Palmer High School, Subject Area Overview Subject/Class Title: Intermediate Integrated Math Honors, Grade Level 9-10

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| **Unit #** | **Unit Title** | **Concepts**  **(Key & Related)** | **Global Context**  **+ Exploration** | **Statement of Inquiry** | **MYP Objectives**  **(plus strands)** | **Approaches to Learning** | **Content** |
| **Unit #1** | Exponential functions  Q1 | Key: Relationships  Related: Models, Representation, Patterns | Scientific and technical innovation  (How do we understand the world in which we live?) | Establishing patterns in the natural world can help in understanding relationships. | A: Knowing and understanding, *i, ii, iii*  Mini Project:  B: Investigating patterns, *i, ii, iii*  C: Communicating, *i-v*  D: Applying math to real-life problems, *i-v* | Communication  (mathematical notation)  Affective skills  (perseverance)  Critical thinking  (interpret data, trends and possibilities) | The story of writing exponential functions:   * Writing equations from multiple representations * Solving exponential functions * Modeling exponential data * Prior knowledge: law of exponents |
| **Unit #2** | Coordinate geometry and linear functions  Q1 | Key: Relationships  Related: Patterns, Representation, System | Scientific and technical innovation  (How do we understand the world in which we live?) | Establishing patterns in the natural world can help in understanding relationships. | A: Knowing and understanding, *i, ii, iii*  Mini Project:  B: Investigating patterns, *i, ii, iii*  C: Communicating, *i-v*  D: Applying math to real-life problems, *i-v* | Communication  (mathematical notation)  Affective skills  (perseverance)  Critical thinking  (interpret data, trends and possibilities) | The story of linear functions:   * Distance, slope, midpoint, Pythagorean Theorem, systems of linear functions, multiple representations, lines of fit. Point-slope form of linear function |
| **Unit #3** | Inductive reasoning  Q2 | Key: Logic  Related: Justification, Measurement | Fairness and development  (the use of evidence in solving crimes, the fair allocation of finite resources) | Logic is a powerful tool for justifying what we discover through measurement and observation and can inform fair decisions. | A: Knowing and understanding,  *i, ii, iii*  B:Investigating patterns, *i, ii, iii* | Communication  (terms and symbols)  Reflection  (consider the impacts)  Critical thinking  (draw reasonable conclusions, evaluate evidence) | The story of inductive reasoning:   * Parallel lines/transversals * The triangle as a tool for understanding complexity * Proof |
| **Unit #4** | Deductive reasoning  Q2 | Key: Logic  Related: Equivalence, Generalization | Scientific and technical innovation  (models, proof, mathematical principles) | Mathematicians use reasoning and logic to arrive at truth. | A: Knowing and understanding, *i, ii, iii*  B: Investigating patterns, *i, ii, iii*  C: Communicating, *i-v* | Transfer  (using technology and logic)  Communication(Justification)  Critical thinking  (draw reasonable conclusions, evaluate evidence) | The story of deductive reasoning   * Congruence * Properties of various shapes * Dissecting proof |
| **Unit #5** | Indirect measurement through similar figures  Q2 | Key: Form  Related: Measurement, Equivalence | Scientific and technical innovation  (the impact of technical advances on society) | Engineers use technology to perform tasks that once were labor intensive. Is this technology mathematically sound? | A: Knowing and understanding, *i, ii, iii*  Mini Project:  B: Investigating patterns, *i, ii, iii*  C: Communicating, *i-v*  D: Applying math to real-life problems, *i-v* | Organization  (plan short- and long-term assignments; meet deadlines, select and use technology effectively & productively)  Critical thinking  (Analyze complex concepts; synthesize understandings) | Solving proportions  Manipulation of fractions  Interpreting word problems |
| **Unit #6** | Formula development and proof  Q3 | Key: Relationships  Related: Models, Representation | Identities and relationships  (personal efficacy in decision making) | Decision-making can be improved by using a model to represent relationships | A: Knowing and understanding, *i, ii, iii*  Other??? | Critical thinking  (draw reasonable conclusions, evaluate evidence, justify thinking) | Literal equations  Solving word problems involving area and volume  Integrating trigonometry |
| **Unit #7** | Probability  Q3 | Key: Relationships  Related: Patterns, Generalization | Scientific and technical innovation  (opportunity, risk, consequences and responsibility) | Math can be used in ways that influence human behavior and with that comes both opportunity and risk. | A: Knowing and understanding, *i, ii, iii*  Mini Project:  B: Investigating patterns, *i, ii, iii*  C: Communicating, *i-v*  D: Applying math to real-life problems, *i-v* | Critical thinking  (interpret data, trends and possibilities) | Working with fractions, percent, decimals  Solve direct variation equations  Graph lines of best fit |
| **Unit #8** | Making connections  Q4 | Key: Form  Related: Pattern, Space | Personal and cultural expression  (products and systems) | Understanding form and shape help us to make connections between math and engineering | A: Knowing and understanding, *i, ii, iii*  Mini Project:  B: Investigating patterns, *i, ii, iii*  C: Communicating, *i-v*  D: Applying math to real-life problems, *i-v* | Creative thinking  (make unexpected connections between objects, apply existing knowledge to generate new ideas)  Transfer skills  (Change the context of an inquiry to gain different perspectives, compare conceptual understanding across multiple subject groups) | Properties of circles, tangents, chords, diameters, arcs  Solving proportions  Pythagorean Theorem |
| **Unit #9** | Mathematics of motion; Quadratics  Q4 | Key: Logic  Related: Pattern, Simplification, Model | Scientific and technical innovation  (Systems, models, methods) | Modelling using a logical process helps us to understand the world | A: Knowing and understanding, *i, ii, iii*  Mini Project:  B: Investigating patterns, *i, ii, iii*  C: Communicating, *i-v*  D: Applying math to real-life problems, *i-v* | Communication: Students reason mathematically and show how answers relate to real-world situations.  Social: Students work collaboratively to find solutions to problems. Students investigate mathematical concepts in groups when forming learning.  Self-management: students reflect on their learning and to develop metacognitive strategies.  Thinking: Students learn skills of critical thinking, creative thinking and transfer through perseverance and productive problem solving that may often force them to struggle productively. | Model real-world contextual situations involving projectile motion  Move between different forms of quadratic functions- standard, vertex and factored form  Using the structure of the parabola to solve quadratic problems  Simplify fractions, radicals, landmarks, vertex, roots, y-intercepts |