

Manufacturing Skill Standards Checklist

Student Name	YA Student ID Number
YA Coordinator	YA Consortium
School District	High School Graduation Date
Certification Areas Completed: Required Skills - For EACH Pathway Check ✓ completed areas Core Skills Safety Manufacturing Fundamentals	Level One Requirements: Students must complete ALL listed below Check ✓ completed areas Required Skills Minimum of ONE Unit Minimum of 2 semesters related instruction Minimum of 450 work hours
Production Pathway Assembly and Packaging Unit Manufacturing Processes Unit* Machining Unit* Welding Unit*	Level Two Requirements: Students must complete ALL listed below Check ✓ completed areas □ Required Skills for EACH pathway □ Minimum of TWO Units
Production Operations Management Pathway Production Operations Management Unit	 Minimum of 4 semesters related instruction Minimum of 900 work hours * Unit can be completed two times IF different processes are learned
Maintenance, Installation, and Repair Pathway	,
Basic Industrial Equipment Unit	
Advanced Industrial Equipment Unit	

Total Hours Employed	Company Name	Telephone Number
		()
		()

DETW-16165-E (R. 08/2012)

Instructions for the Worksite Mentor(s) and Instructor(s)

The Skill Standards Checklist is a list of the competencies (tasks) to be achieved through mentoring and training at the worksite.

- The worksite mentor should rate each competency as the student acquires and demonstrates the skill *according to the performance standards criteria.*
- A competency may be revisited and the score raised as the student becomes more proficient at the worksite.
- The mentor and student should go over this checklist together on a regular basis to record progress and plan future steps to complete the required competencies.

I certify that this student has successfully completed the competencies required in my department. Circle your YA role, sign and print your name, and complete with the date signed and the department name.

SIGN this page IF you have been a mentor, trainer, or instructor of this student

Mentor/Trainer/Instructor Signature	Mentor/Trainer/Instructor Signature
Printed Name	Printed Name
Department	Department
Date Signed	Date Signed

Mentor/Trainer/Instructor Signature	Mentor/Trainer/Instructor Signature
Printed Name	Printed Name
Department	Department
Date Signed	Date Signed

Mentor/Trainer/Instructor Signature	Mentor/Trainer/Instructor Signature
	Mentol/ Hamel/Instructor Signature
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Printed Name	Printed Name
Department	Department
Department	Department
Date Signed	Date Signed
Date Signed	Date Signed

Mentor/Trainer/Instructor Signature	Mentor/Trainer/Instructor Signature
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Printed Name	Printed Name
Department	Department
Department	Department
Date Signed	Date Signed
Date Signed	Date Signed

Operational Program Notes for Skill Standards Checklist

1. Manufacturing Youth Apprenticeship Curriculum

- Definitions:
 - Competency- The worksite skill to be performed
 - Performance Standards- How to assess skill performance as applicable to worksite.
 - Learning Objectives- Content knowledge recommended to learn these skills; may be taught by the employer, school district, and/or technical college.
 - o Skill Standards Checklist- The documented list of competencies completed by the YA student.
 - W/S- Listed after a skill indicates that skill performance may be learned and assessed at the worksite OR in the classroom in a simulated setting. However, a simulated setting should ONLY be used IF there is no possibility of skill performance at the worksite.
- Performance Standards and Learning Objectives are located in the applicable Appendices of the **Program Guide for this Youth Apprenticeship.**
- 2. ALL Youth Apprentices **MUST** complete the Required Skills (Core Skills, Safety, and Manufacturing Fundamentals) competencies for EACH Pathway they are enrolled in.
 - The Required Skills competencies may be completed concurrently with the Technical Skills competencies.
 - The Required Skills are common skills specific to all manufacturing industry sub-sectors. These skills are *aligned with* the National States' Career Clusters standards for Manufacturing and the Manufacturing Skill Standards Council (MSSC).

