Career Exploration for the ESOL Classroom

Manufacturing Industry

Teacher Guide

Institute for the Professional Development of Adult Educators

CAREER EXPLORATION FOR THE ESOL CLASSROOM

Manufacturing Industry

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The IPDAE project is supported with funds provided through the Florida Department of Education and Division of Career Adult Education.

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Introduction

Career Exploration for the ESOL Classroom provides students with an introduction to different career clusters. While learning about various careers, students will also learn that skills in reading, writing, language, and speaking and listening are integral to their success in the workplace. The content within this course of study provides students with an introduction to various career pathways.

This section of **Career Exploration for the ESOL Classroom** focuses on different careers in the manufacturing industry. Florida, like the rest of the United States, has a major shortage of qualified skilled workers in the manufacturing industry. In 2014, over 12 million individuals worked in the manufacturing sector in the United States. According to the National Association of Manufacturers, over the next decade nearly 3 ½ million manufacturing jobs will be needed with 2 million expected to go unfilled due to the skills gap and the continued retirement of individuals in the field. It's important to note that in 2014 the average manufacturing worker in the United States earned $79,553.00 annually, including pay and benefits.

Florida's manufacturing industry is diverse and includes companies in traditional manufacturing such as plastics, food processing and printing, as well as those engaged in breakthrough technologies like electronics, medical devices, aviation and aerospace.

In 2014, Florida's manufacturing sector was comprised of more than 18,200 companies employing more than 350,000 workers. According to Enterprise Florida, over 14,000 jobs were added by the two largest manufacturing sectors in Florida: medical equipment and supplies manufacturing and aerospace product and parts manufacturing.

Although many of the career pathways in manufacturing may require postsecondary education and training, there are entry-level positions that can be learned through on-the-job training programs. Building a career pathway in the manufacturing trade is an important task for students due to the diversity of the various clusters.

Topics addressed provide students with an introduction to the manufacturing industry. The lessons do not prepare students to be able to perform the skills needed in the various occupations. That is for a postsecondary or degree program, on-the-job training program, or apprenticeship program to accomplish. What this course does provide is an introduction to different career options in the field of manufacturing.

Overview of the Teacher's Guide

This **Teacher's Guide** was developed to provide the instructor with tools to assist students in better understanding the different jobs available in the area of

manufacturing while they are engaged in activities that connect with the College and Career Readiness Standards for Adult Education.

The design of each lesson in the **Teacher's Guide** is:

- College and Career Readiness Anchor Standards
- Introducing the Lesson
- Developing Academic and Career Skills
- Going the Next Step
- Handouts
- Glossary

The chart at the beginning of each lesson in the **Teacher's Guide** highlights selected **College and Career Readiness Anchor Standards.** This is intended to provide instructors with an overview of the academic standards that will be integrated into the contextualized learning approach of the lesson.

Each lesson begins with **Introducing the Lesson**. Instructors are provided with ideas on how to introduce the lesson in such a way as to give students the necessary background information on the topic as addressed in the corresponding student workbook scenario. The introduction also provides suggestions that involve students in an activity that connects to the lesson. Instructors should cover the information in the introduction prior to having the class read the scenario.

The **Developing Academic and Career Skills** section connects to both the student workbook scenario and specific anchor standards as identified in the College and Career Readiness Standards for Adult Education. These anchor standards are identified at the beginning of each lesson in the **Teacher's Guide**.

The contextualized approach provides instructors with suggestions on how to teach the exploration of careers in the manufacturing industry, specifically those careers that are entry-level, while integrating academic skills. All activities provide practice in speaking and listening skills, as well as reading, writing, and language.

Copies of reading materials, activities, worksheets, and templates are provided in the **Handouts** section of the **Teacher's Guide**. These handouts can be duplicated for students to use in the classroom and as resources for future study.

Going the Next Step provides the instructor with additional activities to use in the classroom or as homework assignments.

Handouts are located at the end of each lesson. These handouts can be printed to be used by students in the classroom. Some handouts provide information on the career for use by the teacher. Answer keys are provided, as necessary, as part of this section.

