Syllabus | Math 7

Teacher

Room	219 (Media Center)
Email	crosenke@saddlebrook.com
Class Website	https://crosenke.wixsite.com/math/math-7

Course Basics

Course Description	This course prepares the student in building a solid foundation of algebraic skills, properties, and concepts. Students will be equipped with tools for successful problem-solving in areas such as fractions, decimals, percents, ratios, rates, and data analysis. Equations, inequalities, tables, graphs, and functions along with a solid review of the skills learned in the two preceding grades will prepare you for advanced courses in mathematics as well as for fields that require the use of math.
Teaching Philosophy	Mathematics is everywhere around us, and not just for supermarket shopping and balancing one's checkbook. Understanding statistics in a news article, communicating one's ideas effectively, and employing logic and reasoning are skills for living and participating in today's society. In class you will respect each others' ideas and share each other's talents. You will also have practice exploring mathematical concepts with technology, such as calculators and computer software in the computer lab. While all of these skills are important for success in math, they also carry over in other classes and somewhere in the future, to an important employment opportunity.
Required Books	Savvas Realize Online Text, Grade 7
Required Materials	3-ring binder 5 dividers College-rule paper (loose leaf) Pencils Erasers Computer (for online text or study aids only)

Class Expectations

Learning Objectives	After successfully completing this course, the student will: 1. become comfortable using fractions to solve complex problems. 2. use proportions to determine the actual values of items. 3. connect percentages to proportions and fractions. 4. solve real world problems involving percentages. 5. apply mathematical operations to expressions. 6. solve two-step and multi-step equations and inequalities. 7. interpret tables and graphs and make inferences from given data. 8. understand and calculate probability. 9. solve geometry problems involving various shapes.
Student Responsibilities	To be successful in this course, you have certain responsibilities. 1. **You must be an active learner**, willing to show intellectual curiosity and commit time and energy to learning. You will demonstrate this in part by your participation in this course. 2. **You must adhere to rules**, and that means all school and classroom rules and policies. 3. **You must complete all assigned work and submit it on time**. The penalty for not submitting work on time is a minimum of one letter grade per day. If you are away for a

tournament, you must make up the work within the time period permitted by school policy.

4. **There will be numerous quizzes and tests, as well as a final exam**. Make-up quizzes will be administered on your own time and must be completed within a week of your return. The final exam must be taken on the date announced.
5. **You will be expected to maintain a complete class notebook.**
6. **Completing introductory textbook reading assignments in time for class discussion dramatically heightens your enjoyment** of the class, improves your grade, and hones your academic skills.

Core Values Program	Six dedicated days towards developing and explaining the Saddlebrook Prep Core Values: – Expanding the Mind, – Building the Body, and – Shaping the Character.

Grading and Assessments

Grading Scale	A	90-100	
	B	80-89	
	C	70-79	
	D	60-69	
	F	<60	

Category Weights	Homework	30%
	Quizzes	30%
	Tests	40%

Semester Grade Calculations	First Semester Grades – First Quarter is 42.5% – Second Quarter is 42.5% – Fall Semester Exam is 15%	First Semester Grades – Third Quarter is 42.5% – Fourth Quarter is 42.5% – Spring Semester Exam is 15%
	The equation for calculating the semester grade is $$.425(Q_1) + .425(Q_2) + .15E = Desired\ Semester\ Grade$$	
Assessments	BELLWORK Each day's bellwork will be displayed on the board or passed out as a worksheet. Everyone in class on a particular day is expected to complete the bellwork. Students who miss a day of class do not have to make-up the missed bellwork, the grade will simply be left empty on Renweb. There will be no bellwork on the day of a test or quiz. CLASSWORK AND HOMEWORK All in-class assignments will be due at the end of that class period unless otherwise stated. Assignments not turned in during class are due the next day for half credit (a zero will be placed in Renweb until the assignment is completed and turned in. Students who were absent the day homework was assigned or due will be given an incomplete in Renweb and must make up the assignment within a *reasonable* time period.) If after the second day the assignment has not been turned in the student will receive a zero on that assignment and it may not be made up. QUIZZES Quizzes will be given often (every second or third section) to assess your level of mastery of a particular topic. Quizzes may take between 10 and 50 minutes to complete. NOTEBOOKS Every student is expected to maintain an organized notebook throughout the semester. The notebook will be turned in at the end of each quarter and will be counted as one quiz grade.	

