Explore Welding Career Pathways
Agenda

• About Realityworks
• Building Pathways in Welding Education
• Programs Designed with Generation Z in Mind
• The Importance of Welding Education
• Q&A
Realityworks

• Distribution into education
  • 62% of school districts in the U.S.
  • 90 countries worldwide
  • 31,000 institutions
  • 6,000,000 students served through the use of our products

• Education partner
  • Association for Career and Technical Education Board
  • Chair of Industry Workforce Needs Coalition (IWNC)
  • 100+ education trade shows (local, state, national)

• Educational focus
  • Hardware, software, learning aids & curriculum development
Innovative Learning Tools for Skills Training

FACS | Health Sciences | Agriculture | Welding and Trade Skills

Experiential Learning Technology

www.realityworks.com
Building Pathways in Welding Education
Common Career Technical Core Standards

The process for developing the CCTC was informed by:

• High-quality state and industry standards
• Input and guidance from educators, business and industry and state leaders
• Feedback from the public

https://careertech.org/cctc
Building your Plan of Study

All plans of study should meet local and state high school graduation requirements and requirements. Supervised Agricultural Experience (SAE) and participation in appropriate FFA activities support and reinforce classroom and laboratory learning and should be a requirement for all students.

**Introduction to Agriculture, Food and Natural Resources**: This is a core course for the Agriculture, Food and Natural Resources Career Cluster that builds a knowledge base and technical skills in all aspects of the industry. Learners will be exposed to a broad range of agriculture, food and natural resources careers and Cluster Foundation Knowledge and Skills. This may be taught as a career exploration course in conjunction with other foundation Career Cluster courses.

<table>
<thead>
<tr>
<th>High school</th>
<th>Post-Secondary</th>
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| **All plans of study need to meet learner’s career goals with regard to required degrees, licenses, certifications or journey worker status. Certain local student organization activities may also be important to include.** |
| **Continue coursework to the pathway selected.** |

[www.realityworks.com](http://www.realityworks.com)
Build an Advisory Council

• Invite 5-10 industry professionals to participate in an advisory council
• Meet several times per year
• Focus on outcomes – what are employers looking for?
• Are you teaching the right things?
• Form partnerships for field experience, job-shadowing, guest speaker opportunities
Seek Industry-Recognized Certifications

- Does your state dep. recommend a specific certification or testing agency?
- Are your instructors licensed to teach the courses if that is required?
- What are local employers looking for?
- Is employment transferable?
- What is the cost of certification or a specific credential?
Formula for Skill Focused Engagement

Skill Development

Skill Refinement

Skill Performance

Skill Sharing
Creating Student Engagement Through Experiential Learning Tools

**Skill Development**
- Create tangible ways to develop understanding of concepts
- Practice and learn key systems and technique development

**Skill Refinement**
- Enhance skill through rigorous assessment and experiences
- Gain best practices and industry standard learning

**Skill Performance**
- Personalize and individualize learning
- Modify to individual strengths and talents

**Skill Sharing**
- Strong peer to peer communication and career exploration
- Learn from sharing best practices and innovative findings

**Critical Thinking**
- Skill Development

**Creative Thinking**
- Skill Refinement

**Collaboration**
- Skill Performance

**Communication**
- Skill Sharing
Programs Designed with Generation Z in Mind
The Face of CTE: Who are our Students?
Generation Z

• Born between 1995 and 2010
• Tech savvy
  – Multitasking
  – 8 second attention span
It’s about the Experience

• Students read less than 20% of text
• Future focused
  – Where will I use this in real life?
Teaching Generation Z

• Keep content small
• Information across multiple modalities
• Be flexible

“There aren’t any icons to click. It’s a chalk board.”
What would your ideal WELDING PROGRAM look like?
How They View Educators?

- No longer experts
- Facilitators or guides
Welding Program Checklist

FACILITY:

Educating students + Training students

Classroom:
For instruction. Computers? Projector? Screen?

Equipment:
Welding booths with welders (Stick, MIG) exhaust, helmets, welding guns, tables, wire, gas…..
Today’s High School Welding Lab

8 – number of welding booths on average per high school

22 – average number of students per welding class

33 – percentage of students with cognitive disabilities
The 21st Century Welding Classroom

Realityworks’ Welding Solutions feature several powerful and cost-effective welding education tools to help train welders more efficiently and engage students in welding career exploration.