The **Glossary** in the **Teacher's Guide** is the same **Glossary** provided within the **Student Workbook**. Please note that the definitions were chosen to approximate the usage of the term in the scenario, rather than being an inclusive list of all definitions for a word.

Overview of Student Workbook

The **Student Workbook** should be provided for each student. The design of each workbook lesson includes the following sections:

- Vocabulary
- Scenario
- What Do I Think?

Vocabulary words are listed at the beginning of each scenario. If students have questions regarding the meaning of the words, have them consult the **Glossary** at the back of the workbook. The **Glossary** definitions were chosen to approximate the usage of the term in the scenario.

The **Scenario** for each lesson is based on real-world situations. The scenarios follow individuals as they explore different careers in the manufacturing industry.

Each scenario is accompanied by activities and handouts that are connected with the identified anchor standards and/or information on the selected career. These activities and handouts are provided in the **Teacher's Guide**.

What Do I Think? questions are situational judgment types of questions. Often these questions do not have a right or wrong answer, but rather require that students think about the situation and what they think is the best response to that situation.

Lesson

1

Introduction to the Manufacturing Industry – Malik, Hanna, Raul

Academic Area	College and Career Readiness Anchor Standards for Adult Education
Reading	*CCR.RE.ABE.3: Analyze how and why individuals, events, and ideas develop and interact over the course of a text.*
Career and Technology Standards	*CCP.ABE.01. Identify interests, skills, and personal preferences that influence career and education choices.*

Introducing the Lesson

Introduce the lesson by writing the following word on the board: *factory*.

Have students brainstorm words that come to mind when they hear the word *factory*. Write the students' answers on the board or chart paper. Students may include words such as: noisy, dirty, manufacturing, physical labor, unsafe, products, and making other things.

Share with students that factories or manufacturing plants in today's world are very different from those in the 1900s. Today's manufacturing plants are clean, safe, and innovative. Many of them use technology and robotics to make products. Discuss that there are many different types of careers in the field of manufacturing and that they will be learning about a few of them as part of the lessons.

Developing Academic and Career Skills

Tell students that manufacturing is the process of making products by hand or by machine. Most products that are used each day come from the manufacturing industry.

Draw a t-chart on chart paper or on the board. Have students look around the room and identify items in the classroom that were manufactured. Write those items in the left-hand column. Next, have students identify items that were not manufactured. Write those items in the right-hand column. Divide the class into teams. Have each team select one manufactured item and discuss how they think the item was made. Have the teams share their ideas with the class.
Tell students that in the manufacturing industry there are many different career pathways. Some careers deal primarily with the production of the product,

whereas other careers deal with designing the machinery, marketing and selling the products, or developing new products.

Provide each student with a workbook. Show students the different parts of **Lesson 1**. Share with students that each lesson starts with the title. Have students read the title aloud. Next show students the **Vocabulary** section of the lesson. Tell students that some of the words in each story may be unfamiliar to them. Some of these words may be in the **Vocabulary** section. Have students turn to the back of the workbook. Point out the **Glossary**. Have students look at how the glossary is set up. Next, have students look at the **Scenario**. Ask students if they know what a scenario is. Tell students that a scenario is another word for a story. Finally, point out the questions in **What Do I Think?** Tell students that the questions do not have a right or wrong answer, but will rather ask for their opinion.

Comprehension is the goal of reading, but it can be a difficult skill to master. Share with students that today's scenario is often referred to as a narrative. A narrative is writing that tells a story. In a narrative there are different characters. Discuss that students will be reading about Malik, a character who wants to obtain a job in the manufacturing industry.

Provide each student with a copy of the handout **Describe Your Character**. Explain to students that as they read, they should think about what they know about Malik. When they are done reading the scenario, they should complete the handout.

After they have completed the reading and handout, have students share their description of Malik with the class. Ask students what traits they feel that Malik has that will make him a valuable employee. Explain that identifying the characters in a passage is an important skill. This type of skill is also important in the workplace when meeting people with various personality traits.

Read aloud each of the questions from the **What Do I Think?** section. As a class, have students discuss their answers.

