

Welding Technology/Welder, Classification of Instructional Program (CIP) 48.0508 Units of Instruction and Task Grid Linked to Pennsylvania Core Standards

Secondary Competency Task Grid with Unit and Task Numbers	Common Career Technical Core Standards	Pennsylvania Core Standards for Reading for Technical Subjects Standard 3.5	Pennsylvania Core Standards for Writing for Technical Subjects Standard 3.6	Pennsylvania Core Standards for Mathematics Standard 2.1
--	--	---	--	---

100 OCCUPATIONAL ORIENTATION AND SAFETY.			
101 Complete time or job sheet, reports, or records. 102 Perform housekeeping duties daily. 103 Follow verbal instructions to complete work assignments and rules. 104 Follow written instructions to complete work assignments and rules. 105 Inspect and use Personal Protection Equipment (PPE) daily. 106 Maintain proper organization and operation of	CLUSTER: Manufacturing Career Cluster (Choose Standards) 1-2-3-4-5-6 PATHWAY(S) INCLUDE Production Career	KEY IDEAS/DETAILS GRADES 9-10 Standard CC.3.5.9-10.A. Cite specific textual evidence, etc Standard CC.3.5.9-10B Determine the central ideas or conclusions of a text; etc Standard CC.3.5.9-10.C	TEXT TYPES AND PURPOSE GRADES 9-10 Standard CC.3.6.9-10.A Write arguments focused on discipline specific content. Standard CC.3.6.9-10.B Write informative or
work area 107 Demonstrate proper use of ventilation equipment. 108 Discuss proper Hot Work operation. 109 Demonstrate knowledge of proper work actions for working in confined spaces. 110 Identify Safety Data Sheets (SDS) and precautionary labeling. 111 Inspect welding and thermal cutting equipment for safe operation. 112 Display familiarity with industrial and OSHA safety standards. 113 Identify oxyfuel safety procedures. 114 Identify arc welding/cutting safety procedures.	Pathway (Select Standards) 1-2-3-4-5	Follow precisely a complex multistep procedure, etc KEY IDEAS/DETAILS GRADES 11-12 Standard CC.3.5.11-12A Cite specific textual evidence, etc Standard CC.3.5.11-12.B. Determine the central ideas or conclusions of a text; etc Standard CC.3.5.11-12.C. Follow precisely a complex	explanatory texts, including the narration of technical processes, etc. TEXT TYPES AND PURPOSE GRADES 11-12 Standard CC.3.6.11-12.A Write arguments focused on discipline specific content. Standard CC.3.6.11-12.B Write informative or explanatory texts, including

Follow emergency action plan (all inclusive).	CRAFT & STRUCTURE	the narration of technical
115 Tonow emergency action plan (an inclusive).	GRADES 9-10	processes, etc.
		PRODUCTION &
	Standard CC.3.5.9-10.D.	DISTRIBUTION OF
	Determine the meaning of	WRITING
	symbols, key terms, and other domain specific words	GRADES 9-10
	Standard CC.3.5.9-10.E	Standard CC.3.6.9-10.C
		Produce clear and coherent
	Analyze the structure of the relationships among concepts in a	writingappropriate to
	text, etc.	task, purpose, and audience.
	Standard CC.3.5.9-10.F	Standard CC.3.6.9-10 D
	Analyze the author's purpose in	Develop and strengthen
	providing an explanation,	writing as needed by
	describing a procedure	planning, revising, editing,
	CRAFT & STRUCTURE	rewriting, or trying a new
	GRADES 11-12	approach, focusing on addressing what is most
	Standard CC.3.5.11-12.D.	significant for a specific
	Determine the meaning of	purpose and audience.
	symbols, key terms, and other	Standard CC.3.6.9-10.E
	domain specific words	Use technology, including
	Standard CC.3.5.11-12.E.	the internet, to produce,
	Analyze the structure of the	publish, and update
	relationships among concepts in a	individual or shared writing
	text.	products.
	Standard CC.3.5.11-12.F	PRODUCTION &
	Analyze the author's purpose in	DISTRIBUTION OF
	providing an explanation, describing a procedure	WRITING GRADEGALIA
	INTEGRATE KNOWLEDGE/	GRADES 11-12
	IDEAS	Standard CC.3.6.11-12 C
	GRADES 9-10	Produce clear and coherent
	Standard CC.3.5.9-10.G.	writingappropriate to task, purpose, and audience.
	Translate quantitative or technical	Standard CC.3.6.9-10 D
	information expressed in a text into	Standard CC.3.6.11-
	visual form (e.g. a table or chart).	12.D.Develop and
	Standard CC.3.5.9-10.H.	strengthen writing as
	Assess the reasoning in a text to	needed by planning,
	support the author's claim for	revising, editing, rewriting,
	solving a technical problem.	or trying a new approach,
	Standard CC.3.5.9-10.I.	focusing on addressing
		what is most significant for

Compare and contrast findings a specific purpose and presented in a text to those from audience. other sources, etc.... Standard CC.3.6.11-INTEGRATE KNOWLEDGE/ 12.E.Use technology, **IDEAS** including the internet, to produce, publish, and **GRADES 11-12** update individual or shared Standard CC.3.5.11-12.G. writing products. Integrate and evaluate multiple RESEARCH sources of information presented in **GRADES 9-10** diverse formats...to solve a problem. Standard CC.3.6.9-10.F. Conduct short and more Standard CC.3.5.11-12.H. sustained research to Evaluate the hypotheses, data, answer a question or solve analysis, and conclusions in a a problem. technical text, verifying the data Standard CC.3.6.9when possible. **10.G**.Gather relevant Standard CC.3.5.11-12.I. information from multiple Synthesize information from a authoritative print and range of sources into a coherent digital sources, following a understanding. standard format for citation. RANGE OF READING Standard CC.3.6.9-10.H. **GRADES 9-10 and 11-12** Draw evidence from Standard CC.3.5.9-10.J AND informational texts to Standard CC.3.5.11-12.J. support analysis, reflection, By the end of grades 9-10, AND and research. 11-12, read and comprehend RESEARCH technical texts independently and **GRADES 11-12** proficiently. Standard CC.3.6.11-12.F. Conduct short and more sustained research to answer a question or solve a problem. Standard CC.3.6.11-**12.G**.Gather relevant information from multiple authoritative print and digital sources, following a standard format for citation. Standard CC.3.6.11-12.H. Draw evidence from informational texts to

200 PRINCIPLES OF WELDING.			support analysis, reflection, and research. RANGE OF WRITING GRADES 9-12 Standard CC.3.5.9-10.I AND Standard CC.3.5.11- 12.I. Write routinely over extended time frames and shorter time frames for a range of tasks, purposes and audiencesetc.	
 Identify major types of metals (ferrous and nonferrous) used in welding. Describe the basic principles of heat, expansion, and contraction as it relates to metals. Select appropriate welding technique, equipment and supplies for a given metal or process. Describe the industry accepted welding codes, standards and procedures and their use. Identify various joint designs (joint geometry). Clean and prepare materials for welding and/or cutting. Demonstrate proper use of hand tools. Demonstrate proper use of standard measuring and layout tools. Demonstrate proper use of power equipment. 	CLUSTER: Manufacturing Career Cluster (Choose Standards) 1-2-3-4-5-6 PATHWAY(S) INCLUDE Production Career Pathway (Select Standards) 1-2-3-4-5	KEY IDEAS/DETAILS GRADES 9-10 Standard CC.3.5.9-10.A. Cite specific textual evidence, etc Standard CC.3.5.9-10B Determine the central ideas or conclusions of a text; etc Standard CC.3.5.9-10.C Follow precisely a complex multistep procedure, etc KEY IDEAS/DETAILS GRADES 11-12 Standard CC.3.5.11-12A Cite specific textual evidence, etc Standard CC.3.5.11-12.B. Determine the central ideas or conclusions of a text; etc Standard CC.3.5.11-12.C. Follow precisely a complex multistep procedure, etc CRAFT & STRUCTURE GRADES 9-10 Standard CC.3.5.9-10.D.	TEXT TYPES AND PURPOSE GRADES 9-10 Standard CC.3.6.9-10.A Write arguments focused on discipline specific content. Standard CC.3.6.9-10.B Write informative or explanatory texts, including the narration of technical processes, etc. TEXT TYPES AND PURPOSE GRADES 11-12 Standard CC.3.6.11-12.A Write arguments focused on discipline specific content. Standard CC.3.6.11-12.B Write informative or explanatory texts, including the narration of technical processes, etc.	

