

# Assembly Line Activities Introduce Mass Production



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**M**ASS production is a system by which many products can be produced at a reduced cost for a company. It is also a way to improve the quality of the items. As a factory worker, you may be on an assembly line doing the same job minute after minute, hour after hour, day after day, year after year, until you retire or change jobs. In this problem, students will be asked to simulate such an experience with the other members of their group.

For these activities, break the class up into groups of five. For Activity 1, give each group a tray of 100 bolts, 400 washers, and 100 nuts.

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*Larry Roberts has won numerous awards for his excellence in teaching and programs at Highlands Middle School, Kennewick, WA.*

# Assembly Line Activities

## Introduce Mass Production



## Mass Production Activity 1

### Student Instructions

1. Set up an assembly line where each person in the group assembles only one part of the unit. The first person puts one washer onto one bolt. He or she passes it onto the next person. The second person puts another washer on the bolt, as do the third and fourth persons. The fifth person puts on a nut.
2. Start by having your group assemble 10 units. Record the time it takes to assemble them. Do this twice and calculate the average time it takes your group to assemble 10 units. Divide your average time by 10 to find the time it takes the whole group to assemble one unit (individual unit time).
3. Take the average time it takes your group to assemble one unit and multiply it by 100 units. Calculate the expected time it will take your group to assemble 100 units.

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## Mass Production Activity 1 Worksheet

1. Time it took to assemble 10 units

First time \_\_\_\_\_

Second time \_\_\_\_\_

2. Average time it took to assemble 10 units

\_\_\_\_\_ First time

+ \_\_\_\_\_ Second time

= \_\_\_\_\_  $\div$  2 = \_\_\_\_\_ (average)

3. Time to complete 1 unit (individual unit time)

Average \_\_\_\_\_  $\div$  10 = \_\_\_\_\_ individual unit time

4. Expected time to assemble 100 units

Individual unit time \_\_\_\_\_  $\times$  100 = \_\_\_\_\_

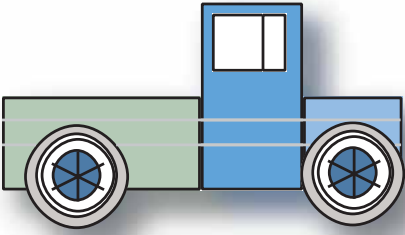
# Assembly Line Activities Introduce Mass Production



## Mass Production Activity 1 Questions

Answer the following questions in complete sentences.

1. Did you meet or beat your expected time to complete 100 units? Why did or didn't your group meet the expected time?
2. Was the expectation of completion time realistic? Why or why not?
3. Were there any production slow downs and what caused them?
4. Was your job getting boring? Why or why not?
5. Was another student's production speed frustrating anyone?
6. List five ways an employer could keep employees from being bored by doing mass production.
  - a.
  - b.
  - c.
  - d.
  - e.



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## Mass Production Activity 2

### Student Instructions

1. This time your group will assemble a truck in a mass production line.
2. Complete as many trucks as your group can in 30 minutes. Switch jobs every 10 minutes.
3. Before starting, each student will choose to color, cut, and fold one of the following parts. The truck should be assembled in the order shown.

**Hood and front fenders**

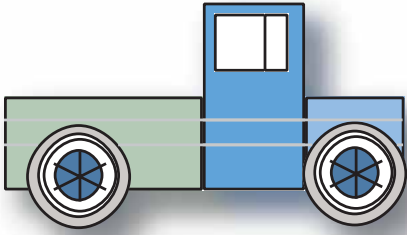
**Cab**

**Box**

**Bed liner**

**Wheels**

4. Each student must determine how much time he will spend coloring his part, keeping in mind that he must also cut, fold, and assemble it with glue without slowing down the assembly line.
5. Remember, quality also counts. You may want to have a group conference before starting.
6. Groups may rough cut and stack 10 truck patterns before starting assembly.

