

Academic Credit for Career and Technical Education Coursework

**Procedural Recommendations for Application Submissions to the
Department of Education and State Board of Education**



Nevada Department of Education
Office of Career Readiness, Adult Learning, and Education Options
755 N. Roop Street, Suite 201
Carson City, NV 89701
(775) 687-7300

July 2022

**Checklist for Application Packet to be sent to the
State Board of Education Requesting Academic Credit for CTE course(s):**

- Submit the title of the career and technical education (CTE) course(s) and a statement of academic credit to be granted.
- Submit the letter of appointment/assignment of the committee members (at least one qualified classroom academic teacher and one qualified classroom CTE teacher).
- Submit written curriculum and alignment documents verifying the alignment of the CTE course standards with the academic standards to be taught in the CTE course(s).
- Copy of the minutes from the local Board of Trustees Meeting for State Board Approval OR a letter from school official stating the application has been approved by the local Board of Education.
- Submit a copy of the student notification letter per NAC (Ref.389.72, Sec. 5).

Curriculum Alignment Document

Directions: The curriculum must demonstrate how the CTE coursework aligns to the Nevada Academic Content Standards.

- 1) Identify the proposed academic credit (English*, Math, Science, or Health)
*Contact the CTE office if you have questions regarding English credit.
- 2) Provide the name of the academic course (e.g., Life Science; Physical Science)
- 3) Provide the name of the CTE course(s) (e.g., Principles of Agriculture, Food, and Natural Resources and Animal Science; Biomedical I, Biomedical II, and Biomedical III)

Proposed Academic Credit (Check One) Math Science Health

Name of Academic Course:

Name of CTE Course(s):

Total Number of Academic Credits:

Total Number of CTE Credits:

Classroom Academic Teacher Name:

Classroom Academic Teacher Subject:

Classroom CTE Teacher Name:

Classroom CTE Teacher Subject:

Math Standards Alignment Document

Insert the CTE Performance Indicator(s) in the right-side column which will meet the Math standard indicated in the left-side column. **Below is an example from the Accounting and Finance I course.**

<i>Seeing Structure in Expressions (A-SSE)</i>	<i>CTE Performance Indicators (including text description)</i>
A. <i>Interpret the structure of expressions.</i>	<i>2.1.2 Demonstrate the effects of transactions on the accounting equations. (Chapter 1: Accounting and Finance text, "Deconstruct Equations" assignment, end of chapter)</i>

Please enter appropriate/applicable alignments in the table below.

Nevada Academic Math Standards (DCI)	CTE Performance Indicators (including text description)
The Real Number System (N-M)	
A. Extend the properties of exponents to rational exponents.	
B. Use properties of rational and irrational numbers.	
Quantities (N-Q)	
A. Reason quantitatively and use units to solve problems.	
The Complex Number System (N-CN)	
A. Perform arithmetic operations with complex numbers.	
B. Represent complex numbers and their operations on the complex plane.	
C. Use complex numbers in polynomial identities and quantities.	
Vector and Matrix Quantities (N-VM)	
A. Represent and model with vector quantities.	
B. Perform operations on vectors.	

Nevada Academic Math Standards (DCI)	CTE Performance Indicators (including text description)
C. Perform Operations on matrices and use matrices in applications.	
Seeing Structure in Expressions (A-SSE)	
B. Interpret the structure of expressions.	
C. Write expressions in equivalent forms to solve problems.	
Arithmetic with Polynomials and Rational Expressions (A-APR)	
A. Perform arithmetic operations on polynomials.	
B. Understand the relationship between zeros and factors of polynomials.	
C. Use polynomial identities to solve problems.	
D. Rewrite rational expressions.	
Creating Equations (A-CED)	
A. Create equations that describe numbers or relationships.	
Reasoning with Equations and Inequalities (A-REI)	
A. Understand solving equations as a process of reasoning and explain the reasoning.	
B. Solve equations and inequalities in one variable.	
C. Solve systems of equations.	

Nevada Academic Math Standards (DCI)	CTE Performance Indicators (including text description)
D. Represent and solve equations and inequalities graphically.	
Interpreting Functions (F-IF)	
A. Understand the concept of a function and use function notation.	
B. Interpret functions that arise in applications in terms of the context.	
C. Analyze functions using different representations.	
Building Functions (F-BF)	
A. Build a function that models a relationship between two quantities.	
B. Build new functions from existing functions.	
Linear, Quadratic, and Exponential Models (F-LE)	
A. Construct and compare linear, quadratic, and exponential models and solve problems.	
B. Interpret expressions for functions in terms of the situation they model.	
Trigonometric Functions (F-TF)	
A. Extend the domain of trigonometric functions using the unit circle.	
B. Model periodic phenomena with trigonometric functions.	
C. Prove and apply trigonometric identities.	

Nevada Academic Math Standards (DCI)	CTE Performance Indicators (including text description)
Congruence (G-CO)	
A. Experiment with transformations in the plane.	
B. Understand congruence in terms of rigid motions.	
C. Prove geometric theorems.	
D. Make geometric constructions.	
Similarity, Right Triangles, and Trigonometry (G-SRT)	
A. Understand similarity in terms of similarity transformations.	
B. Prove theorems involving similarity.	
C. Define trigonometric ratios and solve problems involving right triangles.	
D. Apply trigonometry to general triangles.	
Circles (G-C)	
A. Understand and apply theorems about circles.	
B. Find arc lengths and areas of sectors of circles.	
Expressing Geometric Properties with Equations (G-GPE)	
A. Translate between the geometric description and the equation for a conic section.	

