

## The Lean Game

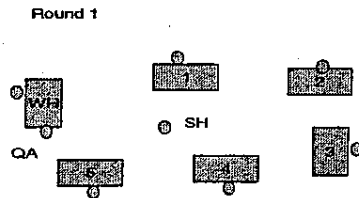
### Materials needed:

250 sheets Plain white paper 8.5 X 11 inches  
 750 - 1000 colored adhesive dots about 1" in diameter  
 6 tables or locations for personnel

People needed: 1 group of 8 people

1 warehouseman  
 1 stock handler  
 1 paper sub assembler  
 5 dot laborers  
 1 QA inspector

### Setup:



Create a warehouse area for all of the materials

Set the tables spaced apart from one another to prevent directly transferring material from one table to another. We need to have a reason for the stock handler

Have one dot laborer sit at each table

Create a BOM and a sample –

½ sheet of paper (8.5 X 5.5)

1 dot of each of 4 colors

2 dots of the fifth color

Create a flip chart or white board with the following information:

WIP and Scrap have full value

Each product is \$10.00

Time for first piece (Min)

Finished Goods (\$)

WIP Inventory (\$)

Scrap (\$)

FG – (WIP + Scrap) (\$)

% Improvement

1

2

3

4

To Play:

Round 1 (each round lasts seven minutes)

Operators are at their work stations ready with no WIP in any station. There is one strip of dots at each station. (Dots are raw material, not WIP). There is no torn paper. The rules are defined for the first round.

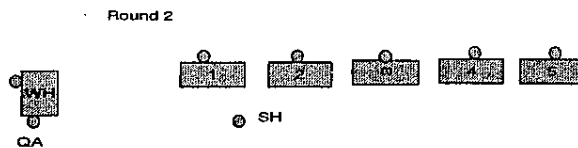
1. Lot size for each operation is five.
2. Paper is prepared in the stockroom as a subassembly by the warehouseman. It does not count as WIP until it is issued to the floor. It is lot sized in lots of 10 (8.5 X 5.5 pieces).
3. When material is required it must be ordered through the stock handler who must go to the stockroom and get it and deliver it.
4. Each operator works at maximum output.
5. When a lot is complete the stock handler must be called to come and move it to the next operation.
6. QA is the last operation and must inspect all material before it is received into the warehouse.
7. All material is kept in the warehouse except for one sheet of dots for each operation at the beginning.
8. As an operator needs more dots, the stock handler must go to the storeroom and get another sheet of dots. Issuing multiple sheets of one color or issuing more than one color at a time is prohibited.

Insure that the rules are understood and then give the signal to start. Record the time that the first piece is received by the warehouse. Stop in seven minutes. Count all of the FG, WIP, and SCRAP. Multiply them by 10 for the dollar value and write the values on the flip chart.

Clear the line.

#### Round 2

Operators are arranged in a Product Flow line. They should be close enough together to allow direct material passing from one to another without the help of the stock handler. Each operator works at maximum output. The QA area should be placed by the warehouse away from the end of the line.



The rules are defined for the second round.

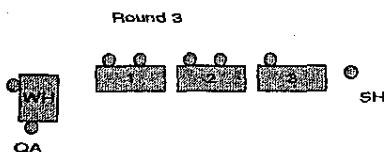
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4. QA is the last operation and must inspect all material before it is received into the warehouse.
5. All material is kept in the warehouse except for one sheet of dots for each operation at the beginning.
6. As an operator needs more dots, the stock handler must go to the storeroom and get another sheet of dots. Issuing multiple sheets of one color or issuing more than one color at a time is prohibited.
7. When a lot is finished at the last operations the stock handler must move it to the QA department for acceptance or rejection.
8. Accepted lots get passed directly by QA to the Warehouse.

Insure that the rules are understood and then give the signal to start. Record the time that the first piece is received by the warehouse. Stop in seven minutes. Count all of the FG, WIP, and SCRAP. Multiply them by 10 for the dollar value and write the values on the flip chart. Calculate the percentage of increase for the output of Round 2 versus the output of Round 1.

Clear the line.

### Round 3

Operators are left in the same configuration. The lot size is reduced to one. Everything else stays the same as Round 2. Each operator works at maximum output.



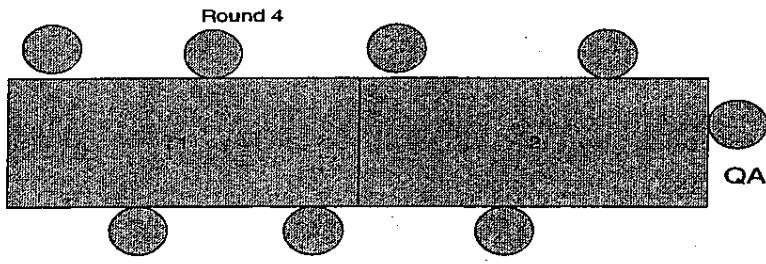
Insure that the rules are understood and then give the signal to start. Record the time that the first piece is received by the warehouse. Stop in seven minutes. Count all of the FG, WIP, and SCRAP. Multiply them by 10 for the dollar value and write the values on the flip chart. Calculate the percentage of increase for the output of Round 3 versus the output of Round 1.

Clear the line.

### Round 4

Operators are placed on both sides of the tables and the space used is reduced to two table tops. Piece passing is diagonally across the table.

1. The warehouse no longer keeps the raw material. It is located at the point of use. The warehouseman does the first operation - paper subassembly.
2. The operation with two dots of the same color is split into two operations and the stock handler becomes the additional operator to fill that task.
3. QA is a part of the line and places the finished goods in the finished goods kanban.
4. Each operator now works to fill the open space at the next operation. If there is a piece in the next operation, the operator waits until the space is empty and then moves the piece forward. No operator can have more than one piece at a time.



Insure that the rules are understood and then give the signal to start. Record the time that the first piece is received by the warehouse. Stop in seven minutes. Count all of the FG, WIP, and SCRAP. Multiply them by 10 for the dollar value and write the values on the flip chart. Calculate the percentage of increase for the output of Round 4 versus the output of Round 1.

Clear the line.