

Think Like an Engineer (Cadette, Senior, Ambassador) Journey

Recommended Supplies:

Project #1: Can Holder (aka the “Harmless Holder”)

Criteria:

The holder must:

1. Be able to hold six cans
2. Be easy to carry
3. Be safe for animals
4. Be convenient for people to use.

Constraint:

You only have 25 minutes to design & build your device.

Materials:

- Cardboard
- Paint stirrers
- Wax paper
- Paper
- Scissors
- Rubber bands
- Duct tape
- String
- Paper & pencil for blueprints

Project #2: Kinetic Sculpture

Criteria:

The sculpture must:

1. Be at least 6 inches tall.
2. Have at least two parts that can move in the wind.
3. Be sturdy enough to stand up in the wind and not be knocked over.

Constraint:

You only have 25 minutes to design & build your device.

Materials:

- Strips of colored paper (or fabric)
- A large piece of cardboard
- Various sizes of metal washers
- Ping pong balls
- Poster putty
- Duct tape
- Paper cups
- Wooden skewers or craft sticks
- Plastic spoons
- String
- Scissors.
- Paper & pencil for blueprints

- A ruler or tape measure to make sure your sculpture is 6 in. tall
- Access to wind! (or a fan, hairdryer, etc)
- Craft supplies to decorate your sculpture

Project #3: The Assistive Device

Criteria:

The assistive device must be:

1. Able to pick up a ping pong ball from the floor.
2. Able to grab a cup off a shelf and move it to a table.
3. Comfortable for the user.
4. Easy to carry and convenient for people to use.
5. The user must remain seated while using the device. They cannot bend their back or legs to pick up the ball. The user cannot go on their feet or use a ladder to reach the cup.

Constraint:

You only have 25 minutes to design & build your device.

Materials:

- Cardboard
- Paint stirrers
- Wooden skewers
- Brass tacks/fasteners
- Paper clips
- Paper cups
- Paper (newspaper, white paper, etc)
- Felt
- Rubber bands
- Scissors
- String or wire
- Tape
- Play-Doh
- Paper & pencil for blueprints
- Ping pong ball (for testing)
- Plastic cup (for testing)