**Presenters’ Guide #1 for OMA and COMP Subject Matter Experts: “Ohio’s Future Is Made Here: Innovations, Technology, and Solutions in Today’s Advanced Manufacturing”**

**For use with OMA, COMP K–12 Slide Deck #1: “Ohio’s Future Is Made Here: Innovations, Technology, and Solutions in Today’s Advanced Manufacturing”**  
**Designed for Industry Experts Presenting to K–12 Students in the Classroom**

**PURPOSE OF THIS CONTENT SET**

The Presentation Content Sets equip industry subject matter experts (SMEs) to confidently present advanced manufacturing career pathways to K–12 audiences.

The Content Sets are scaffolded to offer varying degrees of support for SMEs. The first layer of scaffolding is the Presentation Slide Decks which include brief notes of scripts, support and suggestions for delivery. See sections under individual slides for those details. The Presentation Outlines provide additional scripts and best practices in classroom delivery on a slide-by-slide basis. The Presentation Guides extend the content by providing alternative scripts, additional questions, pro tips and classroom insights and also are organized on a slide-by-slide basis.

The Guides help you, the Subject Matter Expert (SME) and presenter, successfully deliver the K12 Advanced Manufacturing outreach presentations in the classroom — even if you are not an educator. It builds upon the content presented in the Outline and Slide Deck notes. The scaffolding of the three content pieces assists those looking for additional insight in the K12 classroom experience. See associated outlines for complete activity instructions.

Options are considered just that - optional. They are designed to provide variations for Ambassadors to better personalize the presentations. Feel free to eliminate all options and follow the presentation strictly as the slide deck suggests.

**YOUR RESOURCES**

✅ Age-level tips (elementary, middle, high school)  
✅ Key talking points for each slide (Speaker Notes)  
✅ Engagement strategies (questions, demos, discussions, supplemental resources)  
✅ Pacing and timing guidance  
✅ Classroom and student interaction best practices

✅ Video Links

**YOUR GOALS:**1. Inspire curiosity about advanced manufacturing  
2. Make real-world connections between school and careers  
3. Encourage students to imagine themselves in high-tech, meaningful jobs Equip industry subject matter experts (SMEs) to confidently present advanced manufacturing career pathways to K–12 audiences.

**SLIDES INCLUDE:**

🎙 Speaker Notes include script suggestions and classroom management and adaptation ideas

for younger and older students. (Younger students defined as grades 2-6; older students

defined as grades 7-12)

Activities or demonstrations

**💬** Icebreaker suggestions

Suggested videos where appropriate

💡 Pro Tips offer extension opportunities for learners and are designed help increase connections for students.

**HOW TO PREPARE (Before You Present)**

**Before You Begin: Know Your Audience**

| **Grade** | **Typical Traits** | **What Works Best** |
| --- | --- | --- |
| **Elementary (K–5)** | Energetic, curious, short attention spans | Bright visuals, short stories, props, movement |
| **Middle (6–8)** | Social, testing independence | Humor, relatable analogies, hands-on demos |
| **High School (9–12)** | Curious about real-world relevance | Career talk, real-life success stories, interactive Q&A |

1. **Know Your Audience:**
   * Identify in advance what grade(s) and class size you will have. Be prepared to present developmentally appropriate content (see notes in Slide-by-Slides).
   * Get name tags or a seating chart if possible.
   * Learn how much the class already knows about technology or manufacturing.
2. **Set Up Your Tech:**
   * Test your videos and links before class.
   * Bring sample parts or 3D-printed objects if possible.
   * If using, have QR codes printed or ready on slides.
3. **Mindset:**  
   You’re not teaching — you’re sharing and storytelling.
   * Use **energy, curiosity, and conversation.**
   * Encourage students to share what they notice or wonder.
   * Keep things simple — focus on **why it matters** and **how it connects** to their world.
4. **Prepare:**

* Review the Slide Deck presentation, corresponding outline, and presentation guide before the presentation.
* Double check to ensure you have everything necessary to effectively deliver the presentation (technology, presentation files, demonstration and activity materials, swag, etc.).
* Confirm with the school or teacher the day prior to the presentation.
* Practice transitions to ensure a smooth delivery.