Destructive Weld Testing
- RealCareer™ Bend Tester

Classroom Management
- Portable Workstations - Large & Small

Welding Simulation Lab
- guideWELD® VR welding simulators

Live Welding Booths
- guideWELD® LIVE real welding guidance system

Visual Weld Inspection
- RealCareer™ Weld Defects Kit

Soft Skills
- RealCareer™ Emerging Skills Skills Program

Through Experiential Learning
SKILL DEVELOPMENT
Welding Simulation Lab

guideWELD® VR welding simulator

- Explore careers, foundational learning, provide more arc time
- A safe, cost-effective way to teach welding fundamentals
Virtual Reality Welding
• Technique guidance
• Technique assessments
• GMAW & SMAW available
• Teacher customizable
• Local install / no licenses
Assessment

- Tracks work angle, travel angle, plate distance, speed and straightness
- Overall score given as a percentage
- Graphs student progress
Virtual Reality Integrated Weld Training

Study shows VR welding:

- *Increases* learning of welding techniques
- *Increases* ability of student to create qualified welds
- *Increases* understanding of proper welding
- *Reduces* amount of time needed to do quality welds
- *Reduces* costs of material for welding training
Simulators Create More Welders in Less Time

25% Less Time

25% increase in qualified participants

Simulators Create More Welders in Less Time


65% increase in qualified participants

28% Less Time
...And With Less Cost

“welding simulation has decreased our consumable and welding costs by about 70% for our program.”

George Karr,
Welding and Technology Instructor
Hollenstein Career & Technology Center, Fort Worth, TX
SKILL REFINEMENT
Live Welding Booths

guideWELD® LIVE real welding guidance system

- Corrective guides, immediate feedback, classroom management
- A one-of-a-kind solution for guidance inside the welding helmet during live welding
Real time corrective feedback in every welding booth for MIG & STICK

Feedback comes from 9 default WPS’s with customization available

Guidance on proper technique
- Work Angle
- Travel Angle
- Speed
• guideWELD LIVE is NOT a simulator
  – Actual welding helmet used while live welding
  – Trains during a weld how to consistently have proper Work Angle, Travel Angle, and correct welding Speed

• Auto-darkening Helmet, Hand Sensor & Speed Sensor work together to give feedback on proper welding technique

• Improves Welding Technique development and increases welder confidence
Creating Student Engagement Through Experiential Learning Tools
Visual Weld Inspection

RealCareer™ Weld Defects Kit

- Assessment and correction techniques, quality inspection
- An instructional aid to teach weld defects and discontinuities
RealCareer™ Weld Defects Kit

Product includes:

• 1 Quality weld model
• 12 Weld defect models
• Weld effect definition insert
• Instructor Guide
• Case for all welding models
• Weld Defects Curriculum (Online)
• 10 Sets of student flash cards
• 5 Classroom posters

All welds created by a certified American Welding Society (AWS) Certified Welding Inspector (CWI) and Certified Welding Educator (CWE)
RealCareer™ Weld Defects Kit
Destructive Weld Testing
RealCareer™ Bend Tester
- Prepare for careers, self-assessment
- Challenge students to test their own welds and determine what went wrong
RealCareer™ Bend Tester

Product Includes:

• Guided Bend Tester Complies with AWS D1.1 code
• 3 plunger sizes & 3 Roller Settings
  • ½, 1, 1 ½ inch
• 2 Bend Testing Posters
• Curriculum (8 Lessons)
• 8-ton jack
• 1 year warranty
SKILL SHARING
Portable Workstations

Product Includes:

- Convenient storage includes locking cabinet drawers
- Tough, grated work surface, removable for easy cleaning
- Durable wheels for easy maneuvering

48” W x 24” D x 39” H

detachable welding screen

www.realityworks.com
Don’t Forget the Soft Skills!

- Empathy
- Communication
- Teamwork
- Dealing With Pressure
- Strong Work Ethic
- Positive Mental Attitude
- Flexibility
- Time Management
- Self-Confidence
- Dealing With Criticism
RealCareer™ Employability Skills

Product includes:

• A complete unit on employability skills
• 19 Lessons include focus on:
  – Problem Solving
  – Time Management
  – Interviews
  – Self-Confidence
  – Stress Management
• Includes:
  – Teacher Guide & Scenario
  – 20 Student Workbooks
The 21st Century Welding Classroom

Realityworks’ Welding Solutions feature several powerful and cost-effective welding education tools to help train welders more efficiently and engage students in welding career exploration.

**Classroom Management**
Portable Workstations - Large & Small

**Live Welding Booths**
guideWELD® LIVE real welding guidance system

**Visual Weld Inspection**
RealCareer™ Weld Defects Kit

**Destructive Weld Testing**
RealCareer™ Bend Tester

**Welding Simulation Lab**
guideWELD® VR welding simulators

**Soft Skills**
RealCareer™ Employability Skills Program
The Importance of Welding Education
Welding Careers

The 90th Percentile of welders earn $57,000 per year
The Need for Welders

By **2025** there will be a need for **400,000** replacement and new welding professionals.