Taking It the Next Step

Provide students with the handout **Careers in Manufacturing**. Read the handout to the students and have them follow along while you are reading. As you read, make sure not to read too quickly since second language learners often need time to process what is read. Help students define words that are unfamiliar.

Have each student select a career pathway from the list. Tell students to think about the career pathway that they selected and why they selected the specific pathway.

Write the following sentences on the board or chart paper.

> The career pathway that I have selected is . . .
>
> The reason I selected this career pathway is because . . .

The job skills that I have that I think would be helpful are . . .

Share with students that they should complete each sentence based on the career pathway that they selected. Have students write their sentences on chart paper if possible. Have students check their sentences for correct sentence structure, grammar, and word choice. Help students revise and edit as necessary.

After students have completed their sentences, have them read them aloud to the class. As a class, discuss the importance of having good work skills. Reinforce with students that some skills are necessary for all career pathways in the area of manufacturing.

Share with students that they will learn more about selected pathways in the next lessons.

Handout: Describe Your Character

Character's Name _____

What kind of person is your character?

funny	shy	kind	nervous
hard-working	friendly	smart	loud
polite	greedy	happy	helpful
angry	bored	foolish	worried
good listener	not a good listener		

What other words describe your character?

Write two to three sentences describing what you like most about your character.

Handout: Careers in Manufacturing

If you're considering a career in the manufacturing industry, it's important to know that there are many different types of jobs available. Some are entry level, while others require more training and experience.

The following are six career pathways in the manufacturing industry.

Production: These are employees who work in the manufacturing plant and make the product. This area also includes people who make sure that the factory is running smoothly. Some jobs in this career pathway are entry level and do not require prior training or education.

Manufacturing Production Process Development: Workers in this career pathway decide what the product will look like and how the product will be made. Designers, engineers, inspectors, and technicians are part of this career pathway. Some jobs in this career pathway may require a degree.

Maintenance, Installation, Repair: These jobs deal with installing, maintaining, and repairing different machines and technology. Apprenticeships, on-the-job training, and postsecondary education may be required.

Quality Assurance: Products need to meet certain standards. Workers in this career pathway make sure that products are tested and meet the standards set. Job titles may include technician, engineer, inspector, tester, and manager.

Logistics and Inventory Control: Enough products need to be made so that orders can be filled. Workers in this area make sure that all deliveries are made on time. There are many different types of jobs needed in order to deal with storing, shipping, and receiving materials.

Health, Safety, and Environmental Assurance: Factories need to be safe places in which to work. Careers in this area make sure that machines are safe to use and that the factories and products are safe for employees and the environment.

Lesson

2

A New Job – Malik, Hanna, Raul

Academic Area	College and Career Readiness Anchor Standards for Adult Education
Speaking and Listening	*CCR.SL.ABE.2: Integrate and evaluate information presented in diverse media and formats, including visually, quantitatively, and orally.*
Reading	*CCR.RE.ABE.7: Integrate and evaluate content presented in diverse media and formats, including visually and quantitatively, as well as in words.*
Career and Technology Standards	*CP.ABE.01: Develop skills to locate, evaluate, and interpret career information.*

Introducing the Lesson

Introduce the lesson by giving each student the handout **Following Directions**. Tell students that their task is to follow the directions. Share with students that you want to see who can complete the directions first and be the winner. Debrief the activity by asking students what they learned.

Discuss with students that in the workplace, a work instruction is a tool provided to help someone to do a job correctly. When starting a new job, employees are faced with many different types of directions. It is important to learn the skills of reading, understanding, and following directions.

Developing Academic and Career Skills

Ask students to think of a time when they started a new job. What information were they given? What types of directions were provided? Reinforce that when starting a new career, there is plenty of new information to learn. The ability to comprehend and follow directions is an important real-world and workplace skill.

Divide the class into teams. Have each team read the scenario and answer the questions. As a class, have students share their answers.

Have students brainstorm some of the types of directions that they think Malik will have to follow in order to be successful in his new job.

Ask students the following questions:

- When is it important to follow directions?

- Why is it important to follow directions?
- What could happen if you do not follow directions?

Provide students with the handout **Following Directions**. After students have read the handout, use the following sentence starters and have students complete them.

