Constructed Response: Amanda Reel, Welder

45 MINUTES

Students read an interview with a Welder, Amanda Reel. After reading the interview, they answer questions about Amanda's career journey, current position, and the people who helped her along the way.

TASC TIE-IN Constructed response

PREP

- Read *Interview with Amanda Reel, Welder* article

MATERIALS

- *Interview with Amanda Reel, Welder* article
- *Constructed Response: Amanda Reel* handout

EXPLAIN

1. Manufacturing has traditionally been seen as hard, dirty work that is mostly a job for men. Today's Manufacturing jobs look very different. There are also more and more women working in the sector. Welders can work in a variety of settings and for a wide range of companies.

2. Write the word "weld" on the board. Ask for volunteers to define the word. If students are having trouble, provide them with the following definition:

   › ***Weld:*** *to join together metal pieces or parts by heating the surfaces to the point of melting using a blowtorch or other means, and then pressing or hammering the pieces together so they cool as one piece.*

   Tell students that today they will read an interview with Amanda Reel, a Welder at a Manufacturing plant.

3. Distribute the *Interview with Amanda Reel, Welder* article. Ask students to read and annotate it, noting the different types of welding that Amanda can do, what she likes about working in Manufacturing, and what she thinks would help make more girls and women interested in the field. They should also mark anything interesting, surprising or confusing.

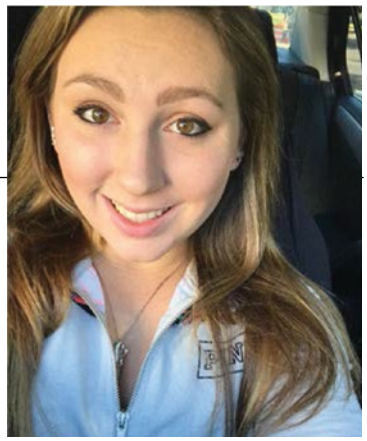
DISCUSS

1. In pairs, ask students to discuss what they learned in the reading, and what was interesting, surprising or confusing.

2. Ask students to share what they learned about welding jobs with the class. Would you like a job like Amanda Reel's? Why or why not?

3. Distribute *Constructed Response: Amanda Reel*. Ask students to work in pairs to complete the organizer.

Interview with Amanda Reel, Welder



Adapted from http://www.pma.org/campaign/8WIM/impact/Holidays2016-WiM-Impact.pdf

Women in Manufacturing (WiM) speaks with Amanda Reel, a Welder at a fabricating plant.

Please tell our readers a little bit about your job and what your work looks like every day.

I am a Welder at a large equipment Manufacturing company. In addition to welding, I handle a number of other tasks in the Sheet Metal Department. Some days I weld, some days I cover drill press and other days I run the laser cutting machines. I also cover for my supervisor or lead man when they are out. Every day I come into work and do a different job, so it's always interesting. When I am welding, I have to read prints and fabricate parts, which means I have to be able to read and understand blueprints. Then I assemble the parts and weld them together. My department makes laser cutting machines, which are our most popular product.

How did you arrive at your current position? What attracted you to a career in Manufacturing?

When I was just about to turn 18, the company called my high school, Howell Cheney Technical High School, and asked if they had any Welders with a good welding skill set. My teacher asked me if I would be interested in an interview. I took the opportunity in a heartbeat. Within one week they contacted me and set up my initial interview. The interviewer asked me to read a blueprint and tell them everything I knew about every type of welding. I was also asked to outline my skills. I would say it went very well. I was immediately offered an in-the-field interview, to demonstrate my physical welding skills. In the field interview, I welded MIG (gas metal arc welding, or metal inert gas welding) and TIG (gas tungsten arc welding, or tungsten inert gas welding) both vertical and flat. They told me that was all they needed to see and that I would be contacted soon with my start date. I have been a Welder ever since. When I was 14, I chose welding as the trade I would study through high school. My junior year I decided to make welding my career because it's not often you get to turn your passion into a career. Also, I like the challenge of Manufacturing. Something about making things from scratch entices me.