**SLIDE-BY-SLIDE PRESENTER GUIDE**

**Slide 1 – Title Slide: “Ohio’s Future Is Made Here: Innovations, Technology, and Solutions in Today’s Advanced Manufacturing”**

**Purpose:** Establish credibility and generate excitement about careers in advanced manufacturing.  
Say: “Hi, everyone! I work in advanced manufacturing — that means I help design and build the amazing things that make our world run.”

**🎙Speaker Notes:**

* Keep your introduction short (1–2 min).
* Mention something fun or personal (e.g., “I helped build parts that go into airplanes” or “Our company uses robots every day”).
* Encourage curiosity: “You might be surprised by how high-tech manufacturing is today!”
* Use Ice Breakers to encourage early participation. One is included in the Outline for convenience, but there are many other options. However, these can take away from the content if the presenter is not watchful of the time. Keep Ice Breakers under five minutes. More icebreaker ideas can be found here: <https://teacherblog.ef.com/great-esl-icebreakers-and-warmups/>
* Keep introduction and qualifications brief but highlight your own organization.

**Slide 2 – Advanced Manufacturing Solves Some of the World’s Greatest Challenges**

**Goal:** Introduce careers in advanced manufacturing in ways that are easy to understand regardless of age and developmental levels.  
Say: “Manufacturing is how we make things — but *advanced manufacturing* is how we make them better, faster, and smarter.”  
**🎙Speaker Notes:**

* Ask: “What’s something you use every day that needs to be made by someone?”
* For younger students: Use examples like sneakers, toys, phones.
* For older students: Mention industries like clean energy, aerospace, and biotech.

**Slide 3 – Driving Change through Advanced Technology**

**Goal:** Show pride in Ohio’s leadership and make advanced manufacturing careers relatable.  
**🎙Speaker Notes:**

**Before the Video:** Ask, “What do you think a modern factory looks like? Is it loud, dark, clean, high-tech?”

**Say:** “Everything you use — from shoes to sports gear to your phone — was made through advanced manufacturing processes.” Compare then and now manufacturing.

**Share video** Center image is linked to Video: Show “A Day in the Life of a Machinist” video 0:01:35: Career OneStop <https://www.careeronestop.org/Videos/careeronestop-videos.aspx?videocode=51404100>  
  
**After the Video:** Ask, “What surprised you most?”

**💬Engagement Tip:** Emphasize that Ohio is leading the way in innovation in manufacturing. The rest of the country is watching the progress being made by Ohio and considers how to replicate pieces of it.

💡**Pro Tips:** Ensure videos are all cued to the starting point. Eliminate any ads.

**Slide 4 – Technology in Action**

**Goal:** Spark interest and curiosity.  
**🎙Speaker Notes:**

**Say:** “Everything you use — from shoes to sports gear to your phone — was made using advanced manufacturing processes.”  
**Engagement Tips:**

* Hold up an item (e.g., a phone) and ask: “How many steps do you think it takes to make this?”
* Compare “then vs. now” manufacturing.
* Ask: “Who thinks robots help make your sneakers or cars?”

**Slide 5 – The People behind the Machines**

**Goal:** Connect the dots by helping students understand that manufacturing is run by real people.  
**🎙Speaker Notes:**

**Say:** “Behind every robot and every machine, there are people — problem solvers, designers, programmers, and technicians. ”Share video.A Day in the Life of a Machinist 00:01:35<https://www.careeronestop.org/Videos/careeronestop-videos.aspx?videocode=51404100>

**Ask:** Did you think that’s what a machinist’s job would look like? What surprised you?

💡**Pro Tips:** Ensure videos are all cued to the starting point. Eliminate any ads.

**Slide 6 – Skills That Power the Future**

**Goal:** Connect classroom learning to real jobs.  
**🎙Speaker Notes:**

**Say:** “The same subjects you study now — math, art, coding, teamwork — are what help people succeed in advanced manufacturing.”  
**💬Engagement Tips:**

* Ask: “Who likes solving puzzles?” “Who likes drawing or designing?” These are all skills needed in today’s advanced manufacturing.
* Show that every skill type has a place in manufacturing.