3. Youth Apprenticeship choices (depending on job placement)

- Worksites can be chosen from any number of the manufacturing SUB-INDUSTRIES such as: Chemical, Computers and Electronic, Electrical Equipment and Appliances, Food and Beverage, Furniture, Machine, Non-Metallic Minerals, Plastic and Rubber Production, Primary and Fabricated Metals, Printing, Textiles, Apparel and Leather, Transportation, Wood; or
 - PROCESSING any variety of manufacturing MATERIALS such as:

Metals (Ferrous, Non-Ferrous, Powdered), Polymers (Wood, Textiles, Leather, Plastic, Elastomer), Chemicals, Finishes (Wood Finishes, Metal Finishes), and Food and Beverage

AS LONG AS the competencies related to that SUB-INDUSTRY and MATERIAL are allowable by DWD Child Labor Laws. Contact the Department of Workforce Development's Equal Rights Division/Labor Standards Bureau at 608-266-6860 for questions regarding child labor laws.

- Competencies have been reviewed by the Department of Workforce Development for Child Labor Laws. Contact the Department of Workforce Development's Equal Rights Division/Labor Standards Bureau at 608-266-6860 for questions regarding child labor laws. SEE Appendix A for special Child Labor Law considerations in this YA Program.
- Students will complete a MINIMUM of one Manufacturing unit for a Level ONE Manufacturing YA and a MINIMUM of two Manufacturing units for a Level TWO Manufacturing YA. The Manufacturing Processes, Machining, or Welding units may be completed two times for a Level TWO program; however different processes must be taught and learned.
- The Department of Workforce Development Occupational Certificate will indicate "Manufacturing" attained when the program is completed.

4. Competency Ratings

- Rate the student on the competencies regularly and revisit the competencies with the student periodically to offer the opportunity for an improved rating.
- Arrangements must be made to ensure that the student learns, practices, AND performs each competency even if that competency is not part of their regular job function.
- "Entry Level" criteria should be interpreted to mean "able to do the task satisfactorily."
- "Assist" in front of a skill indicates that the student should perform the skill as indicated in the curriculum "while assisting a worksite professional." Training should go beyond "observation only" for these skills. It will be up to the employer to determine the criticality of each specific task, training completed, and the actual level of supervision required. See curriculum details for requirements.

Required Skills

Required of **ALL** Manufacturing YA Students *Copy this page* **FOR EACH** unit to be completed

CORE SKILLS		Minimum rating of 2 for EACH Check Rating			
	1	2	3		
1. Apply academic knowledge					
2. Apply career knowledge					
3. Apply manufacturing industry knowledge					
4. Communicate effectively					
5. Act professionally					
6. Cooperate with others in a team setting					
7. Think critically					
8. Exhibit regulatory and ethical responsibilities					
9. Use resources wisely					
10. Use basic technology					

SAFETY	Minimum rating of 2 for EACH Check Rating		
	1	2	3
1. Follow personal safety requirements			
2. Maintain a safe work environment			
3. Demonstrate professional role to be used in an emergency			

MANUFACTURING FUNDAMENTALS	Minimum rating of 2 for EACH Check Rating		
	1 2 3		
1. Focus on customer needs			
2. Measure using various instruments			
3. Operate tools and equipment safely			
4. Practice quality assurance principles			

Rating Scale:

3 = Exceeds entry level criteria/Requires minimal supervision/Consistently displays this behavior

2 = Meets entry level criteria/Requires some supervision/Often displays this behavior

1 = Needs improvement/Requires much assistance and supervision/Rarely displays behavior

As	sembly and Packaging Unit		rating of 2 heck Ratin	
		1	2	3
1.	Read technical drawings and work orders			
2.	Interpret assembly and packaging symbols and procedures			
3.	Identify set up for assembly			
4.	Select tools and materials			
5.	Perform safety checks			
6.	Perform assembly set up			
7.	Verify assembly set up			
8.	Perform assembly			
9.	Perform quality checks			
10.	Build packaging			
11.	Package product			
12.	Process packaging documents			
13.	Clean up			
14.	Monitor equipment for correct operation			
15.	Document equipment use and/or operational problems			

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Manufacturing Processes Unit

Check the appropriate Process.