There are many stereotypes about the Manufacturing sector, such as dirty and dangerous workplaces and are most appropriate for men. Have you encountered stereotypes like these in your education or career and how did you overcome them?

My whole career has been full of encounters with these stereotypes. One comment I hear far too often, when someone asks me what I do and I explain to them that I am a Welder, is "Wow I've never met a pretty Welder… actually I've never met a female Welder!" I am our company's first woman Welder, but I will not be the last! It is not true that women can't be Welders. Unfortunately, many are steered away by the awful stereotypes that exist about welding such as it being a man's job, a dirty job,

or a hard job. It is also untrue that welding is only performed in a very dirty environment. That is not the case at my job and at many other Manufacturing companies. In fact, many facilities are cleaner than you can ever imagine! Most of the ones I've seen look like picture-perfect factories.

Research shows that women, especially women in STEM fields, do better if they have a mentor. Has mentorship played any role in your career?

Mentorship has definitely played a huge role in my career. I would not be where I am today without the help of my mentors. My two welding teachers, Kathy McGirr and Bob Cullen, were my first mentors and they helped me to learn almost everything I know about welding. My mentor at my current position is our lead man, Dave Reynolds. Dave has helped me learn new skills, like repair work and time management, through hands-on training. He has also demonstrated great work ethic, leadership skills and brainstorming to make even the most difficult problem seem easy. I try to emulate these skills as I grow in my career.

One of the key findings in WiM's survey is that there is significant overlap between what young women want in careers and the attributes of careers in Manufacturing today. But the survey also found that, too often, young women are not aware of the opportunities available in Manufacturing. What do you think can be done to spread the word to women about career options in modern Manufacturing?

Certainly organizations like Women in Manufacturing (WiM) that make it their mission to support women in Manufacturing go a long way towards raising awareness about Manufacturing. Local WiM chapters have a strong impact here as well. For

example, the WiM Connecticut chapter was established just over a year ago and has really created a buzz in the community. Promoting Manufacturing as a career to middle and high school students—and not just the boys—is crucial. Teachers, guidance counselors and parents are instrumental in communicating the opportunities Manufacturing presents. Many kids, especially girls, don't even know these good, high-paying, rewarding jobs exist. I'm sure if young women knew what an interesting, well-paying career they could have in Manufacturing they would give it a closer look.

Our survey also found that the majority of women in Manufacturing today would recommend the sector to young women considering career options. Would you recommend a career in Manufacturing? And, if so, why?

I would definitely recommend that young women choose a career in Manufacturing! There are so many opportunities out there. You can have any kind of job you want; machine operator, engineer, sales and marketing, finance, even CEO. There is literally something for everyone in the field of Manufacturing. The possibilities are endless! •

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Constructed Response: Amanda Reel

Answer the questions below based on the reading about Amanda Reel's career as a Welder.

1. Describe Amanda's feelings about her career.

2. Identify two ways that Amanda became prepared for her job or updated her skills.

3. What is Women in Manufacturing (WiM)?

4. What has been challenging for Amanda in her career as a Welder?

5 How did Amanda first begin working in the Manufacturing field?

6 Why does Amanda mention a few specific people as being influential in her life? How did they influence her?

7 What does Amanda say about women working in Manufacturing?

8 What else would you like to ask Amanda?

Career Narratives in Manufacturing Series

Students learn about Manufacturing careers from workers themselves, while practicing reading strategies such as developing and answering questions from question stems.

ACTIVITIES IN THIS SERIES

3.1 • Using Question Stems as a Reading Strategy: Career Narratives in Manufacturing

- **Shipyard Welder**
- **Machinist**
- **Quality Control Inspector**
- **Industrial and Systems Manufacturing Engineer**
- **Sales Representative**

3.2 • Computer Research: Career Narratives in Manufacturing

45 MINUTES

Using Question Stems as a Reading Strategy: Career Narratives in Manufacturing

Constructed response

Students read one or more Manufacturing career narratives, then develop and answer questions as a reading strategy.

