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 functionsQ1 | Key: RelationshipsRelated: 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
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| **Unit #2** | Coordinate geometry and linear functionsQ1 | Key: RelationshipsRelated: 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
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| **Unit #3** | Inductive reasoningQ2 | Key: LogicRelated: 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
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| **Unit #4** | Deductive reasoningQ2 | Key: LogicRelated: 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
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| **Unit #5** | Indirect measurement through similar figuresQ2 | Key: FormRelated: 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 proportionsManipulation of fractionsInterpreting word problems |
| **Unit #6** | Formula development and proofQ3 | Key: RelationshipsRelated: 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 equationsSolving word problems involving area and volumeIntegrating trigonometry |
| **Unit #7** | ProbabilityQ3 | Key: RelationshipsRelated: 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, decimalsSolve direct variation equationsGraph lines of best fit |
| **Unit #8** | Making connectionsQ4 | Key: FormRelated: 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, arcsSolving proportionsPythagorean Theorem |
| **Unit #9** | Mathematics of motion; QuadraticsQ4 | Key: LogicRelated: 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 motionMove between different forms of quadratic functions- standard, vertex and factored formUsing the structure of the parabola to solve quadratic problemsSimplify fractions, radicals, landmarks, vertex, roots, y-intercepts |