Statewide Manufacturing Curriculum
Contextualized Math Module

Students will:

OUTCOMES	CONTENT	ACTIVITIES/RESOURCES	ASSESSMENT
1. Develop successful study skills in math	Math anxiety Personal success strategies in math	• Math anxiety inventory - Use: **Math Anxiety Inventory** • Math anxiety discussion - Use: **Math Anxiety Discussion Handouts** • Mathematics Diagnostic Test • Learning Styles Inventory • Discussion on success strategies in math • i-Pathways: *Pre-i-Pathways Math*—Introduction: Introduction to Math	Student demonstration Teacher observation
2. Solve whole number problems in contextualized formats	Whole numbers Integers PEMDAS Applications	• Review of whole numbers and all properties • i-Pathways: *Pre-i-Pathways Math*—Unit 1: Whole Numbers—Lesson 2: Understanding Whole Numbers • CARS: *Math*—Unit 1: Whole Numbers—Lesson 1: Place Value, Rounding, and Estimating & Lesson 2: Addition and Subtraction & Lesson 3:Multiplication and Division & Lesson 4: Problem Solving • Use: **Discovery Worksheets for Integers** • Order of operations explanation ○ Use: **Order of Operations (PEMDAS) Worksheets** • Applications to perimeter, area, volume	Student demonstration Teacher observation Examination
3. Solve fraction problems in the context of industry technology	Equivalent fractions Factors and lowest terms	• Review of fractions and all properties • i-Pathways: *Pre-i-Pathways Math*—Unit 3: Fractions and Mixed Numbers—Lesson 1: Understanding Fractions • Simplifying fractions review • Addition of fractions	Student demonstration Teacher observation

Statewide Manufacturing Curriculum
Contextualized Math Module

Students will:

OUTCOMES	CONTENT	ACTIVITIES/RESOURCES	ASSESSMENT
3. Solve fraction problems in the context of industry technology (continued)	Evaluating fractions with like and unlike terms Complex fractions Improper fractions and mixed numbers Applications	• Subtraction of fractions • Multiplication of fractions • Division of fractions • Use: **Discovery Worksheets for Fractions** • Definition and explanation of complex fractions • Working with improper fractions • Working with mixed numbers • i-Pathways: *Pre-i-Pathways Math*—Unit 3: Fractions and Mixed Numbers—Lesson 2: Improper Fractions and Mixed Numbers & Lesson 3: Equivalent Fractions & Lesson 4: Reducing a Fraction to Lowest Terms & Lesson 5: Raising a Fraction to Higher Terms & Lesson 6: Finding Common Denominators & Lesson 7: Adding and Subtracting Fractions & Lesson 8: Multiplying and Dividing Fractions • CARS: *Math*—Unit 3: Fractions—Lesson 1: Fractions & Lesson 2:Multiplication with Fractions & Lesson 3: Division with Fractions & Lesson 4: Addition with Fractions & Lesson 5: Subtraction with Fractions • Applications to perimeter, area, volume, measuring tape, portions of materials	Student demonstration Teacher observation

Students will:

OUTCOMES	CONTENT	ACTIVITIES/RESOURCES	ASSESSMENT
4. Solve decimal problems	Significant digits Rounding rules Scientific notation Evaluating with decimal numbers Decimal and common fraction equivalents Applications	• Significant digits explanation • Rounding rules and review • i-Pathways: *Pre-i-Pathways Math*—Unit 2: Decimals—Lesson 2: Comparing and Rounding Decimals • Scientific notations and exponents explanation • i-Pathways: *Pre-i-Pathways Math*—Unit 2: Decimals—Lesson 1: Understanding Decimals • Addition of decimals • Subtraction of decimals • i-Pathways: *Pre-i-Pathways Math*—Unit 2: Decimals—Lesson 3: Adding and Subtracting Decimals • Multiplication of decimals • Division of decimals • i-Pathways: *Pre-i-Pathways Math*—Unit 2: Decimals—Lesson 4: Multiplying and Dividing Decimals • CARS: *Math*—Unit 5: Decimal Numbers—Lesson 1: Decimal Numbers & Lesson 2: Addition and Subtraction with Decimal Numbers & Lesson 3: Multiplication & Subtraction with Decimal Numbers • Use: **Discovery Worksheets for Decimals** • Converting between decimal fractions and common fractions • Applications to perimeter, area, volume, measuring tape, portion of materials	Student demonstration Teacher observation

Statewide Manufacturing Curriculum
Contextualized Math Module

Students will:

