:

Using various forms of mathematical reasoning the Foundations of Mathematics 11 course covers the topic of angle relationships by looking at similar shapes and proportional relationships. The course also looks at applications of statistics and scale models. Systems of Linear Equations and Quadratic Functions can be used to optimize extreme values. We will also look at financial literacy with compound interest, investment and loans.

Inquiry Questions

- How can mathematics help us make decisions regarding the best course of action?
- How do graphs aid in understanding a situation that is being optimized?
- How can logical reasoning help us deal with problems in our everyday lives?
- How do we gather data in order to answer questions?
- How do we analyze data and make decisions?

Summer Learning Beliefs:

Summer Learning provides an engaging learning environment where all students can challenge themselves academically and fulfill their learning goals. To ensure this, students will:

- abide by the student Code of Conduct
- adhere to the Academic Honesty Policy
- adhere to the Summer Learning Student Engagement policy
- respect themselves and others
- attend every class and be punctual
- inquire, think, and participate to the best of their ability
- access technology in class when instructed to do so and for learning purposes only
- challenge themselves and have fun learning

All Summer Learning policies can be accessed at:

<https://www.sd44.ca/school/summer/policies/Pages/default>.

Course Syllabus:

Curricular Competencies	<p>What the students will do:</p> <p>Reasoning and analyzing</p> <ul style="list-style-type: none"> • Think creatively and with curiosity and wonder when exploring problems. • Estimate reasonably. • Explore, analyze and apply mathematical ideas using reason, technology and other tools. • Model with mathematics in situational contexts. <p>Understanding and solving</p> <ul style="list-style-type: none"> • Develop, demonstrate, apply conceptual understanding of mathematical ideas through problem solving. • Visualize to explore and illustrate mathematical concepts and relationships • Apply flexible strategies to solve problems. • Engage in problem-solving experiences which are connected to local First Peoples communities, the local community and other cultures. <p>Communicating and representing</p> <ul style="list-style-type: none"> • Explain and justify mathematical ideas in many ways • Use mathematical vocabulary and language to contribute to discussions in the classroom. • Represent mathematical ideas in concrete, pictorial and symbolic forms. <p>Connecting and Reflecting</p> <ul style="list-style-type: none"> • Reflect on mathematical thinking. • Connect mathematical concepts to each other and to other areas.
Summative Assessments	<p>What the students will understand:</p> <ul style="list-style-type: none"> • Similar shapes can be used for objects which have proportional relationships • Optimization using graphical analysis informs us of situations involving extreme values. • Logical reasoning helps us discover and describe mathematical truths.
Content	<p>What the students will know:</p> <ul style="list-style-type: none"> • Mathematical reasoning and logic • Angle relationships • Graphical representations of quadratic functions • Graphical solutions to systems of equations • Solving systems of linear inequalities • Optimization • Compound interest

Grade Boundaries:

An "A" student is able to:

- Demonstrate and apply the curricular competencies
- Analyze the information and synthesize the correct solution
- Discern challenging patterns
- Apply the concepts and extrapolate onto contextualized situations
- Have superb command of numeracy (no computational error)
- Challenge problems in familiar and unfamiliar situations

A "B" student is able to:

- Demonstrate and sometimes apply the curricular competencies
- Analyze the information and synthesize the solution
- Identify the complex patterns within the context
- Apply the concepts and understand some details in contextualized situations
- Have good command of numeracy
- Challenge problems in familiar and is working towards unfamiliar situations

A "C" student is able to:

- Demonstrate the curricular competencies
- Organize the information and attempt to interpret the solution
- Identify the patterns within the context
- Build on the concepts and is still working on finding the details in contextualized situations
- Solve routine two-step problems

Celebration of learning:

The 2019 Celebration of Learning is shaped around "Connections".

Students will be exploring relationships and interactions to see how mathematical concepts relate to real world situations. Each class will have a sister class who will connect. Each student will complete a connections card and post it in the school.

Resources:

Foundations of Mathematics 11 Workbook
Notepaper
Graph paper
Scientific Calculator (graphing calculator not required)
Pencil/Pen