Correlation of
Modern Welding
by Althouse, Turnquist, W. Bowditch, K. Bowditch, and M. Bowditch
(Goodheart-Willcox Publisher ©2020)

to

Precision Exams Welding Technician: Advanced (597)

Goodheart-Willcox is pleased to partner with Precision Exams by correlating *Modern Welding* to their Welding Technician standards. Precision Exams standards and Career Skills Exams were created in concert with industry and subject matter experts to match real-world job skills and marketplace demands. Students who pass the exam and performance portion of the exam can earn a Career Skills Certification.

The correlation chart below lists the Standards, Objectives, and Indicators for the Welding Technician exam in the left column. Corresponding content from *Modern Welding* that can be used by a student to help achieve the standard, objective, or indicator is listed in the right column.

For more information on Precision Exams, including a complete listing of their 150+ Career Skills Exams and Certificates, please visit www.precisionexams.com.

<table>
<thead>
<tr>
<th>Standards and Objectives</th>
<th>G-W Content</th>
<th>(24% of Exam Blueprint)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Standard 1: Students will understand and use welding safety and first aid.</strong></td>
<td><strong>Textbook: pg. 3–22, 678</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Objective 1. Complete a student safety pledge (disclosure statement).</strong></td>
<td><strong>Lab Workbook Lessons: Lesson 1A, General Shop Safety</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Objective 2. Respond to first aid requirements.</strong></td>
<td><strong>Textbook: pg. 6, 21, 866, 868</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Lab Workbook Lessons: Lesson 1A, General Shop Safety</strong></td>
<td></td>
</tr>
<tr>
<td>Standards and Objectives</td>
<td>G-W Content</td>
<td></td>
</tr>
<tr>
<td>--------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td></td>
</tr>
</tbody>
</table>
Lab Workbook Lessons: Lesson 1A, General Shop Safety; Lesson 1B, Oxyfuel Gas Welding Safety; Lesson 1C, Arc Welding and Cutting Safety; Lesson 1D, Resistance and Special Welding Process Safety; Lesson 6A, Shielded Metal Arc Welding Safety; Lesson 8A, Gas Metal and Flux Cored Arc Welding Safety; Lesson 10A, Gas Tungsten Arc Welding Safety; Lesson 12B, Oxyfuel Gas Welding and Cutting Safety; Lesson 18A, Resistance Welding Safety; Lesson 24A, Special Cutting Safety  
Lab Workbook Jobs: All welding jobs.                        |
| **Objective 4.** Perform housekeeping duties.                | Textbook: pg. 8–9  
Lab Workbook Lessons: Lesson 1A, General Shop Safety                                                                                                                                                    |
Lab Workbook Lessons: Lesson 1A, General Shop Safety; Lesson 1B, Oxyfuel Gas Welding Safety; Lesson 1C, Arc Welding and Cutting Safety; Lesson 1D, Resistance and Special Welding Process Safety; Lesson 6A, Shielded Metal Arc Welding Safety; Lesson 8A, Gas Metal and Flux Cored Arc Welding Safety; Lesson 10A, Gas Tungsten Arc Welding Safety; Lesson 12B, Oxyfuel Gas Welding and Cutting Safety; Lesson 18A, Resistance Welding Safety; Lesson 24A, Special Cutting Safety |