	You will be given a list of all required materials *in the week* before it is due. *Notebooks will be due the last day of the quarter.* TESTS Tests will encompass all of the material from a chapter. You can expect to have between two and three tests per grading period. PROJECTS Every student will be expected to complete a project each semester. Check the class website for details and rubrics.
Late Work	Penalties for late homework and classwork will be as follows: – Any assignment turned in one day late will have a maximum score of 80% – Assignments turned in two days late will have a maximum score of 50% – Assignments submitted three days late will result in a zero.
Make-Up Policy	It is of utmost importance that students turn in missing work in a timely manner in order to acquire the knowledge and skills they will need to succeed in their classes. As such, students must: – Complete work during excused absences or absences caused by tournaments and travel and submit work via e-mail, Dropbox, or any other method to the teachers' preference. – Submit all missed work on a day-for-day basis (miss a week, get a week to turn in assignments and make-up assessments).
Unexcused Absences	Students will receive no credit for any work (classwork, assignments, quizzes, tests, etc.) missed due to an unexcused absence from a class period or school day. **Unauthorized travel days** before or after a school break (Thanksgiving, Christmas, Spring Break) will result in no credit for work missed in any class. Please be sure to schedule travel at times when it will not interfere with a school day.

Rules and Policies

Class Rules	Students are expected to follow all school rules as outlined in the Student Handbook. In addition, students must also behave in accordance with the following classroom rules: 1. Phones must be placed in the basket at the front of the room every day. 2. Computers stay on the floor or in your backpack unless I tell you otherwise. 3. Be prepared for class. This means you need to have paper, pencils, and your textbook. 4. Anyone who has a phone out (which should be in the basket) during a test or quiz will automatically receive a maximum score of 70 on that test or quiz. 5. If your eyes are wandering around the room during a test or quiz I will assume you are cheating and you will be given a zero.
School Policies	MAKE-UP POLICY Time in class is unique because it involves group discussion, presentation of visual materials, and hands-on contact with the subject matter. Please choose your tournaments wisely and minimize your days away from class. When you complete work before departing for a tournament, you will vastly improve your chances for a good grade. If circumstances prevent this, contact me immediately on your return to receive assigned materials or to schedule a make-up test. NOTE: Students leaving for a tournament are required to turn in already assigned work by 7:30 am the day the student is leaving for a tournament. All work that was assigned prior to students leaving will still maintain original due dates and will not be extended due to absence. SPECIAL NEEDS I wish you to have every opportunity to learn and participate in this class. Therefore, if you have any limitations that would impede your progress in this class, please let me know at the

	beginning of the term. Any special needs requests should be on record with Saddlebrook's Guidance Counselor.
	RIGHT TO CHANGE SYLLABUS If necessary, some components of this syllabus may change. These changes will be announced in class, and you are responsible for any such changes.
Plagiarism and Use of AI or Online Tools	**PLAGIARISM** Plagiarism is the use of the words or thoughts of others without giving them proper credit. It is not limited to directly quoting a source or copying and pasting – any information beyond common knowledge must be cited correctly using the teacher's choice of citation style (MLA, APA, Chicago, etc.). Any instance of plagiarism, even accidental, may result in a zero for the assignment and referral to the administration for discipline. **ARTIFICIAL INTELLIGENCE** The rise of readily accessible artificial intelligence (AI) has led to serious discussion among educators concerning the application and misuse of the technology by students. Although it can be a useful tool under the right circumstances, misusing AI can have profound consequences on the development of your critical thinking skills, your ability to learn information and skills, and your academic standing. As with any tool, there are reasonable and proper applications for using AI. These include: – brainstorming ideas for a research paper or project, – finding sources of information, and – checking spelling and grammar (but not allowing AI to rewrite your sentences for you). When using AI it is important to remember that as with any other source from the internet the information must be evaluated for accuracy. The Learning Language Models (LLMs) used by the various AI chatbots pull information from all over the internet to formulate their responses – this includes from sites like Wikipedia and Reddit which are not always reliable. It is up to you to determine the veracity of information and fact from opinion. Remember that misusing AI constitutes plagiarism/cheating and is subject to the same consequences as traditional plagiarism.

