

Virtual Field Trip

GRADES
6–8

Overview

Join us for the 2019 Arconic Virtual Field Trip as we pay a visit to Arconic’s advanced manufacturing hub in Alcoa, Tennessee! Located 30 minutes south of Knoxville, Arconic’s state-of-the-art facility is full of incredibly talented people, advanced technology, and cutting-edge equipment.

This Virtual Field Trip will encourage students to explore the people and processes of Arconic’s Tennessee facility and introduce them to exciting new careers in manufacturing—including technology, virtual reality, and robotics. Students will then have the opportunity to match their attributes, interests, and skills to featured manufacturing careers as they begin to think about their “future selves!”

Objectives

Students will:

- ◇ Understand that manufacturing affects every aspect of daily life
- ◇ Explore careers related to manufacturing
- ◇ Analyze their skills and attributes
- ◇ Connect their skills and attributes to careers in manufacturing
- ◇ Use the Internet to conduct research on a career in manufacturing
- ◇ Create a presentation to share with the class

Materials

- ◇ Masking tape
- ◇ Applying Knowledge/Skills Handout
- ◇ Post-it notes
- ◇ Mini-Research Project Handout
- ◇ Student computers

Pre-activities

Activity #1 Take a Stand Question Boot-up

Before beginning the Virtual Field Trip, find out what students already know about manufacturing and careers in technology, virtual reality, and robotics.

- 1 Use a piece of tape to divide the classroom in half.
- 2 Place a sign on one wall that says “Agree,” and another on the opposite wall that says “Disagree.”
- 3 Read each of the “[Take a Stand](#)” questions, and then ask students to move to the side of the line that best represents their response. If a student is not sure of the correct answer or has mixed feelings regarding one of the statements, he/she can move closer to the tape in the middle of the room.
- 4 After reading each statement and allowing students time to move to a spot, call on 2–3 students to share their answers and provide justification for their response.

Activity #2 Applying your Knowledge/Skills to Careers

Before beginning the field trip, guide students through the process of brainstorming some of their interests, skills, and attributes. Students can record their responses on the [Applying your Knowledge/Skills to Careers](#) worksheet.

During the Field Trip

Activity #1 Applying your Knowledge/Skills to Careers

As students view the virtual field trip, ask them to use their Applying your Knowledge/Skills to Careers worksheet to match some of their skills and attributes to some of the careers featured in the video.

After the Field Trip

Activity #1 Ah-ha Moments

Pass out 2–3 post-it notes to each student. Ask students to record any “ah-ha” moments they experienced during the field trip. This could be something they learned, a connection to previous learning, or a new way of thinking. Ask students to post their notes onto the board. Invite students to come up and look at the ideas and see if they notice any themes. Begin to move around their “ah-ha” moments into groupings. Read aloud a grouping and ask the class to help identify headers or titles that summarize the “ah-ha” moments captured. Repeat until all groups have a header. Give each learner two dot stickies and ask them to vote on the categories they would most want to learn more about.

Activity #2 Mini-research Project with Manufacture Your Future

After the field trip, ask students to work in pairs to conduct further research on one of the careers featured in the Virtual Field Trip. Students can use the career guide posted on www.manufactureyourfuture.com as well as other credible sources to locate information such as job description, required education and college degrees, salary range, job outlook, high school courses related to the career, volunteer opportunities in their community, and adults who they can interview to find out more information. Students can record responses on the [Mini-Research Project handout](#). As an extension activity, students can then create a PowerPoint or Google slide to share their findings with the class.



National Education Standards

Science

- ◇ **MS-PS1-3**
Engineering advances have led to important discoveries in virtually every field of science, and scientific discoveries have led to the development of entire industries and engineered systems.
- ◇ The uses of technologies and any of their limitations on their use are driven by individual or societal needs, desires, and values; by the findings of scientific research; and by differences in such factors as climate, natural resources, and economic conditions. Thus, technology use varies from region to region and over time.
- ◇ **MS-LS1-3**
Scientists and engineers are guided by habits of mind such as intellectual honesty, tolerance of ambiguity, skepticism, and openness to new ideas.

