Activity 2.2.2 Manufacturing Processes

Introduction

Did you ever play with clay as a child? If you were asked to create a drinking cup out of the clay, could you do it? How? Is there more than one way to create a cup out of clay?

In this activity you will learn about four manufacturing processes. You will be asked to consider how these processes can be used to create a product. In a future activity, you will be asked to determine what processes were used to create a product that you use or see every day.

Equipment

- Manufacturing Processes Presentation
- Pencil

Procedure

While viewing the presentation, take notes using the following questions as a guide. Then answer the conclusion questions.

1. Name four types of secondary manufacturing processes.
Casting, Molding, separating and forming.

2. What is a raw material?
A raw material is the scratch material that all products are made of.
3. Describe each. Name a product that is created using each process.

a. Casting and Molding
This process includes all of your injection molding process and other process that involve making products with molds. Most plastic pieces are made like this.

b. Forming
Forming is when products are formed into what they are by using compression. Some products that are made by this are metal bars and things like that.

c. Separating and Joining
Separating is used in such processes as laser sintering. When the laser goes over the powder, there is some leftover powder in the object. You need to go over the product to remove this excess material. Any product that uses laser sintering uses this process.

d. Finishing
Finishing is used in to improve the appearance of products while making the products stronger. When ever something has a covering put over a product, a finishing process is used.

e. Conditioning
Conditioning is used when products need to be “hardened” before they are realized. Lots of time, metal is heat treated so that it will be harder before it is released for sale.

f. Assembling
Assembly is where the parts are put together individually and form a bigger product. Any types of cars or computers would be made like this.
Conclusion

1. If you were to create a bowl, which process would you use? Describe how this could be accomplished. Which process would create the least amount of waste? Which process would be the quickest? Explain.

I would use plastic and injection molding because there isn’t a whole lot of excess waste, but this is still a very fast process for making the bowls.

2. Assume that you have created a bowl using one of the processes and a mistake was found in the bowl. Keeping the process and material you have chosen in mind, describe how you would fix each of the following mistakes:
   
a. A ragged edge on the rim of the bowl
   You can use sanding or trimming to solve this problem

   b. A bubble or extra piece of material in the bottom of the bowl
   You compress the bubble with heat and pressure

   c. A hole in the bowl
   Take extra material and melt it to the bowl.