PREP

In the preceding class, have students sign up to read the Manufacturing narrative of their choice. It's okay if there is a career that no one signs up for. Be prepared to discuss the utility of this activity for students who are interested in sectors other than Manufacturing.

› *Examples of uses include improving reading skills, practicing developing questions about reading, expanding vocabulary, learning about Manufacturing professions they may come in contact with in their work in a different sector.*

MATERIALS

- *Career Narratives in Manufacturing Sign-up*
- *Career Narrative Questions* handout
- *Career Narratives*

EXPLAIN

1. Distribute the *Career Narrative Questions* handout. Ask students to complete the first three prompts explaining why they chose the story, what they predict it will be about and what they expect to learn from reading it. If some students don't remember which narrative they chose, refer to the sign-up sheet.
2. Ask students to annotate their reading, marking parts they thought were important, interesting, surprising or confusing.
3. Distribute the career narratives, and give students time to read and annotate.
4. When students have finished reading, direct them back to the questions handout. Explain that research shows that when people ask their own questions, they remember more of what they read. Here, part of the question is written for them, and part of the question they will have to fill in. Ask students to complete the questions. You may want to have students read aloud a few of the questions once they are completed, or you can circulate to check progress.
5. After students write the questions, ask them to answer the questions.

Career Narratives in Manufacturing Sign-up

In the space below, sign up to read a story about one of the following careers:

- **Shipyard Welder**
- **Machinist**
- **Quality Control Inspector**
- **Industrial and Systems Manufacturing Engineer**
- **Sales Representative**

Name	Career Narrative

Career Narrative Questions

Before reading the story, complete the statements below:

1. I chose the story about being a _____ because _____

_____

_____

_____

2. I predict this narrative is about _____

_____

_____

_____

3. I expect to learn _____

_____

_____

_____ from reading this narrative.

After reading the narrative, complete and answer the following questions:

4. What does a _____ do every day?

5. What are the best parts of being a _____?

6 What are the challenges of being a _____?

7 Why did _____ say _____? What does it mean, and why is it important?

8 What is one surprising and/or interesting thing you learned about being a _____?

9 What else do you want to find out about being a _____ that's not explained in the article?

10 Do you think you would want to be a _____? Why or why not?

Shipyard Welder, Thomas Tripp

Adapted from http://www.shmoop.com/careers/welder/typical-day.html

Thomas Tripp wakes at 5:45AM. As he gets ready to leave for work, his mind wanders back to high school. As far back as Thomas can remember, he wanted to work with his hands. That day in auto shop when he fired up a welding torch for the first time, he knew he'd found his calling. Now, several years into his career, he knows exactly what it means to work with his hands—satisfying and also tiring. He pops his morning Excedrin and heads out the door.

Image: http://harrisgas.com/wp-content/uploads/2013/08/WELDER_1.jpg

He arrives at the weld site, a shipyard, at 6:30AM. Thomas has worked at six firms in the past six years, which is pretty typical for a welder. As he walks onto the site, he's greeted by the sound of squealing metal.

Thomas realizes he's running late for a meeting with his supervisor, Hurley. He hands Thomas a blueprint. "Hope you like tight spaces. You'll be working on the inside of the ship." The blueprint calls for a lot of complex welds...and a lot of grinding and cutting. Thomas sighs. He sees he'll be doing the same thing over and over and over again. Time to get started.

7:15AM. The first thing to do is strap on the safety gear. A respirator snaps snugly over his face, moist and plasticky. He pulls on boots so thick they feel like Santa's boots inside another pair of Santa's boots. He yanks on heavy gloves, thick glasses, and a visor.

It takes another half hour to set up his welding equipment. It's mostly TIG (tungsten inert gas) welding today, so setup time is shorter than usual. Next he crawls deep into the dark insides of the ship hull. And then he welds.

