



Month	Content/Unit	GLE	Assessment	Essential Questions
August (4 instructional days)	Opening week of school Practice and Pre-test of essential basic skill: ERB	Standard 1 <u>Numeric Reasoning:</u> Number sense – scientific notation, powers of ten, percents > 100 %, compare integers, explain relationships, and use the coordinate plane. Operations: Add, subtract, multiply, and divide fractions using models and different strategies. Justify the placement of decimal points. Use ratios, proportions and percents in problem solving. Add, subtract, multiply and divide integers. Calculate unit rate, use models to connect integers to concrete examples. Use appropriate methods to solve contextualized problems.	Practice and Pre-test of essential skills	1. What makes an estimate reasonable? 2. What makes an answer exact? 3. What makes a strategy both effective and efficient? 4. What makes a solution optimal?
September	“Variables and Patterns”	<u>Standard 2 Algebraic Reasoning</u>	“Bike Tour Project”	1. How can change be described

(22 instructional days)	Introducing Algebra	Patterns and change: Describe rate of change in tables, rules, and graphs. Interpret rate of change in tables and graphs based on the context of the problem. Representations: Connect representations of the same situation in tables, graphs and rules. Model and solve problems using graphs, tables and rules. Describe how the dependent and independent variables are related. Symbols: Write an equation showing the relationship of two variables. Solve linear equations using a variety of strategies. Translate visual problems into symbolic form.	Use and display of appropriate graphs, tables, charts, and equations. HW Journals Quizzes Project Unit test <u>Technology Link:</u> Use of graphing calculators. Spreadsheets on the computer	mathematically? - How are patterns of change related to the behavior of functions? - How do mathematical models/representations shape our understanding of mathematics? How can you determine if your predictions are reasonable and prove it? “What if “questions. Why is it important to know and understand the dependent and independent variables? Using the language of mathematics defend and dispute conclusions. (symbols)
October	“Stretching and Shrinking”	Standard 3 Geometric Reasoning	“Adaptations!” (Something similar)	- How are measurement and counting related? - How does what we measure affect how

(24 instructional days) November/December (22 instructional days)	“Comparing and Scaling”	Classification: Demonstrate geometric relationships. Find the measure of the sum of the angles of a closed figure (polygon) Build 3-D from 2-D models and nets. Create nets of 3-D figures.	Construction of models that meet specifications.	we measure? How can space be defined through numbers/measurement? - Why do we compare, contrast, and classify objects? - How do decomposing and recomposing shapes help us build our understanding of mathematics? - How can transformations be described mathematically?
January - February (28 instructional days)	“Accentuate the Negative” Positive and Negative numbers	Location and transformation: Describe the effects that transformations: (Reflections, translations, and rotations) and changes in scale have on similarity and congruence. Use the coordinate plane to show dilations of scale and translations. Numeric Reasoning 7.105 Apply knowledge of integers to the coordinate plane. 7.111 Add, subtract, multiply, and divide integers.	Use of a multitude of 3-D structures, for hands-on experiences is found in this unit. <u>Technology link:</u> Computer games and how they are developed. How does the computer know the location of something? HW Quizzes Journals Unit Test	What are the properties of polygons and how are they related? How can we use these properties and relationships to find more difficult polygons? What happens exponentially when something is stretched in two different directions? Why is it exponentially? What are the relationships between 2-D and 3-D? “Debt, credit, and all of its woes?” Why is it important to understand that “subtracting a negative” is a positive? Graph, solve and write more complex equations using integers. How can we use inverse operations to solve equations? Why do inverse operations work so effectively?

February- March (32 instructional days)	Moving Straight Ahead Linear Relationships	Algebraic Reasoning Symbols 7.210 – 7.217 Evaluating and solving equations with physical models. 7.203 Develop a linear rule by describing it's Y-intercept and slope 7.206 -7.217 Solve linear equations and “undo” operations. Combine expressions and form new ones.	HW Projects Journals Unit Test	Using the language of mathematics to write and understand word problems. What in the world do all those symbols mean?
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March - April (26 instructional days)	“Filling and Wrapping”	Measurement: Find the area of polygons by portioning. Find the surface area of prisms using physical models. Determine the volume and surface area of	HW Journals Construction of models Appropriate use of formulas Unit Test	How are the formulas for surface area and volume developed? How do they build on each other?

		cylinders and prisms.		
May/June (16 instructional days)	“Data Distributions and What Do You Expect?” units	Standard 4 Quantitative Reasoning: Collect: Pose questions that can be answered by collecting and organizing data from experiments, surveys, and relevant print. Represent: Construct displays of data or data sets to study the relationship between related data sets. Analyze: Defend or dispute conclusions drawn from the interpretation of data. Choose an appropriate measure of center to interpret data sets. Probability: Construct a sample space to determine theoretical	Stem and Leaf Scatter Plots Mean, median, mode, spread and range. “Carnival Project” Newly developing	1. What is average? 2. What makes a data representation useful? 3. How does my sample affect the confidence in my prediction? 4. What is fair? How are population densities determined? Why would this be useful in planning a new city? How can we use data to make predictions of may occur next? What is the difference between theoretical and experimental probability? Which one is more reliable? Is it <i>always</i> “50-50?”

		probabilities of an event. Use proportional reasoning to predict how often a simple probability event will occur in a given number of trials.	over the last couple of years. COMMUNITY SERVICE!	
Throughout the entire year.	Enduring and lasting standards	Standard 5 Problem Solving		• Build mathematical knowledge • Solve problems that arise in math and other contexts. • Apply and adapt a variety of strategies to solve problems. • Monitor and reflect on the process of mathematical problem solving
		Standard 6 Reasoning and Proof		• Understand that reasoning and proof are fundamental • Make and investigate conjectures • Develop and evaluate mathematical arguments and proofs • Select and use various types of reasoning and methods of proof.
		Standard 7 Communication		• Organize and consolidate mathematical thinking through communication • communicate their thinking coherently and clearly to peers, teachers, and others • Analyze and evaluate the mathematical thinking and strategies of others. • Use the language of mathematics to express ideas precisely.
		Standard 8 Connections		• Recognize and use connection among mathematical ideas. • Understand how math ideas interconnect and build on one another to produce a whole. • Recognize and apply math in contexts outside of the classroom.

Sussex Academy
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