

MONROE COUNTY COMMUNITY SCHOOL CORPORATION  
CURRICULUM GUIDE

**MATHEMATICAL PROBLEM SOLVING**

**PROFICIENCY 1: THE LEARNER WILL UNDERSTAND A VARIETY OF PROBLEM SOLVING STRATEGIES**

- 1.1 Demonstrate the skills used in executing the following problem solving strategies: work backwards, do a simpler problem, look for patterns, make a table or graph, make an organized list, draw a picture or diagram, make an appropriate mathematical model, guess and check, act out the problem, eliminate, estimate
- 1.2 Identify the strategy used in solving a problem

**PROFICIENCY 2: THE LEARNER WILL APPLY A PLANNED PROCESS TO SOLVE PROBLEMS**

- 2.1 Formulate the question and the problem
- 2.2 State the conditions and variables of the problem
- 2.3 Select and find the data to solve the problem
- 2.4 Select appropriate problem solving strategies to use
- 2.5 Implement the problem solving strategy
- 2.6 Persist in solving the problem
- 2.7 Answer in terms of the data in the problem
- 2.8 Evaluate the reasonableness of the answer
- 2.9 Utilize appropriate technology to solve problems

**PROFICIENCY 3: THE LEARNER WILL COMMUNICATE THE PLAN AND PROCESS USED TO SOLVE PROBLEMS IN REAL WORLD APPLICATIONS**

- 3.1 Communicate orally and/or in writing the thought process used in solving a problem
- 3.2 In groups, discuss the problems and the solutions to those problems

**PROFICIENCY 4: THE LEARNER WILL INTEGRATE PROBLEM SOLVING SKILLS AND STRATEGIES IN THE USE OF ESTIMATION AND MENTAL MATHEMATICS IN REAL WORLD APPLICATIONS**

- 4.1 Use estimation to make decisions
- 4.2 Use estimation to validate the reasonableness of a solution

**PROFICIENCY 5: THE LEARNER WILL INTEGRATE PROBLEM SOLVING SKILLS AND STRATEGIES IN THE USE OF MEASUREMENT IN REAL WORLD APPLICATIONS**

- 5.1 Select appropriate measurement devices (metric and English) to solve real world problems. Measurement devices should include but not be limited to: rulers, tape measures, micrometers, calipers, liquid measures, volt/ohm meters, thermometers, scales
- 5.2 Use the appropriate measurement device to solve real world problems

**PROFICIENCY 6: THE LEARNER WILL INTEGRATE PROBLEM SOLVING SKILLS AND STRATEGIES IN THE USE OF FORMULAS IN REAL WORLD APPLICATIONS**

- 6.1 Solve real world problems using ratios and proportions
- 6.2 Use variables to represent unknowns
- 6.3 Select and use appropriate formulas

**PROFICIENCY 7: THE LEARNER WILL INTEGRATE PROBLEM SOLVING SKILLS AND STRATEGIES IN THE USE OF STATISTICS IN REAL WORLD APPLICATIONS**

- 7.1 Collect and organize data from real world situations
- 7.2 Construct frequency tables, graphs, and histograms to represent real world data
- 7.3 Compare/contrast a set of data using several methods (frequency tables, tables, graphs, and histograms)
- 7.4 Use statistical data for decision making
- 7.5 Use statistical data for predicting outcomes
- 7.6 Interpret graphs or tables
- 7.7 Calculate the common measures of central tendency (mean, median, range, mode)
- 7.8 Choose the appropriate measure of central tendency

**PROFICIENCY 8: THE LEARNER WILL INTEGRATE PROBLEM SOLVING SKILLS AND STRATEGIES IN THE USE OF PROBABILITY IN REAL WORLD APPLICATIONS**

- 8.1 Apply the counting principle to real world applications
- 8.2 Assign probabilities to equally likely events
- 8.3 Interpret real world probability

**PROFICIENCY 9: THE LEARNER WILL INTEGRATE PROBLEM SOLVING SKILLS AND STRATEGIES IN THE USE OF GEOMETRY IN REAL WORLD APPLICATIONS**

- 9.1 Make scale drawings
- 9.2 Work with lines and angles
- 9.3 Work with shapes in two and three dimensions
- 9.4 Solve real world problems using perimeter, area, and volume
- 9.5 Perform basic transformations (rotations, reflections, translations, dilations)
- 9.6 Apply right triangle trigonometry to real world problems
- 9.7 Apply the Pythagorean Theorem to real world situations

**PROFICIENCY 10: THE LEARNER WILL UTILIZE PROBLEM SOLVING IN THE WORLD OF CONSUMER ECONOMICS**

- 10.1 Solve problems related to personal economics including, but not limited to: banking, personal finance, credit, taxes, purchasing, and transportation
- 10.2 Solve problems related to basic life skills including, but not limited to: home improvement, hobbies, sports, and entertainment

**PROFICIENCY 11: THE LEARNER WILL UTILIZE PROBLEM SOLVING SKILLS AND STRATEGIES IN THE WORLD OF BUSINESS AND INDUSTRY**

- 11.1 Solve problems related to corporate economics
- 11.2 Solve problems related to agribusiness
- 11.3 Solve problems related to the health industry
- 11.4 Solve problems related to manufacturing and production

11.5 Solve problems related to self-employment