Welding is highly technical, but it's often the same thing over, and over, and over again. His welder lights up. Sparks fly. Metal solders (joins) to metal. Time passes. Distantly, he hears a sharp yell as someone burns themselves with

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Image: http://maritime-connector.com/ships_uploads/wana_bhum-9308663-container_ship-8-140842.jpg

sparks. He looks into the darkness in the direction of the noise. Ow! Now it's Thomas making the noise as the sparks fly a little too close. He slows down so he can stay focused.

Time stretches and the hours pass. He works by himself, building the ship one metal plate at a time. As he works, his mind wanders. His girlfriend Tiarra wants him to make more money. He's explained to her that his hourly rate will go up as he gets more years of experience. But Tiarra wants a bigger paycheck now. She's been reading about undersea welding and keeps prodding Thomas to do that instead. Thomas has thought about underwater welding. He can swim, he has the welding skills, and he does know two colleagues who went that route.

Finally, after three hours in the hull, it's time for lunch. Thomas crawls out of his hole to enjoy a sandwich, the fresh air, and some socializing with co-workers.

In the afternoon Thomas's assignment involves climbing high up on a girder (a strong beam, often made of steel). It's a welcome change of pace, even if he's a little nervous to be high up off the ground.

The day continues, and Thomas welds. He sees the result of his work right in front of him, which always gives him satisfaction. That's why he got into this work in the first place. He loves making things, and it's still exciting to think that he's helping to make a ship!

At the end of the day, he climbs down off the girder, packs up his equipment, and takes off his gear. He shouts goodbye to his supervisor and to his co-workers. He drives home and thinks about the future. Maybe he will switch to underwater welding. Maybe he'll go for the CNC training his boss keeps offering. Or…maybe he'll just keep doing what he's doing. At least it's predictable. •

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Machinist, Molly Woods

Adapted from: http://flate-mif.blogspot.com/2012/04/day-in-life-of-machinist.html

Meet Molly Woods, a Machinist at Vulcan Machine Inc.—a company that specializes in custom aerospace machining and commercial precision Manufacturing. Working with machines is second nature to Woods, who has been working for Vulcan—her family owned business—since 2007. "From start to finish I like running the machines, cleaning the parts, and I love the 'hey I made that' feeling." Woods loves new challenges. She started out doing basic work on the machines, then moved to doing more complex tasks. On any given day, her work could include working with six to seven different machines and ensuring they run smoothly. She works on CNC (Computerized Numerical Control) machines that manufacture parts for Vulcan's aerospace customers. She is also responsible for operating the mills and lathes, using various methods to remove burrs, and boxes the final product readying them for final shipment. "My job is highly productive and interesting," says Woods. "I love making parts and seeing that the products that I manufacture can be used by another company."

A Machinist's job is not all work and no pay. Nationally, Machinists earn, on average, about $20 an hour, with average annual income of nearly $40K (https://www.bls.gov/Oes/current/oes514041.htm). Not only is money a motivating factor, but working as a Machinist offers tremendous opportunities, especially for women. According to the Department of Labor, only 3.9% of the total Machinist workforce is comprised of women. Woods agrees that machining may not be a traditional pathway for women, but she encourages women and girls of all ages to look into it as a viable educational and professional pathway that offers a rewarding career. The NIMS (National Institute of Metal Working skills) Certification, for example, is a great way to get started and gain a nationally recognized industry certification.

Just what does a Machinist do?

A Machinist uses machines to shape metal into parts needed to build other machines or tools. You could be making anything from the bolts needed to hold

a bulldozer together, to the joints on robots to keep their arms moving freely. Machinists are basically metal-carvers. They shape metal into whatever form it needs to be.

