

GROUP ACTIVITY

ACTIVITY NAME: PAPER AIRPLANE LEAN PRINCIPLES

PURPOSE:

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.

TIME: 30–50 MINUTES (DEPENDING ON NUMBER OF ROUNDS)

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



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.

DISCUSS:

- 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?

ACTIVITY CREDITS:

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