Determine the meaning of symbols, key terms, and other domain specific words...

Standard CC.3.5.9-10.E

Analyze the structure of the relationships among concepts in a text, etc.

Standard CC.3.5.9-10.F

Analyze the author's purpose in providing an explanation, describing a procedure...

CRAFT & STRUCTURE GRADES 11-12

Standard CC.3.5.11-12.D.

Determine the meaning of symbols, key terms, and other domain specific words...

Standard CC.3.5.11-12.E.

Analyze the structure of the relationships among concepts in a text.

Standard CC.3.5.11-12.F

Analyze the author's purpose in providing an explanation, describing a procedure...

INTEGRATE KNOWLEDGE/IDEAS

GRADES 9-10

Standard CC.3.5.9-10.G.

Translate quantitative or technical information expressed in a text into visual form (e.g. a table or chart).

Standard CC.3.5.9-10.H.

Assess the reasoning in a text to support the author's claim for solving a technical problem.

Standard CC.3.5.9-10.I.

Compare and contrast findings presented in a text to those from other sources, etc....

PRODUCTION & DISTRIBUTION OF WRITING

GRADES 9-10

Standard CC.3.6.9-10.C

Produce clear and coherent writing...appropriate to task, purpose, and audience.

Standard CC.3.6.9-10 D

Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.

Standard CC.3.6.9-10.E

Use technology, including the internet, to produce, publish, and update individual or shared writing products.

PRODUCTION & DISTRIBUTION OF WRITING

GRADES 11-12

Standard CC.3.6.11-12 C

Produce clear and coherent writing...appropriate to task, purpose, and audience.

Standard CC.3.6.9-10 D

Standard CC.3.6.11-

12.D.Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.

Standard CC.3.6.11-INTEGRATE KNOWLEDGE/ **IDEAS 12.E**.Use technology, including the internet, to **GRADES 11-12** produce, publish, and Standard CC.3.5.11-12.G. update individual or shared Integrate and evaluate multiple writing products. sources of information presented in RESEARCH diverse formats...to solve a **GRADES 9-10** problem. Standard CC.3.6.9-10.F. Standard CC.3.5.11-12.H. Conduct short and more Evaluate the hypotheses, data, sustained research to analysis, and conclusions in a answer a question or solve technical text, verifying the data a problem. when possible. Standard CC.3.6.9-Standard CC.3.5.11-12.I. 10.G.Gather relevant Synthesize information from a information from multiple range of sources into a coherent authoritative print and understanding. digital sources, following a RANGE OF READING standard format for citation. **GRADES 9-10 and 11-12** Standard CC.3.6.9-10.H. Standard CC.3.5.9-10.J AND Draw evidence from Standard CC.3.5.11-12.J. informational texts to By the end of grades 9-10, AND support analysis, reflection, 11-12, read and comprehend and research. technical texts independently and RESEARCH proficiently. **GRADES 11-12** Standard CC.3.6.11-12.F. Conduct short and more sustained research to answer a question or solve a problem. Standard CC.3.6.11-12.G.Gather relevant information from multiple authoritative print and digital sources, following a standard format for citation. Standard CC.3.6.11-12.H. Draw evidence from informational texts to support analysis, reflection,

and research.

300	WELDING, DRAWING, AND WELD SYMBOL			RANGE OF WRITING GRADES 9-12 Standard CC.3.5.9-10.I AND Standard CC.3.5.11- 12.I. Write routinely over extended time frames and shorter time frames for a range of tasks, purposes and audiencesetc.
301	INTERPRETATION. Interpret basic elements of a drawing or sketch.	CLUSTER:	KEY IDEAS/DETAILS	TEXT TYPES AND
302	Interpret welding symbol information.	Manufacturing Career	GRADES 9-10	PURPOSE
303	Fabricate parts from a drawing or sketch (class	Cluster	Standard CC.3.5.9-10.A.	GRADES 9-10
	project).	(Choose Standards)	Cite specific textual evidence,	Standard CC.3.6.9-10.A
304	Identify structural materials used in the metal fabrication field.	1-2-3-4-5-6	etc	Write arguments focused on discipline specific
305	Perform basic metric conversion.	PATHWAY(S)	Standard CC.3.5.9-10B Determine the central ideas or	content.
	2 C.	INCLUDE	conclusions of a text; etc	Standard CC.3.6.9-10.B
		Production Career	Standard CC.3.5.9-10.C	Write informative or
		Pathway	Follow precisely a complex	explanatory texts, including the narration of technical
		(Select Standards) 1-2-3-4-5	multistep procedure, etc KEY IDEAS/DETAILS	processes, etc.
		1-2-3-4-3	GRADES 11-12	TEXT TYPES AND PURPOSE
			Standard CC.3.5.11-12A	GRADES 11-12
			Cite specific textual evidence, etc	Standard CC.3.6.11-12.A
			Standard CC.3.5.11-12.B.	Write arguments focused
			Determine the central ideas or	on discipline specific content.
			conclusions of a text; etc	Standard CC.3.6.11-12.B
			Standard CC.3.5.11-12.C.	Write informative or
			Follow precisely a complex multistep procedure, etc	explanatory texts, including the narration of technical
			CRAFT & STRUCTURE	processes, etc.
			GRADES 9-10	PRODUCTION &
			Standard CC.3.5.9-10.D.	DISTRIBUTION OF WRITING
			Determine the meaning of symbols, key terms, and other	GRADES 9-10
			domain specific words	Standard CC.3.6.9-10.C

Standard CC.3.5.9-10.E

Analyze the structure of the relationships among concepts in a text, etc.

Standard CC.3.5.9-10.F

Analyze the author's purpose in providing an explanation, describing a procedure...

CRAFT & STRUCTURE GRADES 11-12

Standard CC.3.5.11-12.D.

Determine the meaning of symbols, key terms, and other domain specific words...

Standard CC.3.5.11-12.E.

Analyze the structure of the relationships among concepts in a text

Standard CC.3.5.11-12.F

Analyze the author's purpose in providing an explanation, describing a procedure...

INTEGRATE KNOWLEDGE/IDEAS

GRADES 9-10

Standard CC.3.5.9-10.G.

Translate quantitative or technical information expressed in a text into visual form (e.g. a table or chart).

Standard CC.3.5.9-10.H.

Assess the reasoning in a text to support the author's claim for solving a technical problem.

Standard CC.3.5.9-10.I.

Compare and contrast findings presented in a text to those from other sources, etc....

INTEGRATE KNOWLEDGE/IDEAS

GRADES 11-12

Produce clear and coherent writing...appropriate to task, purpose, and audience.

Standard CC.3.6.9-10 D

Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.

Standard CC.3.6.9-10.E

Use technology, including the internet, to produce, publish, and update individual or shared writing products.

PRODUCTION & DISTRIBUTION OF WRITING

GRADES 11-12

Standard CC.3.6.11-12 C

Produce clear and coherent writing...appropriate to task, purpose, and audience.

Standard CC.3.6.9-10 D

Standard CC.3.6.11-

12.D.Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.

