

***FlyBy Math™* Alignment**  
**Academic Standards: Mathematics**

**Standard 1.0 Number and Operations**

Students will recognize, represent, model, and apply real numbers and operations verbally, physically, symbolically, and graphically.

**Learning Expectations**

1.7 Use real numbers to represent real-world applications (e.g., slope, rate of change, probability, and proportionality);

***FlyBy Math™* Activities**

--Apply mathematics to solving distance, rate, and time problems for aircraft conflict scenarios.

--Interpret the slope of a line in the context of a distance-rate-time problem.

--Use graphs to compare airspace scenarios for both the same and different starting conditions and the same and different constant (fixed) rates.

**Standard 2.0 Algebra**

Students will describe, extend, analyze and create a wide variety of patterns and functions using appropriate materials and representations in real world problem solving.

**Learning Expectations**

2.1 recognize, analyze, extend, and create a variety of 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.

2.3 solve linear systems using a variety of techniques;

--Represent distance, speed, and time relationships for constant speed cases using linear equations and a Cartesian coordinate system.

--Use graphs to compare airspace scenarios for both the same and different starting conditions and the same and different constant (fixed) rates.

2.6 apply and interpret rates of change from graphical and numerical data.

--Interpret the slope of a line in the context of a distance-rate-time problem.

--Use graphs to compare airspace scenarios for both the same and different starting conditions and the same and different constant (fixed) rates.

2.10 interpret graphs that depict real-world phenomena.

--Interpret the slope of a line in the context of a distance-rate-time problem.

--Use tables, bar graphs, line graphs, a Cartesian coordinate system, and equations to model aircraft conflicts and predict outcomes.

2.11 model real-world phenomena using functions and graphs.

--Use tables, bar graphs, line graphs, a Cartesian coordinate system, and equations to model aircraft conflicts and predict outcomes.

2.16 describe the transformation of the graph that occurs when coefficients and/or constants of the corresponding linear equations are changed.	<p>--Interpret the slope of a line in the context of a distance-rate-time problem.</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>
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### Standard 3.0 Geometry

The student will investigate, model, and apply geometric properties and relationships.

Learning Expectations	<i>FlyBy Math™</i> Activities
3.1 apply geometric properties, formulas, and relationships to solve real-world problems.	--Use formulas and graphs to solve and analyze aircraft conflict problems and to communicate results.

### Standard 4.0 Measurement

The student will apply appropriate tools and units of measurement to produce reasonable results..

Learning Expectations	<i>FlyBy Math™</i> Activities
4.1 use concepts of length, area, and volume to estimate and solve real-world problems;	--Calculate and measure the position and time of simulated aircraft. Represent that motion using tables, graphs, equations, and experimentation.
4.2 apply and communicate measurement concepts and relationships in algebraic and geometric problem-solving situations.	<p>--Calculate and measure the position and time of simulated aircraft. Represent that motion using tables, graphs, equations, and experimentation.</p> <p>--Use formulas and graphs to solve and analyze aircraft conflict problems and to communicate results.</p>
4.3 demonstrate an understanding of rates and other derived and indirect measurements (e.g., velocity, miles per hour, revolutions per minute, cost per unit);	--Apply mathematics to solving distance, rate, and time problems for aircraft conflict scenarios.

### Standard 5.0 Data Analysis & Probability

The student will collect, organize, represent, and interpret data and model situations to determine theoretical and experimental probabilities

Learning Expectations	<i>FlyBy Math™</i> Activities
5.1 collect, represent, and describe linear and nonlinear data sets developed from the real world;	<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>
5.4 choose, construct, and analyze appropriate graphical representations for a data set;	--Choose among tables, bar graphs, line graphs, a Cartesian coordinate system, and equations to model aircraft conflicts and predict outcomes.