Nevada Academic Math Standards (DCI)	CTE Performance Indicators (including text description)
B. Use coordinates to prove simple geometric theorems algebraically.	
Geometric Measurement and Dimension (G-GMD)	
A. Explain volume formulas and use them to solve problems.	
B. Visualize relationships between two-dimensional and three-dimensional objects.	
Modeling with Geometry (G-MG)	
A. Apply geometric concepts in modeling situations.	
Interpreting Categorical and Quantitative Data (S-ID)	
A. Summarize, represent, and interpret data on a single count or measurement variable.	
B. Summarize, represent, and interpret data on two categorical and quantitative variables.	
C. Interpret linear models.	
Making Inferences and Justifying Conclusions (S-IC)	
A. Understand and evaluate random processes underlying statistical experiments.	
B. Make inferences and justify conclusions from sample surveys, experiments, and observational studies.	
Conditional Probability and Rules of Probability (S-CP)	
A. Understand independence and conditional probability and use them to interpret data.	
B. Use the rules of probability to compute probabilities of compound events in a uniform probability model.	

Nevada Academic Math Standards (DCI)	CTE Performance Indicators (including text description)
Using Probability to Make Decisions (S-MD)	
A. Calculate expected values and use them to solve problems.	
B. Use probability to evaluate outcomes of decisions.	
Total number of unique Math Standards addressed:	
Total number of unique CTE Standards aligned:	

Elko County School District



Central Administrative Office
Telephone (775) 738-5196 – Fax (775)738-0808
850 Elm Street – Elko, Nevada 89801

February 22, 2023

Paul Allen, Director, ECSD Secondary Curriculum and Instruction

Dear Paul,

I am submitting documents to be included for the ECSD Board of Trustees agenda to review and submit the application for Academic Credit for Career and Technical Education Coursework, effective Fall 2023-Spring 2025, as per NAC 389.672.

The Academic credit requested is as follows:

- Completion of CTE Courses Agricultural Welding, Power, and Structure Technology I and II are equivalent to earning math credit towards high school graduation. The math credit will count as the fourth year math, increasing student opportunities to receiving a Career and College Ready Diploma.

The documents that are attached include:

- Language of NAC 389.672
- Statement of Academic Credit to be granted, signed by the committee members
- Letters of Appointment of the committee members
- Academic Credit for Career and Technical Education Handbook with Science Alignment document that verifies the alignment of the CTE course standards with the academic standards to be taught in the CTE course.
- Copy of the student notification letter

Once approved by the ECSD Board of Trustees, the minutes of the meeting of approval will be attached, and the documents will be sent to the Board of Education for approval.

Please feel free to contact me for any further information regarding this matter.

A handwritten signature in black ink that reads 'H Steel'.

Heather Steel, ECSD CTE Facilitator

Elko County School District



Central Administrative Office
Telephone (775) 738-5196 – Fax (775)738-0808
850 Elm Street – Elko, Nevada 89801

NAC 389.672 Academic credit for a course of study in career and technical education: Limitations and prerequisites. ([NRS 385.080](#), [385.110](#), [388.360](#))

1. A board of trustees may allow a pupil to earn, towards the units necessary for graduation from high school, two units of the credit required in English, one unit required in mathematics, one unit required in science and one-half unit required in health if he or she is enrolled in a course of study in career and technical education approved pursuant to this section within one of the program areas set forth in subsection 1 of [NAC 389.803](#) and that course includes, as part of its curriculum, the curriculum of the required course.

2. The superintendent of the school district shall appoint a committee composed of one person certified to teach in the course of study in career and technical education and one person certified to teach in the academic area in which the credit may be earned. The committee must verify to the board of trustees that the curriculum for the course of study in career and technical education includes the curriculum of the required course of study for which a pupil may earn credit.

3. After verification has been received by the board of trustees, the written curriculum and title of the course of study in career and technical education and a statement of the academic credit to be granted must be submitted to the State Board of Education for approval. Academic credit may be granted for the course of study in career and technical education or a combination of courses only after the State Board of Education has given its approval.

4. The Superintendent of Public Instruction may give approval for the granting of academic credit to a board of trustees requesting to use a curriculum for a course of study in career and technical education that has been approved by the State Board of Education for another school district if:

- (a) The procedures set forth in subsection 2 were followed by the requesting district; and
- (b) The board of trustees provides assurances that it will not deviate from the curriculum that has been approved by the State Board of Education.

5. A pupil who earns academic credit pursuant to this section must be notified that the approval for academic credit is designed to meet the requirements for graduation from high school and may not necessarily be accepted for academic credit by a specific postsecondary institution. A copy of the notification given to the pupil must accompany the other materials to be submitted to the State Board of Education for final approval.

6. A minimum number of credits must be earned in the respective academic areas, as follows:

- (a) At least two credits must be earned in the academic mathematics department;
- (b) At least one credit must be earned in the academic science department; and
- (c) At least two credits must be earned in the academic English department.

(Added to NAC by Bd. of Education, eff. 5-4-87; A by Bd. for Occupational Education, 3-27-92; 11-17-95; A by Bd. of Education by R069-97, 12-10-97, eff. 9-1-99; R155-01, 12-17-2001; R195-01, 4-1-2002; R165-03, R166-03, R184-03 & R185-03, 1-22-2004; R236-03, 3-19-2004; A by Bd. for Career & Tech. Educ. by R172-05, 2-23-2006; A by Bd. of Education by R132-10, 12-16-2010; A by R087-12, 11-1-2012)

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February 22, 2023

Paul Allen
Director, ECSD Secondary Curriculum and Instruction

Dear Paul,

The Nevada Department of Education Standards for the Agriculture Welding, Power, and Structure Technology I and II, as well as the Nevada Academic Content Standards for Math have been reviewed by Agriculture Education and Mathematic staff and have been found to meet the conditions for academic science credit, set forth by NAC 389.672, as outlined by the Nevada Department of Education Office of Career Readiness, Adult Learning, and Education Options Academic Credit for Career and Technical Coursework Procedural Recommendation.

A handwritten signature in black ink that reads 'H Steel'.

Heather Steel, CTE Facilitator

A handwritten signature in black ink that reads 'Lyle Boner'.