Standard CC.3.6.11-

12.E.Use technology, including the internet, to produce, publish, and

8

Standard CC.3.5.11-12.G.	update individual or shared	
Integrate and evaluate multiple	writing products.	
sources of information presented in diverse formatsto solve a	RESEARCH	
problem.	GRADES 9-10	
Standard CC.3.5.11-12.H.	Standard CC.3.6.9-10.F.	
Evaluate the hypotheses, data,	Conduct short and more sustained research to	
analysis, and conclusions in a	answer a question or solve	
technical text, verifying the data	a problem.	
when possible.	Standard CC.3.6.9-	
Standard CC.3.5.11-12.I.	10.G.Gather relevant	
Synthesize information from a	information from multiple	
range of sources into a coherent	authoritative print and	
understanding.	digital sources, following a standard format for citation.	
RANGE OF READING	Standard CC.3.6.9-10.H.	
GRADES 9-10 and 11-12	Draw evidence from	
Standard CC.3.5.9-10.J AND	informational texts to	
Standard CC.3.5.11-12.J.	support analysis, reflection,	
By the end of grades 9-10, AND 11-12, read and comprehend	and research.	
technical texts independently and	RESEARCH	
proficiently.	GRADES 11-12	
	Standard CC.3.6.11-12.F.	
	Conduct short and more	
	sustained research to	
	answer a question or solve a problem.	
	Standard CC.3.6.11-	
	12.G.Gather relevant	
	information from multiple	
	authoritative print and	
	digital sources, following a	
	standard format for citation.	
	Standard CC.3.6.11-12.H.	
	Draw evidence from informational texts to	
	support analysis, reflection,	
	and research.	
	RANGE OF WRITING	
	GRADES 9-12	

400	VISUAL EXAMINATION, INSPECTION, AND TESTING.			Standard CC.3.5.9-10.I AND Standard CC.3.5.11- 12.I. Write routinely over extended time frames and shorter time frames for a range of tasks, purposes and audiencesetc.	
401 402 403	Evaluate cut surfaces and edges of prepared base metal parts for testing. Identify and evaluate weld discontinuities as per accept/reject criteria. Perform visual inspection, destructive and non-destructive testing.	CLUSTER: Manufacturing Career Cluster (Choose Standards) 1-2-3-4-5-6 PATHWAY(S) INCLUDE Production Career Pathway (Select Standards) 1-2-3-4-5	KEY IDEAS/DETAILS GRADES 9-10 Standard CC.3.5.9-10.A. Cite specific textual evidence, etc Standard CC.3.5.9-10B Determine the central ideas or conclusions of a text; etc Standard CC.3.5.9-10.C Follow precisely a complex multistep procedure, etc KEY IDEAS/DETAILS GRADES 11-12 Standard CC.3.5.11-12A Cite specific textual evidence, etc Standard CC.3.5.11-12.B. Determine the central ideas or conclusions of a text; etc Standard CC.3.5.11-12.C. Follow precisely a complex multistep procedure, etc CRAFT & STRUCTURE GRADES 9-10 Standard CC.3.5.9-10.D. Determine the meaning of symbols, key terms, and other domain specific words Standard CC.3.5.9-10.E	TEXT TYPES AND PURPOSE GRADES 9-10 Standard CC.3.6.9-10.A Write arguments focused on discipline specific content. Standard CC.3.6.9-10.B Write informative or explanatory texts, including the narration of technical processes, etc. TEXT TYPES AND PURPOSE GRADES 11-12 Standard CC.3.6.11-12.A Write arguments focused on discipline specific content. Standard CC.3.6.11-12.B Write informative or explanatory texts, including the narration of technical processes, etc. PRODUCTION & DISTRIBUTION OF WRITING GRADES 9-10 Standard CC.3.6.9-10.C	Standard 2.1.HS.F.2 Apply properties of rational and irrational numbers to solve real world or mathematical problems. Standard 2.1.HS.F.4 Use units as a way to understand problems and to guide the solution of multistep problems. Standard 2.1.HS.F.5 Choose a level of accuracy appropriate to limitations on measurement when reporting quantities. Standard 2.1.HS.F.6 Extend the knowledge of arithmetic operations and apply to complex numbers.

Standard CC.3.5.9-10.F

Analyze the author's purpose in providing an explanation, describing a procedure...

CRAFT & STRUCTURE GRADES 11-12

Standard CC.3.5.11-12.D.

Determine the meaning of symbols, key terms, and other domain specific words...

Standard CC.3.5.11-12.E.

Analyze the structure of the relationships among concepts in a text.

Standard CC.3.5.11-12.F

Analyze the author's purpose in providing an explanation, describing a procedure...

INTEGRATE KNOWLEDGE/IDEAS

GRADES 9-10

Standard CC.3.5.9-10.G.

Translate quantitative or technical information expressed in a text into visual form (e.g. a table or chart).

Standard CC.3.5.9-10.H.

Assess the reasoning in a text to support the author's claim for solving a technical problem.

Standard CC.3.5.9-10.I.

Compare and contrast findings presented in a text to those from other sources, etc....

INTEGRATE KNOWLEDGE/IDEAS

GRADES 11-12

Standard CC.3.5.11-12.G.

Produce clear and coherent writing...appropriate to task, purpose, and audience.

Standard CC.3.6.9-10 D

Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.

Standard CC.3.6.9-10.E

Use technology, including the internet, to produce, publish, and update individual or shared writing products.

PRODUCTION & DISTRIBUTION OF WRITING

GRADES 11-12

Standard CC.3.6.11-12 C

Produce clear and coherent writing...appropriate to task, purpose, and audience.

Standard CC.3.6.9-10 D

Standard CC.3.6.11-

12.D.Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.

Standard CC.3.6.11-

12.E.Use technology, including the internet, to produce, publish, and

Integrate and evaluate multiple update individual or shared sources of information presented in writing products. diverse formats...to solve a RESEARCH problem. **GRADES 9-10** Standard CC.3.5.11-12.H. Standard CC.3.6.9-10.F. Evaluate the hypotheses, data, Conduct short and more analysis, and conclusions in a sustained research to technical text, verifying the data answer a question or solve when possible. a problem. Standard CC.3.5.11-12.I. Standard CC.3.6.9-Synthesize information from a 10.G.Gather relevant range of sources into a coherent information from multiple understanding. authoritative print and digital sources, following a RANGE OF READING standard format for citation. **GRADES 9-10 and 11-12** Standard CC.3.6.9-10.H. Standard CC.3.5.9-10.J AND Draw evidence from Standard CC.3.5.11-12.J. informational texts to By the end of grades 9-10, AND support analysis, reflection, 11-12, read and comprehend and research. technical texts independently and RESEARCH proficiently. **GRADES 11-12** Standard CC.3.6.11-12.F. Conduct short and more sustained research to answer a question or solve a problem. Standard CC.3.6.11-12.G.Gather relevant information from multiple authoritative print and digital sources, following a standard format for citation. Standard CC.3.6.11-12.H. Draw evidence from informational texts to support analysis, reflection, and research. RANGE OF WRITING **GRADES 9-12**

500 SHIELDED METAL ARC WELDING (SMAW).			Standard CC.3.5.9-10.I AND Standard CC.3.5.11- 12.I. Write routinely over extended time frames and shorter time frames for a range of tasks, purposes and audiencesetc.
501 Perform safety inspections of SMAW equipment and accessories. 502 Make minor external repairs to SMAW equipment and accessories. 503 Set up and operate SMAW equipment. 504 Make fillet welds in all positions. 505 Make groove welds in all positions. 506 Pass performance test in all positions. 507 Perform qualification test.	CLUSTER: Manufacturing Career Cluster (Choose Standards) 1-2-3-4-5-6 PATHWAY(S) INCLUDE Production Career Pathway (Select Standards) 1-2-3-4-5	KEY IDEAS/DETAILS GRADES 9-10 Standard CC.3.5.9-10.A. Cite specific textual evidence, etc Standard CC.3.5.9-10B Determine the central ideas or conclusions of a text; etc Standard CC.3.5.9-10.C Follow precisely a complex multistep procedure, etc KEY IDEAS/DETAILS GRADES 11-12 Standard CC.3.5.11-12A Cite specific textual evidence, etc Standard CC.3.5.11-12.B. Determine the central ideas or conclusions of a text; etc Standard CC.3.5.11-12.C. Follow precisely a complex multistep procedure, etc CRAFT & STRUCTURE GRADES 9-10 Standard CC.3.5.9-10.D. Determine the meaning of symbols, key terms, and other domain specific words Standard CC.3.5.9-10.E	TEXT TYPES AND PURPOSE GRADES 9-10 Standard CC.3.6.9-10.A Write arguments focused on discipline specific content. Standard CC.3.6.9-10.B Write informative or explanatory texts, including the narration of technical processes, etc. TEXT TYPES AND PURPOSE GRADES 11-12 Standard CC.3.6.11-12.A Write arguments focused on discipline specific content. Standard CC.3.6.11-12.B Write informative or explanatory texts, including the narration of technical processes, etc. PRODUCTION & DISTRIBUTION OF WRITING GRADES 9-10 Standard CC.3.6.9-10.C

Standard CC.3.5.9-10.F

Analyze the author's purpose in providing an explanation, describing a procedure...