> One thing I will start doing to do a better job of following directions is . . .
>
> One thing I will stop doing that prevents me from following directions is . . .

Have students share their ideas for becoming better at following directions.

Taking It the Next Step

A video is a powerful tool in today's classroom. Meaning comes alive and it brings the outside world into the classroom.

Tell students that it is never too early to start thinking about career choices. There are so many jobs out there and with a little research, they are bound to find something that is right for them in the interesting world of manufacturing. Share with students that they will be watching a film on the manufacturing industry in Florida.

Access the following website:

> http://madeinflorida.org/careers/

Made in Florida is an excellent resource for information on the manufacturing industry in Florida.

Before showing the video, preview the whole video yourself so that you can provide students with a brief overview. As you have students watch the video, don't be afraid to pause and discuss what has been shown. Play the video and share it as you would a book or any print item.

Provide students with a copy of the handout **What's It About?** Share with students that they will be watching a video on different manufacturing industries in Florida. As students watch the video, have them take notes on the key points and any question that they have about the content or vocabulary. After they have watched the video, have them sum it up by writing one or two sentences about what they thought was most important to them.

Debrief the activity by having students share their thoughts and questions.

Note: You may wish to have students watch the entire video or select the region in which you live. The entire video is 27.13 minutes, so a regional approach may be more appropriate. Determine what part of the video you wish students to watch as you are previewing the video. *Made in Florida 2015: What's made in your backyard? – a* teacher's guide and student activities from the Florida Advanced Technological Education Center of Excellence (FLATE) is available at:

- http://madeinflorida.org/MIF2015/
- file:///C:/Users/bv730/Desktop/2015%20Taxes/Made%20in%20Florida_Curriculum_FINAL%20low%20res-mb2_5-25-2015.pdf

This publication provides activities related to the film, as well as additional lessons on the manufacturing industry. Although many of the activities may be written at a higher readability level than that exhibited by your students, the materials are a great resource.

Handout: Following Directions

Directions: Show your skill in following directions. Read the directions and then do what they tell you.

1. Write your name at the top of the paper.
2. Write the numbers 1 to 5, one per line, on the paper.
3. Draw a small circle beside #1.
4. Put an "X" next to #2.
5. Write the word “workplace” beside #3.
6. Put an X in the lower right-hand corner of the paper.
7. Underline your name.
8. Say your name out loud.
9. Draw a circle around #4.
10. Punch 3 small holes anywhere in the paper.
11. Write your first name beside #4.
12. Write today's date beside #5 on your paper.
13. Stand up and say “I HAVE FINISHED FIRST” if you were first or else say “I HAVE FINISHED” out loud, then sit down.
14. Now that you have read all of the instructions, skip all of them except the one! If you have followed the instructions correctly, you should only have your name on the paper. Keep busy so that others will continue to read.

Handout: Steps for Following Directions

When reading and following written directions, remember these steps.

1. Read the directions from the beginning to the end.
2. Study any pictures or graphs that are included in the directions.
3. Think about what you have to do.
4. Reread the directions carefully, thinking about what you have to do.
5. Take note of key words, such as first, second, next, last to help you picture the order of what you need to do.
6. Read each step again, just before you actually complete the task.
7. Follow directions in the order they are written. Perform each step of the instructions in the exact order they are written.
8. Keep the instructions with you as you follow them. If there is something you don't understand, ask.

Handout: What's It About?

Key Points	Questions
Sum It Up	

Lesson

3

Next Steps – Malik, Mr. Lei

Academic Area	College and Career Readiness Anchor Standards for Adult Education
Reading	*CCR.RE.ABE.1: Read closely to determine what the text says explicitly and to make logical inferences from it; cite specific textual evidence when writing or speaking to support conclusions drawn from the text.*
Writing	*CCR.WR.ABE.9: Draw evidence from literary or information texts to support analysis, reflect, and research.*
Career and Technology Standards	*CCP.ABE.01. Develop skills to locate, evaluate, and interpret career information.*
Career and Technology Standards	*TN.ABE.03. Use Internet search engines such as Google, Bing, or Yahoo to collect data and information.*

Introducing the Lesson

Ask students if they know someone who works in the manufacturing industry. What do they do? What do they like best about their job? What do they like least? What does the factory look like?

