Mathematics 11 Rubrics

M11.1 Extend understanding of arithmetic operations to rational numbers to solve problems within the home, money, recreation, and travel themes.

Beginning (1)	Approaching (2)	Proficiency (3)	Mastery (4)
I can apply arithmetic operations to whole numbers, integers, fractions, decimals, and percent with technology.	I am able to compare and order integers. I am able to round decimals to the nearest unit, tenth and hundredth.	I am able to compare and convert among fractions, decimals, and percents in situational problems. I can apply understanding of combined percents or percents of percents in situational problems.	I am able to justify the reasonableness of calculations. I am able to solve problems involving comparison or multi-step situations.

M11.2 Demonstrate understanding of reasoning by analyzing puzzles and games.

Beginning (1)	Approaching (2)	Proficiency (3)	Mastery (4)
I participate or play a game or puzzle.	I can explain how to play the game. I can observe patterns and/or strategies for a game.	I can determine strategies for solving puzzles or winning games and explain these strategies.	I am able to observe, analyze, and explain errors in a solution to a puzzle or compare/contrast strategies for winning a game.

M11.3 Demonstrate understanding of data collection and analysis within the home, recreation, and travel themes.

Beginning (1)	Approaching (2)	Proficiency (3)	Mastery (4)
I can read bar graphs, broken line graphs, and circle graphs.	I am able to interpret bar graphs, broken line graphs, circle graphs, and histograms. I am able to explain the difference between population and sample.	I can collect data. I am able to explain the difference between primary and secondary data collection. I can represent data on bar graphs, broken line graphs, circle graphs, and histograms.	Given a particular set of data, I can identify and explain which type of graph I will use to represent the data. I can pose a question, collect primary or secondary data and represent data with an analysis. I can describe characteristics of a good sample and why sampling is necessary.

M11.4 Demonstrate understanding of measurement in the Système International (metric) and Imperial System within the home and travel themes.

Beginning (1)	Approaching (2)	Proficiency (3)	Mastery (4)
Given a referent, I am able to estimate measures and lengths in both systems.	I am able to approximate measures between systems. I can describe the situations in which SI and/or Imperial units of measurement are used.	I am able to convert measures within and between systems.	I can estimate, measure, and calculate perimeters, areas of rectangles, triangles, and related composite shapes.

M11.5 Demonstrate understanding of angles to solve problems within the home theme.

Beginning (1)	Approaching (2)	Proficiency (3)	Mastery (4)
I am able to classify angles of various measures including acute, right, straight, obtuse, and reflex angles when given pictures.	I am able to sketch and classify angles of various measures including acute, right, straight, obtuse, and reflex angles when given a measurement. I am able to identify vertically opposite and adjacent angles (complementary and supplementary angles).	I can solve for vertically opposite and adjacent angles that are complementary or supplementary.	I can solve situational problems. I can estimate angles in the real world.

M11.6 Demonstrate understanding of the Pythagorean Theorem to solve problems within the home theme.

Beginning (1)	Approaching (2)	Proficiency (3)	Mastery (4)
I am able to label the hypotenuse and legs of a right triangle.	I am able to apply the Pythagorean theorem to solve for a missing hypotenuse with technology.	I am able to apply the Pythagorean theorem to solve for the missing leg.	I am able to observe and analyze the use of the Pythagorean theorem in situational problems. I am able to determine if a triangle is a right triangle by using the Pythagorean Theorem.

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M11.7 Demonstrate understanding of proportional reasoning within the home, money, recreation, and travel themes.

Beginning (1)	Approaching (2)	Proficiency (3)	Mastery (4)
Given a proportion I am able to show a strategy to solve for an unknown.	I am able to create and solve proportions to find unit rate of items and/or the unit cost of items.	I am able to use proportional reasoning to solve situational problems involving a single proportion.	I am able to explain and apply strategies to solve and compare ratio and rate problems.

M11.8 Demonstrate understanding of income.

Beginning (1)	Approaching (2)	Proficiency (3)	Mastery (4)
I am able to determine gross pay for an hourly wage with technology.	I am able to complete time sheets. I am able to assess information provided on pay stubs. I am able to determine gross pay for any situation.	I am able to solve problems and make decisions involving different payment methods and schedules. I can calculate my net pay given the deductions.	I am able to estimate and compare using current data, the percent of total earnings deducted through government payroll deductions for various incomes. I am able to compare different income options.

M11.9 Demonstrate understanding of responsible spending habits.

Beginning (1)	Approaching (2)	Proficiency (3)	Mastery (4)
I am able to identify recurring expenses and unexpected expenses.	I am able to explain priorities in spending habits. I am able to determine PST and GST on purchases and discuss exemptions.	I am able to solve situational questions related to personal spending.	I am able to analyze the spending habits of a personal spending log (ie. credit card or debit card statement or online banking) over a set period of time.