Manufacturing Processes Activity: Making a Picture Frame

Vocabulary/Definitions

*assembly*: To fit or put together parts of something.

*cutting*: The process by which parts are cut from material to be used in the manufacturing process.

*finishing*: The last step in the manufacturing process in which the product is finalized.

*joining*: The process of assembly in which pieces are fastened together.

Procedure

To complete this activity properly, accuracy in length and angle measurements is crucial.

**BEFORE YOU START:** Brainstorm and determine methods for making sure that the lengths are measured accurately and all angles are 90 degrees.

**Cutting (aka Separating)**

1. Cut out the front and back of the cereal box. This results in four cardboard rectangles - the back, front and two sides (where the nutrition facts are listed).
2. Cut a 6 inch (15.2 cm) x 8 inch (20.3 cm) rectangle from the front of the box.
3. On the side with the print, label this piece part A in one corner.
4. Mark a B in the center of piece A.
5. Now measure a 3 inch (7.6 cm) x 5 inch (12.7 cm) rectangle in the center of the piece you just cut.
6. Cut this piece out, and label it "A" (see Figure 1).

![Figure 1: Measurements for cardboard frame pieces cut from a cereal box.](image)

7. From the sides of the box (where nutrition facts are listed), cut another rectangle that is 7 inches (17.8 cm) x 2 inches (5 cm). Label it "B."
8. You now have three separate pieces.
**Shaping (aka Forming)**

9. Fold rectangle B in two places - 3 inches (7.6 cm) from each end, so that you have a one-inch (2.5 cm) space in the middle (see Figure 2). This piece becomes the picture frame stand.

![Figure 2: Measurements and fold lines for side panel piece.](image)

**Assembling**

10. Enhance the frame with decorative accessory materials. Be creative, but school appropriate!
11. Paint the back of the frame, and the other pieces. Wait for the paint to dry.

**Joining**

12. Glue your picture on the cardboard piece, and cut it so that it fits on the piece exactly.
13. Place the cutout with picture into the middle of the frame, where it was originally cut from. If you cut it accurately, it should fit exactly. Use tape on the back or the frame to secure the picture.
14. Glue or tape the middle of the stand (rectangle B) to the middle of the back of your frame so that it leans on the two folded out parts (see Figures 3 and 4).

![Figure 3: Attach rectangle B to the back of the picture frame.](image)
![Figure 4. Rectangle B serves as a picture frame stand.](image)

**Finishing**

15. Clean away extra glue or PlayDoh pieces left on the sides. Make sure that the accessories you added are stable and dry.

**Quality Control**

16. Put some light pressure on your picture frame, it should not break apart. If it does, glue the pieces again and use more tape. Replace any decorations that fall off.

**Safety**

17. Be careful with the scissors. Do not leave any pointed or sharp parts on the frame.