

Exploring Aeronautics			
2009 Mathematics			
Core Curriculum			
Iowa Mathematics			
Grades 3-5			
Activity/Lesson	State	Standards	
Wings(177-208)	IA	MA.3-5.3.5.3	Recognize area as an attribute of two-dimensional regions and that they can quantify area by finding the total number of same-sized units of area that cover the shape without gaps or overlaps.
The Resource Center	IA	MA.3-5.1.1.1	Develop concepts of multiplication and division through the use of different representations (e.g. equal-sized groups, arrays, area models, and skip counting on number lines for multiplication, and successive subtraction, partitioning, and sharing for division).
The Resource Center	IA	MA.3-5.1.3.4	Select and apply appropriate strategies (mental computation, number sense and estimation) for estimating products and quotients or determining reasonableness of results, depending on the context and numbers involved.
The Resource Center	IA	MA.3-5.1.4.1	Extend their understanding of place value to numbers up to 10,000, 100,000 and millions in various contexts and depending on grade level.
The Resource Center	IA	MA.3-5.1.7.4	Add and subtract fractions and decimals to solve problems and use number sense to determine reasonableness of results.
Science of Flight	IA	MA.3-5.3.6.5	Select and apply appropriate units, strategies and tools to solve problems that involve estimating and measuring weight, time and temperature.
Science of Flight	IA	MA.3-5.4.3.2	Learn to collect data using observations, surveys and experiments and propose conjectures.
Science of Flight	IA	MA.3-5.4.3.4	Design investigations to address a question and consider how data collection methods affect the nature of the data set.
Science of Flight	IA	MA.3-5.4.5.2	Learn to estimate the probability of events as certain, equally likely or impossible by designing simple experiments to collect data and draw conclusions.
Integrating with Aeronautics	IA	MA.3-5.1.1.1	Develop concepts of multiplication and division through the use of different representations (e.g. equal-sized groups, arrays, area models, and skip counting on number lines for multiplication, and successive subtraction, partitioning, and sharing for division).
Integrating with Aeronautics	IA	MA.3-5.1.3.2	Be able to estimate sums and differences with whole numbers up to three digits.

Integrating with Aeronautics	IA	MA.3-5.1.6.4	Understand and use models, including the number line, to identify equivalent fractions including numbers greater than one.
Integrating with Aeronautics	IA	MA.3-5.2.4.3	Identify patterns graphically, numerically, or symbolically and use this information to predict how patterns will continue.
Integrating with Aeronautics	IA	MA.3-5.3.5.1	Develop measurement concepts and skills through experiences in analyzing attributes and properties of two- and three-dimensional objects.
Scientific Method(124-144)	IA	MA.3-5.4.1.2	Construct and analyze frequency tables, bar graphs, picture graphs, and line plots and use them to address a question.
Scientific Method(124-144)	IA	MA.3-5.4.1.3	Compare different representations of the same data and evaluate how well each representation shows important aspects of the data.
Scientific Method(124-144)	IA	MA.3-5.4.2.2	Learn to select and use measures of center: mean, median and mode and apply them to describing data sets.
Scientific Method(124-144)	IA	MA.3-5.4.3.1	Learn how to describe data, make a prediction to describe the data, and then justify their predictions.
Scientific Method(124-144)	IA	MA.3-5.4.3.2	Learn to collect data using observations, surveys and experiments and propose conjectures.
Exploring Aeronautics			
2009 Mathematics			
Core Curriculum			
Iowa Mathematics			
Grades 6-8			
Activity/Lesson	State	Standards	
Wings(177-208)	IA	MA.6-8.3.1.4	Solve problems related to and using area, including in real-world settings.
Wings(177-208)	IA	MA.6-8.3.3.1	Find the area of more complex two-dimensional shapes, such as pentagons, hexagons, or irregular shaped regions, by decomposing the complex shapes into simpler shapes, such as triangles.
Tools of Aeronautics(257-326)	IA	MA.6-8.4.5.3	Estimate the probability of simple and compound events through experimentation and simulation.
The Tools of Aeronautics	IA	MA.6-8.4.5.3	Estimate the probability of simple and compound events through experimentation and simulation.
The Resource Center	IA	MA.6-8.1.2.1	Understand negative numbers in terms of their position on the number line, their role in the system of all rational numbers, and in everyday situations (e.g., situations of owing money or measuring elevations above and below sea level).

The Resource Center	IA	MA.6-8.1.2.3	By applying properties of arithmetic and considering negative numbers in everyday contexts, explain why the rules for adding, subtracting, multiplying, and dividing with negative numbers make sense.
The Resource Center	IA	MA.6-8.1.3.1	Recognize that the set of real numbers, which can be represented as the number line, consists of two disjoint sets – the set of rational numbers and the set of irrational numbers.
The Resource Center	IA	MA.6-8.2.1.6	Solve simple one-step equations (i.e., involving a single operation) by using number sense, properties of operation, and the idea of maintaining equality on both sides of an equation.
Science of Flight	IA	MA.6-8.4.2.7	Formulate questions, gather data relevant to the questions, organize and analyze the data to help answer the questions, including informal analysis of randomness and bias.
Science of Flight	IA	MA.6-8.4.5.3	Estimate the probability of simple and compound events through experimentation and simulation.
Integrating with Aeronautics	IA	MA.6-8.1.1.7	Multiply and divide fractions and decimals to solve problems, including multi-step problems.
Integrating with Aeronautics	IA	MA.6-8.1.2.1	Understand negative numbers in terms of their position on the number line, their role in the system of all rational numbers, and in everyday situations (e.g., situations of owing money or measuring elevations above and below sea level).
Integrating with Aeronautics	IA	MA.6-8.1.2.5	Effectively compute with and solve problems using rational numbers, including negative numbers.
Integrating with Aeronautics	IA	MA.6-8.3.4.5	Explain why the Pythagorean Theorem is valid by using a variety of methods – for example, by decomposing a square in different ways.
Integrating with Aeronautics	IA	MA.6-8.3.4.6	Apply the Pythagorean theorem to find distances between points in the Cartesian coordinate plane and to measure lengths and analyze polygons.
Scientific Method(124-144)	IA	MA.6-8.4.2.1	Select, determine, explain, and interpret appropriate measures of center for given data sets (mean, median, mode).
Scientific Method(124-144)	IA	MA.6-8.4.2.3	Summarize and compare data sets using appropriate numerical statistics and graphical representations.
Scientific Method(124-144)	IA	MA.6-8.4.2.7	Formulate questions, gather data relevant to the questions, organize and analyze the data to help answer the questions, including informal analysis of randomness and bias.