

**64. Manufacturing Cluster - Production (4 hours)**

<b>Purpose/Abstract:</b> To introduce students to production careers in the manufacturing cluster.			
<b>NCCCS Adult Education Standards:</b> R.5.2.9, W.5.2.7, M.2.2.1			
<b>Learning Objective:</b> <i>By the end of the session, students will be able to:</i> <ul style="list-style-type: none"> <li>Define production careers by explaining their roles in creating goods, using simple language and relatable examples.</li> <li>Learn about the Industrial Revolution by discussing important changes like new inventions, moving from farms to cities, and the difficulties workers faced during that time, using the historical excerpt provided.</li> <li>Collaborate in group work to choose a product and synthesize an outline of the basic steps necessary to produce it, showcasing an understanding of the fundamental stages involved in manufacturing.</li> </ul>			
<b>Soft Skills</b>	Teamwork	<b>Resources</b>	<a href="#">Manufacturing Career Overview   Career Cluster / Industry Video Series</a>  Handouts: Production Careers and the Industrial Revolution - one for each student.
<b>Additional Materials</b> <ul style="list-style-type: none"> <li>Production Careers and the Industrial Revolution handout, one for each student.</li> <li>Art supplies (glue, glitter, markers, paint, etc.)</li> <li>Pencils, paper, and scissors</li> <li>Origami paper for the hearts activity.</li> <li>Computers for student use</li> </ul>			
<b>Icons</b>	 <b>Activity</b>	 <b>Check-In</b>	 <b>Review</b>

**PREPARATION**

- Review the steps to make a paper heart in [How to Make a Paper Heart | Easy Folded Origami Heart](#) and be prepared to support students during this activity.
- Review the [Instructional Support Guide](#) and print/prepare referenced scaffolds.
- Print handouts.
- Familiarize yourself with [O\\*NET](#)
- Familiarize yourself with [Skills to Pay the Bills](#), though it won't be used directly in this lesson.

**INTRODUCTION (30 min)**

Welcome students to the class!



Engage students with the question: "Have you ever wondered how things are made?"

Share a simple example of a product (e.g., a pencil) and discuss how it's created.

Play [Manufacturing Career Overview | Career Cluster / Industry Video Series](#) and discuss the key points in the video and ask a few questions on the video content to check for understanding.

Introduce the lesson objectives.

## VOCABULARY, READING & WRITING (45 min)

Distribute the reading passage to students and give directions for the activity. Allow ample time for students to read and work in pairs to answer the questions.

 REFLECTION (15 minutes)

✓ Review the answers to the comprehension questions and have a few students summarize what they learned from the passage.

### Lower Level

Pair students with higher level students.

### Higher Level

Encourage students to read more about the industrial revolution and share what they learn with the class.

## MATHEMATICS (45 min)

Introduce the concept of measurement in manufacturing. Tell students that in manufacturing, precise measurements are crucial to create products that fit together correctly. Let them know that the math practice activity will focus on measurements.

Provide the following challenges one by one and have students complete the activity. Students can work individually or in pairs. Tell students to write down their measurements and findings in their notebook.

1. Measure the length of a pencil using both inches and centimeters. Compare the measurements.
2. Estimate the length of a shoe in both feet and meters. Measure it to check your estimation.
3. Calculate the difference in length between a book and a notebook in inches.
4. Measure the length, width, and height of the box in inches.
  - a. Instruct students to calculate the volume of the box by multiplying these measurements together (length × width × height).
  - b. Encourage students to think about how knowing the volume of a box can be important in manufacturing and packaging.
5. Provide students with various materials of different thicknesses (e.g., cardboard, paper, fabric).
  - a. Ask them to measure the thickness of each material in millimeters.
  - b. Instruct students to record the thickness of each material and organize them from thickest to thinnest.
  - c. Encourage students to consider how knowing material thickness is important in manufacturing various products.

 REFLECTION (10 minutes)

✓ Review the activity and have students share what they learned from it.