Lyle Boner, Mathematics Instructor

A handwritten signature in black ink that reads 'Ryan Kindall'.

Ryan Kindall, Agriculture Welding, Power, and Structure Technology

Elko County School District



Superintendent's Office

Telephone (775) 738-5196 - Fax (775)738-5857
850 Elm Street - Elko, Nevada 89801

February 9, 2023

To Whom It May Concern,

I have appointed Lyle Boner who teaches Math at Wells High School to serve on the Agricultural Welding, Power, and Structure Technology Review Committee. If you have any questions please feel free to contact me.

Respectfully,

A handwritten signature in black ink, appearing to read "Clayton Anderson".

Clayton Anderson
Superintendent
Elko County School District

CA/kg

Elko County School District



Superintendent's Office

Telephone (775) 738-5196 - Fax (775)738-5857
850 Elm Street - Elko, Nevada 89801

February 9, 2023

To Whom It May Concern,

I have appointed Ryan Kindall who teaches Agricultural Welding, Power, and Structure Technology at Wells High School to serve on the Agricultural Welding, Power, and Structure Technology Review Committee. If you have any questions please feel free to contact me.

Respectfully,

A handwritten signature in black ink, appearing to read "Clayton Anderson", with a long horizontal flourish extending to the right.

Clayton Anderson
Superintendent
Elko County School District

CA/kg

Elko County School District



Central Administrative Office
Telephone (775) 738-5196 – Fax (775)738-0808
850 Elm Street – Elko, Nevada 89801

Dear Parent or Guardian,

Your student is enrolled in the Career and Technical Education course **Agricultural Welding, Power, and Structure Technology II** that qualifies for academic credit. By successfully completing the CTE course your student may earn up to 1 credit in the academic area of science to count towards high school graduation.

Please note that while the academic credit earned through CTE coursework is designed to meet the requirements for high school graduation, the academic credit may not necessarily be accepted for academic credit by a specific postsecondary institution.

If you have further questions about this credit, please contact your student's counselor or CTE teacher.

Sincerely,

A handwritten signature in black ink that reads 'H Steel'. The signature is written in a cursive style with a large, stylized 'H' and 'S'.

Heather Steel
ECSD CTE Facilitator

Nevada Academic Math Standards (DCI)	CTE Performance Indicators (including text description)	Lesson Evidence
Seeing Structure in Expressions (A-SSE)		
A. Interpret the structure of expressions		
The Real Number System (N-M)		
A. Extend the properties of exponents to rational exponents.	7.1 Demonstrate Practices Applications and Procedures of Drafting in Agricultural Projects 7.2. Demonstrate Practices and Procedures in Construction of Agriculture projects	7.1 Lesson plan for Math in Construction (see math correlation) 7.1 Drafting and Sketching Curriculum Guide 7.2 Basic Surveying Lesson Plan (see math correlation) 7.2 Surveying Curriculum Guide
B. Use properties of rational and irrational numbers.		
Quantities (N-Q)		
A. Reason quantitatively and use units to solve problems.	3.1 Identify General Shop Hand and Power Tools 4.0 Demonstrate Safe and Proper Welding Procedures 4.1 Identify Different Welding Process and Applications (Oxyfuel (OXY) Shielded Metal Arc Welding (SMAW), Gas Metal Arc Welding (GMAW) Plasma Cutting (PACJ) 4.2 Demonstrate Safe and Proper Techniques in Oxyfuel Cutting (OFC) 4.3 Demonstrate Safe and Proper Techniques in Shielded Metal Arc Welding	3.1 Conversion Activity 4.0 Math in Welding Lesson Plan 4.1-4.5 Perimeter and Area Activity 4.3 SMAW competencies 4.4 GMAW competencies 5.1 Principles of Electricity PPT 6.1 Surface Area and Volume Activity 6.1 Irrigation Unit Curriculum Guide 6.2 Basic pipefitting Unit 7.1 Project Phases and Organizations projects 7.1 Drafting and Sketching Curriculum Guide 7.2 Planning Cost Effective Construction 7.2 Surveying Curriculum Guide

	<p>4.4 Demonstrate Safe and Proper Techniques in Gas Metal Arc Welding</p> <p>4.5 Demonstrate Safe and Proper Techniques in Plasma Cutting Procedures</p> <p>5.1 Understand Principles and Theories of Electricity</p> <p>5.2 Apply the Principles and Theories of Electrical Circuits</p> <p>6.1 Demonstrate Safe Practices and Procedures in Agricultural and Industrial Water Management</p> <p>6.2 Demonstrate Basic Pipe Fitting Skills</p> <p>7.1 Demonstrate Practices Applications and Procedures of Drafting in Agricultural Projects</p> <p>7.2. Demonstrate Practices and Procedures in Construction of Agriculture projects</p> <p>8.1 Demonstrate Safe Practices and Procedures of the Operation Maintenance, and Repair of Small Gas Engines and Equipment</p> <p>8.2 Demonstrate Safe Practices and Procedures of the Operation Maintenance and Repair of Small Gas Engines and Equipment</p> <p>8.3 Recognize Appropriate Power Attachments and their Applications</p> <p>8.4 Demonstrate Maintenance and Repair Procedures on Single and Multiple Cylinder Engines and Attachments</p> <p>10.1 Demonstrate Procedures Associated with the Operation, Maintenance and</p>	<p>8.1-8.4 Small Gas Engine Competencies</p> <p>8.2 Calculating Power Activity</p> <p>10.1 See Electrical Competencies</p> <p>10.1 Electrical Motors Curriculum Guide</p> <p>11.1 Hydraulic Competencies</p> <p>11.1 Hydraulic troubleshooting</p>
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	Repair of Electrical Power 11.1 Demonstrate Knowledge of the Basic Principles, Operation and Maintenance of the Hydraulic Systems in the Agricultural Industry	
The Complex Number System (N-CN)		
A. Perform arithmetic operations with complex numbers		
B. Represent complex numbers and their operations on the complex plane.		
C. Use complex numbers in polynomial identities and quantities		
Vector and Matrix Quantities (N-VM)		
A. Represent and model with vector quantities.		
B. Perform operations on vectors.		
C. Perform Operations on matrices and use matrices in applications.		
Seeing Structure in Expressions (A-SSE)		
A. Interpret the structure of expressions.	4.1 Identify Different Welding Process and Applications (Oxyfuel (OXY) Shielded Metal Arc Welding (SMAW), Gas Metal Arc Welding (GMAW) Plasma Cutting (PACJ) 4.2 Demonstrate Safe and Proper Techniques in Oxyfuel Cutting (OFC) 4.3 Demonstrate Safe and Proper Techniques in Shielded Metal Arc Welding	4.1-4.4 Math in Welding Lesson Plan 4.3 SMAW competencies 4.4 GMAW competencies 5.1-5.2 Principles of Electricity PPT 6.1 Introduction to Irrigation lesson plan, see projects 6.1 Irrigation Unit Curriculum Guide 7.1 Lesson plan for Math in Construction (see math correlation) 7.1 Measurement in Math Lesson Plan 7.1 Conversion Activity