**Slide 7 – Living Wages**

**Goal:** Make it real by providing examples of how a living wage improves the quality of life. Those making good wages not only have the basic necessities like a home, plenty of food, warm clothes but also have access to better healthcare, take vacations, drive reliable cars, go out to eat, etc.  
**🎙Speaker Notes:**

**Say:**“Manufacturing careers can pay really well — even when you first are getting started or are starting young.”  
**Activity Options:**

* Ask students to guess how much an engineer or technician makes.
* Convert hourly rates into annual totals (“$35.97/hour is nearly $75,000 a year!”) Source BLS. 2025. <https://www.bls.gov/iaa/tgs/iag31-33>.

**Slide 8 – Ohio Manufacturing – A New Career that Has It All**

**Goal:** Show real local impact.  
**Action:** Share video: Ohio Manufacturing - A New Career That Has It All. [OMA. 00:30:00. 2024. https://www.youtube.com/watch?v=exkSblxdU0Q](https://www.youtube.com/watch?v=exkSblxdU0Q)

**🎙Speaker Notes:**

**Ask:** “Does anything about advanced manufacturing fields surprise you?” “Who knew that we build electric cars right here in Ohio?” “Did you know we are also one of the major glass makers in the country? So many important things are coming out of Ohio Manufacturing.”  
**Discuss:** “Did you notice how clean manufacturing environments are? It is not like the old days when factories might have been drab and dirty.”

**Slide 9 - Demonstration**

**Goal: Demonstration space** slated to allow time for a demonstration option. Demonstrations should stay within 10 minutes and can vary based upon SMEs expertise, what they can share from their industries, materials available, etc. Getting students involved in the demonstration is a plus but not an absolute. Options might include 3D printing or printed materials, battery innovations (electronic school buses connections), cell phone demonstrations, etc.

Ambassadors provide materials for demonstrations. If you would like to use a demonstration in your presentation but are not sure if your ideas are suitable for the age group, feel free to reach out to COMP at [kylefulton@manufacturingpartnership.org](mailto:kylefulton@manufacturingpartnership.org)

💡**Pro Tips:** Select a demonstration you feel students may not have witnessed before, something with a “Wow! Factor” if at all possible. Note: *If more time is needed, eliminate activity in slide 11 or 12.*

**Slide 10 - Optional Activity for Younger Students - Penny Flipping Flow - Elementary and Middle School**

**Goal:** Engage through hands-on fun. Slides 10 and 11 are considered optional activities. If performing a demonstration (slide 9), there may not be time for an additional activity (slide 10 or 11).

* **Objective:** Increase engagement through hands-on activity
* **Content: *Optional Activity to Demonstration***: Instructions for Younger Students (grades 2-8). If performing a demonstration, there will likely not be time for an additional activity (slide 10 or 11).
* Before the presentation, ask the teacher for support in helping students and teams be prepared so transition time is limited. During the activity, ask the teacher to support by being a “design consultant” to the students. This activity can be done in teams, pairs, or individually. Make it Relatable to what kids are experiencing between their world and the world of work. See Guide #1 for full instructions.

**Penny Flipping Flow Activity:** <https://www.ohiomfg.com/wp-content/uploads/2025/11/MakingOhio_GroupActivity_PennyFlippingFlow.pdf>

**Instructions:**

**Materials Needed:** Pennies (or other coins); Paper and pen/pencil for recording

**Round 1 – Large Batch:**

Divide participants into groups and assign roles (reporter, timer, penny starter, participants).

Give the first person a batch of 10 pennies.  
Each person must flip all 10 pennies before passing them on.

Time the round and record results.

**Round 2 – Smaller Batch:**  
 Repeat the process but reduce the batch size to 5 pennies.

Record the time and results again.

**Round 3 – One-Piece Flow:**

Repeat with a batch size of 1 penny (true one-piece flow).

Time and record results.

Have one predetermined reporter from each group share results with the full group.

**Discussion:**

* Compare how batch size impacted flow, lead time, and overall efficiency.
* Reinforce the principle that smaller batch sizes reduce waiting, improve flow, and get value to the customer faster.
* What wastes did you notice when using larger batch sizes?
* How many people were actively involved?
* How did smaller batch sizes change teamwork and flow?
* How did teamwork change when batch sizes were reduced?
* How can we apply this lesson to our own processes?

