

FlyBy Math™ Alignment
2005 Connecticut Mathematics Curriculum Framework

1. ALGEBRAIC REASONING: PATTERNS AND FUNCTIONS: Patterns and functional relationships can be represented and analyzed using a variety of strategies, tools and technologies.

How do patterns and functions help us describe data and physical phenomena and solve a variety of problems?

1.1 Understand and describe patterns and functional relationships.

Performance Standards and Expectations

- a. Describe relationships and make generalizations about patterns and functions.
- (1)** Identify, describe, create and generalize numeric, geometric and statistical patterns with tables, graphs, words and symbolic rules.
- (2)** Make and justify predictions based on patterns.

FlyBy Math™ Activities

- Represent distance, speed, and time relationships for constant speed cases using tables, bar graphs, line graphs, equations, and a Cartesian coordinate system.
- Explain and justify solutions regarding the motion of two airplanes using the results of plotting points on a schematic of a jet route, on a vertical line graph, and on a Cartesian coordinate system.
- Predict outcomes and explain results of mathematical models and experiments.

1.2 Represent and analyze quantitative relationships in a variety of ways.

Performance Standards and Expectations

- a. Represent and analyze linear and non-linear functions and relations symbolically and with tables and graphs.
- (1)** Represent functions and relations on the coordinate plane.
- (3)** Recognize and explain the meaning of the slope and x- and y-intercepts as they relate to a context, graph, table or equation.

FlyBy Math™ Activities

- Represent distance, speed, and time relationships for constant speed cases using tables, bar graphs, line graphs, equations, and a Cartesian coordinate system.
- Interpret the slope of a line in the context of a distance-rate-time problem.

1.3 Use operations, properties and algebraic symbols to determine equivalence and solve problems.

Performance Standards and Expectations

- a. Manipulate equations, inequalities and functions to solve problems.
- (3)** Solve systems of two linear equations using algebraic or graphical methods.

FlyBy Math™ Activities

- Apply mathematics to solving distance, rate, and time problems for aircraft conflict scenarios.
- Represent distance, speed, and time relationships for constant speed cases using linear equations and a Cartesian coordinate system.

2. NUMERICAL AND PROPORTIONAL REASONING: Quantitative relationships can be expressed numerically in multiple ways in order to make connections and simplify calculations using a variety of strategies, tools and technologies.

How are quantitative relationships represented by numbers?

2.2 Use numbers and their properties to compute flexibly and fluently, and to reasonably estimate measures and quantities.

Performance Standards & Expected Performances	FlyBy Math™ Activities
<p>a. Develop strategies for computation and estimation using properties of number systems to solve problems.</p> <p>(3) Develop and use a variety of strategies to estimate values of formulas, functions and roots; to recognize the limitations of estimation; and to judge the implications of the results.</p>	<p>--Apply mathematics to solving distance, rate, and time problems for aircraft conflict scenarios.</p> <p>--Use the distance-rate-time formula to predict and analyze aircraft conflicts.</p> <p>--Predict outcomes and explain results of mathematical models and experiments.</p>
<p>b. Solve proportional reasoning problems.</p>	<p>--Use graphs to compare airspace scenarios for both the same and different starting conditions and the same and different constant (fixed) rates.</p>

4. WORKING WITH DATA: PROBABILITY AND STATISTICS: Data can be analyzed to make informed decisions using a variety of strategies, tools and technologies.

How can collecting, organizing and displaying data help us analyze information and make reasonable predictions and informed decisions?

4.1 Collect, organize and display data using appropriate statistical and graphical methods.

Performance Standards & Expected Performances	FlyBy Math™ Activities
<p>a. Create the appropriate visual or graphical representation of real data.</p> <p>(1) Collect real data and create meaningful graphical representations of the data.</p>	<p>--Choose among tables, bar graphs, line graphs, a Cartesian coordinate system, and equations to model aircraft conflicts and predict outcomes.</p> <p>--Conduct simulation and measurement for several aircraft conflict problems.</p> <p>--Represent distance, rate, and time data using tables, line plots, bar graphs, and line graphs.</p>