

Name \_\_\_\_\_

## Soaring High: Crafting the Perfect Paper Airplane

### Open-Ended Response Answer Key

1. The key steps in making a paper airplane involve folding the paper precisely to ensure symmetry and balance. First, you fold the paper in half lengthwise to create a center crease. Then, you fold the top edges diagonally toward the center crease to form the wings. Afterward, fold the paper in half again, keeping the wings aligned. Creating a tail for stability is crucial. Throughout the process, paying attention to symmetry ensures that the airplane flies smoothly and predictably.
2. The design of a paper airplane significantly impacts its flight performance. For instance, a paper airplane with larger wings may generate more lift, allowing it to stay in the air longer. Conversely, a design with sleek, pointed wings may enable higher speeds. The placement of the tail affects stability; a longer tail might make the airplane more stable but slower, while a shorter tail might sacrifice stability for speed. Experimenting with different designs and observing how they affect flight performance is key to optimizing your paper airplane's capabilities.
3. To make a paper airplane fly as high as possible, I would make a few adjustments. First, I would create a design with larger wings to generate more lift. Next, I'd add a longer tail to enhance stability during the ascent. In terms of throwing technique, I would throw the airplane upward at a sharp angle to maximize its altitude. I'd also apply a moderate amount of force, aiming for a balance between height and distance. Finally, I'd experiment with different designs and throwing angles to find the most effective combination for achieving maximum altitude.
4. One time, I made a paper airplane with a simple design, just following the basic steps. When I threw it, it didn't fly very far, and it often spiraled to the ground quickly. I realized that I needed to improve its design for better flight performance. So, I experimented with different wing shapes and sizes. I found that increasing the wing size and adding a slight curve to the wings made a significant difference. My improved design allowed the airplane to glide smoothly and cover more distance. I learned that even small design tweaks can have a big impact on how a paper airplane performs, and that experimentation is key to making it better.

