

Course Name: Math Explorations 7

Course Code: M2712

Course Description:

This course broadens the foundation of algebraic and geometric ideas through exploratory and inquiry-based learning activities. Interdisciplinary units centered on 21st Century themes guide students through real-life scenarios. The students construct visual representations to demonstrate their understanding of mathematics and its relevance to their world. The course includes topics such as use of variables, writing expressions and equations, use of integers, computation with rational numbers, surface area and volume, similarity, data analysis and probability.

Course Proficiencies: The following is a list of the proficiencies that describe what students are expected to know and be able to do as a result of successful completion of the course. The proficiencies are the basis of the assessment of student achievement. The learner will demonstrate the ability to:

1. Demonstrate an understanding that positive and negative numbers are used together to describe quantities having opposite values. **6.NS.5**
2. Recognize and represent proportional relationships between quantities. **7.RP.2**
3. Use proportional relationships to solve multi-step ratio and percent problems. **7.RP.3**
4. Apply and extend previous understanding of addition and subtraction of rational numbers. **7.NS.1**
5. Apply and extend previous understanding of multiplication and division of rational numbers. **7.NS.2**
6. Solve real-world and mathematical problems involving the four operations with rational numbers. **7.NS.3**
7. Use variables to represent quantities in a real-world problem to construct simple equations. **7.EE.4**
8. Solve problems involving scale drawings of geometric figures. **7.G.1**
9. Solve real-world problems involving area, volume, and surface area. **7.G.6**
10. Use measures of center and measures of variability for numerical data to draw conclusions. **7.SP.4**
11. Demonstrate an understanding that probability of an event is a number between zero and one that expresses the likelihood of the event occurring. **7.SP.5**
12. Find the probability of a compound event using lists, tables, or diagrams. **7.SP.8**
13. Apply mathematics in practical situations and in other disciplines.
14. Use critical thinking skills to make sense of problems, solve them, and communicate processes. **CRP 2, 4 & 8.**
15. Use technology to gather, analyze, and communicate mathematical information. **8.1.8.A.1, 8.1.8.A.2, 8.1.8.A.4, 8.1.8.F.1**

Math Explorations 7 Proficiencies – cont'd.

16. Explain the meaning and purposes of taxes and tax deductions and why fees for various benefits (e.g., medical benefits) are taken out of pay. **9.1.8.A.1**
17. Relate how career choices, education choices, skills, entrepreneurship, and economic conditions affect income. **9.1.8.A.2**
18. Differentiate among ways that workers can improve earning power through the acquisition of new knowledge and skills. **9.1.8.A.3**
19. Relate earning power to quality of life across cultures. **9.1.8.A.4**
20. Relate how the demand for certain skills determines an individual's earning power. **9.1.8.A.5**
21. Explain the purpose of the payroll deduction process, taxable income, and employee benefits. **9.1.8.A.7**
22. Construct a simple personal savings and spending plan based on various sources of income. **9.1.8.B.2**
23. Justify the concept of “paying yourself first” as a financial savings strategy. **9.1.8.B.3**
24. Relate the concept of deferred gratification to [investment,] meeting financial goals, and building wealth. **9.1.8.B.4**
25. Construct a budget to save for long-term, short-term, and charitable goals. **9.1.8.B.7**
26. Demonstrate an understanding of the terminology associated with different types of credit (e.g., credit cards, installment loans, mortgages) and compare the interest rates associated with each. **9.1.8.C.4**
27. Calculate the cost of borrowing various amounts of money using different types of credit (e.g., credit cards, installment loans, mortgages). **9.1.8.C.5**
28. Determine ways to leverage debt beneficially. **9.1.8.C.6**
29. Determine how saving contributes to financial well-being. **9.1.8.D.1**
- 30. Prioritize personal wants and needs when making purchases. 9.1.8.E.4**

Assessment: Evaluation of student achievement in this course will be based on the following:

1. Unit Portfolio- During the course, portfolios will be maintained. These will include, but not limited to:
 - Journals
 - Classroom tasks
 - Presentations
2. Classwork- The students' daily work will be assessed according to the math practices outlined below:
 - Make sense of problems and persevere in solving them.
 - Reason abstractly and quantitatively.
 - Construct viable arguments and critique the reasoning of others.
 - Model with mathematics.

- Use appropriate tools strategically.
- Attend to precision.
- Look for and make use of structure.
- Look for and express regularity in repeated reasoning.