	<p>4.4 Demonstrate Safe and Proper Techniques in Gas Metal Arc Welding</p> <p>4.5 Demonstrate Safe and Proper Techniques in Plasma Cutting Procedures</p> <p>5.1 Understand Principles and Theories of Electricity</p> <p>5.2 Apply the Principles and Theories of Electrical Circuits</p> <p>6.1 Demonstrate Safe Practices and Procedures in Agricultural and Industrial Water Management</p> <p>7.1 Demonstrate Practices Applications and Procedures of Drafting in Agricultural Projects</p> <p>7.2. Demonstrate Practices and Procedures in Construction of Agriculture projects</p> <p>8.1 Demonstrate Safe Practices and Procedures of the Operation Maintenance and Repair of Small Gas Engines and Equipment</p> <p>8.2 Demonstrate a Working Knowledge of the Essential Engine Operating Systems</p> <p>8.3 Recognize Appropriate Power Attachments and Their Applications</p> <p>9.1 Demonstrate Safe Practices and Procedures of Operation, Maintenance and Repair of Agricultural Machinery Equipment</p> <p>10.1 Demonstrate Procedures Associated with the Operation, Maintenance and</p>	<p>7.1 Perimeter and Area Activity</p> <p>7.1 Surface Area and Volume Activity</p> <p>7.1 Create a Blueprint Project</p> <p>7.1 Project Phases and Organizations projects</p> <p>7.1 Drafting and Sketching Curriculum Guide</p> <p>7.2 Barn Blueprint project</p> <p>7.2 Surveying Curriculum Guide</p> <p>8.1, 8.2,8.3 Small Gas Engine Competencies</p> <p>8.2 Calculating Power Activity</p> <p>8.1, 8.2,8.3 Small Gas Engine Competencies</p> <p>9.1 See activities and projects on preventative maintenance lesson plan</p> <p>10.1 See Electrical Competencies</p> <p>10.1 Electrical Motors Curriculum Guide</p> <p>11.1 Hydraulic Competencies</p> <p>11.1 Hydraulic troubleshooting</p>
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	<p>Repair of Electrical Power</p> <p>11.1 Demonstrate Knowledge of the Basic Principles, Operation and Maintenance of the Hydraulic Systems in the Agricultural Industry</p>	
<p>B. Write expressions in equivalent forms to solve problems.</p>	<p>4.1 Identify Different Welding Process and Applications (Oxyfuel (OXY) Shielded Metal Arc Welding (SMAW), Gas Metal Arc Welding (GMAW) Plasma Cutting (PACJ)</p> <p>4.2 Demonstrate Safe and Proper Techniques in Oxyfuel Cutting (OFC)</p> <p>4.3 Demonstrate Safe and Proper Techniques in Shielded Metal Arc Welding</p> <p>4.4 Demonstrate Safe and Proper Techniques in Gas Metal Arc Welding</p> <p>4.5 Demonstrate Safe and Proper Techniques in Plasma Cutting Procedures</p> <p>5.1 Understand Principles and Theories of Electricity</p> <p>5.2 Apply the Principles and Theories of Electrical Circuits</p> <p>6.1 Demonstrate Safe Practices and Procedures in Agricultural and Industrial Water Management</p> <p>7.1 Demonstrate Practices Applications and Procedures of Drafting in Agricultural Projects</p> <p>7.2. Demonstrate Practices and Procedures in Construction of Agriculture projects</p>	<p>4.0 Math in Welding Lesson Plan</p> <p>4.3 SMAW competencies</p> <p>4.4 GMAW competencies</p> <p>5.1-5.2 Principles of Electricity PPT</p> <p>6.1 Introduction to Irrigation lesson plan, see projects</p> <p>6.1 Irrigation evaluation questions</p> <p>6.1 Irrigation Unit Curriculum Guide</p> <p>7.1 Conversion Activity</p> <p>7.1 Lesson plan for Math in Construction (see math correlation)</p> <p>7.1 Measurement in Math Lesson Plan</p> <p>7.1 Barn Blueprint project</p> <p>7.1 Project Phases and Organizations projects</p> <p>7.1 Drafting and Sketching Curriculum Guide</p> <p>7.2 Perimeter and Area Activity</p> <p>7.2 Surface Area and Volume Activity</p> <p>7.2 Create a Blueprint Project</p> <p>7.2 Basic Surveying Lesson Plan (see math correlation)</p> <p>7.2 Surveying Curriculum Guide</p> <p>8.1, 8.2, 8.3 Small Gas Engine Competencies</p> <p>8.3 Calculating Power Activity</p>