CRAFT & STRUCTURE GRADES 11-12

Standard CC.3.5.11-12.D.

Determine the meaning of symbols, key terms, and other domain specific words...

Standard CC.3.5.11-12.E.

Analyze the structure of the relationships among concepts in a text.

Standard CC.3.5.11-12.F

Analyze the author's purpose in providing an explanation, describing a procedure...

INTEGRATE KNOWLEDGE/IDEAS

GRADES 9-10

Standard CC.3.5.9-10.G.

Translate quantitative or technical information expressed in a text into visual form (e.g. a table or chart).

Standard CC.3.5.9-10.H.

Assess the reasoning in a text to support the author's claim for solving a technical problem.

Standard CC.3.5.9-10.I.

Compare and contrast findings presented in a text to those from other sources, etc....

INTEGRATE KNOWLEDGE/IDEAS

GRADES 11-12

Standard CC.3.5.11-12.G.

Produce clear and coherent writing...appropriate to task, purpose, and audience.

Standard CC.3.6.9-10 D

Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.

Standard CC.3.6.9-10.E

Use technology, including the internet, to produce, publish, and update individual or shared writing products.

PRODUCTION & DISTRIBUTION OF WRITING

GRADES 11-12

Standard CC.3.6.11-12 C

Produce clear and coherent writing...appropriate to task, purpose, and audience.

Standard CC.3.6.9-10 D

Standard CC.3.6.11-

12.D.Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.

Standard CC.3.6.11-

12.E.Use technology, including the internet, to produce, publish, and

Integrate and evaluate multiple update individual or shared sources of information presented in writing products. diverse formats...to solve a RESEARCH problem. **GRADES 9-10** Standard CC.3.5.11-12.H. Standard CC.3.6.9-10.F. Evaluate the hypotheses, data, Conduct short and more analysis, and conclusions in a sustained research to technical text, verifying the data answer a question or solve when possible. a problem. Standard CC.3.5.11-12.I. Standard CC.3.6.9-Synthesize information from a 10.G.Gather relevant range of sources into a coherent information from multiple understanding. authoritative print and digital sources, following a RANGE OF READING standard format for citation. **GRADES 9-10 and 11-12** Standard CC.3.6.9-10.H. Standard CC.3.5.9-10.J AND Draw evidence from Standard CC.3.5.11-12.J. informational texts to By the end of grades 9-10, AND support analysis, reflection, 11-12, read and comprehend and research. technical texts independently and RESEARCH proficiently. **GRADES 11-12** Standard CC.3.6.11-12.F. Conduct short and more sustained research to answer a question or solve a problem. Standard CC.3.6.11-12.G.Gather relevant information from multiple authoritative print and digital sources, following a standard format for citation. Standard CC.3.6.11-12.H. Draw evidence from informational texts to support analysis, reflection, and research. RANGE OF WRITING **GRADES 9-12**

	GAS METAL ARC WELDING (GMAW). Perform safety inspections of GMAW equipment	CLUSTER:	KEY IDEAS/DETAILS	Standard CC.3.5.9-10.I AND Standard CC.3.5.11- 12.I. Write routinely over extended time frames and shorter time frames for a range of tasks, purposes and audiencesetc.	Standard 2.1.HS.F.1
	and accessories.	Manufacturing Career Cluster	GRADES 9-10	PURPOSE	Apply and extend the
	Make minor external repairs to GMAW equipment and accessories.	(Choose Standards)	Standard CC.3.5.9-10.A. Cite specific textual evidence,	GRADES 9-10 Standard CC.3.6.9-10.A	properties of exponents to solve problems with rational exponents.
604	Set up and operate GMAW equipment. Make fillet welds in all positions.	1-2-3-4-5-6	etc Standard CC.3.5.9-10B	Write arguments focused on discipline specific	Standard 2.1.HS.F.2
605	Make groove welds in all positions. Pass performance test.	PATHWAY(S) INCLUDE Production Career Pathway (Select Standards) 1-2-3-4-5	Determine the central ideas or conclusions of a text; etc Standard CC.3.5.9-10.C Follow precisely a complex multistep procedure, etc KEY IDEAS/DETAILS GRADES 11-12 Standard CC.3.5.11-12A Cite specific textual evidence, etc Standard CC.3.5.11-12.B. Determine the central ideas or conclusions of a text; etc Standard CC.3.5.11-12.C. Follow precisely a complex multistep procedure, etc CRAFT & STRUCTURE GRADES 9-10 Standard CC.3.5.9-10.D. Determine the meaning of symbols, key terms, and other domain specific words Standard CC.3.5.9-10.E	content. Standard CC.3.6.9-10.B Write informative or explanatory texts, including the narration of technical processes, etc. TEXT TYPES AND PURPOSE GRADES 11-12 Standard CC.3.6.11-12.A Write arguments focused on discipline specific content. Standard CC.3.6.11-12.B Write informative or explanatory texts, including the narration of technical processes, etc. PRODUCTION & DISTRIBUTION OF WRITING GRADES 9-10 Standard CC.3.6.9-10.C	Apply properties of rational and irrational numbers to solve real world or mathematical problems. Standard 2.1.HS.F.4 Use units as a way to understand problems and to guide the solution of multistep problems. Standard 2.1.HS.F.5 Choose a level of accuracy appropriate to limitations on measurement when reporting quantities. Standard 2.1.HS.F.6 Extend the knowledge of arithmetic operations and apply to complex numbers.

Standard CC.3.5.9-10.F

Analyze the author's purpose in providing an explanation, describing a procedure...

CRAFT & STRUCTURE GRADES 11-12

Standard CC.3.5.11-12.D.

Determine the meaning of symbols, key terms, and other domain specific words...

Standard CC.3.5.11-12.E.

Analyze the structure of the relationships among concepts in a text.

Standard CC.3.5.11-12.F

Analyze the author's purpose in providing an explanation, describing a procedure...

INTEGRATE KNOWLEDGE/IDEAS

GRADES 9-10

Standard CC.3.5.9-10.G.

Translate quantitative or technical information expressed in a text into visual form (e.g. a table or chart).

Standard CC.3.5.9-10.H.

Assess the reasoning in a text to support the author's claim for solving a technical problem.

Standard CC.3.5.9-10.I.

Compare and contrast findings presented in a text to those from other sources, etc....

INTEGRATE KNOWLEDGE/IDEAS

GRADES 11-12

Standard CC.3.5.11-12.G.

Produce clear and coherent writing...appropriate to task, purpose, and audience.

Standard CC.3.6.9-10 D

Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.

Standard CC.3.6.9-10.E

Use technology, including the internet, to produce, publish, and update individual or shared writing products.

PRODUCTION & DISTRIBUTION OF WRITING

GRADES 11-12

Standard CC.3.6.11-12 C

Produce clear and coherent writing...appropriate to task, purpose, and audience.

Standard CC.3.6.9-10 D

Standard CC.3.6.11-

12.D.Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.

