

**Activity 1.1.0 Icebreaker: Origami Balloon**

Introduction

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| Manufacturing is a series of interrelated activities and operations that involve product design and the planning, producing, materials control, quality assurance, management, and marketing of that product.  In this activity you will work in a group to best determine the process flow and the sequence of events needed to produce as many origami balloons as possible in 10 minutes. | C:\Users\jhanson2.WCC-HANSON-1\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\O8HZAF18\MC900233805[1].wmf |

Activity Concepts:

1. Brainstorming

**Time Allottment:**

5 min: Group Demonstration/Introduction

10 min: Brainstorming

5 min: Practice

5 min: Build Time

5 min: Conclusion Questions

1. Manufacturing
2. Mass Production
3. Raw Materials
4. Materials Handling
5. Process Flow Chart
   1. Delay
   2. Operation
   3. Transportation
   4. Storage
   5. Inspection

Equipment

* 15 sheets of 8½” x 11” Paper
* Straight Edge

Procedure

1. In groups of four or five, determine the best order of operations to mass produce as many possible origami balloons in ten minutes.
2. Fill in the included process flow chart and determine who will perform each operation.
   1. Assign to members the steps necessary to develop each product from start to finish.
   2. Only products that are neatly assembled and completely inflated will count toward your final count.

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| Operation Transportation Inspection Delay Storage | | | | | | |
| **Task No.** | **Process** | **Task Description** | | | **Tooling Required** | **Operator** |
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| 12 |  |  | | |  |  |
| 13 |  |  | | |  |  |
| 14 |  |  | | |  |  |
| F:\DCIM\100___01\IMG_0292.JPG  Start with a typical 8 ½” x 11” sheet of paper | | | | F:\DCIM\100___01\IMG_0293.JPG  Fold and crease one corner over until it meets with the outside edge. Cut/tear off the excess material. | | |
| F:\DCIM\100___01\IMG_0294.JPG  The remaining paper should now form a square and you may discard the cut off extra scrap. | | | | F:\DCIM\100___01\IMG_0296.JPG  Fold and crease the square from corner to corner in the opposite direction to form a triangle. | | |
| F:\DCIM\100___01\IMG_0297.JPG  Unfold the paper. You should notice the creases now form an “X” from corner to corner. | | | | F:\DCIM\100___01\IMG_0298.JPG  Fold and crease the paper in half to form a rectangle. | | |
| Tuck and push both sides from the rectangluar fold into the triangular shape on both sides to again form a triangle. | | | | Fold up and crease both of the bottom legs of the triangles on the front until they meet and align in the middle. Flip the part over and repeat the same process with the legs on the opposite side until the paper forms a diamond (square). | | |
| Fold and crease both the left and right outside corners, on the front side, into the middle. Flip the part over and repeat the same process on the opposite side to form a six sided shape. | | | Fold down and crease the top right and left loose ends. Tuck these ends into the small pockets create by the previous step to hold them in place. Flip the part over and repeat the same process on the opposite side. | | | |
| Expand the balloon by gently blowing air into the open hole in the bottom of the part. It may be necessary to blow into the balloon multiple times or aid the expansion of the balloon by manually opening the balloon a little before blowing air into the hole. | | | | | | |

Conclusion

1. List two of your groups processes or operations that could be altered in order to create a greater number of finished products in the same amount of time.
2. Decide as a group how two operations in your process flow could be automated?