**Mathematics in Career-Connected Learning**

Massachusetts provides resources for interdisciplinary and embedded content that make critical connections between technical and academic skills.  Each framework published will have sample lessons aligned to Massachusetts curriculum standards.  In state-approved Career Technical Education (chapter 74) these support Strand 2: Embedded academics. These resources also support any educator and coursework to make learning relevant and real-world.

Lessons are presented in one of two ways:

* Application – Application lessons are focused on a single career and the numerous ways a math concept is used in carrying out the work of that career.
* Exploration – Exploration lessons show how a specific math concept is used across several careers, including the one in the specific Chapter 74 program area.

The framework pages have these resources linked as part of the implementation resources.   The tables below are organized by the math content areas: Pre-Algebra (middle school), Algebra I, Geometry, and Algebra II.  We will continue to add to these resources.

**Pre-Algebra (P)**

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| MA Math Standard | Lesson Name | Lesson Type | Career Spotlight | Aligned Framework |
| 8.G.9 | P-10.10: Apply Volume of Composite Solids | Application | Mobile Heavy Equipment Mechanic | Automotive Technology |
| 8.F.4 | 5.4: Apply Linear Equations in Two Variables | Application | Dental Hygienists | Dental Assisting |
| 8.G.5 | P-3.2: Apply Properties of Parallel Lines | Application | Structural Iron and Steel Workers | Metal Fabrication and Joining Technologies |
| 8.G.5 | P-9.7: Apply the Pythagorean Theorem | Application | Plumbers, Pipefitters, and Steamfitters | Plumbing |
| 8.EE.2 | P-9.3 Find Cube Roots | Exploration | Veterinary Assistant | Veterinary Science |
| 8.G.2 | P-1.9  Use Rigid Motions to Show Congruent Figures | Application | Special Effects Artists and Animators | Design and Visual Communications |

**Algebra I (A)**

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| MA Math Standards | Lesson Name | Lesson Type | Career Spotlight | Aligned Framework |
| A-CED.2  F-IF.4  F-IF.7b | A 10.4: Graphing Piecewise-Defined Functions | Exploration | Medical Services Manager | Medical Assisting |
| A-CED.3  A-REI.6 | A-5.6: Writing and Solving Systems of Linear Equations | Application | Applications Software Developer | Programming and Web Development |
| N-O.2 | A 1.4: Modeling with Quantities | Application | Terrazzo Worker | Mason and Tilesetting |
| A-REI.1  A-REI.3 | A 2.1: Solving One- and Two-Step Equations | Exploration | Professional Painter | Painting and Design Technologies |

**Algebra II (A2)**

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| MA Math Standard | Lesson Name | Lesson Type | Career Spotlight | Aligned Framework |
| F-IF.7.c  F-IF.7.d  F-IF.8.a  G-GPE.3 | A2b-2.1: Parabolas | Exploration | Auto Body Repairers | Automotive Collision |
| N-VM.10  N-VM.12  A-REI.9  F-BF.4.c | A2a-4.7: Applying Inverse Matrices | Application | Airplane Mechanics and Service Technicians | Aviation Maintenance Technology |
| N-CN.3  N-CN.7 | A2b-3.6: Applying Moduli and Arguments | Application | Electricians | Electricity |
| A-APR.7  A.REI.2 | A2b-1.4: Applying Solving Rational Equations | Application | Respiratory Therapists | Health Assisting |
| A-REI.8 | A2a-3.7: Using Systems of Inequalities to Find the Feasible Region | Application | Computer Network Support Specialists | Information Support Services and Networking |
| A-APR.2 | A2a 5.5: Applying Properties of Quadratics | Application | Structural Iron and Steel | Sheet Metalworking |

**Geometry (G)**

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| MA Math Standard | Lesson Name | Lesson Type | Career Spotlight | Aligned Framework |
| G-CO.2,  G-CO.5 | G-4.8: Compositions of Transformations | Application | Computer Numerically Controlled Machine Tool Programmer | Advanced Manufacturing |
| G-CO.9 | G-2.9: Use Theorems about Angles | Application | Carpenters | Carpentry |
| G-CO.11 | G. 7.5: Properties of Special Parallelograms | Exploration | Barbers | Cosmetology |
| G-GMD.3  G-MG.1  G-MG.2  G-MG.3 | G-12.9: Apply Volumes of Prisms and Pyramids | Application | Heating, Air Conditioning, and Refrigeration Mechanic and Installer | HVAC-R |
| G-CO.9 | G-2.9: Use Theorems About Angles | Application | Carpenter | Cabinetmaking |
| **G-CO.6  G-CO.7** | G-5.4: Triangle Congruence | Application | Graphic Designer | Graphic Communications |