



Educator Resources 2020

Please have each of your students complete the pre-survey before introducing MFG Days materials and lessons. We will provide you with a post-survey for students to complete the last week of October and share outcomes of both surveys to all participating educators.

Introduce Students to Manufacturing – it's not just for CTE & STEM students!

- **Research the history** of manufacturing from the Industrial Revolution to Industry 4.0.
- **Research a job** you learned about and discuss the education, training, and related **career pathways**.
- **Research and report** on the different types of manufacturing (Metals, Plastics, Agriculture, etc.)
 - Wages
 - Environment
 - Material – pros/cons
 - How do you use them in your life?
- **Science/Research & Development**
 - Patents in manufacturing
 - Biomedicine
 - Pharmaceuticals
- **Safety in Manufacturing**
 - Evolution of OSHA
 - How have modern regulations changed manufacturing safety?
- **Technology and Manufacturing**
 - Where are the largest tech companies' manufacturing facilities?
 - What steps are taken to ensure zero contaminants?
- **Robotics**
 - How are they changing manufacturing?
 - Evolution of careers from basic assembly to highly skilled
 - **Industry 4.0 – what is it?**
- Learn about the different **Trade Agreements** – NAFTA, Trans-Pacific Partnership, CAFTA-DR, etc.
- Research **COVID-19 Impact** on manufacturing and supply chain.
- What is “offshoring” and “reshoring”? Discuss pros & cons of each.
- Discuss the different manufacturers you were introduced to, which ones interested you? Why?
- What have you learned from participating in MFG DAYS 2020?

Websites to Learn More

Association for Supply Chain Management - <https://www.ascm.org/>

Creators Wanted - <https://creatorswanted.org/>

Fabricators & Manufacturers Association, International - <https://www.fmamfg.org/>

Greater Niles Chamber of Commerce - <https://www.greaternileschamber.com/index.php>

Industry Week list of Manufacturing Associations - <https://www.industryweek.com/page/associations>

LIFT (Labs for Industry Futures and Transformation) - <https://liftsbe.org/>

Manufacturing Growth Alliance - <https://www.mgalliance.org/>

Michigan Manufacturers Association – <https://mimfg.org/>

Michigan Works! - <https://www.michiganworks.org/>

National Association of Manufacturers - <https://www.nam.org/>

Plastics Industry Association - <https://www.plasticsindustry.org/>

Precision Metal Forming Association - <https://www.pma.org/home/>

SHRM (Human Resources) - <https://www.shrm.org/>

Society of Manufacturing Engineers (SME) - <https://www.sme.org/>

Trade Association Links - <https://www.steel.org/about-aisi/links>

Women in Manufacturing - <https://www.womeninmanufacturing.org/>

Online Tools

Thomas Factory Tours: Industrial Video Production Examples for Custom Manufacturers and OEMS:

<https://blog.thomasnet.com/factory-tours-examples>

Power Point presentation from UPS - 3D Printing: The Next Revolution in Industrial Manufacturing

https://www.ups.com/media/en/3D_Printing_executive_summary.pdf

National MFG Day website: ten 30-second videos highlighting young professionals discussing their careers.

- Process Engineer at Pfizer - <https://creatorswanted.org/stories/blanca-ortiz-skelding/>
- Designer for life-saving medicines at Pfizer - <https://creatorswanted.org/stories/amber-ragain/>
- Software Developer at General Motors - <https://creatorswanted.org/stories/dominique-walker/>
- Senior Engineer at Toyota - <https://creatorswanted.org/stories/jared-coomes/>
- Product Engineer at Honda - <https://creatorswanted.org/stories/sandip-suvedi/>
- Senior Engineer at Toyota - <https://creatorswanted.org/stories/carlo-cruz/>
- Quality and Safety Specialist at Coca-Cola - <https://creatorswanted.org/stories/katie-satchwell/>
- Mechanical Engineer at Toyota - <https://creatorswanted.org/stories/katie-mulloy/>
- Biologic Operations Team Leader at Pfizer - <https://creatorswanted.org/stories/chris-osborne/>
- Mechanical Engineer at BTE Technologies - <https://creatorswanted.org/stories/justin-hiskey/>

Class Project Ideas

- Create a map of the top manufacturing regions in the world by product, total shipments, etc.
- Partner with a local manufacturer to develop materials for attracting recent graduates.
- Develop a fun interactive game to introduce K – 4 students to manufacturing.
- Survey your peers about their manufacturing knowledge. Based on survey results, do you have recommendations on how to help introduce students to manufacturing?
- Find five 'cool' facts about manufacturing and create a campaign to inform K12 students.
- Explore innovative ways to make plastic recycling economically viable, how could this be helpful in developing nations?