

# Precision in Production Assembly Line Challenge

---

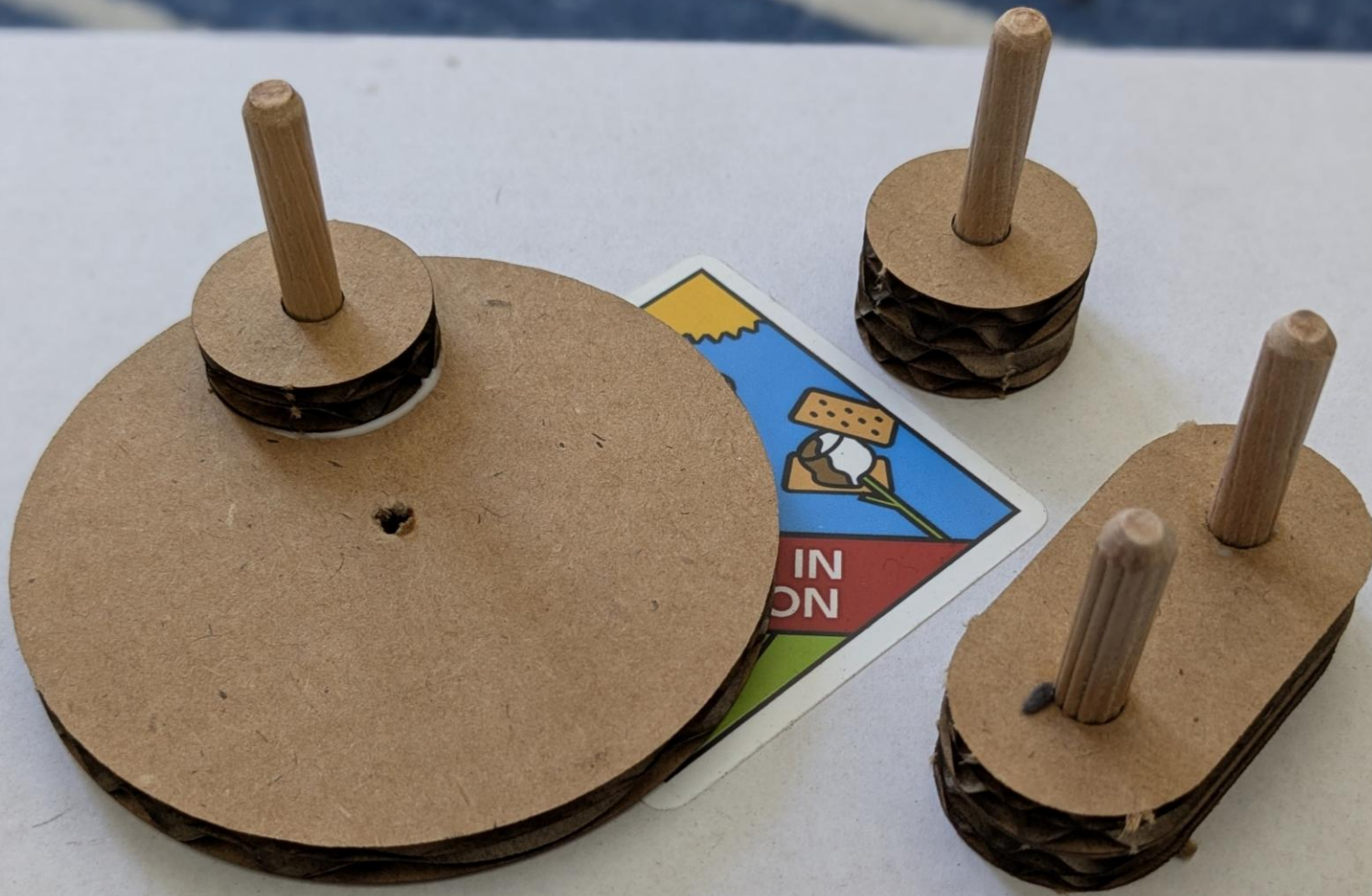
DO NOT OPEN YOUR BOXES until after going through these instructions and you are given permission.

In this challenge you will work in teams of 4-5 to assemble twenty-five parts that you will use in another lesson on linkages.

Your goal is to assemble the parts faster than any other group. But be careful not to make any mistakes!

One person from another team will act as a **Quality Control Officer** and observe your group. If you make a mistake and they notice it, you will be penalized!





# Assembled Parts

As a group, you will assemble:

- 5 cranks (single dowel, small circle and large circle)
- 10 Pivots (single dowel and 2 small circles)
- 10 Guides (2 dowels and 2 ovals)



