

Agriculture Construction Crosswalk

A crosswalk provides educators with a list of benchmark statements aligned to Common Core and national content area standards for a given course or program. The Missouri Agriculture Construction Crosswalk lists a sequence of content, organized into distinct units of instruction.

	Common Core Standards	National Standards (AFNR)	Activities	Enhancements
A. Arc Welding				
1. List and demonstrate the safety procedures for arc welding.	RST.11-12.7 SL.11-12.4			
2. Identify the various types of metals and their properties.	RST.11-12.7			
3. Prepare metals for welding by cutting, grinding, and/or cleaning.	RST.11-12.3 RST.11-12.7 G-CO-1 G-CO-6 G-CO-7 G-CO – 12 G-GMD-4 G-MG-1 G-MG-3			
4. Weld in all positions with stick welder [Shielded Metal Arc Welding].	G-CO-1 G-CO-6 G-CO-7 G-CO – 12 G-GMD-4 G-MG-1 G-MG-3 RST.11-12.3 RST.11-12.7			
5. Weld in all positions with MIG welder [Gas Metal Arc Welding].	G-CO.1 G-CO.6 G-CO.7			

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	G-CO.12 G-GMD.4 G-MG.1 G-MG.3 RST.11-12.3 RST.11-12.7			
6. Weld in all positions with TIG welder [Gas Tungsten Arc welding].	G-CO.1 G-CO.6 G-CO.7 G-CO.12 G-GMD.4 G-MG.1 G-MG.3 RST.11-12.3 RST.11-12.7			
7. "Hardsurface" areas where extensive wear may occur.	G-CO.1 G-CO.6 G-CO.7 G-CO.12 G-GMD.4 G-MG.1 G-MG.3 RST.11-12.3 RST.11-12.7			
8. Weld cast iron.	G-CO.1 G-CO.6 G-CO.7 G-CO.12 G-GMD.4 G-MG.1 G-MG.3 RST.11-12.3 RST.11-12.7			

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9. Weld pipe.	G-CO.1 G-CO.6 G-CO.7 G-CO.12 G-GMD.4 G-MG.1 G-MG.3 RST.11-12.3 RST.11-12.7			
10. Apply principles of arc welding by performing common welds, identifying welding equipment, and answering welding-related questions.	G-CO.1 G-CO.6 G-CO.7 G-CO.12 G-GMD.4 G-MG.1 G-MG.3 RST.11-12.3 RST.11-12.7 SL.11-12.4			
B. Finishing				
1. Prepare surfaces for finishing.	N-Q.1 N-Q.3 RST.11-12.3 RST.11-12.4 L.11-12.6			
2. Select the primer to use before painting the surface.	N-Q.1 N-Q.3 RST.11-12.3 RST.11-12.4 L.11-12.6			
3. Select the paint to use in the finishing operation.	N-Q.1 N-Q.3 RST.11-12.3 RST.11-12.4			
4. List the steps for cleanup after	RST.11-12.3			

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finishing operation is complete.	RST.11-12.4 L.11-12.6 WHST.11-12.2			
5. Apply principles of painting by preparing, priming, and finishing a project.	N-Q.1 N-Q.3 RST.11-12.3 RST.11-12.4 RST.11-12.9 L.11-12.6			
C. Metals				
1. Select metals by design and strength.	N-Q.1 N-Q.2 N-Q.3 RST.11-12.3 RST.11-12.4 RST.11-12.9 L.11-12.6			
2. Explain how construction metal is dimensioned.	N-Q.1 N-Q.2 N-Q.3 G-CO.6 G-CO.7 G-CO.12 G-MG.1 G-MG.3 G-GMD.4 RST.11-12.4 RST.11-12.9 L.11-12.6 SL.11-12.4			
3. Remove stress risers.	N-Q.1 N-Q.2 N-Q.3 G-CO.6 G-CO.7 G-CO.12			

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	G-MG.1 G-MG.3 G-GMD.4 RST.11-12.3 RST.11-12.4 L.11-12.6			
4. Identify common metal fasteners.	RST.11-12.4 RST.11-12.9 L.11-12.6			
5. Identify the hardness grade of a bolt.	N-Q.1 N-Q.2 N-Q.3 RST.11-12.4 RST.11-12.9 L.11-12.6			
6. Control heat distortion of metals.	L.11-12.6			
7. Assemble work using proper locks and fasteners.	N-Q.1 N-Q.2 N-Q.3 G-CO.6 G-CO.7 G-CO.12 G-MG.1 G-MG.3 G-GMD.4 RST.11-12.3 RST.11-12.4 RST.11-12.9 L.11-12.6			
8. Use heat to shape metals.	N-Q.1 N-Q.2 N-Q.3 G-CO.6 G-CO.7 G-CO.12 G-MG.1			

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	G-MG.3 G-GMD.4 RST.11-12.3 RST.11-12.4 RST.11-12.9 L.11-12.6			
9. Use tap and die set to do threading.	N-Q.1 N-Q.2 N-Q.3 G-CO.6 G-CO.7 G-CO.12 G-MG.1 G-MG.3 G-GMD.4 RST.11-12.3 RST.11-12.4 RST.11-12.9 L.11-12.6			
10. List steps used to control crystallization in tempering, annealing, hardening, wrinkle bending, normalizing, and welding.	N-Q.1 N-Q.2 N-Q.3 G-CO.6 G-CO.7 G-CO.12 G-MG.1 G-MG.3 G-GMD.4 RST.11-12.4 RST.11-12.9 L.11-12.6 WHST.11-12.2			
11. Apply basic metalworking skills by constructing an appropriate metalworking project.	N-Q.1 N-Q.2 N-Q.3 G-CO.6 G-CO.7			