Standard CC.3.6.11-

12.E.Use technology, including the internet, to produce, publish, and

Integrate and evaluate multiple update individual or shared sources of information presented in writing products. diverse formats...to solve a RESEARCH problem. **GRADES 9-10** Standard CC.3.5.11-12.H. Standard CC.3.6.9-10.F. Evaluate the hypotheses, data, Conduct short and more analysis, and conclusions in a sustained research to technical text, verifying the data answer a question or solve when possible. a problem. Standard CC.3.5.11-12.I. Standard CC.3.6.9-Synthesize information from a 10.G.Gather relevant information from multiple range of sources into a coherent understanding. authoritative print and digital sources, following a RANGE OF READING standard format for citation. **GRADES 9-10 and 11-12** Standard CC.3.6.9-10.H. Standard CC.3.5.9-10.J AND Draw evidence from Standard CC.3.5.11-12.J. informational texts to By the end of grades 9-10, AND support analysis, reflection, 11-12, read and comprehend and research. technical texts independently and RESEARCH proficiently. **GRADES 11-12** Standard CC.3.6.11-12.F. Conduct short and more sustained research to answer a question or solve a problem. Standard CC.3.6.11-12.G.Gather relevant information from multiple authoritative print and digital sources, following a standard format for citation. Standard CC.3.6.11-12.H. Draw evidence from informational texts to support analysis, reflection, and research. RANGE OF WRITING **GRADES 9-12**

700 FLUX CORED ARC WELDING (FCAW).			Standard CC.3.5.9-10.I AND Standard CC.3.5.11- 12.I. Write routinely over extended time frames and shorter time frames for a range of tasks, purposes and audiencesetc.
701 Perform safety inspections of Flux Cored Arc equipment and accessories. 702 Make minor external repairs to Flux Cored Arc equipment and accessories. 703 Set up and operate FCAW equipment. 704 Make fillet welds in all positions. 705 Pass performance test. 706 Demonstrate a groove weld in all positions.	CLUSTER: Manufacturing Career Cluster (Choose Standards) 1-2-3-4-5-6 PATHWAY(S) INCLUDE Production Career Pathway (Select Standards) 1-2-3-4-5	KEY IDEAS/DETAILS GRADES 9-10 Standard CC.3.5.9-10.A. Cite specific textual evidence, etc Standard CC.3.5.9-10B Determine the central ideas or conclusions of a text; etc Standard CC.3.5.9-10.C Follow precisely a complex multistep procedure, etc KEY IDEAS/DETAILS GRADES 11-12 Standard CC.3.5.11-12A Cite specific textual evidence, etc Standard CC.3.5.11-12.B. Determine the central ideas or conclusions of a text; etc Standard CC.3.5.11-12.C. Follow precisely a complex multistep procedure, etc CRAFT & STRUCTURE GRADES 9-10 Standard CC.3.5.9-10.D. Determine the meaning of symbols, key terms, and other domain specific words Standard CC.3.5.9-10.E	TEXT TYPES AND PURPOSE GRADES 9-10 Standard CC.3.6.9-10.A Write arguments focused on discipline specific content. Standard CC.3.6.9-10.B Write informative or explanatory texts, including the narration of technical processes, etc. TEXT TYPES AND PURPOSE GRADES 11-12 Standard CC.3.6.11-12.A Write arguments focused on discipline specific content. Standard CC.3.6.11-12.B Write informative or explanatory texts, including the narration of technical processes, etc. PRODUCTION & DISTRIBUTION OF WRITING GRADES 9-10 Standard CC.3.6.9-10.C

Standard CC.3.5.9-10.F

Analyze the author's purpose in providing an explanation, describing a procedure...

CRAFT & STRUCTURE GRADES 11-12

Standard CC.3.5.11-12.D.

Determine the meaning of symbols, key terms, and other domain specific words...

Standard CC.3.5.11-12.E.

Analyze the structure of the relationships among concepts in a text.

Standard CC.3.5.11-12.F

Analyze the author's purpose in providing an explanation, describing a procedure...

INTEGRATE KNOWLEDGE/IDEAS

GRADES 9-10

Standard CC.3.5.9-10.G.

Translate quantitative or technical information expressed in a text into visual form (e.g. a table or chart).

Standard CC.3.5.9-10.H.

Assess the reasoning in a text to support the author's claim for solving a technical problem.

Standard CC.3.5.9-10.I.

Compare and contrast findings presented in a text to those from other sources, etc....

INTEGRATE KNOWLEDGE/IDEAS

GRADES 11-12

Standard CC.3.5.11-12.G.

Produce clear and coherent writing...appropriate to task, purpose, and audience.

Standard CC.3.6.9-10 D

Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.

Standard CC.3.6.9-10.E

Use technology, including the internet, to produce, publish, and update individual or shared writing products.

PRODUCTION & DISTRIBUTION OF WRITING

GRADES 11-12

Standard CC.3.6.11-12 C

Produce clear and coherent writing...appropriate to task, purpose, and audience.

Standard CC.3.6.9-10 D

Standard CC.3.6.11-

12.D.Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.

Standard CC.3.6.11-

12.E.Use technology, including the internet, to produce, publish, and

Integrate and evaluate multiple update individual or shared sources of information presented in writing products. diverse formats...to solve a RESEARCH problem. **GRADES 9-10** Standard CC.3.5.11-12.H. Standard CC.3.6.9-10.F. Evaluate the hypotheses, data, Conduct short and more analysis, and conclusions in a sustained research to technical text, verifying the data answer a question or solve when possible. a problem. Standard CC.3.5.11-12.I. Standard CC.3.6.9-Synthesize information from a 10.G.Gather relevant information from multiple range of sources into a coherent understanding. authoritative print and digital sources, following a RANGE OF READING standard format for citation. **GRADES 9-10 and 11-12** Standard CC.3.6.9-10.H. Standard CC.3.5.9-10.J AND Draw evidence from Standard CC.3.5.11-12.J. informational texts to By the end of grades 9-10, AND support analysis, reflection, 11-12, read and comprehend and research. technical texts independently and RESEARCH proficiently. **GRADES 11-12** Standard CC.3.6.11-12.F. Conduct short and more sustained research to answer a question or solve a problem. Standard CC.3.6.11-12.G.Gather relevant information from multiple authoritative print and digital sources, following a standard format for citation. Standard CC.3.6.11-12.H. Draw evidence from informational texts to support analysis, reflection, and research. RANGE OF WRITING **GRADES 9-12**

800 801	GAS TUNGSTEN ARC WELDING (GTAW). Perform safety inspections of GTAW equipment and accessories.	CLUSTER: Manufacturing Career	KEY IDEAS/DETAILS GRADES 9-10	Standard CC.3.5.9-10.I AND Standard CC.3.5.11- 12.I. Write routinely over extended time frames and shorter time frames for a range of tasks, purposes and audiencesetc. TEXT TYPES AND PURPOSE	Standard 2.1.HS.F.2 Apply properties of
802 803 804 805 806 807 808	Make minor external repairs to GTAW equipment and accessories. Set up and operate GTAW equipment. Make fillet welds, in all positions, on ferrous materials. Pass performance test on ferrous materials. Set up and operate GTAW on nonferrous materials. Make fillet welds on nonferrous materials. Pass performance test on nonferrous materials.	Cluster (Choose Standards) 1-2-3-4-5-6 PATHWAY(S) INCLUDE Production Career Pathway (Select Standards) 1-2-3-4-5	Standard CC.3.5.9-10.A. Cite specific textual evidence, etc Standard CC.3.5.9-10B Determine the central ideas or conclusions of a text; etc Standard CC.3.5.9-10.C Follow precisely a complex multistep procedure, etc KEY IDEAS/DETAILS GRADES 11-12 Standard CC.3.5.11-12A Cite specific textual evidence, etc Standard CC.3.5.11-12.B. Determine the central ideas or conclusions of a text; etc Standard CC.3.5.11-12.C. Follow precisely a complex multistep procedure, etc CRAFT & STRUCTURE GRADES 9-10 Standard CC.3.5.9-10.D. Determine the meaning of symbols, key terms, and other domain specific words Standard CC.3.5.9-10.E	GRADES 9-10 Standard CC.3.6.9-10.A Write arguments focused on discipline specific content. Standard CC.3.6.9-10.B Write informative or explanatory texts, including the narration of technical processes, etc. TEXT TYPES AND PURPOSE GRADES 11-12 Standard CC.3.6.11-12.A Write arguments focused on discipline specific content. Standard CC.3.6.11-12.B Write informative or explanatory texts, including the narration of technical processes, etc. PRODUCTION & DISTRIBUTION OF WRITING GRADES 9-10 Standard CC.3.6.9-10.C	rational and irrational numbers to solve real world or mathematical problems. Standard 2.1.HS.F.4 Use units as a way to understand problems and to guide the solution of multistep problems. Standard 2.1.HS.F.5 Choose a level of accuracy appropriate to limitations on measurement when reporting quantities. Standard 2.1.HS.F.6 Extend the knowledge of arithmetic operations and apply to complex numbers.