Tell students that as they go through today's lesson they will learn more about the manufacturing industry and people who work in different jobs.

Developing Academic and Career Skills

Have students read the scenario and work in groups to answer the questions. Have each group discuss their answers with the class.

Share with students that the career pathways in the manufacturing industry continue to change as manufacturing becomes more high tech and automated. Tell students that today they will read about three people who work in the manufacturing industry in the United States.

Provide each student with a copy of the handout **U. S. Manufacturing: What's It like to Work in a Factory?**. Have students number the paragraphs. Next have them chunk the text into three sections – one for each of the individuals interviewed. Have students read each of the chunks of text.

After students have read about each individual, ask the following questions:

- What does the worker like most about his/her job? How do you know?
- What changes has the worker seen?
- What did you learn by reading this section?

Share with students that writing about what they have read and sharing their opinions are important skills. Provide students with the handout **What – Why – How**. As a class, discuss what an opinion is and the importance of providing support or evidence when giving one's opinion.

Tell students that they should provide their opinion of working in the manufacturing industry based on what they have just read. Share with students that they should provide reasons for their opinion and evidence from the article. Have students complete the graphic organizer.

Debrief the activity by having students share their ideas with the class. Make sure that students have provided evidence from the article to support their opinions.

Taking It the Next Step

Share with students that **Career Exploration for the ESOL Classroom** is only an introduction to the many different careers in the manufacturing industry. Explain that it will be important that they further explore their selected career pathway.

Have students identify one career pathway in the manufacturing industry in which they are most interested. Have students watch a video on that career from **CareerOneStop**:

http://www.careeronestop.org/Videos/default.aspx

CareerOneStop provides free videos on different types of careers, as well as workplace skills and abilities. *Note that many of the career videos are also provided in Spanish.*

After watching the video, you may wish to have students further explore their selected career by doing an Internet search or by showing students how to do a career search using **CareerOneStop** at:

http://www.careeronestop.org/ExploreCareers/explore-careers.aspx

Debrief the activity by having students share three things that they learned about their selected career.

Students may also be interested in meeting with a career counselor and taking an interest inventory. Florida provides the **Kuder® Career Planning Inventory**.

The O*NET Resource Center also provides a free interest inventory at:

http://www.onetcenter.org/IP.html

Handout: U. S. Manufacturing: What's It Like to Work in a Factory?

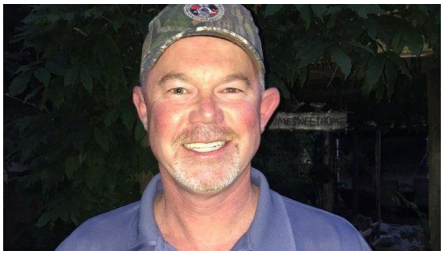
By Emily Young, BBC News 19 June 2015
Adapted from the article retrieved from the World Wide Web at:
http://www.bbc.com/news/business-33140185

Over the past few weeks, the BBC has been reporting on the trends in U.S. manufacturing - the challenges of the digital age, running factories in the city and why young start-up entrepreneurs are attracted to the industry.

But what's it like to actually work in manufacturing, making the goods we use on a daily basis? And how has it changed - from Henry Ford's assembly lines to today's cutting edge factory floor?

As of May 2015, there were over 12.3 million people - nearly 9% of the total US workforce - engaged in manufacturing everything from Ford Mustangs to Steinway pianos.

We hear from three workers who've been building the products that many Americans have used:



Darry Woodson has worked for the plane-maker Boeing for 26 years. He has been making wings for the 737 plane for nearly two decades.

"It's crazy busy but I love it. You come in at 3 am and you go home 1:30-2 o'clock and it feels like just three hours. If I sat behind a desk all day, I'd fall asleep.

Making the wings has changed considerably. They're getting easier to build and faster.

We do a lot more by machine than we used to. But we do a lot more of the same, repetitive motion which makes you good at [a particular task] but makes you worn out. We do a lot of job rotation and that keeps the [injuries] down.

