PATTISON HIGH SCHOOL

We don't teach a class, we teach individual students in a class

Course Information

ELL Math

Teacher: Moira Robinson

Email: moira.robinson@pattisonhighschool.ca

Classroom: Period 1 Room #119

Course Description

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The **ELL Math** course is designed for intermediate English Language Learners (ELLs) seeking to strengthen their mathematical understanding while enhancing their English proficiency. This course integrates math concepts with language development, providing students with the skills needed to succeed in both academic and real-world settings.

The curriculum begins with fundamental topics such as **Number Sense and Operations**, guiding students through basic arithmetic, fractions, decimals, and percentages. As students progress, they will delve into more advanced concepts, including **Expressions and Patterns**, **Solving Linear Equations**, and **Ratios and Proportions**, fostering critical thinking and problem-solving skills.

Through engaging lessons and practical applications, students will explore real-world connections, such as interpreting data, scaling recipes, and solving everyday problems involving measurement and geometry. Units on **Geometry and Measurement** and **Data Analysis and Probability** provide hands-on opportunities to apply math skills in meaningful contexts. In the later units, students will be introduced to foundational algebraic concepts, including **Functions**, **Systems of Linear Equations**, and **Inequalities**, preparing them for more advanced mathematical challenges.

In addition to building math proficiency, the course emphasizes academic language development. Students will practice mathematical vocabulary, verbal explanations, and written responses, ensuring they can confidently communicate their understanding. Collaborative activities, peer discussions, and problem-solving tasks will further enhance their learning experience by encouraging teamwork and constructive feedback.

The **ELL Math** course equips students with a strong foundation in mathematics and language skills, ensuring they are ready for more advanced math courses and academic success.

Course Overview

ELL Math Curriculum Units

Unit 1: Number Sense and Operations

- **Key Skills**:
  - Place value (e.g., billions, millions, ones, and tenths).
  - Rounding to the nearest ten, hundred, or thousand.
  - Mastering addition, subtraction, multiplication, and division of whole numbers.
  - Introduction to fractions, decimals, and percentages (conversions and comparisons).
  - Comparing and ordering positive and negative numbers on a number line.
- **Real-World Applications**:
  - Estimating costs when shopping.
  - Splitting a bill or calculating a tip.
- **ELL Strategies**:
  - Use visual aids (number lines, fraction bars, or decimal grids).
  - Pair students for peer support with math vocabulary.

Unit 2: Expressions and Patterns

- **Key Skills**:
  - Recognizing arithmetic and geometric sequences.
  - Writing and evaluating expressions (e.g., 3x+73x + 73x+7).
  - Simplifying expressions using properties of operations (e.g., distributive property).
  - Translating between verbal and algebraic expressions (e.g., "Three times a number plus five").
- **Real-World Applications**:
  - Identifying patterns in nature, art, or architecture.
  - Writing formulas for repeated tasks (e.g., calculating wages: hours×rate\text{hours} \times \text{rate}hours×rate).
- **ELL Strategies**:
  - Use sentence frames for verbal to algebraic translations.
  - Highlight key math terms with visuals (e.g., "sum," "difference").

Unit 3: Solving Linear Equations

- **Key Skills**:
  - Solving one-step, two-step, and multi-step equations.
  - Solving equations with variables on both sides.
  - Using and understanding the properties of equality.
- **Real-World Applications**:
  - Balancing budgets or bank accounts.
  - Solving for unknown quantities in recipes or measurements.
- **ELL Strategies**:
  - Model step-by-step solutions with clear annotations.
  - Use bilingual glossaries for terms like "variable" and "inverse operations."

Unit 4: Ratios and Proportions

- **Key Skills**:

    - Solving proportions using cross-multiplication.
    - Understanding rates (e.g., miles per hour, cost per item).
    - Solving percent problems using proportions (e.g., sales tax, discounts).
- **Real-World Applications**:
    - Converting recipes or resizing images.
    - Comparing prices in stores or online.
- **ELL Strategies**:
    - Use real-life scenarios to connect concepts to students' experiences.
    - Provide sentence starters for word problems (e.g., "The ratio of...").

Unit 5: Geometry and Measurement

- **Key Skills**:
    - Identifying points, lines, angles, and shapes.
    - Calculating perimeter, area, and volume of common shapes.
    - Using the Pythagorean Theorem for simple problems.
    - Converting between units (e.g., inches to centimeters).
- **Real-World Applications**:
    - Planning layouts for rooms or gardens.
    - Measuring distances or volumes for projects.
- **ELL Strategies**:
    - Use hands-on activities (e.g., measuring classroom objects).
    - Incorporate bilingual math vocabulary charts.

Unit 6: Data Analysis and Probability

- **Key Skills**:
    - Creating and interpreting bar, line, and circle graphs.
    - Calculating mean, median, mode, and range.
    - Understanding basic probability and predicting outcomes.
- **Real-World Applications**:
    - Analyzing sports statistics or survey results.
    - Making predictions (e.g., weather patterns or likelihood of events).
- **ELL Strategies**:
    - Encourage group discussions to interpret graphs.
    - Provide examples from students' cultures or interests.

Unit 7: Introduction to Functions

- **Key Skills**:
    - Understanding independent and dependent variables.
    - Graphing functions using input-output tables.
    - Identifying slope and y-intercept from equations.
- **Real-World Applications**:
    - Using functions to calculate distances over time.
    - Graphing savings over months.
- **ELL Strategies**:
    - Use graphing tools or apps to visualize concepts.
    - Provide labeled examples of graphs with explanations.

Unit 8: Systems of Linear Equations

- **Key Skills**:
  - Solving systems by graphing, substitution, and elimination.
  - Analyzing real-world problems using systems of equations.
- **Real-World Applications**:
  - Comparing phone plans or subscription services.
  - Determining when two moving objects meet (e.g., cars, trains).
- **ELL Strategies**:
  - Use color-coding to differentiate equations and solutions.

Include collaborative problem-solving tasks

Classroom Expectations:

1. Attend class punctually.
2. Notify in advance if you anticipate an absence.
3. Use English as the primary language in class to enhance your learning experience and accelerate your progress.
4. Adhere to classroom rules, which will be introduced during the first week of classes.
5. Always cultivate a culture of respect towards yourself and your peers.