Standard CC.3.5.9-10.F

Analyze the author's purpose in providing an explanation, describing a procedure...

CRAFT & STRUCTURE GRADES 11-12

Standard CC.3.5.11-12.D.

Determine the meaning of symbols, key terms, and other domain specific words...

Standard CC.3.5.11-12.E.

Analyze the structure of the relationships among concepts in a text.

Standard CC.3.5.11-12.F

Analyze the author's purpose in providing an explanation, describing a procedure...

INTEGRATE KNOWLEDGE/IDEAS

GRADES 9-10

Standard CC.3.5.9-10.G.

Translate quantitative or technical information expressed in a text into visual form (e.g. a table or chart).

Standard CC.3.5.9-10.H.

Assess the reasoning in a text to support the author's claim for solving a technical problem.

Standard CC.3.5.9-10.I.

Compare and contrast findings presented in a text to those from other sources, etc....

INTEGRATE KNOWLEDGE/IDEAS

GRADES 11-12

Standard CC.3.5.11-12.G.

Produce clear and coherent writing...appropriate to task, purpose, and audience.

Standard CC.3.6.9-10 D

Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.

Standard CC.3.6.9-10.E

Use technology, including the internet, to produce, publish, and update individual or shared writing products.

PRODUCTION & DISTRIBUTION OF WRITING

GRADES 11-12

Standard CC.3.6.11-12 C

Produce clear and coherent writing...appropriate to task, purpose, and audience.

Standard CC.3.6.9-10 D

Standard CC.3.6.11-

12.D.Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.

Standard CC.3.6.11-

12.E.Use technology, including the internet, to produce, publish, and

Integrate and evaluate multiple update individual or shared sources of information presented in writing products. diverse formats...to solve a RESEARCH problem. **GRADES 9-10** Standard CC.3.5.11-12.H. Standard CC.3.6.9-10.F. Evaluate the hypotheses, data, Conduct short and more analysis, and conclusions in a sustained research to technical text, verifying the data answer a question or solve when possible. a problem. Standard CC.3.5.11-12.I. Standard CC.3.6.9-Synthesize information from a 10.G.Gather relevant range of sources into a coherent information from multiple understanding. authoritative print and digital sources, following a RANGE OF READING standard format for citation. **GRADES 9-10 and 11-12** Standard CC.3.6.9-10.H. Standard CC.3.5.9-10.J AND Draw evidence from Standard CC.3.5.11-12.J. informational texts to By the end of grades 9-10, AND support analysis, reflection, 11-12, read and comprehend and research. technical texts independently and RESEARCH proficiently. **GRADES 11-12** Standard CC.3.6.11-12.F. Conduct short and more sustained research to answer a question or solve a problem. Standard CC.3.6.11-12.G.Gather relevant information from multiple authoritative print and digital sources, following a standard format for citation. Standard CC.3.6.11-12.H. Draw evidence from informational texts to support analysis, reflection, and research. RANGE OF WRITING **GRADES 9-12**

900 901 902 903 904	MANUAL OXYFUEL GAS CUTTING (OFC). Perform safety inspections of OFC equipment and accessories. Make minor external repairs to OFC equipment and accessories. Set up for manual OFC operations on steel. Operate manual OFC equipment.	CLUSTER: Manufacturing Career Cluster (Choose Standards) 1-2-3-4-5-6	KEY IDEAS/DETAILS GRADES 9-10 Standard CC.3.5.9-10.A. Cite specific textual evidence, etc Standard CC.3.5.9-10B	Standard CC.3.5.9-10.I AND Standard CC.3.5.11- 12.I. Write routinely over extended time frames and shorter time frames for a range of tasks, purposes and audiencesetc. TEXT TYPES AND PURPOSE GRADES 9-10 Standard CC.3.6.9-10.A Write arguments focused on discipline specific	Standard 2.1.HS.F.2 Apply properties of rational and irrational numbers to solve real world or mathematical problems.
905 906 907 908	Perform straight cutting operations on steel. Perform shape cutting operations on steel. Perform bevel cutting operations on steel. Perform piercing operations on steel.	PATHWAY(S) INCLUDE Production Career Pathway (Select Standards) 1-2-3-4-5	Determine the central ideas or conclusions of a text; etc Standard CC.3.5.9-10.C Follow precisely a complex multistep procedure, etc KEY IDEAS/DETAILS GRADES 11-12 Standard CC.3.5.11-12A Cite specific textual evidence, etc Standard CC.3.5.11-12.B. Determine the central ideas or conclusions of a text; etc Standard CC.3.5.11-12.C. Follow precisely a complex multistep procedure, etc CRAFT & STRUCTURE GRADES 9-10 Standard CC.3.5.9-10.D. Determine the meaning of symbols, key terms, and other domain specific words Standard CC.3.5.9-10.E	content. Standard CC.3.6.9-10.B Write informative or explanatory texts, including the narration of technical processes, etc. TEXT TYPES AND PURPOSE GRADES 11-12 Standard CC.3.6.11-12.A Write arguments focused on discipline specific content. Standard CC.3.6.11-12.B Write informative or explanatory texts, including the narration of technical processes, etc. PRODUCTION & DISTRIBUTION OF WRITING GRADES 9-10 Standard CC.3.6.9-10.C	Standard 2.1.HS.F.4 Use units as a way to understand problems and to guide the solution of multistep problems. Standard 2.1.HS.F.5 Choose a level of accuracy appropriate to limitations on measurement when reporting quantities. Standard 2.1.HS.F.6 Extend the knowledge of arithmetic operations and apply to complex numbers.

Standard CC.3.5.9-10.F

Analyze the author's purpose in providing an explanation, describing a procedure...

CRAFT & STRUCTURE GRADES 11-12

Standard CC.3.5.11-12.D.

Determine the meaning of symbols, key terms, and other domain specific words...

Standard CC.3.5.11-12.E.

Analyze the structure of the relationships among concepts in a text.

Standard CC.3.5.11-12.F

Analyze the author's purpose in providing an explanation, describing a procedure...

INTEGRATE KNOWLEDGE/IDEAS

GRADES 9-10

Standard CC.3.5.9-10.G.

Translate quantitative or technical information expressed in a text into visual form (e.g. a table or chart).

Standard CC.3.5.9-10.H.

Assess the reasoning in a text to support the author's claim for solving a technical problem.

Standard CC.3.5.9-10.I.

Compare and contrast findings presented in a text to those from other sources, etc....

INTEGRATE KNOWLEDGE/IDEAS

GRADES 11-12

Standard CC.3.5.11-12.G.

Produce clear and coherent writing...appropriate to task, purpose, and audience.

Standard CC.3.6.9-10 D

Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.

Standard CC.3.6.9-10.E

Use technology, including the internet, to produce, publish, and update individual or shared writing products.

PRODUCTION & DISTRIBUTION OF WRITING

GRADES 11-12

Standard CC.3.6.11-12 C

Produce clear and coherent writing...appropriate to task, purpose, and audience.

Standard CC.3.6.9-10 D

Standard CC.3.6.11-

12.D.Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.