We've cut the size of the plant in half, eliminated half of our footprint but we're still pushing out more aircraft than has ever been made commercially - 42 planes a month [up from 14 planes a month] more than 2 a day. Every six hours you got to get to a new wing."

Dana Sims has worked for the engine manufacturer Cummins in Columbus for 15 years. "I started on the assembly line, where I worked for about four or five years. I've been in my current job [as a trainer] for three years. My 13 year-old

daughter laughs at me for always pointing out Cummins engines but I'm proud of what I do.

My mum works here, my brother and a cousin. It's great - I get to see my mum every day, we try to have breakfast every morning. And I still hear about it if she catches me slacking off.

There are not a whole lot of women in leadership roles in my plant [but] there are plenty of women who could work circles around the others. There's a 50-year old woman here who would work a 50 - 75 hour week and never look tired. We would joke that she's a robot. The amount you work can vary from 40 hours a week to 65 hours a week.

The technological advances over the years just blow my mind. When we first started building a new engine model we had a part you had to kind of bear hug and use your knee and leg to flip it over to get it into the correct position. It wasn't heavy but extremely awkward. Now there is a manipulator that does all that for you so there are less injuries from strain."

Sonny Workman has worked for the home appliances manufacturer Whirlpool in Ohio for 29 years. He is now a team leader at the company.

"The one thing that's changed in my time is the focus on safety. In the past it was numbers, numbers, numbers and now it's put safety first and the numbers will come.

I was on the core team that helped develop a new line of washing machines. The engineers came up with the design and my team worked out how we are going to support the operation. We had to combine a lot of jobs but still give them [the workers] time to do the jobs and keep them safe. Some of the lines in the past kind of put the operators in unsafe positions.

I love my job but there have been difficult times. When I was just a regular assembler on the line - I felt like I was going nowhere. My life is better than just shooting the screws - or putting a panel together. But you gotta create your own momentum.

The style [of washing machine] today is different - they've gotten more efficient. And interestingly they've gotten bigger. Sometimes I wonder - where do all these washers go? We make 20,000 a day - where do they all go?"

Handout: What-Why-How

What do you think?	**Why** do you think it?	**How** do you know?
This is your opinion. Make it a complete sentence.	*These are the reasons for your opinion. Have at least 2 or 3 reasons.*	*These are your pieces of evidence, your examples, and your proof from the article.*

Glossary

Assembled: *verb* – to put something together.

Attention: *noun* – to notice or observe something.

Automated: *verb* – to run or operate something by using machines or computers instead of people to do the work.

Career: *noun* – a profession that usually needs training.

Career Pathway: *noun* – an organized way to career planning for individuals who want to start a career or improve their skills for different or better job opportunities.

Detail: *noun* – a small part of something.

Factory: *noun* – a building where goods are manufactured or assembled.

Logo: *noun* – a symbol or design to identify a product.

Logs: *verb* – to write or record something into an official record.

Machining: *noun* – a manufacturing term that describes taking material and shaping it into an intended design.

Maintenance: *verb* – a manufacturing term that describes joining pieces of metal together through high heat.

Manufacturing: *adj., noun, verb* – the making of goods or producing something.

Manufacturing product technician: *noun* – a person who sets up, tests, and adjusts manufacturing machinery or equipment.

Pre-employment: *adj., noun* – the time before a person is employed or process required before a person starts a new job.

Production: *noun* – the act of making or producing something.

Quality: *noun* – how good or bad something is.

Quality Control: *noun* – a system of maintaining standards or a certain level of quality in products.

Problem-solving skills: *noun* – being able to work through the details of a problem in order to reach a solution.

Production quota: *noun* – the goal for the amount and rate that something is to be manufactured.

Technical skills: *noun* – abilities acquired through learning and practice, such as job skills.

Technician: *noun* – a person employed to look after technical equipment or whose job relates to the practical use of machines.

Time-management: *noun* – the ability to use one's time effectively or productively, especially at work.

Transferred: *verb* – to move to a different job or position.

Welding: *verb* – a manufacturing term that describes joining pieces of metal together through high heat.

Workstation: *noun* – an area where a specific job is done.