

EDUCATIONAL RESOURCES FOR K-12 EDUCATORS

*degrees that work.*

# Welding & Fabrication

Lesson Planning Guide:  
Researching Welding Careers / Science



*degrees that work.* is a broadcast production of Pennsylvania College of Technology and WVIA public television.

*More information is available at*

[www.pct.edu/degreesthatwork](http://www.pct.edu/degreesthatwork)

or

[www.wvia.org](http://www.wvia.org)

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More information is available at [www.weld-ed.org](http://www.weld-ed.org).

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## Pennsylvania College of Technology

PENNSTATE



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**‘degrees that work, Welding and Fabrication’**

Lesson Planning Guide – Science Version

**Unit:** High and Emerging Technology Careers

**Competency:** Research a high and emerging technology career based on your interests.

**PA Academic Standards Included:** 3.7.10D; 13.1.8A, B, E; 13.2.8B

**Approximate Time:** Seven to eight 45-minute periods.

**Prerequisite Skills**

**Reading, Writing, Speaking and Listening\***

1.2.8 Reading Critically in All Content Areas

A. Read and understand essential content of informational texts and documents in all academic areas.

1.4.8 Types of Writing

B. Write multi-paragraph informational pieces.

1.6.8 Speaking and Listening

E. Participate in small and large group discussions and presentations.

1.8.8 Research

B. Locate information using appropriate sources and strategies.

C. Organize, summarize and present the main ideas from research.

**Mathematics\***

None

**Science and Technology\***

3.7.10 Technological Devices

D. Utilize computer software to solve specific problems.

**Career Education and Work\***

13.1.8 Career Awareness and Preparation

A. Relate careers to individual interests, abilities, and aptitudes.

B. Relate careers to personal interests, abilities, and aptitudes.

E. Analyze the economic factors that impact employment opportunities.

\* Academic Standards, Pennsylvania Department of Education  
<http://www.pde.state.pa.us>

### 13.2.8 Career Acquisition\*

B. Evaluate resources available in researching job opportunities.

#### Performance Standards

<b>Performance Standard</b>	<b>Suggested Evaluation Method</b>
1. Develop a research paper about a high and emerging technology career of interest to you with 85% accuracy on the rubric.	Project evaluation – Rubric
2. Make a presentation to your class about a high and emerging technology career of interest to you with 85% accuracy on the rubric.	Project evaluation – Rubric

#### Suggested Projects

None

#### Multiple Intelligence Types

Verbal/Linguistic  
Intrapersonal  
Existentialist

#### Resources

1. PowerPoint presentation: High and Emerging Technology Careers  
Teacher developed
2. Websites: Career Guidance  
<http://www.careerexplorer.net/descriptions.asp>  
[http://careerplanning.about.com/od/occupations/a/career\\_briefs.htm](http://careerplanning.about.com/od/occupations/a/career_briefs.htm)  
<http://www.bls.gov/k12/>  
<http://www.pct.edu>
3. Video: Degrees that work: Welding and Fabrication  
<http://www.pct.edu/degreesthatwork/>
4. Website: Online Career Test  
<http://www.careertest.net/>
5. Rubric: High and Emerging Technology Careers Research Paper  
See attached
6. Rubric: Presentation of High and Emerging Technology Careers Paper  
See attached

\* Academic Standards, Pennsylvania Department of Education  
<http://www.pde.state.pa.us>

### Equipment/Materials/Software

1. Computer with internet access and PowerPoint software  
Any supplier
2. Data Projector  
Any supplier

### Suggested Learning Sequence

Strategy	Outline	Resources/Equipment
<b>Performance Standard 1</b>		
Introduction	<p>Start the lesson with a PowerPoint presentation/discussion on high and emerging technology careers and why these types of careers are beneficial to pursue. Use the websites suggested to help develop the presentation. Discuss what makes a career one that can be classified as “high and emerging technology” including the aspects of:</p> <ul style="list-style-type: none"> <li>· competition</li> <li>· geographic location</li> <li>· global influences</li> <li>· job growth</li> <li>· job openings</li> <li>· potential advancement</li> <li>· potential earnings</li> <li>· salaries/benefits</li> <li>· unemployment</li> </ul> <p>Show the video and ask the students what qualifies careers in welding and fabrication quality as high and emerging technology. Based on your definition, ask students to give other examples of this type of career.  <b>Related Academic Skills:</b> 13.1.8E</p>	Resource #1 Resource #2 Resource #3 Equipment #1 Equipment #2
Activity	<p>The students will use an online career test to see what kind of careers fit their strengths and personalities.  <b>Related Academic Skills:</b> 13.1.8A, B; 13.2.8B</p>	Resource #4 Equipment #1
Discussion	<p>Using results from the career test have the select several students share what they found out about themselves based on the online career test. They should also discuss what types of high and emerging technology careers fit their strengths and personality.</p>	
Activity	<p>Based on the results of the careers test have students select a high and emerging technology career that they might like to pursue. Have them research their chosen career and create a research paper.</p>	Resource #2 Resource #5 Equipment #1

Competency: Research a high and emerging technology career based on your interests.

