Introduction to Welding (Proc 17)

PRE-TEST/POST-TEST TEKS BLUEPRINT

Pre-Test/Post-Test Development Overview

TEKS Addressed Selection Process

The Texas Essential Knowledge & Skills (TEKS) included in the course pre-test and post-test were selected for their direct relevance to the course content. This selection process was guided by the goal of assessing learners' understanding of specific topics and skills that are integral to the course. As a result, TEKS related to general employability skills or broader topics were often excluded. This focus ensures that the assessments accurately measure students' mastery of the subject matter, allowing educators to gain a clear insight into areas where students excel or may need additional support. By concentrating on content-specific TEKS, the tests provide a more precise evaluation of the students' knowledge and understanding of the core material.

Test Question Development Process

The questions created for the pre-test and post-test were designed using psychometric principles to ensure they are of high quality and fairness. This approach helps to accurately assess student understanding. These principles guide the development of questions to be reliable, valid, and free from bias, ensuring that they effectively measure the knowledge and skills the students are expected to acquire in the course.

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Knowledge & Skills Statement	Student Expectation	iCEV Lesson Title
(2) The student explores the characteristics of a successful worker in the global economy. The student is expected to:	(F) apply knowledge and skills to health and safety in the workplace as specified by appropriate governmental regulations	Workplace Issues
(3) The student evaluates the function and application of the tools, equipment, technologies, and materials used in welding. The student is expected to:	(A) employ welding equipment according to safety standards	Welding Shop Safety
(3) The student evaluates the function and application of the tools, equipment, technologies, and materials used in welding. The student is expected to:	(B) identify and properly dispose of environmentally hazardous materials used in welding	Welding Shop Safety
(3) The student evaluates the function and application of the tools, equipment, technologies, and materials used in welding. The student is expected to:	(C) explain the importance of recycling materials used in welding	Welding Shop Safety
(3) The student evaluates the function and application of the tools, equipment, technologies, and materials used in welding. The student is expected to:	(D) choose appropriate personal protective equipment	Welding Shop Safety
(3) The student evaluates the function and application of the tools, equipment, technologies, and materials used in welding. The student is expected to:	(E) evaluate skills related to health and safety in the workplace as specified by appropriate governmental regulations	Workplace Issues
(4) The student compares and contrasts welding joint design, material symbols, and welds. The student is expected to:	(A) demonstrate knowledge of welding sketches	Welding Blueprints & Symbols
(4) The student compares and contrasts welding joint design, material symbols, and welds. The student is expected to:	(B) identify types of welds such as fillet, groove, spot, plug, and flanged	Welding Blueprints & Symbols
(5) The student applies academic skills in relationship to welding. The student is expected to:	(A) demonstrate mathematical skills related to welding	Mathematics in Welding
(5) The student applies academic skills in relationship to welding. The student is expected to:	(B) demonstrate technical writing skills related to welding	Mathematics in Welding
(5) The student applies academic skills in relationship to welding. The student is expected to:	(C) apply accurate readings of measuring devices	Measurement in Construction
(5) The student applies academic skills in relationship to welding. The student is expected to:	(D) accurately use appropriate tools to make measurements	Measurement in Construction
(5) The student applies academic skills in relationship to welding. The student is expected to:	(E) solve problems using whole numbers, fractions, mixed numbers, and decimals	Mathematics in Welding
(5) The student applies academic skills in relationship to welding. The student is expected to:	(F) perform conversions between fractions and decimals	Mathematics in Welding
(5) The student applies academic skills in relationship to welding. The student is expected to:	(G) perform conversions between standard units and metric units	Measurement in Construction
(6) The student applies the concepts and skills of welding projects. The student is expected to:	(A) explore careers in welding	Virtual Job Descriptions for Welding
(6) The student applies the concepts and skills of welding projects. The student is expected to:	(B) understand welding codes such as American Petroleum Institute (API) 1104 and American Welding Society (AWS) D1.1	Welding Inspection & Testing
(6) The student applies the concepts and skills of welding projects. The student is expected to:	(C) work independently to fabricate a variety of welded projects with minimal assistance	Oxy-Fuel Welding & Brazing
(6) The student applies the concepts and skills of welding projects. The student is expected to:	(D) work collaboratively with other students	Introduction to Metals
(7) The student performs oxy-fuel cutting processes on carbon steels. The student is expected to:	(A) use safe operating practices	Oxy-Fuel Welding & Brazing
(7) The student performs oxy-fuel cutting processes on carbon steels. The student is expected to:	(B) perform safe handling of compressed gases	Welding Shop Safety
(7) The student performs oxy-fuel cutting processes on carbon steels. The student is expected to:	(C) identify components of oxy-fuel gas cutting	Oxy-Fuel Welding & Brazing
(7) The student performs oxy-fuel cutting processes on carbon steels. The student is expected to:	(D) demonstrate proper set-up procedures for the oxy-fuel process	Oxy-Fuel Welding & Brazing

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Knowledge & Skills Statement	Student Expectation	iCEV Lesson Title
(7) The student performs oxy-fuel cutting processes on carbon steels. The student is expected to:	(E) identify the factors affecting the oxy-fuel cutting of base metals	Introduction to Metals
(7) The student performs oxy-fuel cutting processes on carbon steels. The student is expected to:	(F) demonstrate proper cutting techniques such as piercing, straight line, and bevel	Oxy-Fuel Welding & Brazing
(8) The student performs shielded metal arc welding principles and practices on metals. The student is expected to:	(A) use safe operating practices	Shielded Metal Arc Welding: Preparation & Safety
(8) The student performs shielded metal arc welding principles and practices on metals. The student is expected to:	(B) demonstrate knowledge of welding currents	Shielded Metal Arc Welding: Preparation & Safety
(8) The student performs shielded metal arc welding principles and practices on metals. The student is expected to:	(C) apply shielded metal arc welding principles	Shielded Metal Arc Welding: Preparation & Safety
(8) The student performs shielded metal arc welding principles and practices on metals. The student is expected to:	(D) demonstrate proper set-up procedure for shielded metal arc welding	Shielded Metal Arc Welding: Preparation & Safety
(8) The student performs shielded metal arc welding principles and practices on metals. The student is expected to:	(E) determine appropriate electrodes for base metal in shielded metal arc welding	Shielded Metal Arc Welding: Preparation & Safety
(8) The student performs shielded metal arc welding principles and practices on metals. The student is expected to:	(F) perform fillet and groove welds in all positions	Shielded Metal Arc Welding: Preparation & Safety
(8) The student performs shielded metal arc welding principles and practices on metals. The student is expected to:	(G) prepare joints for welding	Shielded Metal Arc Welding: Preparation & Safety
(9) The student performs gas metal arc welding principles and practices. The student is expected to:	(A) use safe operating practices	Gas Metal Arc Welding: Equipment, Set-up & Maintenance
(9) The student performs gas metal arc welding principles and practices. The student is expected to:	(B) apply gas metal arc welding principles	Gas Metal Arc Welding: Aluminum
(9) The student performs gas metal arc welding principles and practices. The student is expected to:	(C) demonstrate proper set-up procedure for gas metal arc welding	Gas Metal Arc Welding: Equipment, Set-up & Maintenance
(9) The student performs gas metal arc welding principles and practices. The student is expected to:	(D) use appropriate equipment setup for base metal in gas metal arc welding	Gas Metal Arc Welding: Equipment, Set-up & Maintenance
(9) The student performs gas metal arc welding principles and practices. The student is expected to:	(E) perform fillet and groove welds using gas metal arc welding with various metal transfer processes	Gas Metal Arc Welding: Aluminum