Honors

Honors Applications	If you have interest in taking this class for honors credit, you will need to go to the office and request an Honors application, fill out all required information, request for the teacher to approve and sign the form, and return to the office for the Headmaster's approval.
Honors Decisions	Decisions for who will be permitted to take a course for honors credit will be based any combination of the following: – previous performance and grades in that subject the year prior (an A is required for consideration), – recommendations of previous teachers, and – diagnostic testing to determine student's knowledge of the subject.
Honors Requirements	If you choose to take this course for honors credit, you can expect the following: 1. More questions to complete on nightly assignments. 2. Additional and tougher questions on quizzes, tests, and exams. 3. More involved projects.

Course Sequence

Integers and Rational Numbers	**Objectives** – Understand how integers and their opposites are related. – Identify rational numbers and write them in decimal form. – Add positive and negative integers and model integer addition in real-life applications. – Understand subtraction of integers as adding the additive inverse, $p - q = p + (-q)$. – Use properties of operations to add and subtract rational numbers. – Multiply positive and negative integers. – Find the product of rational numbers. – Understand how to divide integers by applying the rules of multiplying integers. – Understand how the signs of integers in a multiplication sentence relate to the signs in a related division statement. – Decide which operations to use to solve problems. **Essential Questions** – How are opposite numbers related? – How are rational numbers written in decimal form? – How are opposite integers related to absolute value? – How is subtracting a number the same as adding it's additive inverse? – How is adding and subtracting integers related to adding and subtracting rational numbers? – How is the sign of the product determined? – How is multiplying rational numbers like multiplying integers? – How can you use the properties of multiplying integers to divide integers? – How is dividing rational numbers similar to dividing integers? – How can problems involving rational numbers be solved by making sense of their quantities and relationship to each other?
Analyze and Use Proportional Relationships	**Objectives** – Use ratios and rates to describe the relationship between two quantities and find equivalent ratios and use unit rates to solve multi-step problems. – Find unit rates with ratios of fractions and use unit rates to solve multi-step problems. – Determine whether quantities are proportional by testing for equivalent ratios. – Use the constant of variation (proportionality) to write equations that represent proportional relationships and use equations to solve problems involving proportional relationships. – Use a graph to recognize proportionality, identify the constant of variation from a graph, and interpret a point on a graph of a direct variation. – Explain whether a situation represents a proportional relationship and use representations to find entry points into problems. **Essential Questions** – How can equivalent ratios and unit rates be used to compare ratios and solve problems? – How is it that a unit rate can be easier to use to solve problems than a ratio of fractions? – How can quantities in a proportional relationship be described by equivalent ratios? – How can equations in the form $y = kx$ be used to represent proportional relationships and solve problems? – What are the basic principles for the graph of a direct variation equation?
Analyze and Solve Percent Problems	**Objectives** – Understand that equivalent rates can be used to find percents. – Construct a proportion and use a percent proportion to find an unknown part, whole, or percent. – Understand the relationship between proportional reasoning and percent and interpret the results of a percent equation in a real-life scenario. – Solve real-world problems involving percent change and percent error and understand the percent equation and the different ways it can be used. – Understand and calculate markups and markdowns and relate percent change to percent markup and percent markdown.