	<p>8.1 Demonstrate Safe Practices and Procedures of the Operation Maintenance and Repair of Small Gas Engines and Equipment</p> <p>8.2 Demonstrate a Working Knowledge of the Essential Engine Operating Systems</p> <p>8.3 Recognize Appropriate Power Attachments and Their Applications</p> <p>9.1 Demonstrate Safe Practices and Procedures of Operation, Maintenance and Repair of Agricultural Machinery Equipment</p> <p>10.1 Demonstrate Procedures Associated with the Operation, Maintenance and Repair of Electrical Power</p> <p>11.1 Demonstrate Knowledge of the Basic Principles, Operation and Maintenance of the Hydraulic Systems in the Agricultural Industry</p>	<p>9.1 See activities and projects on preventative maintenance lesson plan</p> <p>10.1 See Electrical Competencies</p> <p>10.1 Electrical Motors Curriculum Guide</p> <p>11.1 Hydraulic Competencies</p> <p>11.1 Hydraulic troubleshooting</p>
Arithmetic with Polynomials and Rational Expressions (A-APR)		
A. Perform arithmetic operations on polynomials.		
B. Understand the relationship between zeros and factors of polynomials.		
C. Use polynomial identities to solve problems.		
D. Rewrite rational expressions.		
Creating Equations (A-CED)		
A. Create equations that describe numbers or relationships.	<p>4.1 Identify Different Welding Process and Applications (Oxyfuel (OXY) Shielded Metal Arc Welding (SMAW),</p>	<p>4.1,4.2, 4.3, 4.4 Math in Welding Lesson Plan</p> <p>5.1, 5.2 Principles of Electricity PPT</p>

	<p>Gas Metal Arc Welding (GMAW) Plasma Cutting (PACJ)</p> <p>4.2 Demonstrate Safe and Proper Techniques in Oxyfuel Cutting (OFC)</p> <p>4.3 Demonstrate Safe and Proper Techniques in Shielded Metal Arc Welding</p> <p>4.4 Demonstrate Safe and Proper Techniques in Gas Metal Arc Welding</p> <p>5.1 Understand Principles and Theories of Electricity</p> <p>5.2 Apply the Principles and Theories of Electrical Circuits</p> <p>6.0 Understand Water and Wastewater Management in Agricultural and Industrial Settings</p> <p>7.1 Demonstrate Practices Applications and Procedures of Drafting in Agricultural Projects</p> <p>7.2. Demonstrate Practices and Procedures in Construction of Agriculture projects</p> <p>8.1 Demonstrate Safe Practices and Procedures of the Operation, Maintenance, and Repair of Small Gas Engines and Equipment</p> <p>8.2 Demonstrate Working Knowledge of the Essential Engine Operating Systems</p> <p>9.1 Demonstrate Safe Practices and Procedures of Operation Maintenance and Repair of Agricultural Machinery and Equipment</p>	<p>6.1 Irrigation blueprints</p> <p>6.1 Irrigation Unit Curriculum Guide</p> <p>7.1 Measurement in Math Lesson Plan</p> <p>7.1 Perimeter and Area Activity</p> <p>7.1 Surface Area and Volume Activity</p> <p>7.1 Surface Area and Volume Activity</p> <p>7.1 Conversion Activity</p> <p>7.1 Project Phases and Organizations projects</p> <p>7.1 Drafting and Sketching Curriculum Guide</p> <p>7.2 Barn Blueprint project</p> <p>7.2 Basic Surveying Lesson Plan (see math correlation)</p> <p>7.2 Create a Blueprint Project</p> <p>7.2 Planning Cost Effective Construction</p> <p>7.2 Surveying Curriculum Guide</p> <p>8.1, 8.2 Small Gas Engine Competencies</p> <p>8.2 Calculating Power Activity</p> <p>9.1 See activities and projects on preventative maintenance lesson plan</p> <p>10.1 See Electrical Competencies</p> <p>10.1 Electrical Motors Curriculum Guide</p> <p>11.1 Hydraulic Competencies</p> <p>11.1 Hydraulic troubleshooting</p>
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	<p>10.1 Demonstrate Procedures Associated with the Operation, Maintenance, and Repair of Electrical Power</p> <p>11.1 Demonstrate Knowledge of the Basic Principles, Operation and Maintenance of Hydraulic Systems in the Agricultural Industry</p>	
Reasoning with Equations and Inequalities (A-REI)		
A. Understand solving equations as a process of reasoning and explain the reasoning.	<p>4.1 Identify Different Welding Process and Applications (Oxyfuel (OXY) Shielded Metal Arc Welding (SMAW), Gas Metal Arc Welding (GMAW) Plasma Cutting (PACJ)</p> <p>4.2 Demonstrate Safe and Proper Techniques in Oxyfuel Cutting (OFC)</p> <p>4.3 Demonstrate Safe and Proper Techniques in Shielded Metal Arc Welding</p> <p>4.4 Demonstrate Safe and Proper Techniques in Gas Metal Arc Welding</p> <p>4.5 Demonstrate Safe and Proper Techniques in Plasma Cutting Procedures</p> <p>7.1 Demonstrate Practices Applications and Procedures of Drafting in Agricultural Projects</p> <p>7.2 Demonstrate practices and procedures in Construction of Agricultural Projects</p> <p>8.2 Demonstrate Working Knowledge of the Essential Engine Operating Systems</p>	<p>4.1, 4.2, 4.3, 4.4, 4.5 Math in Welding Lesson Plan</p> <p>4.3 SMAW competencies</p> <p>4.4 GMAW competencies</p> <p>7.1 Create a Blueprint Project</p> <p>7.1 Planning Cost Effective Construction</p> <p>7.1 Project Phases and Organizations projects</p> <p>7.1 Lesson plan for Math in Construction (see math correlation)</p> <p>7.1 Drafting and Sketching Curriculum Guide</p> <p>7.2 Barn Blueprint project</p> <p>7.2 Basic Surveying Lesson Plan (see math correlation)</p> <p>7.2 Conversion Activity</p> <p>7.2 Surveying Curriculum Guide</p> <p>8.2 Calculating Power Activity</p>
B. Solve equations and inequalities in one variable.		

