**General Math – Building and Design**

To be used with Career Connections: Math for the Trades

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| **Unit Name** | **Lessons** | **Objective** | **Vocabulary** |
| 1. General Math | 1.1 Whole Numbers | Learn place value for whole numbers.Identify what a whole number is. | Counting numbersWhole numbersPlace value |
| 1.2 Addition | Add single-, double-, and triple-digit numbers.Perform “estimate, calculate, and check” operation. | AdditionSumEquationCalculateValidationCarrying |
| 1.3 Subtraction | Subtract single-, double-, and triple-digit numbers | Subtractionborrowing |
| 1.4 Multiplication | Multiply single-, double-, and triple-digit numbers | Multiplication ProductMultiplicandMultiplierfactor |
| 1.5 Division | Divide single-, double-, and triple-digit numbers | DivisionDividendDivisorQuotient remainder |
| 2. Fractions | 2.1 Fraction Terms and Concepts | Define fraction, numerator, denominator, proper fraction, improper fraction, and mixed number.Find a common denominator for two or more fractions.Reduce Fractions to lowest terms. | DenominatorNumeratorProper FractionsImproper FractionsEquivalent FractionsMixed NumbersDenominatorLeast or Lowest Common DenominatorReducing a fractionLowest TermsGreatest Common FactorSimplifying the Fraction |
| 2.2 Adding and Subtracting Fractions | Add and subtract fractions and mixed numbers.Add and subtract fractions with the same or different denominators.  |  |
| 2.3 Multiplying Fractions | Multiply fractions and mixed numbers and reduce to lowest terms. | Canceling |
| 2.4 Dividing Fractions | Divide fractions and mixed numbers.  |  |
| 2.5 Ratios and Proportions | Calculate ratios and proportions.  | ProportionExtremesMeans |
| 3. Decimals | 3.1 Decimal Terms and Concepts | Define Decimals and decimal place values.Round to a specific decimal place value.  | Decimal pointDecimal place valueDecimal placesPowerPower of tenExponentRounding |
| 3.2 Adding and Subtracting Decimals | Add and subtract decimals.Estimate, calculate, and check decimals. |  |
| 3.3 Multiplying and Dividing Decimals | Multiply and divide decimals. |  |
| 3.4 Converting Decimals to Fractions and Fractions to Decimals | Convert decimals to fractions and fractions to decimals. Calculate ratios and proportions using decimals. |  |
| 3.5 Using Percentages | Convert decimals and fractions to percentages and percentages to decimals and fractions. Calculate a percent of a number.Calculate the percent that one number is of another.  | PercentPercentage |
| 4. Measurement and Measurement Tools | 4.1 Units of Measure | Convert measurements from one unit of measure to another. (Omit metric conversions.) | Linear measurementsConversion factorOrder of operationsMeterAngleDegreeMinuetsSecondsVertexRight angleAcute angleObtuse angle |
| 4.2 Measurement Tools and How to Read Them | Identify common measurement tools to measure lines and angles. Use measurement tools to measure lines and angles.  | ProtractorsRulerScaleMicrometer |
| 4.3 Measurement on Scale Drawings | Accurately read measurements in scale drawings.  | Scale drawing |
| 5. Layout | 5.1 Lines, Circles, and Angles | Use construction of circles, squares, and rectangles as basic layout tools.   | Straight LineDegreesBisectingPerpendicularPlumbLevelRadiusDiameterPerimeterCircumferenceArcSectorChordCompassParallel linesPerpendicular bisectorAngleVertexObtuseAcuteCompound angle |
| 5.2 Squares, Rectangles, and Triangles | Calculate the perimeter for rectangles, squares, triangles and circumference for circles. | SquareRectangleDiagonalTriangleBaseAltitudeIsosceles triangleEquilateral triangleRight triangleHypotenuse  |
| 5.3 Squaring Numbers, Square Roots, and the Pythagorean Theorem | Use the Pythagorean Theorem. | Squaring a numberExponent Square rootPythagorean Theorem |
| 6. Area Measure | 6.1 Area Measure vs. Linear Measure | Use and convert square units of measure. | Surface areaAreaSectors  |
| 6.2 Rectangles and Squares | Calculate the area of rectangles and squares.  |  |
| 6.3 Triangles | Calculate the area of triangles.  | Altitude |
| 6.4 Circles | Calculate the area of circles and sectors of circles. Calculate the area of irregular shapes.  | Pi  |
| 6.5 Surface Area | Calculate the surface area of three-dimensional shapes.  | Rectangular solidsCongruentCubeCylinderLateral area |
| 7. Volume Measure | 7.1 Measuring Volume | Describe the difference between area measurement and volume measurement. Convert cubic units of measure from one unit of measure to another.  | Linear measureAreaVolumeCubic |
| 7.2 Calculating Volume for Rectangular and Triangular Solids | Calculate the volume of rectangular and triangular solids. | Rectangular solidCongruentCubeTriangular solidPyramidAltitude |
| 7.3 Calculating Volume for Spheres, Cones, and Cylinders | Calculate the volume of spheres, cylinders and cones. | SpherePiCone |
| 7.4 Estimating Weight | Calculate the weight of a given volume of material.  |  |
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