Today, welders are retiring at **2x** the pace of welders who are coming into the job field.
Ways Our Tools Help CTE

Brings you hands on learning training into your Classroom
- More students with welding arc time
- Skill development and training time increase
- Reduces classroom management issues
- Welders can become competent and qualified quicker

Add Time & Learning Opportunities to your Classroom
- More students with welding arc time
- Skill development and training time increase
- Reduces classroom management issues
- Reduce costs of disposable products with durable and reusable aids

Ease of Use in the Classroom
- Student-centric learning aids
- Curriculum and Teacher Guides help to bring new resources to the development of student learning
- Engaging and academic curriculum to enhance any class lesson
Curriculum Paired with Hands-On Learning Aids
Pathway Packages

- Gather your resources
- Fill out your Plan of Study
- Round it out with curriculum and hands-on learning aids
# Welding Curriculum Overview

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<thead>
<tr>
<th>Experiential Learning Tool</th>
<th>guideWELD® VR</th>
<th>guideWELD® LIVE</th>
<th>RealCareer™ Weld Defects Kit</th>
<th>RealCareer™ Bend Tester</th>
<th>RealCareer™ Welding Career Exploration</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Length</strong></td>
<td>20- to 30-hour curriculum</td>
<td>20- to 30-hour curriculum</td>
<td>Up to 10-hour curriculum</td>
<td>Up to 15-hour curriculum</td>
<td>Up to 14-hour curriculum</td>
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<tr>
<td><strong>Focus</strong></td>
<td>Welding Careers, Types of Welding and Welding Safety</td>
<td>Welding Equipment, Basics and Defects</td>
<td>Introduction to Welding Simulation</td>
<td>Welding Careers, Types of Welding and Welding Safety</td>
<td>Welding Defects and Correction</td>
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<td><strong>Units</strong></td>
<td>Unit 1</td>
<td>Unit 2</td>
<td>Unit 3</td>
<td>Unit 1</td>
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<td><strong>Lessons</strong></td>
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<td><strong>Presentation Slides</strong></td>
<td>147</td>
<td>168</td>
<td>137</td>
<td>96</td>
<td>79</td>
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<tr>
<td><strong>Lesson Topics</strong></td>
<td>Welding Career Opportunities</td>
<td>Welding Equipment (2 Part Lesson)</td>
<td>Intro to Welding Simulation</td>
<td>Welding Career Opportunities</td>
<td>Basics to Quality Welds</td>
</tr>
<tr>
<td><strong>Types of Welding</strong></td>
<td>Weld Defects</td>
<td>Types of Welding</td>
<td>Identifying Defects</td>
<td>Welding Safety - PPE</td>
<td>Types of Welding</td>
</tr>
</tbody>
</table>

**RealCareer™ Welding Career Exploration**
- Careers in Manufacturing and Production Welding
- Career Opportunities in Welding Fabrication
- A Day in the Life of a Welding Engineer
- Exploring a Career in Welding Quality Assurance or as a Certified Welding Inspector (CWI)
- Looking into a Career as a Pipe Welder
- Exploration of Other Welding Related Careers
Manufacturing Pathway Package

Our Manufacturing Package includes:

19 hands-on resources:
- 5 guideWELD VR welding simulators with MIG & Stick welding guns
- 1 guideWELD LIVE real welding guidance system
- 1 Weld Defects Kit
- 1 Bend Tester
- 2 Electrical Wiring Kits
- 8 additional Electrical Wiring Kit Wall Panels
- 1 Employability Skills Classroom Set

Up to 80 hours of course content that addresses topics such as:
- Career exploration
- Employability skills
- Electrical and welding safety
- Welding basics and techniques
- Welding defects

Plus activities and assessment tools for each hands-on resource.

https://www.realityworks.com/pathwaypackages
Manufacturing

Curriculum Topics:
• Career exploration
• Employability skills
• Electrical and welding safety
• Welding basics and techniques
• Welding defects
• Destructive and non-destructive testing for welding
• Basic wiring skills

Hands-On Learning Aids:
• guideWELD VR welding simulators with MIG & Stick welding guns
• guideWELD LIVE real welding guidance system
• Weld Defects Kit
• Bend Tester
• Electrical Wiring Kits
• Employability Skills Classroom Set

Up to 80 hours of content
Power, Structure and Technical Systems

Curriculum Topics:
- Career exploration
- Employability skills
- Welding technique basics
- Welding safety
- Setting up a welding machine
- Welding defects
- Destructive and non-destructive testing for welding
- Electrical safety and principals
- Basic wiring skills

Hands-On Learning Aids:
- guideWELD VR welding simulators
- guideWELD LIVE real welding guidance system
- Weld Defects Kit
- Electrical Wiring Kits
- Employability Skills Program Classroom Set

Experiential Learning Technology
Questions?
For more information please contact Realityworks, Inc. through email at information@realityworks.com or call toll free at 800.830.1416

Realityworks
Live it. Learn it.™
...an employee-owned company