There was a time when Machinists used equipment like mills, lathes, and handsaws to make their parts. That's the old school way. Nowadays, most machinists are also trained in computer-numerically controlled (CNC) tools. Basically, Machinists write a program (called "G code") telling their CNC tools how to do the cutting for them. The CNC system works through a series of steps—a lot of steps. It is normal to program 400 steps to make one full rotation of an inch long gear.

The results are incredibly detailed. A CNC machine tool can cut at measurements of 0.001 of an inch or less. That's about a quarter of the thickness of a piece of paper!

So, things are definitely changing in the industry. This is a good thing. Hardworking men and women toiling away in dark and steamy factories is way behind us now. A Machinist today looks less like a Henry Ford assemblyman, and more like a computer programmer.

These days the modern Machinist actually faces competition from Engineers, who can design products and let the computers do the building for them, instead of giving the work to a Machinist. If you wouldn't mind designing as well, which means a few more years of intense schooling, it may be worth it to go the Engineering route.

However, if you're interested in becoming a Machinist—you can begin work pretty quickly out of high school. All it takes to get started is a certificate or a two-year degree from a technical college in Machinery. Then you're off to land an apprenticeship. Which is a way to further your education while getting paid. •

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VOCABULARY

CNC machine: computer numerical control; a machine that controls cutting and drilling tools for precision work

lathe: a machine for shaping wood, metal, or other material, by using a rotating drive that turns the piece being worked on

aerospace: the industry that makes and operates airplanes and spacecrafts.

mill: a machine that grinds or crushes something

burr: a rough edge or ridge left on an object after it has been cut by a machine or tool

Quality Control Inspector

Adapted from https://www.sokanu.com/careers/quality-control-inspector/

http://www.lr.org/en/_images/229-81070_Korean_inspector_Lloyd_s_Register_Energy.jpg

My name is Sam Shah; I am a Quality Control Inspector at Associated Products. Before I started working here, I wasn't even sure what a quality control inspector does! A Quality Control Inspector examines products and materials for defects or deviations from the item's specifications. We ensure that your food will not make you sick, that your car will run properly, and that your pants will not split the first time you wear them! We monitor quality standards for nearly all manufactured products, including foods, textiles, clothing, glassware, motor vehicles, electronic components, computers, and structural steel. I work in a plant that manufactures electronic components. I inspect the components that are used in computers. If the components don't work, the computers don't work!

First off, I read the specifications (measurements, materials to be used, and other elements of the design) for the specific component and make sure I understand what it's supposed to look like and be able to do. I monitor the production process to make sure it meets the standards for product fabrication. If I see something that I think could be done better, I'll make a recommendation.

Once a component is complete, I'll do many tests to make sure it's right. This includes things like making sure all the measurements are perfect. I sometimes use tools like rulers, calipers, gauges, and micrometers, but we mostly use electronic inspection equipment, such as a coordinate-measuring machine

(CMM). If I see a problem, I'll check a few more to find out where the problem is. Is it a design problem? Was there a mistake in cutting the parts? Is it an assembly problem? I need to find out exactly where the issue is so we can fix it! Until it's fixed, I am responsible to reject the part so that it doesn't affect the overall product. It's a lot of responsibility, but I like it.

https://globalparts.aero/wp-content/uploads/2015/05/processes-right.jpg

I make sure to track all my findings very carefully, so I can discuss them with my supervisor. I document every test I do and every result, and I create reports so that the whole team can be in the loop. Our inspection process is getting more automated; we have systems installed at a few different points in the production process. In those cases, my job is to monitor the inspection equipment, make sure the reports that it produces are accurate, and randomly pull out parts for a manual check.