C. Solve systems of equations.		
Reasoning with Equations and Inequalities (DCI)		
D. Represent and solve equations and inequalities graphically.	<p>5.0 Understand the Principles of Electricity in Agriculture</p> <p>6.0 Understand Water and Wastewater Management Agricultural and Industrial Settings</p> <p>7.1 Demonstrate Practices Applications and Procedures of Drafting in Agricultural Projects</p> <p>8.2 Demonstrate a working Knowledge of the Essential Engine Operations Systems</p> <p>8.3 Recognize Appropriate Power Attachments and their Applications</p> <p>11.1 Demonstrate knowledge of the basic principles, operation and Maintenance of Hydraulic Systems in the Agricultural Industry</p>	<p>5.0, 5.1, 5.2 Principles of Electricity PPT</p> <p>6.1 Irrigation blueprints</p> <p>6.1 Irrigation Unit Curriculum Guide</p> <p>7.1 Project Phases and Organizations projects</p> <p>7.1 Drafting and Sketching Curriculum Guide</p> <p>8.2, 8.3 Small Gas Engine Competencies</p> <p>11.1 Hydraulic Competencies</p> <p>11.1 Hydraulic troubleshooting</p>
Interpreting Functions (F-IF)		
A. Understand the concept of a function and use function notation.		
B. Interpret functions that arise in applications in terms of the context.	<p>4.2 Demonstrate Safe and Proper Techniques in Oxyfuel Cutting</p> <p>4.3 Demonstrate Safe and Proper Techniques in Shielded Metal Arc Welding</p> <p>4.4 Demonstrate Safe and Proper Techniques in Gas Metal Arc Welding</p>	<p>4.2, 4.3, 4.4, 4.5 Math in Welding Lesson Plan</p> <p>4.3 SMAW competencies</p> <p>4.4 GMAW competencies</p> <p>5.1, 5.2 See Electrical Competencies</p> <p>5.1, 5.2 Principles of Electricity PPT</p> <p>6.1 Introduction to Irrigation lesson plan, see projects</p>

	<p>4.5 Demonstrate Safe and Proper Techniques in Plasma Cutting Procedures</p> <p>5.1 Understand Principles and Theories of Electricity</p> <p>5.2 Applying the Principles and Theories of Electrical Circuits</p> <p>6.1 Demonstrate Safe Practices and Procedures in Agricultural and Industrial Water Management</p> <p>8.2 Demonstrate a Working Knowledge of Essential Engine Operating Systems</p> <p>8.4 Demonstrate Maintenance and Repair Procedures on single and Multiple Cylinder Engines and Attachments</p> <p>9.1 Demonstrate Safe Practices and Procedures of Operation, Maintenance and Repair of Agricultural Machinery and Equipment</p>	<p>6.1 Irrigation blueprints</p> <p>6.1 Irrigation Unit Curriculum Guide</p> <p>8.2, 8.4 Small Gas Engine Competencies</p> <p>9.1 See activities and projects on preventative maintenance lesson plan</p>
C. Analyze functions using different representations.	<p>4.2 Demonstrate Safe and Proper Techniques in Oxyfuel Cutting (OFC)</p> <p>4.3 Demonstrate Safe and Proper Techniques in Shielded Metal Arc Welding</p> <p>4.4 Demonstrate Safe and Proper Techniques in Gas Metal Arc Welding</p> <p>10.1 Demonstrate Procedures Associated with the Operation Maintenance and Repair of Electrical Power</p>	<p>4.2, 4.3, 4.4 Math in Welding Lesson Plan</p> <p>4.3 SMAW competencies</p> <p>4.4 GMAW competencies</p> <p>10.1 See Electrical Competencies</p> <p>10.1 Electrical Motors Curriculum Guide</p>
Building Functions (F-BF)		
A. Build a function that models a relationship between two quantities.		

B. Build new functions from existing functions.	5.1 Understand Principles and Theories of Electricity	5.1 Principles of Electricity PPT
Linear, Quadratic, and Exponential Models (F-LE)		
A. Construct and compare linear, quadratic, and exponential models and solve problems		
B. Interpret expressions for functions in terms of the situation they model.		
Trigonometric Functions (F-TF)		
A. Extend the domain of trigonometric functions using the unit circle.		
B. Model periodic phenomena with trigonometric functions.		
C. Prove and apply trigonometric identities.		
Congruence (G-CO)		
A. Experiment with transformations in the plane.	<p>4.1 Identify Different Welding Process and Applications (Oxyfuel (OXY) Shielded Metal Arc Welding (SMAW), Gas Metal Arc Welding (GMAW) Plasma Cutting (PACJ)</p> <p>4.2 Demonstrate Safe and Proper Techniques in Oxyfuel Cutting (OFC)</p> <p>4.3 Demonstrate Safe and Proper Techniques in Shielded Metal Arc Welding</p> <p>4.4 Demonstrate Safe and Proper Techniques in Gas Metal Arc Welding</p> <p>4.5 Demonstrate Safe and Proper Techniques in Plasma Cutting Procedures</p>	<p>4.1, 4.2, 4.3, 4.4, 4.5 Math in Welding Lesson Plan</p> <p>4.3 SMAW competencies</p> <p>4.4 GMAW competencies</p> <p>7.2 Reading scales activity</p> <p>7.2 Basic Surveying Lesson Plan (see math correlation)</p> <p>7.2 Surveying Curriculum Guide</p>