**Lower Level**

Pair students with a higher level student. Alternatively, consider pairing lower level students together and work with them individually to teach them measurements and comparison.

**Higher Level**

Challenge students to come up with more uses for measurements in production careers and share with the rest of the class.

**GROUP WORK (75 min)**

Tell students they will work together to H decide on a good they would produce and write very basic steps to create the product.

Divide the class into groups of 3 and provide the following instructions.

- In your group, discuss and choose a simple product you'd like to make using supplies available in the classroom (e.g., a paper airplane).
- Collaboratively outline the steps needed to create the chosen product.
- Assign roles to each group member (e.g., materials gatherer, instructions writer, tester).
- Write down the steps in order, and make sure everyone agrees on the plan.

Walk around as groups work to check that all students are participating.

 REFLECTION (15 minutes)

✓ Ask each group to present their steps to create a good of their choice. Encourage questions from the rest of the class.

Have students reflect on how they're demonstrating teamwork during this activity.

**Instructor Note:** Remind students to think of a simple product that they can create independently using the directions they write down.

**INDEPENDENT WORK TIME (30 min)**

Allow students to choose one of the presented products and create it following the directions depending on the availability of materials. Alternatively, share these steps for creating a paper heart from [How to Make a Paper Heart | Easy Folded Origami Heart](#) and encourage students to try and create one.

**WRAP-UP & REFLECTION (15 min)**

Recap the main points learned about production careers and the product creation process. Encourage students to reflect on what they've learned and ask any questions.

Distribute exit slips to students.

Ask for a few volunteers to share their reflections.

Collect and review the answers.

# Production Careers and the Industrial Revolution

**Directions:**

- Read the passage and answer the questions that follow with a partner.

Production careers are jobs that involve making things. When you think about all the items you use every day, like your clothes, toys, and even the car you ride in, you might wonder how they are made. That's where production careers come in!

These careers play a big role in creating goods. Goods are things that people make or grow to be sold or used. Production careers are like the behind-the-scenes magic that turns raw materials into the things we use. For example, a production career could involve taking pieces of metal and turning them into a bicycle, or using fabric to create a cozy sweater.

The Industrial Revolution was a time of big changes. Imagine a world where everything was made by hand, and people mostly lived in the countryside. Then, something amazing happened. New inventions came to life, like steamboats and the telegraph. These inventions made life different in many ways. People started moving from farms to cities to work in factories, where machines helped create things faster.

But it wasn't all easy. Workers faced challenges. They often worked long hours in tough conditions. Many children also worked, which wasn't safe or fair. However, these challenges led to important changes in how workers were treated, and eventually, laws were created to protect workers' rights.

**Questions:**

<p>1. What are production careers, and why are they important in our daily lives?</p>	
<p>2. How did the Industrial Revolution change the way people lived and worked? Give specific examples from the passage.</p>	



<p>3. In the passage, it says, "<i>Production careers are like the behind-the-scenes magic that turns raw materials into the things we use.</i>" What does the phrase "behind-the-scenes magic" mean in this context?</p>	
<p>4. What were some challenges that workers faced during the Industrial Revolution, as mentioned in the passage? How did these challenges lead to changes in workers' rights?</p>	
<p>5. The passage mentions that goods are things that people make or grow to be sold or used. Can you provide an example of a "good" not mentioned in the passage? Explain why it is considered a "good."</p>	

## Reflection Exit Slip

In one sentence, describe what you learned in this lesson.

Today, I learned \_\_\_\_\_.

Is one of the careers discussed today of interest to you? Why or why not?

I liked / did not like \_\_\_\_\_ career because \_\_\_\_\_

\_\_\_\_\_

Is there anything you still need help understanding?

What's one question you have?

Circle the emoji that shows how you feel about your mastery of content in this lesson.



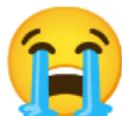
Happy



Smart



Confused



Sad



Angry