I didn't have any experience when I got this job, but it seemed like a good place to be while I looked for something else. Here I am, three years later! I've learned a lot on the job: how to read a blueprint; how to use tools like calipers, gauges, and micrometers, and how to do some basic computer-aided design (CAD). My supervisor says that a positive attitude and a good work ethic are just as important as technical skills. He did tell me that there's a quality control management program at the local community college and I'm thinking about enrolling in a weekend program. I think I'm going to stick with this career, and I want to advance as far as I can go! •

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VOCABULARY

Caliper: measures the distance between two opposite sides of an object

Gauge: measures the amount of something

Tim Leopold, Industrial and Systems Manufacturing Engineer

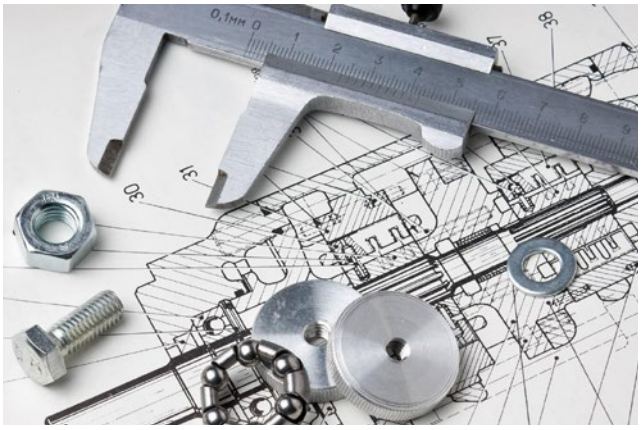
Adapted from http://mycooljob.org/wise/industrial_engineer.php

What exactly do you do?

My job is to evaluate Manufacturing problems and help the Manufacturing departments when they aren't able to properly analyze their problems. One example of this is in our paint department. Because Honda is always striving to produce the highest quality product, we need to make sure that all of our vehicles have no paint defects when they are delivered to our customers. The way we do this is by inspecting every unit that passes through our paint shop, and repairing the units that have a problem. The units that require some re-work are sent to our repair area while the rest of the car bodies (we call them "good bodies") are sent to the good body storage. The storage area acts as a waiting room—the good bodies wait for the unit to be repaired, so it can be joined to its original body in the right sequence. There are many variables that play into how large a good body storage area should be. Because of the complexity of this system, I was asked to study and determine the appropriate size for good body storage areas.

Describe a typical day.

My typical workday has a nice balance of engineering work done behind a computer, where I will study a particular problem, and frequent trips to the Manufacturing floor to go to the actual spot where the problem is taking place. Because the information I need isn't always readily available, we have project teams so we can work together and draw on the expertise of the group. We collect data about the problem at hand, double check the information, and then use the data to help solve the issue.



http://www.nbn.org.il/wp-content/uploads/2014/01/engineering_mechanical_3042380_cropped.jpg

What's the coolest part of your job?

The best part of my job is that I can use my technical abilities creatively. Going through high school and college prepares you technically and gives you the skill sets and tools required to troubleshoot and solve problems, but after that it is our responsibility to know which techniques to use and when to apply them. Learning what approach to take and what theory to use will make the difference between just fixing a problem and coming up with a robust solution to alleviate a problem so that it doesn't happen again.

How do people react when they learn what you do?

Most of the time I tell people that I work at Honda using computer-based simulations to test equipment designs. Some people ask me where I learned to do that. I learned the fundamentals of statistics and probability and some other related concepts at college. I didn't learn how to apply the concepts I was learning until an

internship I had with Honda while I was still at college. The real world application of my studies strengthened my decision to become an Industrial Systems Manufacturing Engineer.

How did you become an Industrial Systems Manufacturing Engineer?

In high school I decided that I would like to give Engineering a try. I didn't have any particular Engineering discipline in mind but I wanted to take a closer look at all of them before I decided. After I took a Fundamentals in Engineering Course, I decided that Industrial and Systems Engineering was the best fit for me because it provided the business aspect as well as the Engineering background.

What disappoints you about your job?

My current group acts in an advisory role. We generally provide recommendations to the department, but we don't have any responsibilities in actually installing or implementing our solutions. Because we aren't involved directly with production we need the departments we are helping to try out the solutions themselves. Also, by the time we complete one project, we are already starting up another one, which means that we generally don't have time for the implementation, testing and debugging phase.