	7.2. Demonstrate Practices and Procedures in Construction of Agriculture projects	
B. Understand congruence in terms of rigid motions.		
C. Prove geometric theorems.		
D. Make geometric constructions	7.1 Demonstrate Practices, Applications and procedures of drafting in agriculture projects 7.2. Demonstrate Practices and Procedures in Construction of Agriculture projects	7.1 Computer Aided Drafting Project 7.1 Create a Blueprint Project 7.1 Drafting and Sketching Curriculum Guide 7.2 Basic Surveying Lesson Plan (see math correlation) 7.2 Computer Aided Drafting Assignment 7.2 Reading scales activity 7.2 Surveying Curriculum Guide
Similarity, Right Triangles, and Trigonometry (G-SRT)		
A. Understand similarity in terms of similarity transformations.	7.2. Demonstrate Practices and Procedures in Construction of Agriculture projects	7.2 Reading scales activity
B. Prove theorems involving similarity.	7.2. Demonstrate Practices and Procedures in Construction of Agriculture projects	7.2 Basic Surveying Lesson Plan (see math correlation) 7.2 Surveying Curriculum Guide
C. Define trigonometric ratios and solve problems involving right triangles.	7.1 Demonstrate Practices, Applications and procedures of drafting in agriculture projects 7.2. Demonstrate Practices and Procedures in Construction of Agriculture projects	7.1 Lesson plan for Math in Construction (see math correlation) 7.1 Create a Blueprint Project 7.1 Drafting and Sketching Curriculum Guide 7.2 Computer Aided Drafting Project 7.2 Computer Aided Drafting Assessment

		7.2 Basic Surveying Lesson Plan (see math correlation) 7.2 Surveying Curriculum Guide
D. Apply trigonometry to general triangles.	7.1 Demonstrate Practices, Applications and procedures of drafting in agriculture projects 7.2. Demonstrate Practices and Procedures in Construction of Agriculture projects	7.1 Lesson plan for Math in Construction (see math correlation) 7.1 Drafting and Sketching Curriculum Guide 7.2 Basic Surveying Lesson Plan (see math correlation) 7.2 Create a Blueprint Project 7.2 Surveying Curriculum Guide
Circles (G-C)		
A. Understand and apply theorems about circles		
B. Find arc lengths and areas of sectors of circles.		
Expressing Geometric Properties with Equations (G-GPE)		
A. Translate between the geometric description and the equation for a conic section.		
B. Use coordinates to prove simple geometric theorems algebraically.		
Geometric Measurement and Dimension (G-GMD)		
A. Explain volume formulas and use them to solve problems.	4.1 Identify Different Welding Process and Applications (Oxyfuel (OXY) Shielded Metal Arc Welding (SMAW), Gas Metal Arc Welding (GMAW) Plasma Cutting (PACJ) 4.2 Demonstrate Safe and Proper Techniques in Oxyfuel Cutting (OFC)	4.1-4.5 Math in Welding Lesson Plan 4.3 SMAW competencies 4.4 GMAW competencies 6.1 Introduction to Irrigation lesson plan, see projects 6.1 Irrigation evaluation questions 6.1 Irrigation system blueprints

	<p>4.3 Demonstrate Safe and Proper Techniques in Shielded Metal Arc Welding</p> <p>4.4 Demonstrate Safe and Proper Techniques in Gas Metal Arc Welding</p> <p>4.5 Demonstrate Safe and Proper Techniques in Plasma Cutting Procedures</p> <p>6.1 Demonstrate Safe Practices and Procedures in agriculture and industrial water management</p> <p>7.1 Demonstrate Practices, Applications and procedures of drafting in agriculture projects</p> <p>7.2 Demonstrate practices and procedures in Construction of Agricultural Projects</p> <p>8.2 Demonstrate a Working Knowledge of the Essential Engine Operating Systems</p>	<p>6.1 Irrigation Unit Curriculum Guide</p> <p>7.1 Lesson plan for Math in Construction (see math correlation)</p> <p>7.1 Perimeter and Area Activity</p> <p>7.1 Surface Area and Volume Activity</p> <p>7.1 Drafting and Sketching Curriculum Guide</p> <p>7.2 Basic Surveying Lesson Plan (see math correlation)</p> <p>7.2 Create a Blueprint Project</p> <p>7.2 Surveying Curriculum Guide</p> <p>8.2 Small Gas Engine Competencies</p>
<p>B. Visualize relationships between two-dimensional and three-dimensional objects.</p>	<p>4.1 Identify Different Welding Process and Applications (Oxyfuel (OXY) Shielded Metal Arc Welding (SMAW), Gas Metal Arc Welding (GMAW) Plasma Cutting (PACJ)</p> <p>4.2 Demonstrate Safe and Proper Techniques in Oxyfuel Cutting (OFC)</p> <p>4.3 Demonstrate Safe and Proper Techniques in Shielded Metal Arc Welding</p> <p>4.4 Demonstrate Safe and Proper Techniques in Gas Metal Arc Welding</p> <p>4.5 Demonstrate Safe and Proper Techniques in Plasma Cutting Procedures</p>	<p>4.1-4.5 Math in Welding Lesson Plan</p> <p>4.3 SMAW competencies</p> <p>4.4 GMAW competencies</p> <p>7.1 Lesson plan for Math in Construction (see math correlation)</p> <p>7.1 Perimeter and Area Activity</p> <p>7.1 Surface Area and Volume Activity</p> <p>7.1 Drafting and Sketching Curriculum Guide</p> <p>7.2 Create a Blueprint Project</p> <p>7.2 Reading Scales Activity</p> <p>7.2 Surveying Curriculum Guide</p>