	– Identify the parts of interest problems and how values are related and understand what simple interest is and how it is calculated. Essential Questions – How can equivalent ratios be used to find the percent of a number? – How are equivalent ratios and percents related? – How can proportional reasoning be used to develop the percent equation, which in turn can be used to find the percent, part, or whole? – How can the percent equation be used in different ways? – How are markups and markdowns related to percent increases and decreases?
Generate Equivalent Expressions	Objectives – Understand how variables are used to represent unknown values in problems. – Recognize when two expressions are equivalent and use properties of operations to write equivalent expressions. – Combine like integer and rational terms. – Use the distributive property to expand expressions. – Understand expanding an expressions is the reverse of factoring and identify the GCF of algebraic terms in expressions. – Use properties of operations to add expressions and model addition of expressions in real-life applications. – Use properties of operations to subtract expressions. – Write equivalent expressions to show how quantities are related in real-life applications. Essential Questions – How are algebraic expressions used to represent and solve problems? – How does rearranging or combining like terms change the value of an expression? – How are like terms combined in order for expressions to be simplified? – How do expanded expressions represent an equivalent way to represent the original expression? – How are the distributive property and common factors used to factor expressions? – How do the same rules apply for coefficients and constants when adding expressions? – Why do you add the inverse when subtracting expressions? – Why is understanding mathematical structure or patterns important for solving deeper, unconventional expressions?
Solve Problems Using Equations and Inequalities	Objectives – Analyze word problems to write two-step equations and understand the relationship between the terms of the equation and the values they represent. – Use models to solve two-step equations and compare algebraic and arithmetic solutions. – Solve equations using the distributive property. – Graph the solution of inequalities on a number line and solve inequalities using the addition and subtraction properties of equality. – Write inequalities and solve them using the multiplication and division properties of inequality. – Write and solve a two-step inequality to solve a problem and solve an inequality by multiplying or dividing by a negative rational number. – Explore the relationship between two step inequalities and multi-step inequalities and apply the distributive property to simplify and solve multi-step inequalities. Essential Questions – How can equations with more than one operation be used to represent a situation? – How are one- and two-step problems both solved using the properties of equality? – How can the distributive property be used to solve equations of the form $p(x + q) = r$? – How is solving inequalities with addition and subtraction the same as solving equations? – How is solving inequalities with multiplication and division similar to solving an equation? What is the biggest difference? – What is the process for solving a two-step inequality?

	– Explore the relationship between two step inequalities and multi-step inequalities and apply the distributive property to simplify and solve multi-step inequalities.
Solve Problems Involving Geometry	**Objectives** – Use a scale drawing as a representation of actual lengths and area. – Sketch quadrilaterals with given conditions and name and classify quadrilaterals according to their properties. – Construct triangles with given conditions and conclude whether or not a triangle is formed and what type of triangle it is. – Calculate the measures of angles by using angle relationships. – Calculate the circumference, radius, or diameter of a circle and recognize the relationship between the circumference and the diameter of a circle and π. – Find the area of a circle, use the area to find the radius and diameter, and solve problems involving the area of a circle. – Describe the cross sections of right rectangular prisms and pyramids and solve problems involving cross sections. – Find the surface area of two-dimensional composite shapes and find the surface area of three-dimensional composite shapes. – Calculate the volume of various three-dimensional figures and solve problems involving the volume of three-dimensional figures. **Essential Questions** – How can you use a scale drawing to calculate measurements and reproduce proportional scale drawings? – What are the relationships between sides and angles in different types of quadrilaterals? – What are the conditions for triangles? – How can angle measures be determined when certain conditions about rays and lines are known? – How are the circumference and radius of a circle related? – How do we use formulas to find missing information? – What does a cross section represent? – What are two different methods for finding the surface area of a three-dimensional figure? – How is volume calculated?
Use Sampling to Draw Inferences About Populations	**Objectives** – Distinguish between a population and a sample, establish whether a sample is representative of a population, and generate random samples. – Make qualitative inferences from a sample data set, make quantitative inferences from a sample data set, and make estimates about a population based on a sample date set and assess whether the inferences are valid. – Use box plots to compare and make inferences about populations and use the median and IQR of datasets to informally compare and make inferences about two populations. – Use the mode, range, mean, and mean absolute deviation to compare populations. **Essential Questions** – Why must representative samples reflect the entire population? – How can data from random samples be used to make inferences about a population? – How can data displays be used to make informal comparative influences about two populations? – How can you use dot plots to compare populations based on measures of center and variability?
Probability	**Objectives** – Use probability to describe the likelihood that an event will occur. – Understand theoretical probability and how it can be used and use theoretical probability to predict an outcome.

- Compare theoretical and experimental probability, use experimental probability to make predictions, and explain differences between theoretical and experimental probability.
- Develop a probability model, use a probability model to evaluate a situation, and use a probability model make an estimate.
- Use a tree diagram, a table, or an organized list to represent the sample space for a compound event.
- Organize information about a compound event on a table, a tree diagram, or an organized list and find the probability of a compound event.
- Use different tools to simulate a compound event and model a real-world situation involving a compound event and predict its outcome using a simulation.

Essential Questions
- What is probability and how is it measured?
- How is theoretical probability measured?
- Through what method is experimental probability determined?
- What are the components of a probability model?
- How are the possible outcomes of a compound event represented?
- What are sample spaces used for?
- What are some common objects that can be used to practice experimental probability?