Standard CC.3.6.11-

12.E.Use technology, including the internet, to produce, publish, and

Integrate and evaluate multiple update individual or shared sources of information presented in writing products. diverse formats...to solve a RESEARCH problem. **GRADES 9-10** Standard CC.3.5.11-12.H. Standard CC.3.6.9-10.F. Evaluate the hypotheses, data, Conduct short and more analysis, and conclusions in a sustained research to technical text, verifying the data answer a question or solve when possible. a problem. Standard CC.3.5.11-12.I. Standard CC.3.6.9-Synthesize information from a 10.G.Gather relevant range of sources into a coherent information from multiple understanding. authoritative print and digital sources, following a RANGE OF READING standard format for citation. **GRADES 9-10 and 11-12** Standard CC.3.6.9-10.H. Standard CC.3.5.9-10.J AND Draw evidence from Standard CC.3.5.11-12.J. informational texts to By the end of grades 9-10, AND support analysis, reflection, 11-12, read and comprehend and research. technical texts independently and RESEARCH proficiently. **GRADES 11-12** Standard CC.3.6.11-12.F. Conduct short and more sustained research to answer a question or solve a problem. Standard CC.3.6.11-12.G.Gather relevant information from multiple authoritative print and digital sources, following a standard format for citation. Standard CC.3.6.11-12.H. Draw evidence from informational texts to support analysis, reflection, and research. RANGE OF WRITING **GRADES 9-12**

1000 MECHANIZED OXYFUEL GAS CUTTING (OFC).			Standard CC.3.5.9-10.I AND Standard CC.3.5.11- 12.I. Write routinely over extended time frames and shorter time frames for a range of tasks, purposes and audiencesetc.
1001 Perform safety inspections of mechanized OFC equipment and accessories. 1002 Make minor external repairs to mechanized OFC equipment and accessories. 1003 Set up and operate OFC equipment on steel. 1004 Perform straight cutting operations on steel. 1005 Perform bevel cutting operations on steel.	CLUSTER: Manufacturing Career Cluster (Choose Standards) 1-2-3-4-5-6 PATHWAY(S) INCLUDE Production Career Pathway (Select Standards) 1-2-3-4-5	KEY IDEAS/DETAILS GRADES 9-10 Standard CC.3.5.9-10.A. Cite specific textual evidence, etc Standard CC.3.5.9-10B Determine the central ideas or conclusions of a text; etc Standard CC.3.5.9-10.C Follow precisely a complex multistep procedure, etc KEY IDEAS/DETAILS GRADES 11-12 Standard CC.3.5.11-12A Cite specific textual evidence, etc Standard CC.3.5.11-12.B. Determine the central ideas or conclusions of a text; etc Standard CC.3.5.11-12.C. Follow precisely a complex multistep procedure, etc CRAFT & STRUCTURE GRADES 9-10 Standard CC.3.5.9-10.D. Determine the meaning of symbols, key terms, and other domain specific words Standard CC.3.5.9-10.E	TEXT TYPES AND PURPOSE GRADES 9-10 Standard CC.3.6.9-10.A Write arguments focused on discipline specific content. Standard CC.3.6.9-10.B Write informative or explanatory texts, including the narration of technical processes, etc. TEXT TYPES AND PURPOSE GRADES 11-12 Standard CC.3.6.11-12.A Write arguments focused on discipline specific content. Standard CC.3.6.11-12.B Write informative or explanatory texts, including the narration of technical processes, etc. PRODUCTION & DISTRIBUTION OF WRITING GRADES 9-10 Standard CC.3.6.9-10.C

Standard CC.3.5.9-10.F

Analyze the author's purpose in providing an explanation, describing a procedure...

CRAFT & STRUCTURE GRADES 11-12

Standard CC.3.5.11-12.D.

Determine the meaning of symbols, key terms, and other domain specific words...

Standard CC.3.5.11-12.E.

Analyze the structure of the relationships among concepts in a text

Standard CC.3.5.11-12.F

Analyze the author's purpose in providing an explanation, describing a procedure...

INTEGRATE KNOWLEDGE/IDEAS

GRADES 9-10

Standard CC.3.5.9-10.G.

Translate quantitative or technical information expressed in a text into visual form (e.g. a table or chart).

Standard CC.3.5.9-10.H.

Assess the reasoning in a text to support the author's claim for solving a technical problem.

Standard CC.3.5.9-10.I.

Compare and contrast findings presented in a text to those from other sources, etc....

INTEGRATE KNOWLEDGE/IDEAS

IDEAG

GRADES 11-12 Standard CC.3.5.11-12.G.

Produce clear and coherent writing...appropriate to task, purpose, and audience.

Standard CC.3.6.9-10 D

Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.

Standard CC.3.6.9-10.E

Use technology, including the internet, to produce, publish, and update individual or shared writing products.

PRODUCTION & DISTRIBUTION OF WRITING

GRADES 11-12

Standard CC.3.6.11-12 C

Produce clear and coherent writing...appropriate to task, purpose, and audience.

Standard CC.3.6.9-10 D

Standard CC.3.6.11-

12.D.Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.

Standard CC.3.6.11-

12.E.Use technology, including the internet, to produce, publish, and

Integrate and evaluate multiple update individual or shared sources of information presented in writing products. diverse formats...to solve a RESEARCH problem. **GRADES 9-10** Standard CC.3.5.11-12.H. Standard CC.3.6.9-10.F. Evaluate the hypotheses, data, Conduct short and more analysis, and conclusions in a sustained research to technical text, verifying the data answer a question or solve when possible. a problem. Standard CC.3.5.11-12.I. Standard CC.3.6.9-Synthesize information from a 10.G.Gather relevant information from multiple range of sources into a coherent understanding. authoritative print and digital sources, following a RANGE OF READING standard format for citation. **GRADES 9-10 and 11-12** Standard CC.3.6.9-10.H. Standard CC.3.5.9-10.J AND Draw evidence from Standard CC.3.5.11-12.J. informational texts to By the end of grades 9-10, AND support analysis, reflection, 11-12, read and comprehend and research. technical texts independently and RESEARCH proficiently. **GRADES 11-12** Standard CC.3.6.11-12.F. Conduct short and more sustained research to answer a question or solve a problem. Standard CC.3.6.11-12.G.Gather relevant information from multiple authoritative print and digital sources, following a standard format for citation. Standard CC.3.6.11-12.H. Draw evidence from informational texts to support analysis, reflection, and research. RANGE OF WRITING **GRADES 9-12**

1100 MANUAL PLASMA ARC CUTTING (PAC).			Standard CC.3.5.9-10.I AND Standard CC.3.5.11- 12.I. Write routinely over extended time frames and shorter time frames for a range of tasks, purposes and audiencesetc.
	CLUSTER: Manufacturing Career Cluster (Choose Standards) 1-2-3-4-5-6 PATHWAY(S) INCLUDE Production Career Pathway (Select Standards) 1-2-3-4-5	KEY IDEAS/DETAILS GRADES 9-10 Standard CC.3.5.9-10.A. Cite specific textual evidence, etc Standard CC.3.5.9-10B Determine the central ideas or conclusions of a text; etc Standard CC.3.5.9-10.C Follow precisely a complex multistep procedure, etc KEY IDEAS/DETAILS GRADES 11-12 Standard CC.3.5.11-12A Cite specific textual evidence, etc Standard CC.3.5.11-12.B. Determine the central ideas or conclusions of a text; etc Standard CC.3.5.11-12.C. Follow precisely a complex multistep procedure, etc CRAFT & STRUCTURE GRADES 9-10 Standard CC.3.5.9-10.D. Determine the meaning of symbols, key terms, and other domain specific words	TEXT TYPES AND PURPOSE GRADES 9-10 Standard CC.3.6.9-10.A Write arguments focused on discipline specific content. Standard CC.3.6.9-10.B Write informative or explanatory texts, including the narration of technical processes, etc. TEXT TYPES AND PURPOSE GRADES 11-12 Standard CC.3.6.11-12.A Write arguments focused on discipline specific content. Standard CC.3.6.11-12.B Write informative or explanatory texts, including the narration of technical processes, etc. PRODUCTION & DISTRIBUTION OF WRITING GRADES 9-10 Standard CC.3.6.9-10.C

Standard CC.3.5.9-10.F

Analyze the author's purpose in providing an explanation, describing a procedure...

CRAFT & STRUCTURE GRADES 11-12

Standard CC.3.5.11-12.D.

Determine the meaning of symbols, key terms, and other domain specific words...

Standard CC.3.5.11-12.E.

Analyze the structure of the relationships among concepts in a text.