How has your job changed over time?

My role has changed slightly since I first started. I am now not only taking on projects myself, but I am also mentoring and training others. This is a nice change of pace because it allows me to break up the project work with the work of helping develop my colleagues' capabilities.

What are some of the most important skills and abilities needed for this job?

The most important skill needed for this job is a systematic problem solving approach. Having the correct problem solving approach will allow you to break down even the most complex problem.

A willingness to learn new things and be open to suggestions from colleagues will help your solution be accepted. Communication is also one of the most valuable skills to have. Even the best idea in the world will not be accepted if you don't have the ability to convey the importance and urgency of the solution.

The only other thing that you will need, after you graduate college, would be the motivation to succeed. Motivation to succeed and to do well is entirely based on your own personal drive. This is a character trait that will raise you above the rest of the group when schedules are tight and deadlines are rapidly approaching.

What advice do you have for people who want to enter this field?

My advice is to gain as much exposure as you can in the field you are interested in. Just like you wouldn't want to buy something you have never seen before, you also don't want to select an occupation based off of what you have read about in a book. Experiencing the job through a job shadow day or through talking with people that are currently doing the job is invaluable. •

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VOCABULARY

robust: healthy; strong; not likely to fail

striving: making great efforts to achieve or obtain something

variables: things that can change and then affect the final result

simulation: imitation of a situation or process

A Day in the Life of a Manufacturing Sales Representative

By Edyta Zielinska | March 1, 2007

http://www.the-scientist.com/?articles.view/articleNo/24817/title/A-day-in-the-life-of-a-sales-rep/

https://blogs-images.forbes.com/jacquelynsmith/files/2012/05/0dyocjC3m9gQc_5081.jpg

Zeiss sales representative John Morreale's days are long. Morreale, who studied biology as an undergraduate, took his first job in sales at Biochem ImmunoSystems, a hospital instrument company, and moved on to LabCorp, before finally landing a job at Zeiss in 2003.

5:00 a.m.—"There's a lot more work involved in sales than people realize," says Morreale. He starts early, preparing quotes, writing e-mails and making a mental list of the 7-10 people he'd like to visit today at New York's Albert Einstein College of Medicine, one of his biggest accounts.

7:15 a.m.—Morreale gets his 3-year-old daughter ready and drives her to day-care. The flexibility of the job makes it easier to work family life into work duties.

8:00 a.m.—The trip from his Orange County, NJ, home to Einstein, in the Bronx, takes a little over an hour. Morreale's territory extends from northern New Jersey up into northern New York State. With an average commute of 3-4 hours, Morreale turns his car into an office on wheels, calling clients, making appointments, and listening to "Discover Your Sales Strengths" tapes while driving.

9:30 a.m.—It's time to negotiate with a customer on a tight budget who is shopping around. Some of Morreale's negotiating and sales skills came from his previous sales experience, but most came from his manager and mentor at Zeiss, George Lunney, who trained him.

11:00 a.m.—On his way to another appointment, Morreale bumps into a customer in the hallway, who launches into a problem she's been having. "When I turn the microscope on, it makes this really interesting sound. It's like, eerreeeeee," she demonstrates. Morreale knows exactly what the problem is: "We'll get you a new bulb before that one goes."

11:08 a.m.—Morreale hustles through the labyrinth of corridors to his next appointment—a new customer, and a potential sale. The customer knows what he wants—to be able to look at protein and gene expression in several cell types, both on 96-well plates and on slides. Morreale starts quizzing him on the kinds of images he wants for his experiments. Morreale's knowledge of optical components lets him offer solutions that will fit this scientist's needs and his budget. Before preparing the actual quote, Morreale estimates the initial microscope will cost between $35,000 and $50,000, with the possibility of add-ons down the road.

12:00 p.m.—He grabs a quick lunch of an egg salad sandwich at the closet-sized cafeteria on the first floor.