# Contents of your Precision in Production Kit

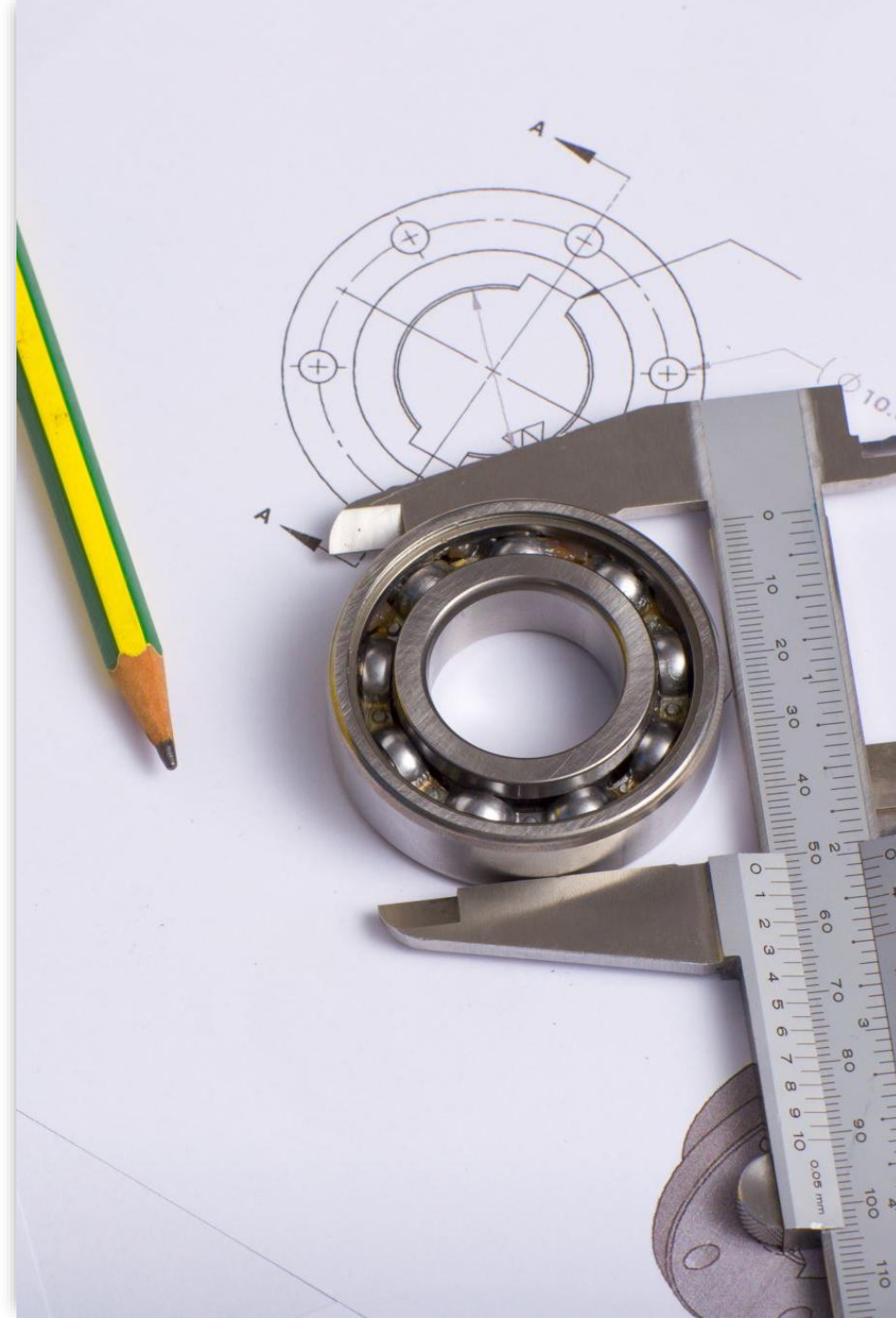
- 1 sheet (or bag) of 25 1" circles
- 2 sheets (or bags) of 10 2" ovals
- 5 3" cardboard circles
- 1 3" Chipboard circle (*hole making template*)
- 1 4" cardboard square (*scrap for poking holes in circles*)
- 1 bag of 35 wooden dowels
- 1 nail
- 1 ruler
- 1 bottle of glue
- 2 paper cups
- 2 paintbrushes
- 1 roll of tape

*Scissors needed but not included in kit*



## **Your goal is to assemble all parts as quickly as possible and with the fewest mistakes.**

- As a group, you will create a plan to assembly the parts as efficiently as possible. Each component – crank, guide, and pivot – comes with a sheet of tasks needed to assemble each one. Your group will decide the order the tasks should be completed and then assign tasks to each group member.
- One person from each group will not be involved in the assembly of the parts. Instead, they will be the Quality Control Officer who observes another group's build. They will enforce the rules of production and inspect all pieces at the end.
- Quality Control Officers will have a checklist to aid them in their work. Violations documented by the Quality Control Officer result in penalty time being added onto the production time. The group with fastest time after penalties are assessed is the winner.





# Before the timer starts

Teams get 10 minutes to make an assembly plan and organize the materials before the timer starts.

During the 10 minutes you may:

- Cut out the task cards and assign roles to each team member.
- Remove the circles and ovals from the sheets.
- Add glue to paper cups
- Sort pieces into groups

During this time, you may **not**:

- Cut tape or glue pieces.
- Complete any steps from the task cards.



# Precision in Production Assembly Line Challenge

---

When each group has all the materials (task cards, Precision in Production kit box, scissors, Quality Control checklist) the 10-minute planning time begins.

At the end of the ten minutes, the challenge will start. All teams should begin at the same time. Either use a classroom clock, stopwatches, or an online timer to keep track of time. Quality Control Officers will record the time when the group finishes and then complete the checklist to add penalty times.

The group with the lowest total time (production plus penalties) wins.

Good Luck!

