



HENRY COUNTY SCHOOLS

Better Together.



AMDM

| MATH |

**HENRY**
Teaching & Learning Standards



Teaching & Learning Standards

Math

Advanced Mathematical Decision Making

Collaboration, Communication, Creativity, and Critical Thinking skills are embedded within the language of the Henry Teaching and Learning Standards

HCS Graduate Learner Outcome *As a Henry County graduate, I will be able to use mathematical practices to help make sense of the real world.*

GA Standard Code

- MP.1** Make sense of problems and persevere in solving them.
- MP.2** Reason abstractly and quantitatively.
- MP.3** Construct viable arguments and critique the reasoning of others.
- MP.4** Model with mathematics.
- MP.5** Use appropriate tools strategically.
- MP.6** Attend to precision.
- MP.7** Look for and make use of structure.
- MP.8** Look for and express regularity in repeated reasoning.

HCS Graduate Learner Outcome *As a Henry County graduate, I will be able to reason, describe, and analyze quantitatively using units and number systems to make sense of and solve problems.*

GA Standard Code

- MAMDM.N** Extend their understanding and use of ratios, proportions to solve problems involving in decision making.
 - MAMDM.N.1 Extend the understanding of proportional reasoning, ratios, rates, and percents by applying them to various settings to include business, media, and consumerism.
 - MAMDM.N.1a Use proportional reasoning to solve problems involving ratios.
 - MAMDM.N.1b Understand and use averages, weighted averages, and indices.
 - MAMDM.N.1c Solve problems involving large quantities that are not easily measured.
 - MAMDM.N.1d Understand how identification numbers, such as UPCs, are created and verified.

HCS Graduate Learner Outcome *As a Henry County graduate, I will be able to create, interpret, use, and analyze patterns of algebraic structures to make sense of problems.*

GA Standard Code

- MAMDM.A** Explore the applications of functions, their characteristics and their use in modeling. Vectors and matrices are employed for solving problems.
 - MAMDM.A.1 Use vectors and matrices to organize and describe problem situations.

Mathematics

HCS Teaching & Learning Standards

Advanced Mathematical Decision Making

- MAMDM.A.1a Represent situations and solve problems using vectors in areas such as transportation, computer graphics, and the physics of force and motion.
- MAMDM.A.1b Represent geometric transformations and solve problems using matrices in fields such as computer animations.
- MAMDM.A.2 Use a variety of network models to organize data in quantitative situations, make informed decisions, and solve problems.
- MAMDM.A.2a Solve problems represented by a vertex-edge graph, and find critical paths, Euler paths, and minimal spanning trees.
- MAMDM.A.2b Construct, analyze, and interpret flow charts to develop an algorithm to describe processes such as quality control procedures.
- MAMDM.A.2c Investigate the scheduling of projects using PERT.
- MAMDM.A.2d Consider problems that can be resolved by coloring graphs.
- MAMDM.A.4 Analyze and evaluate the mathematics behind various methods of voting and selection.
- MAMDM.A.4a Evaluate various voting and selection processes to determine an appropriate method for a given situation.
- MAMDM.A.4b Apply various ranking algorithms to determine an appropriate method for a given situation.

HCS Graduate
Learner Outcome

As a Henry County graduate, I will be able to use functions to interpret and analyze a variety of contexts.

GA Standard Code

MAMDM.A Explore the applications of functions, their characteristics and their use in modeling. Vectors and matrices are employed for solving problems.

- MAMDM.A.3 Create and analyze mathematical models to make decisions related to earning, investing, spending, and borrowing money.
- MAMDM.A.3a Use exponential functions to model change in a variety of financial situations.
- MAMDM.A.3b Determine, represent, and analyze mathematical models for income, expenditures, and various types of loans and investments.

MAMDM.D Explore representations of data and models of data as tools in the decision making.

- MAMDM.D.4 Use functions to model problem situations in both discrete and continuous relationships.
- MAMDM.D.4a Determine whether a problem situation involving two quantities is best modeled by a discrete (pattern identification, population growth, compound interest) or continuous (medication dosage, climate change, bone decay) relationship.
- MAMDM.D.4b Use linear, exponential, logistic, piecewise and sine functions to construct a model.

HCS Graduate Learner Outcome *As a Henry County graduate, I will be able to prove, understand, and model geometric concepts using appropriate tools, theorems, and constructions to solve problems and apply logical reasoning.*

GA Standard Code

MAMDM.G Students apply tools to model geometric situations and solve problems. Students extend their knowledge of right triangle trigonometry.

MAMDM.G.1 Create and use two- and three-dimensional representations of authentic situations.

MAMDM.G.2 Solve geometric problems involving inaccessible distances using basic trigonometric principles, including the Law of Sines and the Law of Cosines.

HCS Graduate Learner Outcome *As a Henry County graduate, I will be able to use a variety of data analysis and statistics strategies to analyze, develop, and evaluate inferences based on data.*

GA Standard Code

MAMDM.D Explore representations of data and models of data as tools in the decision making.

MAMDM.D.1 Determine probability and expected value to inform everyday decision making.

MAMDM.D.1a Determine conditional probabilities and probabilities of compound events to make decisions in problem situations.

MAMDM.D.1b Use probabilities to make and justify decisions about risks in everyday life.

MAMDM.D.1c Calculate expected value to analyze mathematical fairness, payoff, and risk.

MAMDM.D.2. Build the skills and vocabulary necessary to analyze and critique reported statistical information, summaries, and graphical displays.

MAMDM.D.3 Apply statistical methods to design, conduct, and analyze statistical studies.