Activity: Building a Flying Object

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This is an introductory activity designed to get students thinking about flight and the forces that affect flight.

Materials:

-paper (various types, sizes, shapes)

-glider comparison chart (below)

-tape measure

-pencil/pen

Procedure:

* Have the student design and construct their own paper glider. They can look through the website <https://paperairplaneshq.com/> for inspiration, but they should come up with their own design. It can be any shape, size, or type of paper.
* It would be helpful if family members could also build paper gliders (with different designs/sizes/paper types) so there are different models to compare. If this is not possible, have the student come up with two more designs for comparison.
* Fly the gliders and record how far they flew in the table below. Make sure to always start from the same position and test each one at least 3 times!
* Calculate the average distance (mean) that each glider flew. Which one flew the farthest?
* Have the student discuss how they think the design of the gliders affected their performance.
* Have the student suggest design changes that might help their glider fly further. Re-design and test it out!
* Ask the students to describe what they think makes the gliders stay in the air, and eventually come down. If they say “The wings keep them up” ask them how they think that works. If they say “the air keeps them up, and gravity brings them down” they are on the right track!
* Lead them into a discussion that there are forces that act on an object/animal in flight. The forces work in four directions: upward (lift), downward(weight), forward(thrust), and backward(drag). These forces, where they come from, and how they affect flight will be explored in depth later.

Glider Comparison Chart

|  |  |
| --- | --- |
|  | Distance Traveled (Feet) |
| Glider 1, Trial 1 |  |
| Trial 2 |  |
| Trial 3 |  |
| Glider 2, Trial 1 |  |
| Trial 2 |  |
| Trial 3 |  |
| Glider 3, Trial 1 |  |
| Trial 2 |  |
| Trial 3 |  |

Average Distance (Mean) Glider 1\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Average Distance (Mean) Glider 2\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Average Distance (Mean) Glider 3\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