	<p>7.1 Demonstrate Practices Applications and Procedures of Drafting in Agriculture Projects</p> <p>7.2 Demonstrate practices and procedures in Construction of Agricultural Projects</p>	
Modeling with Geometry (G-MG)		
A. Apply geometric concepts in modeling situations.	<p>4.1 Identify Different Welding Process and Applications (Oxyfuel (OXY) Shielded Metal Arc Welding (SMAW), Gas Metal Arc Welding (GMAW) Plasma Cutting (PACJ)</p> <p>4.2 Demonstrate Safe and Proper Techniques in Oxyfuel Cutting (OFC)</p> <p>4.3 Demonstrate Safe and Proper Techniques in Shielded Metal Arc Welding</p> <p>4.4 Demonstrate Safe and Proper Techniques in Gas Metal Arc Welding</p> <p>4.5 Demonstrate Safe and Proper Techniques in Plasma Cutting Procedures</p> <p>6.1 Demonstrate Safe Practices and Procedures in Agriculture and Industrial Water Management</p> <p>6.2 Demonstrate Basic Pipe Fitting Skills</p> <p>7.1 Demonstrate Practices Applications and Procedures of Drafting in Agriculture Projects</p> <p>7.2 Demonstrate Practices and Procedures in Construction of Agriculture Projects</p> <p>8.2 Demonstrate a Working Knowledge of the Essential Engine Operating Systems</p>	<p>4.1, 4.2, 4.3, 4.4, 4.5 Math in Welding Lesson Plan</p> <p>4.3 SMAW competencies</p> <p>4.4 GMAW competencies</p> <p>6.1 Introduction to Irrigation lesson plan, see projects</p> <p>6.1 Irrigation evaluation questions</p> <p>6.1 Irrigation system blueprints</p> <p>6.1 Irrigation Unit Curriculum Guide</p> <p>6.2 Basic pipefitting Unit</p> <p>7.1 Barn Blueprint project</p> <p>7.1 Drafting and Sketching Curriculum Guide</p> <p>7.2 Create a Blueprint Project</p> <p>7.2 Reading Scales Activity</p> <p>7.2 Surveying Curriculum Guide</p> <p>8.1, 8.2 Small Gas Engine Competencies</p>
Interpreting Categorical and Quantitative Data (S-ID)		

A. Summarize, represent, and interpret data on a single count or measurement variable.		
B. Summarize, represent, and interpret data on two categorical and quantitative variables		
C. Interpret linear models.		
Making Inferences and Justifying Conclusions (S-IC)		
A. Understand and evaluate random processes underlying statistical experiments.		
B. Make inferences and justify conclusions from sample surveys, experiments, and observational studies.	<p>3.3 Demonstrate Appropriate Procedures for the Maintenance and Repair of Hand Tools</p> <p>4.0 Demonstrate Safe and Proper Welding Procedures</p> <p>4.1 Identify Different Welding Process and Applications (Oxyfuel (OXY) Shielded Metal Arc Welding (SMAW), Gas Metal Arc Welding (GMAW) Plasma Cutting (PACJ)</p> <p>4.2 Demonstrate Safe and Proper Techniques in Oxyfuel Cutting (OFC)</p> <p>4.3 Demonstrate Safe and Proper Techniques in Shielded Metal Arc Welding</p> <p>4.4 Demonstrate Safe and Proper Techniques in Gas Metal Arc Welding</p> <p>4.5 Demonstrate Safe and Proper Techniques in Plasma Cutting Procedures</p> <p>5.0 Understand the Principles of Electricity in Agriculture</p>	<p>3.3 Hazard Challenge Lesson Plan student activity</p> <p>4.0, 4.1, 4.2, 4.3, 4.4, 4.5 Math in Welding Lesson Plan</p> <p>4.3 SMAW competencies</p> <p>4.4 GMAW competencies</p> <p>5.0 Principles of Electricity PPT</p> <p>6.1 Irrigation Unit Curriculum Guide</p> <p>6.2 Basic pipefitting Unit</p> <p>7.1 Planning Cost Effective Construction lesson plan</p> <p>7.1 Drafting and Sketching Curriculum Guide</p> <p>7.2 Project Phases and Organizations projects</p> <p>7.2 Create a Blueprint Project</p> <p>7.2 Surveying Curriculum Guide</p> <p>8.1, 8.2, 8.4 Small Gas Engine Competencies</p> <p>8.2 Calculating Power assignment</p>

	<p>6.0 Understand Water and Wastewater Management in Agricultural and Industrial Settings</p> <p>6.1 Demonstrate Safe Practices and Procedures in Agricultural and Industrial Water Management</p> <p>6.2 Demonstrate Basic Pipe Fitting Skills</p> <p>7.1 Demonstrate Practices Applications and Procedures of Drafting in Agriculture Projects</p> <p>7.2 Demonstrate Practices and Procedures in Construction of Agriculture Projects</p> <p>8.1 Demonstrate Safe Practices and Procedures of the Operation, Maintenance, and Repair of Small Gas Engines and Equipment</p> <p>8.2 Demonstrate a working Knowledge of the Essential Engine Operating Systems</p> <p>8.4 Demonstrate Maintenance and Repair Procedures on Single and Multiple Cylinder Engines and Attachments</p> <p>9.1: Demonstrate Safe Practices and Procedures of Operation, Maintenance, and Repair of Agricultural Machinery and Equipment</p> <p>10.0 Demonstrate the Operation, Maintenance and use of Electrical Power, Motors, and Controls in Agricultural Applications</p> <p>11.0 Understand Agricultural Hydraulic Systems</p>	<p>9.1 See activities and projects on preventative maintenance lesson plan</p> <p>10.0 See Electrical Competencies</p> <p>10.1 Electrical Motors Curriculum Guide</p> <p>11.1 Hydraulic Competencies</p> <p>11.1 Hydraulic troubleshooting</p>
<p>Conditional Probability and Rules of Probability (S-CP)</p>		

A. Understand independence and conditional probability and use them to interpret data.		
B. Use the rules of probability to compute probabilities of compound events in a uniform probability model.		
Using Probability to Make Decisions (S-MD)		
A. Calculate expected values and use them to solve problems.		
B. Use probability to evaluate outcomes of decisions.		
Total number of unique Math Standards addressed	21	
Total number of unique CTE Standards aligned:	16	16