



**G-E-T High School Curriculum**  
**Align, Explore, Empower**  
Scope and Sequence  
Advanced Welding

Unit 1 - Shop and welding safety

Throughout the length of the course

- Throughout the course students will learn and apply safety procedures while working in the welding area. Understand dangers in the welding area, burns, explosive gases, fumes and ultraviolet light. Students will demonstrate safe work habits including wearing correct safety equipment and pass safety tests.

In this unit, students will ...

Students will learn and apply proper safety procedures while working in the field of welding

Standards for Advanced Welding

PST1.d.3.e: Demonstrate safe practices around power units and equipment.

PST1.c.1.e: Identify risks of using hand tools and power tools.

PST1.d.8.m: Locate safety warnings, dangers and caution areas on equipment and in the operation manuals.

PST1.n.3.e: Identify safety equipment and protective clothing for welding.

PST1.n.7.m: Identify safety equipment and protective clothing for welding.

PST1.n.11.h: Use safety equipment and protective clothing for welding.

PST1.o.1.e: Be safe around welding equipment.

Unit 2 - GTAW Welding

Length of Unit - 2 weeks

- Students will understand basic parts and correct operation of Gas Metal Arc Welding equipment. Students will apply proper technique welding non ferrous metal. Welds will include butt and lap with SS and AL.

In this unit ...

Students will demonstrate proper welding terminology, set up and application using at GTAW welder on not ferrous metals. Students will be given Formative assessment on welding terminology, operation and completion of welds. Summative assessments will be given throughout the process.

Standards for Advanced Welding

**PST1.n.2.e:** Identify welding equipment.

**PST1.n.4.e:** Point out various welds.

**PST1.n.5.m:** Distinguish types of electric welding machines.

**PST1.n.6.m:** Recognize, color and numerical code marking on electrodes.

**PST1.n.8.m:** Describe types of welding operations.

**PST1.o.3.m:** Point out parts of a gas welding system.

**PST1.p.1.e:** Identify kinds and characteristics of metal materials.

### Unit 3 - GMAW

Length of Unit - 3 weeks

- Students will learn welding terms and proper set up and operation of a GMAW welder. Areas of instruction include settings techniques, and trouble shooting. Welds will include butt, fillet, lap, vertical up and down, square tubing and pipe. Different thickness and welding positions will challenge the welders set up and skills. Formative assessment on welding terminology, operation and completion of welds. Summative assessments will be given throughout the process.

(Students will demonstrate proper terminology, set up and application using a GMAW welder. Welders will perform quality welds on butt, fillet, lap, vertical up and down, square tubing and pipe. welding )

### Standards for Advanced Welding

**PST1.n.2.e:** Identify welding equipment.

**PST1.n.4.e:** Point out various welds.

**PST1.n.5.m:** Distinguish types of electric welding machines.

**PST1.n.6.m:** Recognize, color and numerical code marking on electrodes.

**PST1.n.8.m:** Describe types of welding operations

**PST1.p.1.e:** Identify kinds and characteristics of metal materials.

### Unit 4 - Fabrication blueprint and welding symbols

Length of Unit - 1.5 weeks

- Students will read blueprints, interpret welding symbols and design and build a hinge for an agriculture gate. Students will use knowledge of metal and design to limit stress and distortion when welding. Formative and Summative assessments will be given on blueprint reading, welding symbols and hinge design and construction.

In this unit ...

Students will design and produce a hinge using principles of design, blueprint reading and metal characteristics.

### Standards for Advanced Welding

**4C1.a.7.h:** Develop original ways to solve a given problem.

**4C1.a.8.h:** Design a product or service that could fulfill a human need or desire.

**4C1.a.9.h:** Apply past experiences to current problems in developing innovative solutions.

**4C2.a.12.h:** Contrast the benefits and drawbacks of various proposed resolutions to a given situation.

**4C2.a.14.h:** Analyze the impact of a decision using a systems thinking model.