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	G-CO.12 G-MG.1 G-MG.3 G-GMD.4 RST.11-12.3 RST.11-12.4 RST.11-12.9 L.11-12.6			
D. Oxygas and Other Cutting				
1. List and demonstrate the safety procedures required for using oxy-acetylene equipment.	RST.11-12.9 L.11-12.6 SL.11-12.4 WHST.11-12.2			
2. Perform in order the complete procedure for lighting, adjusting the flame, and shutdown of the torch.	RST.11-12.9 L.11-12.6 SL.11-12.4			
3. Select appropriate tip for the job to be performed.	RST.11-12.9			
4. Weld in all positions with oxy-gas welder.	G-CO.1 G-CO.6 G-CO.7 G-CO.12 G-MG.1 G-MG.3 G-GMD.4 RST.11-12.3 RST.11-12.9			
5. Perform a “hardsurfacing” operation.	RST.11-12.9 SL.11-12.4			
6. Weld cast iron using rod and flux.	G-CO.1 G-CO.6 G-CO.7 G-CO.12 G-MG.1 G-MG.3			

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	G-GMD.4 RST.11-12.3 RST.11-12.9			
7. Perform a braze weld operation	G-CO.1 G-CO.6 G-CO.7 G-CO.12 G-MG.1 G-MG.3 G-GMD.4 RST.11-12.9 SL.11-12.4			
8. Perform cutting with oxy-gas.	RST.11-12.9 SL.11-12.4			
9. Cut metal using plasma arc cutting processes.	G-CO.1 G-CO.6 G-CO.7 G-CO.12 G-MG.1 G-MG.3 G-GMD.4 RST.11-12.9			
10. Apply principles of oxy-gas cutting and welding and other processes, such as air carbon-arc cutting and plasma-arc cutting, by using the equipment to perform welds and cuts, identifying welding and cutting equipment, and answering questions about related equipment and procedures.	G-CO.1 G-CO.6 G-CO.7 G-CO.12 G-MG.1 G-MG.3 G-GMD.4 RST.11-12.9 L.11-12.6 SL.11-12.4			
E. Woodworking				
1. Distinguish common woods used in agricultural construction.	RST.11-12.4 RST.11-12.9 L.11-12.6			

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2. Select the proper fastener for a specific job.				
3. List the actual and nominal dimensions of common construction lumber.	N-Q.1 N-Q.2 N-Q.3 RST.11-12.9 WHST.11-12.2			
4. Use hand woodworking tools.				
5. Use power woodworking tools.				
6. Select preservatives.				
7. Apply basic woodworking skills to make an appropriate woodworking project.	N-Q.1 N-Q.2 N-Q.3 G-CO.6 G-CO.7 G-CO.12 G-MG.1 G-MG.3 G-GMD.4 RST.11-12.3 RST.11-12.4 RST.11-12.9 L.11-12.6			
F. Construction Project				
1. List the safety procedures for project construction.	L.11-12.6 WHST.11-12.2			
2. Select project and design a project plan.	WHST.11-12.2			
3. Develop a bill of materials and a projected cost list.	N-Q.1 N-Q.2 N-Q.3			
4. List tools needed to complete a project and list safety precautions.	L.11-12.6 WHST.11-12.2			
5. Determine the time frame for completion of a project.				

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6. Interpret a project construction plan.	RST.11-12.2 RST.11-12.4 RST.11-12.9			
7. Lay out and prepare materials for cutting.				
8. Determine construction design for proper hitching and balancing.	G-CO.1 G-CO.6 G-CO.7 G-CO.12 G-GMD.4 G-MG.1 G-MG.3			
9. Determine construction design for legal specifications: width, length, weight, etc.	G-CO.1 G-CO.6 G-CO.7 G-CO.12 G-GMD.4 G-MG.1 G-MG.3			
10. Identify and correct project defects by approved methods.	G-CO.1 G-CO.6 G-CO.7 G-CO.12 G-GMD.4 G-MG.1 G-MG.3 RST.11-12.3			
11. Perform assembly procedures.	G-CO.1 G-CO.6 G-CO.7 G-CO.12 G-GMD.4 G-MG.1 G-MG.3 SL.11-12.4			
12. Describe why a project should	L.11-12.6			

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have a finish.	SL.11-12.4			
13. Determine actual cost of materials and labor for project.	N-Q.1 N-Q.2 N-Q.3			
14. Use hand and power tools in completing a project.				
15. Demonstrate an understanding of the skills and procedures necessary to build a project by selecting an appropriate project; devising elevation drawings, a bill of materials, and a plan of procedure for the project; and applying their plan to complete the project within the allotted time.	N-Q.1 N-Q.2 N-Q.3 G-CO.1 G-CO.6 G-CO.7 G-CO.12 G-GMD.4 G-MG.1 G-MG.3 L.11-12.6 RST.11-12.9 WHST.11-12.2			

Codes for Common Core Mathematics are:

- N = Number and Quantity
- A = Algebra
- F = Functions
- G = Geometry
- S = Statistics and Probability

Codes for Common Core English Language Arts and Literacy are:

- RL = Reading for Literature
- RI = Reading for Informational Text
- RST = Reading for Literacy in Science and Technical Subjects

- RH = Reading for Literacy in History/Social Studies
- W = Writing
- WHST = Writing for Literacy in History/Social Studies, Science, and Technical Subjects
- SL = Speaking and Listening
- L = Language