OUTCOMES	CONTENT	ACTIVITIES/RESOURCES	ASSESSMENT
5. Solve ratio and proportion problems in the industrial context	Ratios Proportions Applications	• Definition of ratios, rates, and unit rates/prices, conversions • Definition of proportion • Concrete mixture, chemical concentration, paint color ratios • Cost per unit • i-Pathways: *Math*—Unit 1: Number Operations and Number Sense—Lesson 2: Fractions and Ratios & Lesson 3: Proportions • CARS: *Math*—Unit 6: Ratios and Proportions—Lesson 1: Ratio and Price Per Unit & Lesson 2: Ratios and Proportions & Lesson 3: Finding the Unknown Term in a Proportion & Lesson 4: Problem Solving with Proportions • CARS: *Math*—Unit 7: Percents—Lesson 6: Solving, Increasing, and Decreasing Percents	Student demonstration Teacher observation
6. Solve percent proportion problems	Percent proportions	• Using percentages with proportions • i-Pathways: *Math*—Unit 1: Number Operations and Number Sense—Lesson 8: Using Proportions with Percents • i-Pathways: *Math*—Unit 1: Number Operations and Number Sense—Lesson 9: Solving Increasing and Decreasing Percents	Student demonstration Teacher observation
7. Use percents, averages and estimates in the industrial and business context	Percents Averages Estimates Applications	• Definition of percentage Percent concentration • Computing averages/average cost per unit • Estimating material and labor cost • Loans Contractor discounts • i-Pathways: *Math*—Unit 1: Number Operations and Number Sense—Lesson 10: Using Mental Math and Estimation • CARS: *Math*—Unit 7: Percents—Lesson 1: Decimals and Percents & Lesson 2: Fractions and Percents & Lesson 3: Applications with Percents • CARS: *Math*—Appendix B: Elementary Statistics: Mean, Median, Mode	Student demonstration Teacher observation

Statewide Manufacturing Curriculum
Contextualized Math Module

Students will:

OUTCOMES	CONTENT	ACTIVITIES/RESOURCES	ASSESSMENT
8. Solve problems with exponents and roots with order of operations in applied settings	Exponents	• Definition of exponents • Exponent rules • CARS: *Math*—Unit 2: Exponents, Prime Numbers, & Least Common Multiples—Lesson 1: Exponents & Lesson 2: Order of Operations—Unit 5: Decimal Numbers—Lesson 5: Square Roots and Pythagorean Theorem	Student demonstration Teacher observation
	Roots	• Definition of roots • Rules of roots • i-Pathways: *Pre-i-Pathways Math*—Unit 1: Whole Numbers—Lesson 7: Squares, Cubes, and Square Roots	
9. Complete industrial applications of basic measurements	Geometry	• Perimeter, area, volume • Geometry formulas • Angles and triangles • Circles • i-Pathways: *Math*—Unit 2: Measurement and Data Analysis—Lesson 1: Measurement Systems and Perimeters & Lesson 2: Area and Volume • i-Pathways: *Math*—Unit 4: Geometry—Lesson 2: Angles and Lines & Lesson 3: Triangles and Quadrilaterals & Lesson 4: Pythagorean Relationship & Lesson 5: Irregular Figures • CARS: *Math*—Unit 10: Introduction to Geometry—Lesson 1: Points, Lines, Planes, and Angles & Lesson 2: Classifying Triangles and The Pythagorean Theorem & Lesson 4: Circles	Student demonstration Teacher observation
	Temperature	• Temperature conversions	

Statewide Manufacturing Curriculum
Contextualized Math Module

Students will:

OUTCOMES	CONTENT	ACTIVITIES/RESOURCES	ASSESSMENT
10. Interpret graphic representation of data from work settings	Basic Statistics	• Line graphs • Pie graphs • Bar graphs • Mean, median, and mode • i-Pathways: *Math*—Unit 2: Measurement and Data Analysis—Lesson 3: Measures of Central Tendency (Mean and Median) & Lesson 4: Tables and Charts & Lesson 5: Graphs • CARS: *Math*—Appendix A: Reading Graphs and Charts	Student demonstration Teacher observation
11. Use formulas and equations to solve problems	Working with formulas	• Work • Energy • Area of triangles and circles • Volume of sphere, prism, cylinder, and cone	Student demonstration
	Writing expressions	• Writing expressions from word problems • Evaluating expressions • i-Pathways: *Pre-i-Pathways Math*—Unit 6: Introduction to Algebra—Lesson 1: Variables • i-Pathways: *Pre-i-Pathways Math*—Unit 6: Introduction to Algebra—Lesson 2: Expressions • CARS: *Math*—Unit 9: Introduction to Algebra—Lesson 1: Variables and Algebraic Expressions	Teacher observation
	Solving equations	• Solving expressions • Solving linear equations	

Students will:

Statewide Manufacturing Curriculum
Contextualized Math Module

OUTCOMES	CONTENT	ACTIVITIES/RESOURCES	ASSESSMENT
11. Use formulas and equations to solve problems (continued)	Basic Statistics	• i-Pathways: *Pre-i-Pathways Math*—Unit 6: Introduction to Algebra—Lesson 3: Equations with Linear Equations and Inequalities • i-Pathways: *Math*—Unit 4: Geometry—Lesson 1: Applying Formulas	Student demonstration Teacher observation
12. Solve practical geometry and trigonometry problems	Pythagorean Theorem Basic Trigonometry	• Definition of the Pythagorean Theorem • Applications of the Pythagorean Theorem • i-Pathways: *Math*—Unit 4: Geometry—Lesson 4: Pythagorean Relationship • CARS: *Math*—Unit 10: Introduction to Geometry—Lesson 2: Classifying Triangles and the Pythagorean Theorem • Introduction to Trigonometry • Definition of the 3/4/5 triangle • Applications of the 3/4/5 triangle	Student demonstration Teacher observation