Standard CC.3.5.11-12.F

Analyze the author's purpose in providing an explanation, describing a procedure...

INTEGRATE KNOWLEDGE/IDEAS

GRADES 9-10

Standard CC.3.5.9-10.G.

Translate quantitative or technical information expressed in a text into visual form (e.g. a table or chart).

Standard CC.3.5.9-10.H.

Assess the reasoning in a text to support the author's claim for solving a technical problem.

Standard CC.3.5.9-10.I.

Compare and contrast findings presented in a text to those from other sources, etc....

INTEGRATE KNOWLEDGE/IDEAS

GRADES 11-12

Standard CC.3.5.11-12.G.

Produce clear and coherent writing...appropriate to task, purpose, and audience.

Standard CC.3.6.9-10 D

Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.

Standard CC.3.6.9-10.E

Use technology, including the internet, to produce, publish, and update individual or shared writing products.

PRODUCTION & DISTRIBUTION OF WRITING

GRADES 11-12

Standard CC.3.6.11-12 C

Produce clear and coherent writing...appropriate to task, purpose, and audience.

Standard CC.3.6.9-10 D

Standard CC.3.6.11-

12.D.Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.

Standard CC.3.6.11-

12.E.Use technology, including the internet, to produce, publish, and

Integrate and evaluate multiple update individual or shared sources of information presented in writing products. diverse formats...to solve a RESEARCH problem. **GRADES 9-10** Standard CC.3.5.11-12.H. Standard CC.3.6.9-10.F. Evaluate the hypotheses, data, Conduct short and more analysis, and conclusions in a sustained research to technical text, verifying the data answer a question or solve when possible. a problem. Standard CC.3.5.11-12.I. Standard CC.3.6.9-Synthesize information from a 10.G.Gather relevant range of sources into a coherent information from multiple understanding. authoritative print and digital sources, following a RANGE OF READING standard format for citation. **GRADES 9-10 and 11-12** Standard CC.3.6.9-10.H. Standard CC.3.5.9-10.J AND Draw evidence from Standard CC.3.5.11-12.J. informational texts to By the end of grades 9-10, AND support analysis, reflection, 11-12, read and comprehend and research. technical texts independently and RESEARCH proficiently. **GRADES 11-12** Standard CC.3.6.11-12.F. Conduct short and more sustained research to answer a question or solve a problem. Standard CC.3.6.11-12.G.Gather relevant information from multiple authoritative print and digital sources, following a standard format for citation. Standard CC.3.6.11-12.H. Draw evidence from informational texts to support analysis, reflection, and research. RANGE OF WRITING **GRADES 9-12**

 1200 MANUAL AIR CARBON ARC CUTTING (A). 1201 Perform safety inspections of CAC-A equipmer accessories. 1202 Make minor external repairs to CAC-A equipm accessories. 1203 Set up and operate manual CAC-A gouging and cutting operations on steel. 1204 Perform gouging and scarfing operations, to rer base and weld metal, on steel. 	ent and ent and ent and ent and (CLUSTER: Manufacturing Career Cluster (Choose Standards) 1-2-3-4-5-6	KEY IDEAS/DETAILS GRADES 9-10 Standard CC.3.5.9-10.A. Cite specific textual evidence, etc Standard CC.3.5.9-10B Determine the central ideas or conclusions of a text; etc Standard CC.3.5.9-10.C Follow precisely a complex	Standard CC.3.5.9-10.I AND Standard CC.3.5.11- 12.I. Write routinely over extended time frames and shorter time frames for a range of tasks, purposes and audiencesetc. TEXT TYPES AND PURPOSE GRADES 9-10 Standard CC.3.6.9-10.A Write arguments focused on discipline specific content. Standard CC.3.6.9-10.B Write informative or explanatory texts, including
	(Select Standards) 1-2-3-4-5	multistep procedure, etc KEY IDEAS/DETAILS GRADES 11-12 Standard CC.3.5.11-12A Cite specific textual evidence, etc Standard CC.3.5.11-12.B. Determine the central ideas or conclusions of a text; etc Standard CC.3.5.11-12.C. Follow precisely a complex multistep procedure, etc CRAFT & STRUCTURE GRADES 9-10 Standard CC.3.5.9-10.D. Determine the meaning of symbols, key terms, and other domain specific words Standard CC.3.5.9-10.E	the narration of technical processes, etc. TEXT TYPES AND PURPOSE GRADES 11-12 Standard CC.3.6.11-12.A Write arguments focused on discipline specific content. Standard CC.3.6.11-12.B Write informative or explanatory texts, including the narration of technical processes, etc. PRODUCTION & DISTRIBUTION OF WRITING GRADES 9-10 Standard CC.3.6.9-10.C

Standard CC.3.5.9-10.F

Analyze the author's purpose in providing an explanation, describing a procedure...

CRAFT & STRUCTURE GRADES 11-12

Standard CC.3.5.11-12.D.

Determine the meaning of symbols, key terms, and other domain specific words...

Standard CC.3.5.11-12.E.

Analyze the structure of the relationships among concepts in a text.

Standard CC.3.5.11-12.F

Analyze the author's purpose in providing an explanation, describing a procedure...

INTEGRATE KNOWLEDGE/IDEAS

GRADES 9-10

Standard CC.3.5.9-10.G.

Translate quantitative or technical information expressed in a text into visual form (e.g. a table or chart).

Standard CC.3.5.9-10.H.

Assess the reasoning in a text to support the author's claim for solving a technical problem.

Standard CC.3.5.9-10.I.

Compare and contrast findings presented in a text to those from other sources, etc....

INTEGRATE KNOWLEDGE/IDEAS

GRADES 11-12

Standard CC.3.5.11-12.G.

Produce clear and coherent writing...appropriate to task, purpose, and audience.

Standard CC.3.6.9-10 D

Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.

Standard CC.3.6.9-10.E

Use technology, including the internet, to produce, publish, and update individual or shared writing products.

PRODUCTION & DISTRIBUTION OF WRITING

GRADES 11-12

Standard CC.3.6.11-12 C

Produce clear and coherent writing...appropriate to task, purpose, and audience.

Standard CC.3.6.9-10 D

Standard CC.3.6.11-

12.D.Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.

Standard CC.3.6.11-

12.E.Use technology, including the internet, to produce, publish, and

Integrate and evaluate multiple update individual or shared sources of information presented in writing products. diverse formats...to solve a RESEARCH problem. **GRADES 9-10** Standard CC.3.5.11-12.H. Standard CC.3.6.9-10.F. Evaluate the hypotheses, data, Conduct short and more analysis, and conclusions in a sustained research to technical text, verifying the data answer a question or solve when possible. a problem. Standard CC.3.5.11-12.I. Standard CC.3.6.9-Synthesize information from a 10.G.Gather relevant range of sources into a coherent information from multiple understanding. authoritative print and digital sources, following a RANGE OF READING standard format for citation. **GRADES 9-10 and 11-12** Standard CC.3.6.9-10.H. Standard CC.3.5.9-10.J AND Draw evidence from Standard CC.3.5.11-12.J. informational texts to By the end of grades 9-10, AND support analysis, reflection, 11-12, read and comprehend and research. technical texts independently and RESEARCH proficiently. **GRADES 11-12** Standard CC.3.6.11-12.F. Conduct short and more sustained research to answer a question or solve a problem. Standard CC.3.6.11-12.G.Gather relevant information from multiple authoritative print and digital sources, following a standard format for citation. Standard CC.3.6.11-12.H. Draw evidence from informational texts to support analysis, reflection, and research. RANGE OF WRITING **GRADES 9-12**

		Standard CC.3.5.9-10.I AND Standard CC.3.5.11- 12.I. Write routinely over extended time frames and shorter time frames for a range of tasks, purposes and audiencesetc.	
1300 RESERVED.			
1301 RESERVED 1302 RESERVED	CLUSTER: Manufacturing Career Cluster (Choose Standards) 1-2-3-4-5-6		
	PATHWAY(S) INCLUDE		
	Production Career Pathway (Select Standards) 1-2-3-4-5		