Prosthetic Arm Activity Sheet

Activity – Grab and Release an Object

Objective:

Design, build, and operate a prosthetic arm from given supplies to grab various size objects **one a time** and release them

General Supplies:

- Various objects such as empty paper clips box and empty water bottle
- Glue Gun

- Scissors
- Tape, white or black
- A few bamboo skewers
- Rolls of string

Supplies (per group of 2):

- 2 – sheets of card stock paper
- 9 – straws

- 14 – craft sticks
- 3 – pony beads

Instructions:

1. Using the given supplies, design and build a prosthetic arm.

   a. Device MUST have at least two artificial fingers and at least two artificial fingers MUST open and close.

   b. Can NOT use opposite fingers, hand, or wrist OR real hand to operate or control the prosthetic arm.

Creating One Finger with Two Joints

2. Cut one craft stick into three equal pieces.

3. Cut two pieces of straw slightly shorter than the pieces of sticks.

4. Glue one piece of straw to one piece of stick. Put the glue on the stick and not the straw or the straw may melt. Do this for a total of TWO straw/stick segments.

5. Glue the two stick segments onto a full straw. The sticks should be sandwiched between the straws now. Leave a small space in between each segment, so that bending is possible at the joint.

6. Glue full straw's excess onto a full length craft stick. Leave a small space between the full length craft stick and the first segment, so that bending is possible at the joint.

7. Glue one more straw segment onto the top of the full length craft stick in line with the other two segments.

8. Tie a pony bead onto the end of piece of string. Use the bamboo skewer to thread the other end of the string through the first short straw segment and through the two other short straw segments.

9. Wrap each segment with tape to reinforce the glue. Pre-bend the finger at each joint.

Creating Arm and Operation

10. Using the remaining supplies, create another one or more fingers, the arm, and the operation of the fingers.

Testing

11. Attach the prosthetic arm and pick up the different objects from a table one at a time and release.

Notes: