

***FlyBy Math™* Alignment**
Mathematics Content Standards and
Performance Standards (Grade Level Expectations) [PSGLEs]
Fourth Edition – March 2006

Content Standard A: Mathematical Facts, Concepts, Principles, and Theories

Content Strand: Numeration

Understanding Meaning of Operations

PSGLE

The student demonstrates conceptual understanding of mathematical operations by

[8] N-6 [using models, explanations, number lines, real-life situations L] describing or illustrating the effects of arithmetic operations on rational numbers (percents) (M1.2.3)

***FlyBy Math™* Activities**

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

Content Strand: Estimation and Computation

Estimation:

PSGLE

The student solves problems (including real-world situations) using estimation by

[8] E&C-1 applying and assessing the appropriateness of a variety of estimation strategies (L) (M3.3.1)

***FlyBy Math™* Activities**

--Predict outcomes and explain results of mathematical models and experiments.

--Compare predictions, calculations, and experimental evidence for several aircraft conflict problems.

Computation:

PSGLE

The student accurately solves problems (including real-world situations) by

[8] E&C-5 using ratio and proportion (M3.3.6)

***FlyBy Math™* Activities**

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

Content Strand: Functions and Relationships

Describing Patterns and Functions:

PSGLE

The student demonstrates conceptual understanding of functions, patterns, or sequences including those represented in real-world situations by

[8] F&R-1 describing or extending patterns (linear) up to the n th term, represented in tables, sequences, graphs, or in problem situations (M4.3.1)

***FlyBy Math™* Activities**

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

<p>[8] F&R-2 generalizing relationships (linear) using a table of ordered pairs, a graph, or an equation (M4.3.4)</p>	<p>--Represent distance, speed, and time relationships for constant speed cases using linear equations and a Cartesian coordinate system.</p>
<p>[8] F&R-3 describing in words how a change in one variable in a formula affects the remaining variables (how changing the length affects the area of quadrilaterals or volume of a rectangular prism) (M4.3.2)</p>	<p>--Interpret the slope of a line in the context of a distance-rate-time problem.</p>

Content Strand: Geometry

Position and Direction:

<p>PSGLE</p> <p>The student demonstrates understanding of position and direction by</p> <p>[8] G-9 graphing or identifying relationships of variables on a coordinate plane (e.g., length/width, area/diameter, cost/pound) (M5.3.6)</p>	<p>FlyBy Math™ Activities</p> <p>--Plot points on a schematic of a jet route, on a vertical line graph, and on a Cartesian coordinate system to describe the motion of two airplanes.</p>
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Content Strand: Statistics and Probability

Analysis and Central Tendency

<p>PSGLE</p> <p>The student demonstrates an ability to analyze data (comparing, explaining, interpreting, evaluating, making predictions, describing trends; drawing, formulating, or justifying conclusions) by</p> <p>[8] S&P-2 using information from a variety of displays or analyzing the validity of statistical conclusions found in the media (M6.3.2)</p>	<p>FlyBy Math™ Activities</p> <p>--Use tables, bar graphs, line graphs, a Cartesian coordinate system, and equations to model aircraft conflicts and predict outcomes.</p>
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Content Standards B, C, D, and E: Process Skills and Abilities

Content Strand: Problem Solving

<p>PSGLE</p> <p>The student demonstrates an ability to problem solve by</p> <p>[8] PS-1 selecting, modifying, and applying a variety of problem-solving strategies (e.g., inductive and deductive reasoning, Venn diagrams, making a simpler problem) and verifying the results (M7.3.2)</p>	<p>FlyBy Math™ Activities</p> <p>--Choose among tables, bar graphs, line graphs, a Cartesian coordinate system, and equations to model aircraft conflicts and predict outcomes.</p>
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<p>[8] PS-2 evaluating, interpreting, and justifying solutions to problems (M7.3.3)</p>	<p>--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.</p>
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Content Strand: Communication

PSGLE

The student communicates his or her mathematical thinking by

[8] PS-3 representing mathematical problems numerically, graphically, and/or symbolically, translating among these alternative representations; or using appropriate vocabulary, symbols, or technology to explain, justify, and defend strategies and solutions (M8.3.1, M8.3.2, & M8.3.3)

***FlyBy Math™* Activities**

--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.

Content Strand: Reasoning

PSGLE

The student demonstrates an ability to use logic and reason by

[8] PS-4 generalizing from patterns of observations (inductive reasoning) about mathematical problems and testing using a logical verification (deductive reasoning); or justifying and defending the validity of mathematical strategies and solutions using examples and counterexamples (M9.3.1, M9.3.2, & M9.3.3)

***FlyBy Math™* Activities**

--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.

Content Strand: Connections

PSGLE

The student demonstrates the ability to apply mathematical skills and processes across the content strands by

[8] PS-5 using real-world contexts such as science, humanities, peers, community, and careers (M10.3.1 & M10.4.2)

***FlyBy Math™* Activities**

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