

Understanding Center of Gravity (CG)

The center of gravity (CG) is the point where the total weight of an object is evenly distributed in all directions. For paper airplanes, the position of the CG is crucial for achieving stable flight. If the CG is too far forward, the airplane may dive; if it's too far back, it may stall.

Weight Distribution

Weight distribution refers to how the mass of the airplane is spread out across its body. This affects how the plane flies. An even weight distribution typically leads to better stability because it allows for smooth airflow over the wings.

Finding the Center of Gravity

To find the CG of your paper airplane, you can:

1. **Fold the airplane:** Create your paper airplane design as intended.
2. **Balance it:** Hold the airplane by its wings and slowly move your fingers along the fuselage until you find that balance point. This point is approximately where the CG is located.

How to Influence the Center of Gravity

Adjusting the CG can be done by:

- **Adding weight:** Attach small paper clips or tape at various locations on your airplane to move the CG forward or backward.
- **Changing design:** Modify the wing size or shape. Larger wings can help slow the descent and create a more stable flight.

Weight Distribution Techniques

To ensure proper weight distribution, consider the following techniques:

- **Even paper choice:** Use lightweight paper to avoid excess weight that can affect flight.
- **Careful folding:** Ensure that folds are aligned and symmetrical to help maintain balanced weight on both sides.
- **Check wing symmetry:** Make sure both wings are the same size and shape for uniform lift.

Testing and Adjusting

After making adjustments, it's essential to test your paper airplane. Throw it in a spacious area and observe its flight. If it veers to one side, the CG might be off or the weight distribution might need adjustment. Continue experimenting until you achieve a stable flight.

Conclusion

The center of gravity and weight distribution are vital for the performance of paper airplanes. By understanding and manipulating these factors, you can enhance the stability and distance of your paper plane flights. Happy flying!