

P R O J E C T D E S I G N : O V E R V I E W

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Name of Project: Fractions and Decimals, “What does this have to do with welding?”	Duration: 40min
Subject/Course: Welding / Mathematics	Teacher(s): Bird / Meyer
Other subject areas to be included, if any: Manufacturing, Pre Engineering, Construction	

Key Knowledge and Understanding (CCSS or other standards)	AG 210 A Welding Math AG 211 B Welding Math 2.2.4 Determine and apply the equivalence between fractions and decimals.		
Success Skills (to be taught and assessed)	Critical Thinking/Problem Solving - Convert Fractions to Decimals / Additional of fractions		Self-Management – Student application of addition and conversion of Fractions
	Collaboration – Math – Development of content and assignment Welding – Presentation and collection		Other: - Employable efficiency of added and converted measurement units.
Project Summary (include student role, issue, problem or challenge, action taken, and purpose/beneficiary)	Students will develop the skills necessary to accurately add and convert fractions to decimals. The addition of fractions is critical in the project layout phase of the manufacturing process. Fraction addition and conversion skills are utilized throughout the process of design, development and manufacturing. Students will complete a fraction worksheet to practice skills presented Students will develop a cartoon that illustrates Good / Bad measurement.		
Driving Question	How can I use fraction addition and conversion to improve my welding and fabrication skills?		
Entry Event	Discuss the Mars Orbiter Disaster and the loss of the \$100,000,000 NASA orbiter due to a missed conversion of a unit of measure. (Use video provided on “Mental Floss”) Show dramatic examples of Bad Measurement.		
Products	Individual: Fraction Conversion Worksheets		Specific content and competencies to be assessed: Math addition and unit conversion
	Team: Fraction Addition Worksheets		Specific content and competencies to be assessed: Math addition and conversion

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Making Products Public (include how the products will be made public and who students will engage with during/at end of project)	Worksheet and Good Bad Measurement Cartoon Results available online through the online parent contact system. Skills gained will be manifest through the projects of the student and their ability to add and convert fractions efficiently.
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Resources Needed	On-site people, facilities: Mr. Bird / Mr. Meyer
	Equipment: Measuring tape
	Materials: Mars Orbiter article, Fraction Worksheet. Paper and art supplies
	Community Resources: Examples of real life fraction addition uses.

Reflection Methods (how individual, team, and/or whole class will reflect during/at end of project)	Journal/Learning Log – Follow up with the bell ringer question		Focus Group – Advanced Ag Welding student score	
	Whole-Class Discussion – Discuss the effects of fraction use in the manufacturing process.		Fishbowl Discussion	
	Survey -		Other: - Assessment questions	

Notes:

PROJECT DESIGN: STUDENT LEARNING GUIDE

Project: Fractions and Decimals, “What does this have to do with Welding?”

Driving Question: How can I use fraction addition and conversion to improve my welding and fabrication skills?

Final Product(s) Presentations, Performances, Products and/or Services	Learning Outcomes/Targets knowledge, understanding & success skills needed by students to successfully complete products	Checkpoints/Formative Assessments to check for learning and ensure students are on track	Instructional Strategies for All Learners provided by teacher, other staff, experts; includes scaffolds, materials, lessons aligned to learning outcomes and formative assessments
(individual and team) Fractions Practice worksheet.	Practice Fractional Conversion	Worksheet Grading	Verbal and written instruction
Good / Bad fractions Cartoon	Illustrate understanding of taught principles	Evaluation of instructional understanding	Utilization of writing, drawing, and verbal communication throughout the project.