Copy pages 6-7 if unit is repeated for a Level TWO.

 Casting Conditioning Filling Finishing 	 Forming Joining/Combi Molding Separating 	ning
	Separating	

Manufacturing Processes Examples

1. Casting

Examples: Metal, Sand, Die, Plaster, Slush, Static, Centrifugal, Continuous

2. Conditioning

Examples: Heat Treating, Annealing, Hardening, Tempering

- 3. Filling
 - Examples: Aseptic, Canning, Bottling

4. Finishing

Examples: Barrel, Sanding, Deburring, Buffing, Brushing, Polishing, Electropolishing, Chemical cleaning, Ultrasonic cleaning, Vapor degreasing, Painting, Coating, Dipping, Electroplating, Engraving, Plating

5. Forming

Examples: Forging, Open/Closed Die, Extrusion, Pressing, Punching, Blanking, Drawing, Piercing

6. Joining/Combining

Examples: Welding, Brazing, Soldering, Sintering, Adhesive Bonding, Thermosetting, Fastening, Stitching, Stapling, Press-Fitting, Chemical

7. Molding

Examples: Powder Compaction, Sintering, Injection, Blow, Liquid Resin, Thermoforming, Extrusion, Foam, Vacuum forming, Compression, Shrink filling

8. Separating

Examples: Cutting, Sawing, Centrifuging, Filtration, Pressing, Distillation, Evaporation, Fractionalization, Chemical

Manufacturing Processes Unit		Minimum rating of 2 for EACH Check Rating		
		1	2	3
1.	Read technical drawings and work orders			
2.	Interpret symbols and procedures			
3.	Identify set up			
4.	Select tools and materials			
5.	Perform safety checks			
6.	Assist to perform set up			
7.	Verify set up			
8.	Perform start up			
9.	Operate equipment			
10.	Monitor product and process specifications			
11.	Process production documents			
12.	Shutdown process			
13.	Clean up			
14.	Monitor equipment for correct operation			
15.	Document equipment use and/or operational problems			

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Check the appropriate Process.

Copy this page if unit is repeated for a Level TWO.

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M

rinder Machine Center Lathe Other:_____

Machining Unit		Minimum rating of 2 for EACH Check Rating		
		1	2	3
1.	Read machining technical drawings and work orders			
2.	Interpret machining symbols and procedures			
3.	Identify set up			
4.	Select tools and materials			
5.	Perform safety checks			
6.	Assist to perform set up			
7.	Verify set up			
8.	Perform start up			
9.	Operate machining equipment			
10.	Monitor machining product and process specifications			
11.	Process production documents			
12.	Shutdown machining process			
13.	Clean up			
14.	Use hand tools			
15.	Use CNC equipment (W/S)			
16.	Monitor equipment for correct operation			
17.	Document equipment use and/or operational problems			

W/S = Worksite Experience or In Simulation

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Check the appropriate Processes. Copy this page if unit is repeated for a Level TWO.

Welding	Processes	Therma	I/Chemical Cutting Processes
	Flux-cored arc welding (FCAW)		Air Carbon Arc
	Gas metal arc welding (GMAW (MIG))		Laser
	Gas tungsten arc welding (GTAW (TIG))		Oxy-fuel Manual
	Submerged arc welding (SAW)		Oxy-fuel Machine
	Shielded metal arc welding (SMAW (Stick))		Plasma Manual
	Other:		Plasma Machine Other:

Welding Unit		Minimum rating of 2 for EACH Check Rating		
		1	2	3
1.	Read welding technical drawings and work orders			
2.	Interpret welding symbols and procedures			
3.	Layout and plan work			
4.	Perform safety checks			
5.	Prepare base metal			
6.	Set up to fabricate base metal			
7.	Fabricate base metal			
8.	Thermally/chemically cut metal			
9.	Tack work pieces			
10.	Weld metal			
11.	Monitor product and process			
12.	Assist to inspect, measure, and/or test completed metal pieces <i>Welding Standard or Code Used:</i>			
13.	Process production documents			
14.	Clean up			
15.	Monitor equipment for correct operation			
16.	Perform routine preventive maintenance (PM)			
17.	Document equipment use, PM, and/or operational problems			

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Production Operations Management Pathway

Production Operations Management Unit		Minimum rating of 2 for EACH Check Rating		
Inventory	1	2	3	
1. Assist to purchase materials and supplies				
2. Receive inventory				
3. Manage inventory levels				
4. Distribute materials and products				
5. Assist to develop inventory forecasts (W/S)				
6. Maintain inventory records				
Resources				
7. Assist to develop a production plan for customer order (W/S)				
8. Assist to record and summarize financial data				
9. Assist to coordinate work schedules and duty assignments				
Quality Management				
10. Use quality tools				
11. Calibrate tools and equipment (W/S)				
12. Assist to analyze production process for productivity (W/S)				
13. Monitor operations for product and process quality				
14. Assist to investigate root causes of product and/or process failure				
15. Take corrective action to restore or maintain quality				
16. Participate in quality improvement processes				

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Maintenance, Installation, and Repair Pathway

Basic Industrial Equipment Unit		Minimum rating of 2 for EACH Check Rating		
		1	2	3
1.	Read technical drawings and work orders			
2.	Interpret equipment symbols and procedures			
3.	Maintain schedules, communication, and documentation			
4.	Monitor equipment for correct operation			
5.	Identify maintenance requirements			
6.	Layout and plan work			
7.	Perform safety checks			
8.	Use hand tools			
9.	Perform preventive maintenance (PM)			
10.	Perform lubrication procedures			
11.	Assist with basic equipment problem identification and diagnosis			
12.	Assist with basic equipment repair			
13.	Assist to re-qualify equipment			

Rating Scale:

3 = Exceeds entry level criteria | Requires minimal supervision | Consistently displays this behavior

2 = Meets entry level criteria | Requires some supervision | Often displays this behavior

1 = Needs improvement | Requires much assistance and supervision | Rarely displays behavior

Maintenance, Installation, and Repair Pathway

Advanced Industrial Equipment Unit		Minimum rating of 2 for EACH Check Rating		
	1	2	3	
1. Calibrate tools and equipment (W/S)				
2. Set up and fabricate metal				
3. Mount a bearing				
4. Install mechanical fasteners				
5. Assist with electrical circuit problem identification and diagnosis				
6. Assist with motor control problem identification and diagnosis				
 Assist with hydraulic and/or pneumatic problem identification and diagnosis 				
8. Maintain and repair mechanical drive system components				
9. Maintain and repair electrical control system components				
10. Maintain and repair hydraulic and/or pneumatic system components				
11. Assist to install and qualify equipment				

W/S = Worksite Experience or In Simulation

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- 2 = Meets entry level criteria | Requires some supervision | Often displays this behavior
- **1** = Needs improvement | Requires much assistance and supervision | Rarely displays behavior

Additional Certifications, Training, Seminars and Projects

Please list in detail any additional certifications earned, any training and seminars attended, and/or any projects completed during the course of the Manufacturing Youth Apprenticeship.

	8	8 11 1	
Description			
Notes/Comments			
Date Completed	Signature		Date Signed
	-		-
Description			
Notes/Comments			
Date Completed	Signature		Date Signed
Date Completed	olgriataro		Date eignea
Description			
Notes/Comments			
Date Completed	Signature		Date Signed
Date Completed	olghadaro		Date eignea
Other Notes or Comments	3		