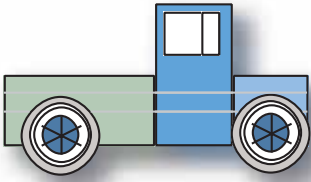


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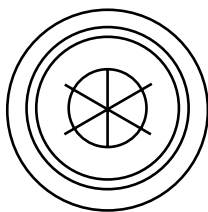
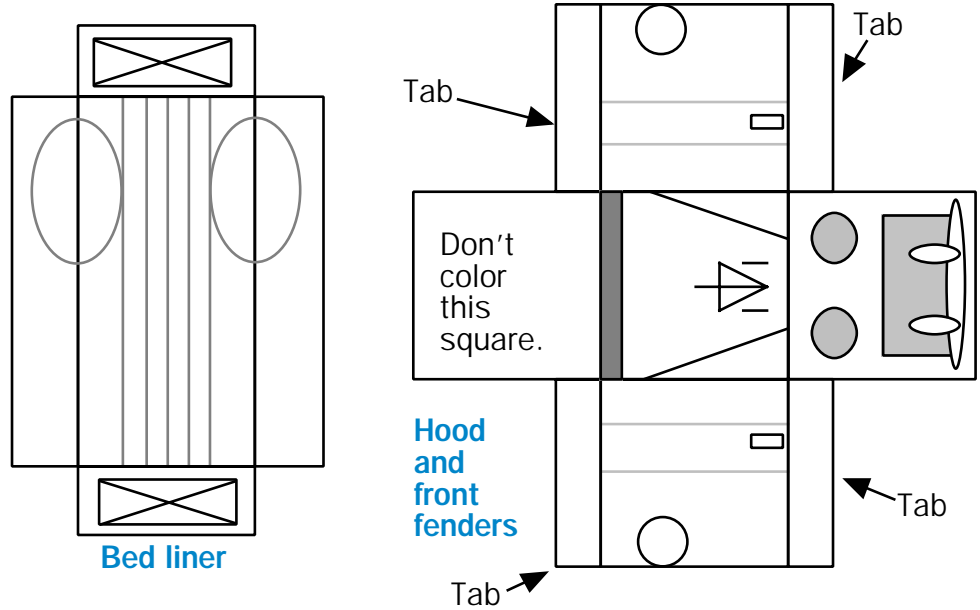
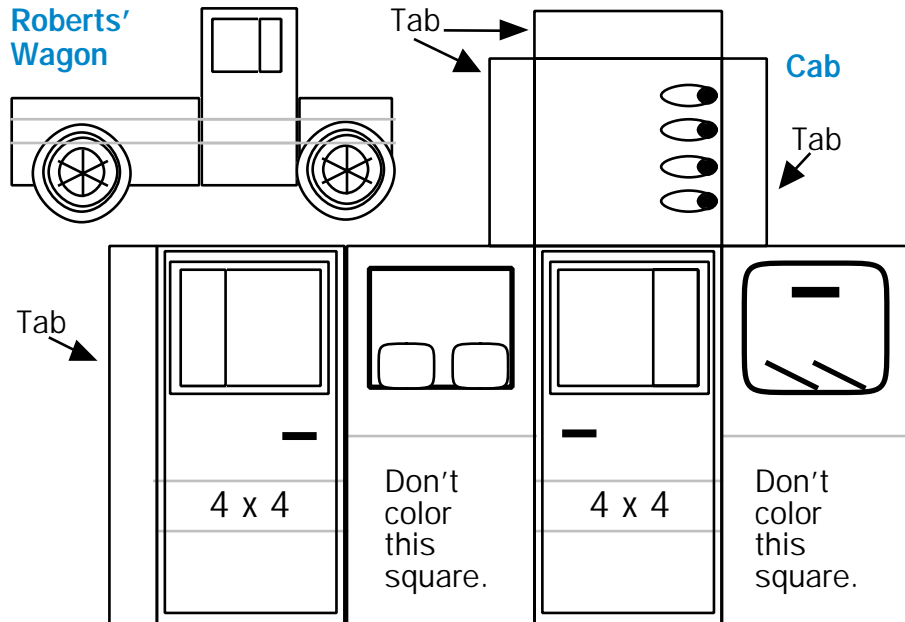
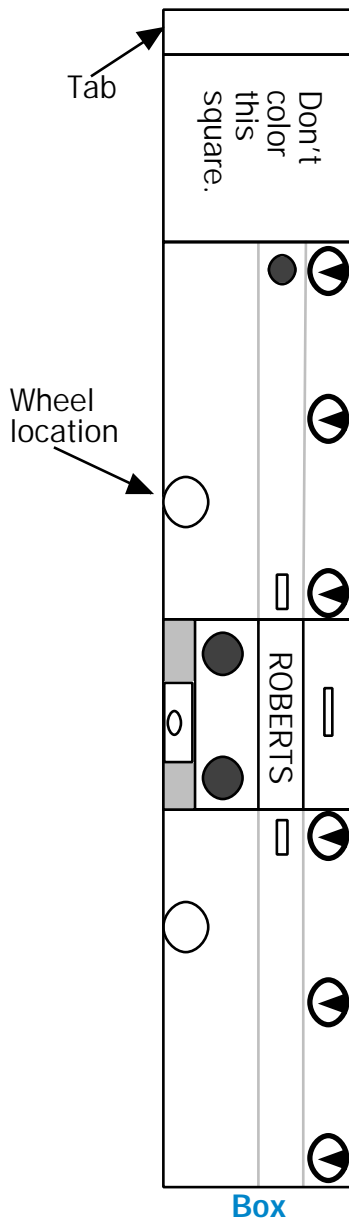
## Mass Production Activity 2 Questions

Answer the following questions in complete sentences.

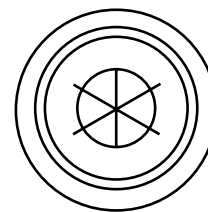
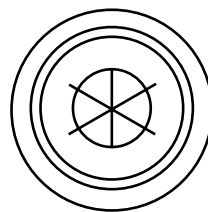
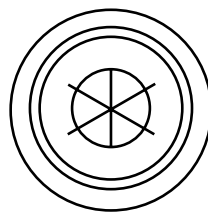
1. How many trucks did your group complete in 15 minutes?
2. Did switching jobs make the mass production any less boring? Why or why not?
3. How much time was lost when switching jobs?
4. What did your group talk about while assembling the trucks?
5. Would you like to work on a factory assembly line? Why or why not?



# Assembly Line Activities Introduce Mass Production—Truck Pattern



Wheels



Note: Don't color any tab.