Technology Education

- ◇ International Technology and Engineering Educators Association
- ◇ The Nature of Technology (Grades K–12)
- ◇ Students will develop an understanding of the characteristics and scope of technology.
- ◇ Students will develop an understanding of the core concepts of technology.
- ◇ Students will develop an understanding of the relationships among technologies and the connections between technology and other fields of study.

English Language Arts

- ◇ **CCSS.ELA-LITERACY.W.7**
Conduct short research projects to answer a question, drawing on several sources and refocusing the inquiry when appropriate.
- ◇ **CCSS.ELA-LITERACY.SL.1**
Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 6 topics, texts, and issues, building on others' ideas and expressing their own clearly.
- ◇ **CCSS.ELA-LITERACY.SL.2**
Interpret information presented in diverse media and formats (e.g., visually, quantitatively, orally) and explain how it contributes to a topic, text, or issue under study.
- ◇ **CCSS.ELA-LITERACY.SL.4**
Present claims and findings, sequencing ideas logically and using pertinent descriptions, facts, and details to accentuate main ideas or themes; use appropriate eye contact, adequate volume, and clear pronunciation.
- ◇ **CCSS.ELA-LITERACY.SL.5**
Include multimedia components (e.g., graphics, images, music, sound) and visual displays in presentations to clarify information).
- ◇ **CCSS.ELA-LITERACY.SL.6**
Adapt speech to a variety of contexts and tasks, demonstrating command of formal English when indicated or appropriate.

Take a Stand Questions

Student Activity Sheet 1

I know the definition of manufacturing. (According to Merriam-Webster.com, the definition of “manufacture” is “to make into a product for suitable use”).

- 1** Manufacturing has not changed since the Industrial Revolution. (This is FALSE. Technology has revolutionized production of goods).
- 2** Jobs in manufacturing do not pay very well. (This is FALSE. According to manufactureyourfuture.com, the average salary of an advanced manufacturing worker is \$77,000.00 per year).
- 3** Manufacturing includes cutting-edge technologies like lasers, virtual reality, and robotics. (This is TRUE. See [Manufacture Your Future Virtual Field Trip](#)).
- 4** I can envision myself with a career in advanced manufacturing. (Answers will vary).

Applying your Knowledge/ Skills to Careers

Student Activity Sheet 2

Advances in technology are rapidly changing the field of manufacturing and creating exciting career opportunities for students. Leaders in advanced manufacturing are constantly seeking hardworking and highly skilled associates. Identifying your interests, skills, and attributes can help you identify which careers may fit best for you and help you to begin thinking about your “future self!”

1 What are some of the hobbies that you enjoy? What are some of your interests? List at least three

2 What are some of your skills? List at least three.

3 While watching the Arconic Virtual Field Trip, match some of your hobbies, interests, or skills with each of the careers featured in the film.

	Electrical Engineer	Business Improvement Manager	Lab Quality Systems Coordinator	Does this career connect to your talents or interests? Justify your response with evidence from your chart.
List two skills the employee mentioned as being critical to his/her job				
List any special training or education mentioned for this job				
List any of your talents or interests that relate to this job				

Mini-Research Project Handout

Student Activity Sheet 3

Use the following link as well as other credible sources to research one of the careers featured on the 2019 Arconic Virtual Field Trip: [Manufacture Your Future Career Guide](#). After completing the table, create a PowerPoint or Google slide that creatively displays your information with tables, charts, or other multimedia components. Be prepared to share with the class.

Job title	
Job description	
Required education	
Average yearly salary	
Job outlook	
High school courses related to this field	
Local volunteer opportunities related to this field	
Adults who work in this field, or people who can provide more information	