	Distribute copies of the guidelines with the rubric criteria and discuss with them how the report will be graded. You may assign your own point values to each the rubric criteria to fit your grading system. <b>Related Academic Skills:</b> 1.2.8A, 1.4.8B, 1.8.8B, C; 13.1.8A, B <b>Related SCAN/Soft Skills:</b> Information A-C	
<b>Performance Standard 2</b>		
Student Presentation	Using a PowerPoint presentation, have the students present the information they found about their chosen high and emerging technology career to the class.  Distribute copies of the guidelines and rubric and review it as a class. Make sure students know how the presentation will be graded. You may assign your own point values to each part of the rubric criteria to fit your grading system. <b>Related Academic Skills:</b> 1.6.8E; 1.8.8C; 3.7.10D <b>Related SCAN/Soft Skills:</b> Information C, D; Technology B	Resource #4 Equipment #1 Equipment #2
Wrap Up	As a class review the many benefits of a high and emerging technology career and why they should consider one that falls within its definition.	

### Related SCANS/Soft Skills

#### Resources

None

#### Interpersonal

None

#### Information

- A. Acquires and Evaluates Information
- B. Organizes and Maintains Information
- C. Interprets and Communicates Information
- D. Uses Computer to Process Information

#### Systems

None

#### Technology

- B. Applies Technology to Task

#### Thinking Skills

None

#### Personal Qualities

None

### **Related Worksite/Work Based Activities**

None

### **Additional Resources**

None

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This planning guide was written by Eric Broughton, Physics/General Science Teacher, Liberty Jr. /Sr. High School, Liberty, PA.

## High and Emerging Technology Careers Research Paper

Name: \_\_\_\_\_ Date \_\_\_\_\_

Instructions: You are to write a research paper about the career that interests you and fits your strengths based off your online career test. Follow the guidelines below when writing your paper. You are to follow your format used in English/Communications class. (Introduction, body of paper, Conclusion)

### Guidelines

1. Why is the selected career considered "high and emerging technology"?
2. What are your personal interests that attracted you to this career?
3. Education or training need for your profession. Is a degree or certificate required?
4. Name at least two (2) schools offering the training in your field.
5. What is the cost of education for your career?
  - a. Tuition
  - b. Books
  - c. Room and Board
  - d. Certification test fees
6. List at least eight (8) courses/classes required in you major or for your career.
7. Time frame needed to complete schooling or training.
8. Must your education be updated (continuing Ed)?
9. Availability of Jobs
10. Starting Salary
11. Describe the geographic region in which you will have to live to obtain a job in your field.
12. Explain your personality, qualities, and skills that you discovered in your online career test that lead you to choose this career.
13. Bibliography – at least 5 sources. They may be listed in APL or MLA styles depending on what you have learned in your English class.

### Helpful Websites

1. [www.educationplanner.org](http://www.educationplanner.org)
2. [www.college.gov](http://www.college.gov)
3. [www.paworkstats.state.pa.us/gsipub/index.asp?docid=405](http://www.paworkstats.state.pa.us/gsipub/index.asp?docid=405)
4. [www.bls.gov/oco](http://www.bls.gov/oco)
5. [www.pacareerzone.org/home.jsf](http://www.pacareerzone.org/home.jsf)
6. [www.salary.com](http://www.salary.com)
7. [www.jobprofiles.org](http://www.jobprofiles.org)

8. [www.careertools.com](http://www.careertools.com)
9. <http://mappingyourfuture.org/planyourcareer/careership>

## Presentation of High and Emerging Technology Careers Paper

**Name:** \_\_\_\_\_ **Date:** \_\_\_\_\_

Instructions: You are to create a PowerPoint Presentation to show the class what your career is. You are to use the following rubric to create the slide show. Each part of the rubric should be represented with at least one slide.

### Guidelines

1. Why is the selected career considered "high and emerging technology"?
2. What are your personal interests that attracted you to this career?
3. Education or training need for your profession. Is a degree or certificate required?
4. Name at least two (2) schools offering the training in your field.
5. What is the cost of education for your career?
  - a. Tuition
  - b. Books
  - c. Room and Board
  - d. Certification test fees
6. List at least eight (8) courses/classes required in you major or for your career.
7. Time frame needed to complete schooling or training.
8. Must your education be updated (continuing Ed)?
9. Availability of Jobs
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11. Describe the geographic region in which you will have to live to obtain a job in your field.
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