12:25 p.m.—Morreale runs upstairs to meet with Ulrich Erben, a Zeiss Technical Support Specialist who is working out a glitch on one customer's brand new microscope. The customer is more than a little annoyed. Morreale is sympathetic: "When you buy a brand new Mercedes, you expect to be able to drive it right away." Morreale and Erben spend the next two hours working out solutions, and Morreale takes personal responsibility for the issue.

2:30 p.m.—He checks in on a couple of clients he had on his flexible "mental list" of people to visit that day, making appointments with some, and clearing up easily fixed problems with others.

2:50 p.m.—Morreale takes out his bag of tools and starts assembling a customer's brand new microscope from its various components. Having restored a 1968 Mustang Convertible in his earlier years, putting together microscopes is easy for him. He says he enjoys the chance to build and tinker that this job affords him.

5:30 p.m.—On his way out the door, Morreale gets stopped by a customer. He drops by her lab to clean and align her two very old microscopes.

6:15 p.m.—He leaves the building ... and heads to the wrong parking lot.

6:30 p.m.—He arrives at the right parking lot and heads home.

7:45 p.m.—Morreale gets home and has dinner, and spends time with his two daughters and wife until bedtime.

9:00 p.m.—Back to work at his home office to prepare his new client's quotes, make appointments with support staff, and respond to 20-30 accumulated e-mails.

10:30 p.m.—Sleep. Unless there's work to do, Morreale tries not to stay up past midnight more than a few times per week. •

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60 MINUTES

Computer Research: Career Narratives in Manufacturing

Students conduct additional research on the career they read about in the previous Career Narrative activity, using a career database.

PREP

- Explore the following career database websites and choose one for this activity:

  www.bls.gov—The Bureau of Labor Statistics website

  www.careerzone.ny.gov—The New York State career database

  www.careercruising.com—A subscription-based career database. Requires a login and password. Many programs have subscriptions to this database.

- Choose a career from the database and be prepared to navigate to, explore and discuss this example career with students.

MATERIALS

- *Researching Careers Online* worksheet

EXPLAIN

1. If students have not previously used the database you have chosen to use for this activity, give a brief introduction to the website *(refer to Career Database Lessons in Unit 2 for database information)*. Emphasize the ways the database is organized and how students can use it to find careers.

2. Ask students to navigate to the website. Look at a sample career as a class, discussing what information is included and how it is organized.

3. Distribute *Researching Careers Online* worksheet. Ask students to explore careers related to the one they read about in the Career Narratives and complete the worksheet.

4. If time remains, students can research the career of their choice, paraphrasing the information they find.

Researching Careers Online

Use the career database to answer the questions below.

1. What are some careers that are similar or related to the career narrative you read in the previous lesson? Find at least 6 and list them below:

2. Choose one of the careers you listed above. Write four questions you would like answered about this career.

3. Research the career listed above, and write the answers, in your own words, to the questions you wrote in #2.

One of McCoy's most important inventions was an automatic lubricator that made trains run more smoothly with less need for maintenance. It became so popular that others began copying it, but none were as effective as his was, giving rise to the expression "the real McCoy," meaning the real thing, still in common use today.

ELIJAH McCOY "THE REAL McCOY" (1843?-1929) was one of twelve children, an inventor born in Canada to parents who had escaped slavery in Kentucky through the Underground Railroad. His parents sent him to college in Scotland, where he earned a degree in Engineering. Once he returned to the United States, he was unable to find work as a black Engineer in the 19th Century, so he worked shoveling coal in train cars. Seeing the mechanical problems trains had, he patented inventions, 57 in all, that he created mostly for trains.

Photo: https://1.bp.blogspot.com/-4hNl1vfbN1g/WJaYHGkR32I/AAAAAAABnDE/_da1hefE5jE8yGkOojrgGLvrJ9zBDrQYQCPcB/s1600/mccoy01.jpg

Adapted from Wikipedia