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**Industrial & Systems Engineering: Experimenting with Paper Airplanes**

Part 1: Design Phase

1) Make 3 different paper airplane designs of multiple different paper types (printer paper, cardstock paper, and colored construction paper).

   Design 1 - The Basic Dart: ✈The Easy and Classic Paper Airplane - The Basic Dart - Fold 'N Fly
   Design 2 - The Glider: How to Make a Great Gliding Paper Plane - Simple and Easy Folds - Step by Step Instructions - Origami
   Design 3 - The Basics: ✈The Basic Paper Airplane - Easy Folding Instructions for Kids - Fold 'N Fly
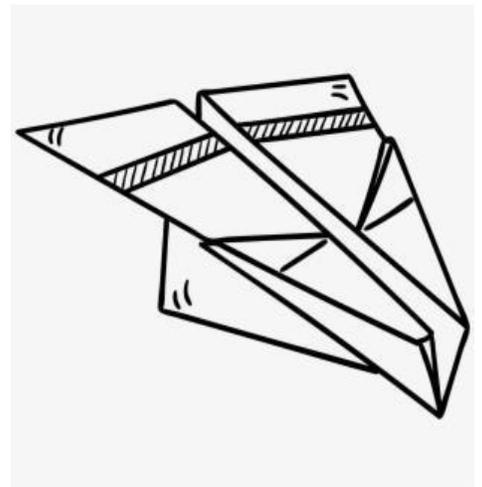
Part 2: Testing Phase

1) Set up a target 10-15 feet away (adjust as needed).
2) Throw each paper airplane 3 times, and record how many times the airplane hits the target or how far it goes.

Part 3: Reflecting Phase

1) Think about how well each plane did. Determine which material worked best for each type of plane, and discuss why this was the best. Was it the material? The type of throw? Did others bend?
2) Choose the overall best paper airplane that could be made from the design and material constraints.

Questions to Ask

What airplane was the best? How many different factors impacted your results? Did human error impact your results from this process?

The goal of this is to make the best paper airplane that can hit the target, while following the design and material constraints. Industrial Engineers do this every day!

Why is this important?

This activity emphasizes the importance of experimentation, data recording, step-by-step instructions, reflecting upon a process, and drawing data-backed solutions. Additionally, it allows you to explore ideas to find an optimal solution given design constraints.

In the real world, you are faced with problems to solve every day - whether it is what to eat for dinner, in what order to do homework, or what the best ice cream flavor is! Using Industrial Engineering you are able to make the most out of your problems to find the best solution from what options you have!