What you can learn

This game is a great way to illustrate how limiting work progress can dramatically improve a team's performance. It also shows how flooding the system upstream of a bottleneck causes waste and stress.

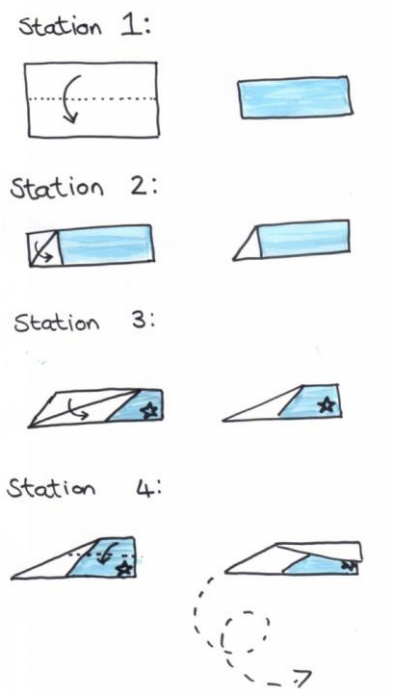
What you need

- A stack of white paper (you need at least 50 sheets per team of 6)
- One marker, whiteboard, or flip chart to record the results

The Goal of the Game

The goal of the game is for each team to create as much high quality tested planes that can fly a distance of at least 20 feet (or across the table)

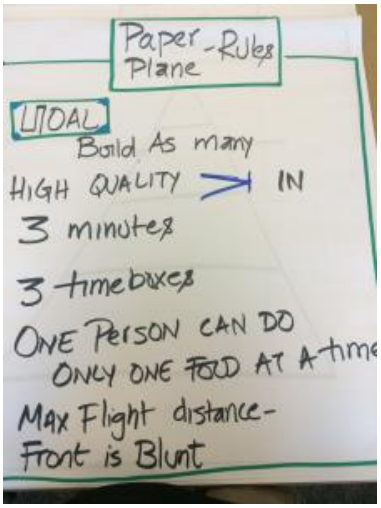
How to do this



Setup

- Split people into teams of 5. Explain that they will be manufacturing paper airplanes. There are four stations in the manufacturing line. Each worker represents a station. Demonstrate what each station needs to do.
- Station 1: Fold the paper in half lengthwise.
- Station 2: Takes the folded paper from station one and folds one side down into a triangle (one on each side of the paper) to form the airplane's nose.
- Station 3: Folds the nose again for a finer point and part of the wing and draws a star at the back of the plane. Again they do this on both sides. Note how the star must look.
- Station 4: Folds the wings
- Station 5: Tests the plane by ensuring it flies 20 feet or across the table.
- Let people practice the folds if they are unsure.

Rules for Playing the Game



- Build as many paper planes as you can in a 3-minute time box.
- One player can only do one fold at a time. That rule stays true for all three time-boxes.
- The planes should be built and tested in the 3-minute increment
- Only planes that cross 20 feet or across the table will be count.
- Each team should count how many planes they are going to build before the time-box starts.
- Subtract the final count of planes that flew from the built planes but were not tested or completed. E.g., Team A said they would make four planes, seven planes flew all the way, but 5 were WIP (work in progress). Subtract WIP, so the actual is 7-5 =2

- The team has to come up with one idea of improvement at the retrospective.
- Once everyone is clear about what they need to do, you can start round 1.

Each iteration last 9 minutes.

- 3 minutes for **planning**,
- 3 minutes of **actual build** test included) time,
- 3 minutes for **review/retrospective**

Round 1

This round simulates what happens if you don't limit work in progress. Tell people their goal is to build as many paper planes as they can in 3-minutes. Work as fast as possible, but still pay attention to quality.

Hand each team a stack of paper. Note they will need more than ten sheets because the stations need to keep working until the 10th plane is complete. i.e., Station 1 will fold many more than ten sheets.

Encourage teams to work fast.

At the end of 3-minutes, ask their production line to stop. Now ask them to count how much work they have in progress, i.e., incomplete planes.

Once all teams are finished and have written up their results, make sure you clear away all the in-progress work. Teams will be starting again from scratch.

Round 2

Explain that in round 2, you will be doing the same thing with only one change. If people want to improve the process or change roles, ask them not to because you want to illustrate the impact of the single change you will make.

The change is to limit work in progress. There will be a limit of 1 for each station. This means that Station 1 cannot start folding the second plane until Station 2 has taken the plane from them. This applies to each station. There will be no queues building up between stations.

Again hand each team a stack of paper. This time each team should need no more than 15 sheets of paper.

Start the round, and check that people are following the limit. People might need to be reminded not to fold quickly as they did in the first round. Focus on Station 1 for this, and they will set the pace for the rest of the group.

Record the results as before: Work in progress, total time, and cycle time.

Debrief

Display the results of the two rounds to the teams and ask them what they notice. Usually, the cycle time and total time are much better in round 2. Also, the work in progress should only be about 2 or 3 in the second round. This is sometimes a big surprise for teams and the reason we love this game. It illustrates beautifully how limiting work in progress massively reduces cycle time. Ask people what the implications of this would be for their work.

You can also ask people how they felt in each round, especially Station 3, which is the bottleneck, and how hard they worked in each round compared to the results they

achieved. Another great question is asking which round most closely resembles their current work environment.

How Online-PMO suggest using this

We play this regularly with teams who struggle to say no, are doing too many things at once, and finishing none of them. This is a great game to help teams and managers realize that being busy doesn't help the bottom line. We often talk about the importance of slack after this game and how it is beneficial. **Warning**: Not everyone is ready to hear that

Who shared this with Online-PMO

We are not sure of the original source of this game. There are also many different versions on the internet. A big thank you, though, to whomever it is!

		WIP at end	Total time	Cycle time
ROUND 1	Team A			
	Team B			
	Team C			
ROUND N	Team A			
	Team B			
	Team C			