💡**Pro Tips:**

* + Be prepared with materials readied prior to presentation.
  + Practice timing of activities to ensure it will fit into the allotted time frame.
  + Assign or allow students to self-assign roles (reporter, timer, penny starter, participants).
  + Be prepared to help students who may require additional support
  + Request the teacher be on standby to assist
  + Celebrate the successes openly and with the full group

**Additional Option: NASA Easy to Build Sensors**:<https://www.youtube.com/watch?v=8Qany4XrZt0>

**Slide 11 Optional Activity for Older Students - Middle and High School**

**Activity: Paper Airplane Lean Principles Purpose:**

**Goal:** Students will practice the five lean principles: Identify Value, Map the Value Stream, Create Flow, Establish Pull, Seek Perfection through a hands-on paper airplane challenge. The activity illustrates how teamwork, material flow and continuous improvement drive efficiency, quality and customer value.

* **Objective:** Increase engagement through hands-on activity
* **Content: *Optional Activity to Demonstration***: Instructions for older students (grades 9-12). If performing a demonstration, there will likely not be time for additional activities found in slides 10 or 11.

**Materials Needed:** Paper (1 sheet per airplane per round); Stopwatch or timer (optional); Workspace (tables or desks - optional); Roles such as Material Handler, QA, or Customer Inspector; Paper (1 sheet per airplane per round); Stopwatch or timer (optional) Workspace (tables or desks - optional); Assigned roles such as Material Handler, QA, or Customer Inspector.

**Directions:**

1. Identify Value: Begin by discussing how only the customer defines value (example: Apple vs. Android preferences).

2. Map the Value Stream: Assign folding jobs (up to 8 steps). Optionally add a material handler, QA, and customer role. Run the first round of airplane building and track results.

3. Create Flow: Use hallway traffic as an analogy for flow. Run the second round, asking the team to reduce delays, bottlenecks, and unnecessary steps.

4. Establish Pull: Explain the difference between push and pull using the homework example. Run the third round, this time having the team build based on demand rather than stockpiling.

5. Seek Perfection: Reinforce that improvement is ongoing. If time allows, run a fourth or fifth round, challenging the team to refine their process further while reducing waste.

**Discussion:** How long did it take to get the first airplane to the customer? How many airplanes were completed and shipped? How many operators were used? How many defects occurred?

How much work-in-progress (WIP) was left at the end of each round?  
How did teamwork and communication impact performance?  
How did small changes add up to major improvements?  
How does this exercise connect to real-world manufacturing and continuous improvement?

Special thank you to The M.K Morse Company and Stark County Manufacturing Workforce Development Partnership for providing MakingOhio with this activity.

<https://www.ohiomfg.com/wp-content/uploads/2025/11/MakingOhio_GroupActivity_PaperAirplaneLeanPrinciples.pdf>

This activity will need pre-presentation preparation. Presenters may need to bring materials. Watch the time limits and allow no more than 15 minutes start to finish. Before the presentation, ask the teacher for support in helping students and teams be prepared with materials so transition time is limited. During the activity, ask the teacher to support by being a “design consultant” to the design teams. Make it Relatable to what kids are experiencing in their world and the world of work.

Note: This activity is better suited for high school students but with enough time may be useful with middle level learners as well.

**Optional Activities** [https://myoma.ohiomfg.com/MyOMA/WF/YouthTools.aspx#Outreach](https://myoma.ohiomfg.com/MyOMA/WF/YouthTools.aspx)

* **Engagement Tips:**
* Keep it fun.
* Optimally, one student from each group will report to the full group once the project is complete. Note: this can take some time, so timing may need to be adjusted elsewhere.

**💡Pro Tip:** Be prepared for activities by practicing the timing and ensuring materials are on hand and ready for use. Make sure directions given are clear and concise. Share the objective upfront and do regular checks to ensure students are progressing effectively.

**Slide 12 – Pathways to Manufacturing Careers 1/2**

**Goal:** Show students how the steps they are taking today and can take in the future can help get them into a good career in advanced manufacturing.  
**🎙Speaker Notes:**

**Say:** “There are many ways to enter advanced manufacturing — high school programs, apprenticeships, college, or even on-the-job training.”  
**💬Engagement Tips:**

* Ask: “Who’s heard of Career Tech or STEM programs at your school?”
* Emphasize: “You can start learning these skills *today*.”

**💡Pro Tips:** Touring the closest Ohio Technical Training Center and the local community college may be an option for some groups. Suggest the possibility to the classroom teacher as a strong follow up activity. School counselors will benefit from gaining a deeper understanding of the role these facilities play in developing the workforce pipeline.

**Slide 13 – Pathways to Manufacturing Careers 2/2**

**Goal:** Inspire action and hope.  
**🎙Speaker Notes:**

**Say:** “If you like solving problems, building things, or working with technology — there’s a place for you in advanced manufacturing.”  
**Activity:**

* Encourage students to visit one of the listed websites later with parents or teachers.

**Slide 14, Discovery Session as an Activity Suggestion (if time allows):**

Use if time allows visiting sites they may not have previously reviewed. Eliminate the activity if time does not allow.

* As time allows, open and explore several websites in real time on personal devices:

Battelle <https://www.battelle.org>

COMP [https://www.centralohiomanufacturingpartnership.org](https://www.centralohiomanufacturingpartnership.org/aws/COMP/pt/sp/home_page)

Making Ohio <https://www.makingohio.com/tools/#outreach>

Ohio Association of Community Colleges

<https://ohiocommunitycolleges.org/>

Ohio TechNet ​​<https://ohiotechnet.org/>

Ohio Technical Training Centers <https://www.ohtechcenters.com/>

Ohio.Gov <https://ohio.gov/residents/resources/workforce-programs>

OMA Youth Tools <https://myoma.ohiomfg.com/MyOMA/WF/YouthTools.aspx>

Note: Slide 14, Discovery Session, is an optional slide for discovery if/as time allows. This will be more useful for younger students to complete as a group with the presenter leading the discovery. Older students can navigate through the sites themselves.

**Slide 15 – The Future Is Made with You!**

**Goal:** End with enthusiasm and pride in the advances being made in the industry.  
**🎙Speaker Notes:**

**Say:**  
“Thanks for exploring with me and (*insert organization name*) — the future really is being made right here in Ohio!”  
**💬Engagement Tips:**

* Leave time for questions.
* Offer to take one group photo (if permitted by the teacher and district policy).
* Leave school-age appropriate swag when possible (conference style give-aways: key fobs, pens or pencils, USB mini drives with logos, etc.)

**AGE-LEVEL MODIFICATIONS**

| **Audience** | **Focus** | **Tone** | **Engagement** |
| --- | --- | --- | --- |
| **Elementary** | Wonder & discovery | Excited, simple words | Ask lots of “What do you think?” questions, show visuals, props, and short videos. |
| **Middle School** | Career curiosity | Relatable and energetic | Discuss robots, sustainability, EVs, and teamwork. Include quick challenges or votes. |
| **High School** | Real-world relevance | Respectful and empowering | Include wages, pathways, internships, and tech focus (AI, robotics). Encourage questions about the future. |

**🗣️ CLASSROOM ENGAGEMENT TIPS**

* Keep eye contact and move around the room.
* Praise participation (“Great answer!” “That’s a cool idea!”).
* Manage time — spend no more than three (3) minutes per discussion.
* Use the teacher as a partner — they can help redirect or clarify.
* Avoid jargon — explain terms like “automation” or “semiconductor” simply.

**🪄 OPTIONAL ADD-ONS**

* Bring swag: stickers, small 3D-printed items, or career pathway handouts.
* Share your story: how *you* got into manufacturing.
* End with a student challenge: “What could you design that would change the world for the better?”

**SUMMARY CHECKLIST FOR AMBASSADORS**

✅ Arrive 15 - 30 minutes early  
✅ Test slides and videos  
✅ Confirm student materials are preapred  
✅ Use clear language, smile, and make eye contact  
✅ Pause for engagement every 3–4 slides  
✅ Manage time — activities should not exceed 10–12 minutes

✅ Have fun with it. Laugh with students.  
✅ End with inspiration and hope