

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_ Period: \_\_\_\_\_\_

**Activity Instant Challenge: Puff-Mobile**

Introduction

In this activity you will find a solution to design and build a vehicle from the provided materials that will travel as far and fast as possible. Often engineers and designers use 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

*\*Be aware that all materials do not need to be used (Be strategic)*

* 1 sheet of paper
* 2 paper clips
* 3 straws
* 50 centimeters of masking tape
* 4 Lifesavers
* Stapler (tool only)
* Scissors (tool only)

Procedure

In a team of three or four, using only the materials provided, design and build a vehicle that will travel as far as possible from the outdoor stage area. Each team member will test their vehicle, and after 4 consecutive trials, each team will choose a member to run the final trial. Whose will travel the farthest distance?!

1. **Brainstorm** (3-5 minutes). Each student will have to brainstorm his or her own ideas for the vehicle. You may handle and inspect the materials, but you may not alter or connect any of the materials in any way during this phase.
2. **Build** (5-10 minutes). Build your device. Make changes to your original ideas as necessary.
3. **Test** (2 minutes). Each team member will have one opportunity to test their vehicle at the outdoor stage area.
4. **Redesign** (5 minutes). Make revisions to your vehicle based on the results of your testing.
5. **Present**. Each team will take a turn racing their vehicle across the outdoor stage area. The distance traveled will be recorded.

**Conclusion**

1. How did your experience in the first Instant Challenge help you in solving this problem?
2. Did you make changes during your Design/Build/Test phase that resulted in your vehicle traveling a farther distance? If so, what were the changes?

3. Do you think it is more productive to continually test your product or to test at set time intervals? Why?