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| **Activity 1.1 Instant Challenge: Cable Car** |

Introduction

There are many ways to solve a problem. Sometimes it is as simple as applying a piece of duct tape. Other times it takes months or years for a product to progress from an idea into full-scale production. Often engineers and designers use a specific set of steps (sometimes called a design process) to find the best solution to a problem. In this activity your team will quickly design the solution to a problem using a design process that progresses from brainstorming to presenting a final design.

Equipment

* Paper
* Pencil

Materials

* Any 15 non-electric parts from your LEGO kit
* Three rubber bands
* Four popsicle sticks
* 6” of masking tape
* Small Block to transport (You may decorate this block)

Procedure

In a team of three or four, using only the materials provided, design and build a device or vehicle to move a small figure (Block) as far as possible across the room on the cable. A team member may initiate the motion of the vehicle or device but may not provide forward momentum.

**Brainstorm (5 minutes).** Assign a recorder for your group. As a team, brainstorm as many ideas for your device/vehicle as possible as the recorder documents your ideas. You may handle and inspect the materials, but you may not alter or connect any of the materials in any way during this phase. Select one of your sketched ideas to pursue.

**Build (10 minutes).** Build your device. Make changes to your original ideas as necessary.

**Test (1 minute).** Each team will have one minute to test their device on the cable.

**Redesign (5 minutes).** Make revisions to your device based on the results of your testing.

**Present.** Each team will take a turn attempting to send their vehicle across the room on the fishing line cable. The distance traveled will be recorded.

Scoring

Your team may receive points for the following.

* Creativity: Up to 5 points for creativity in the design and use of materials
* Teamwork: Up to 5 points for how well your team works together
* Performance: 0.5 point for each foot that the device moves along the cable

**Conclusion (Up to 10 Points)**

1. Why do you think brainstorming is helpful when solving a problem?
2. How did testing improve your design?
3. With respect to designing the solution of a problem, what are some important characteristics of a successful team?
4. Performance summary (Include the distance travelled and how well it met the specifications.
5. Self Evaluation:
   1. Creativity: \_\_\_\_ (Out of 5)
   2. Teamwork: \_\_\_\_ (Out of 5)
   3. Distance Travelled: \_\_\_\_ (Feet)
   4. Proposed Score: \_\_\_\_\_\_\_\_\_

(Please turn it into the Turn In folder for this class. Name it YourNameActivity1-1CableCar)