**Standard 2: Students will understand and use employment skills.**  
(15% of Exam Blueprint)

| Objective 1. Build a job search network and find job leads.  | Textbook: pg. 72, 850–851  
Lab Workbook Lessons: Lesson 33, Getting and Holding a Job in the Welding Industry                                                                                                             |
| Objective 2. Write a résumé and create a job portfolio.      | Textbook: pg. 72, 851–852  
Lab Workbook Lessons: Lesson 33, Getting and Holding a Job in the Welding Industry  
Lab Workbook Jobs: Job 33-1, Applying and Interviewing for a Welding Job                                                                                                           |
| Objective 3. Write a letter of application.                  | Textbook: pg. 851  
Lab Workbook Lessons: Lesson 33, Getting and Holding a Job in the Welding Industry  
Lab Workbook Jobs: Job 33-1, Applying and Interviewing for a Welding Job                                                                                                           |
Lab Workbook Lessons: Lesson 33, Getting and Holding a Job in the Welding Industry  
Lab Workbook Jobs: Job 33-1, Applying and Interviewing for a Welding Job                                                                                                           |
<table>
<thead>
<tr>
<th>Standards and Objectives</th>
<th>G-W Content</th>
</tr>
</thead>
</table>
| **Objective 5.** Participate in an actual or simulated job interview. | Textbook: pg. 498, 851–853  
Lab Workbook Lessons: Lesson 33, Getting and Holding a Job in the Welding Industry  
Lab Workbook Jobs: Job 33-1, Applying and Interviewing for a Welding Job |
| **Standard 3: Students will fabricate parts from a blueprint.** (17% of Exam Blueprint) | **Objective 1.** Interpret welding symbols information.  
Textbook: pg. 48–62  
Lab Workbook Lessons: Lesson 3B, Reading Welding Symbols  
Lab Workbook Jobs: All welding jobs. |
Lab Workbook Lessons: Lesson 2, Print Reading; Lesson 3A, Welding Joints and Positions; Lesson 34, Technical Data  
Lab Workbook Jobs: All welding jobs. |
| **Objective 3.** Use correct techniques and equipment to fabricate parts. | Textbook: pg. 51, 102–717, 827–842  
Lab Workbook Lessons: All Welding Process Lessons  
Lab Workbook Jobs: All welding jobs. |
| **Standard 4: Students will use gas tungsten arc welding (GTAW) processes.** (15% of Exam Blueprint) | **Objective 1.** Set up for GTAW operations on plain carbon steel.  
Lab Workbook Lessons: Lesson 9, GTAW Equipment and Supplies; Lesson 10A, Gas Tungsten Arc Welding Safety; Lesson 10B, Gas Tungsten Arc Welding Principles; Lesson 10C, Gas Tungsten Arc Welding Procedures  
Lab Workbook Jobs: Job 10C-1, Inspecting and Setting Up a GTAW Station |
| **Objective 2.** Make 3F (vertical position-fillet weld) welds on carbon steel. | Textbook: pg. 290–291  
Lab Workbook Lessons: Lesson 10C, Gas Tungsten Arc Welding Procedures  
Lab Workbook Jobs: Job 10C-9, Fillet Welds on Lap Joints in the Vertical Welding Position; Job 10C-10, Fillet Welds on T-Joints in the Vertical Welding Position |
| **Objective 3.** Make 2G (horizontal position-groove weld) welds on carbon steel. | Textbook: pg. 288–290  
Lab Workbook Lessons: Lesson 10C, Gas Tungsten Arc Welding Procedures |
Lab Workbook Lessons: Lesson 10C, Gas Tungsten Arc Welding Procedures  
Lab Workbook Jobs: Job 10C-11, Groove Welds on Square-Groove Butt Joints in the Vertical Welding Position |
<table>
<thead>
<tr>
<th>Standards and Objectives</th>
<th>G-W Content</th>
</tr>
</thead>
</table>
| **Objective 5.** Perform the GTAW welder performance qualification test on carbon steel. | Textbook: pg. 263–296, 799–801  
Lab Workbook Lessons: Lesson 10C, Gas Tungsten Arc Welding Procedures  
Lab Workbook Jobs: Job 10C-3, Fillet Welds on Lap Joints in the Flat Welding Position; Job 10C-4, Fillet Welds on Inside Corner Joints in the Flat Welding Position; Job 10C-5, Groove Welds on Square-Groove Butt Joints in the Flat Welding Position; Job 10C-6, Fillet Welds on Lap Joints in the Horizontal Welding Position; Job 10C-7, Fillet Welds on Inside Corner and T-Joints in the Horizontal Welding Position; Job 10C-8, Groove Welds on Square-Groove Butt Joints in the Horizontal Welding Position; Job 10C-9, Fillet Welds on Lap Joints in the Vertical Welding Position; Job 10C-10, Fillet Welds on T-Joints in the Vertical Welding Position; Job 10C-11, Groove Welds on Square-Groove Butt Joints in the Vertical Welding Position; Job 10C-12, Fillet Welds on Lap Joints in the Overhead Welding Position; Job 10C-13, Fillet Welds on T-Joints in the Overhead Welding Position; Job 10C-14, Groove Welds on Square-Groove Butt Joints in the Overhead Welding Position |

**Standard 5: Students will use flux cored arc welding (FCAW) processes.** (7% of Exam Blueprint)

Lab Workbook Lessons: Lesson 8A, Gas Metal and Flux Cored Arc Welding Safety; Lesson 8B, Gas Metal and Flux Cored Arc Welding Principles; Lesson 8C, Setting Up a Gas Metal or Flux Cored Arc Welding Station  
Lab Workbook Jobs: Job 8D-1, Inspecting and Setting Up a GMAW/FCAW Station; Job 8D-2, Adjusting GMAW and FCAW Welding Machines and Guns |

Lab Workbook Lessons: Lesson 8E, GMAW and FCAW Procedures for Vertical and Overhead Welds  

Lab Workbook Lessons: Lesson 8D, GMAW and FCAW Procedures for Flat and Horizontal Welds  
Lab Workbook Jobs: Job 8D-9, Groove Welds on Square-Groove Butt Joints in the Horizontal Welding Position |
<table>
<thead>
<tr>
<th>Standards and Objectives</th>
<th>G-W Content</th>
</tr>
</thead>
</table>
| **Objective 4.** Make 3G (vertical position-groove weld) welds on carbon steel. | Textbook: pg. 229–230  
Lab Workbook Lessons: Lesson 8E, GMAW and FCAW Procedures for Vertical and Overhead Welds  
Lab Workbook Jobs: Job 8E-4, Groove Welds on Bevel-Groove Butt Joints in the Vertical Welding Position |
Lab Workbook Lessons: Lesson 8D, GMAW and FCAW Procedures for Flat and Horizontal Welds; Lesson 8E, GMAW and FCAW Procedures for Vertical and Overhead Welds  

**Standard 6:** Students will use the shielded metal arc welding (SMAW) processes.  
(7% of Exam Blueprint)

| **Objective 1.** Set up for SMAW operations on plain carbon steel. | Textbook: pg. 134–138  
Lab Workbook Lessons: Lesson 6B, Shielded Metal Arc Welding Fundamentals  
Lab Workbook Jobs: Job 6B-1, Inspecting and Setting Up an SMAW Station |
| **Objective 2.** Make 3F (vertical position-fillet weld, uphill travel) welds on carbon steel. | Textbook: pg. 160–162  
Lab Workbook Lessons: Lesson 6E, SMAW in the Vertical and Overhead Positions  
### Standards and Objectives

Lab Workbook Lessons: Lesson 6D, SMAW in the Horizontal Welding Position  
Lab Workbook Jobs: Job 6D-3, Groove Welds on Bevel-Groove Butt Joints and V-Groove Outside Corner Joints in the Horizontal Welding Position |
|---|---|
Lab Workbook Lessons: Lesson 6E, SMAW in the Vertical and Overhead Positions  
Lab Workbook Jobs: Job 6E-3, Groove Welds on V-Groove Butt Joints in the Vertical Welding Position |
Lab Workbook Lessons: Lesson 6C, SMAW in the Flat Welding Position; Lesson 6D, SMAW in the Horizontal Position; Lesson 6E, SMAW in the Vertical and Overhead Positions  
Lab Workbook Jobs: Job 6E-7, Structural Welding: Groove Welds in Thick Plate—Out of Position |

### Standard 7: Students will conduct welding inspection and testing. (15% of Exam Blueprint)

Lab Workbook Lessons: Lesson 30, Inspecting and Testing Welds  
Lab Workbook Jobs: All welding jobs. |
|---|---|
Lab Workbook Lessons: Lesson 30, Inspecting and Testing Welds  
Lab Workbook Jobs: All welding jobs. |
| Objective 3. Perform bend-testing procedures to determine the quality of the weld. | Textbook: pg. 164, 777–780, 805–806  
Lab Workbook Lessons: Lesson 30, Inspecting and Testing Welds  
Lab Workbook Jobs: Job 30-3, Guided Bend Tests; Job 30-5, Fillet Weld Bend Tests; Job 31-2, Fillet Weld Performance Test |
Lab Workbook Lessons: Lesson 30, Inspecting and Testing Welds |

### Standard 8: Students will fabricate projects using metal and welding processes.

Lab Workbook Lessons: Lesson 2, Print Reading; Lesson 3B, Reading Welding Symbols; Lesson 32, The Welding Shop |
<table>
<thead>
<tr>
<th>Standards and Objectives</th>
<th>G-W Content</th>
</tr>
</thead>
</table>
| **Objective 2.** Prepare a materials order and secure the materials. | Textbook: pg. 34, 840–841  
Lab Workbook Lessons: Lesson 2, Print Reading; Lesson 32, The Welding Shop |
| **Objective 3.** Construct the project according to a plan that meets high quality standards in four areas, including project design, quality of workmanship, attention to detail, and fit and finish. | Textbook: pg. 3–868  
Lab Workbook Lessons: All workbook lessons.  
Lab Workbook Jobs: All welding jobs. |