



# PAPER PLANE Challenge!

Get Ready to Fly High with STEAM (Science, Technology, Engineering, Art and Math) Fun!

This National STEM Day, join Chuck E. Cheese for an exciting STEAM adventure where you'll fold and fly your very own paper planes! With just some paper and some folding, you'll discover how different designs can change how far and fast they fly!

Activity Steps:

- 1. Pick Your Plane Design: Choose your favorite paper airplane to make!
- 2. Fold It Up: Follow the lines and fold tightly to create your very own Chuck E. Cheese plane!
- **3. Time For Takeoff**: Launch your planes and watch them zoom through the air!
- 4. Measure The Fun: Count how many steps it takes to reach your plane, how long it stayed in the air, and any cool things you see!
- 5. Compare Your Planes: Talk with a friend or family member about which designs flew the best and why!

Things to look for:

- Distance Flown: Which plane went the farthest?
- Flight Time: How long did each plane stay in the air?
- Flight Path: Did any planes do cool loops or dive down?
- **Design Differences**: What made some planes fly better than others?

Let's Have Fun!

Bring your friends and family to join the fun! Will your plane be the best flyer? Let's find out together! At Chuck E. Cheese, exploring and having fun is what it's all about!

Activities like these help us learn how to use the things we learn in school in everyday life. Happy National STEM Day and happy flying!



#### Arrow



This plane is easy to fold and flies straight and smooth. Add a small amount of up elevator for long level flights.



Orient the template with the "UP" arrow at the top of the page. Then, flip the paper over onto its backside, so that you cannot see any of the fold lines.



Pull the top right corner down toward you until fold line 1 is visible and crease along the dotted line. Repeat with the top left corner.





Fold the right side over again and crease along fold line 2. Repeat with the left side.



Fold the tip down toward you and crease along fold line 3.



Now, flip the paper over. Then, fold the left side over onto the right side and crease along fold line 4 so that the outside edge of the wings line up.



Fold the wings down along fold lines 5. Partially open the folds you just created so that the wings stick out straight. Cut two slits, one inch apart, along the back edge of each wing for elevator adjustments. Add wing dihedral by tilting the wings up slightly away from the fuselage. The wings will have a slight "V" shape when viewed from the front. Now you are ready to fly!





## Canard



This unique plane has small wings at the front called "canards." This design is surprisingly stable and will float long and straight if folded carefully.



Orient the template so that the "UP" arrow is at the top of the page. Then flip the paper over so that none of the fold lines are showing.



Fold the top edge of the paper down toward you until fold line 1 becomes visible. Make a crease along the dotted line.



Fold the top right corner down and toward you and make a crease along fold line 2. Be aware that you will not be able to see the fold line after making this fold.





Fold the top left corner down and toward you and make a crease along fold line 3.



Fold the corners of the flaps you just folded up along fold lines 4.



Fold the left half of the plane over onto the right half along fold line 5 so that the outside edges of the wings line up.



Fold the wings down along fold lines 6 and winglets down along fold lines 7. Add wing dihedral by tilting the wings up slightly away from the fuselage. The wings will have a slight "V" shape when viewed from the front. You are ready to fly!





# **Classic Dart**



This plane is the classic schoolyard dart. It has short, compact wings and will fly straight as an arrow. It generally needs some up elevator along the back wing edges to fly properly.





Fold the top left and top right corners down and toward you and crease along fold lines 3.



Fold the tip up and over the two diagonal folds along fold line 4 to secure them in place.



Flip the plane over and fold the right side over onto the left side as shown along fold line 5 so that the outside edges of the wings line up. Also make surbecome untucked from the tip you folded up in the previous e the diagonal folds do not step.



Fold the wings down along fold lines 6 and the winglets up along fold lines 7. Add wing dihedral by tilting the wings up slightly away from the fuselage. The wings will have a slight "V" shape when viewed from the front. Cut two slits, one inch apart, along the back edge of each wing to make elevator adjustments. Start out by trying some up-elevator. You are ready to fly!





# Condor



This plane produces tremendous lift at low speed, giving it a very low glide slope. It is an excellent indoor flier and will coast across the room on slow, smooth glides.



Orient the template so that the "UP" arrow is at the top of the page. Then flip the paper over so that none of the fold lines are showing.



Fold the top left corner down toward you until fold line 1 becomes visible. Crease along the dotted line and repeat with the top right corner.



Fold the nose down until fold line 2 becomes visible and crease along the dotted line.





Fold the outside wing edges in and crease along fold lines 3.



Fold the right half of the plane over the left half and crease along fold line 4 so that the outside edges of the wings line up.

Fold the wings down along fold lines 5 and the winglets up along fold lines 6. Add wing dihedral by tilting the wings up slightly away from the fuselage. The wwhen viewed from the front. Add elevator slits ings will have a slight "V" shape along the back edge of the wings to adjust the flight if necessary. You are ready to fly!





### Delta



This plane flies fast and straight. It is easy to fold and a great all around flier. Add some up elevator if necessary to produce stable flights.



Orient the template so that the "UP" arrow is at the top of the page. Then flip the paper over so that none of the fold lines are showing.



Fold the top left corner down toward you until fold line 1 becomes visible. Crease along the dotted line and repeat with the top right corner.



Fold the left side over again and crease along fold line 2. Repeat with the right side.





Fold the nose down and toward you along fold line 3.



Fold the right half of the plane over the left half along fold line 4 so that the outside edges of the wings line up.



Fold the wings down along fold lines 5 and the winglets up along fold lines 6. Add wing dihedral by tilting the wings up slightly away from the fuselage. The wings will have a slight "V" shape when viewed from the front. You are ready to fly!





### Raptor



This plane is an excellent outdoor glider. Launch straight up and it will glide down in big lazy circles. Adjust the elevator on the back edge of the wing to perfect the flight characteristics.



Orient the template so that the "UP" arrow is at the top of the page. Then flip the paper over so that none of the fold lines are showing.



Fold the top right and top left corners in until fold lines 1 appear and crease along the dotted line.



Fold the nose down toward you and crease along fold line 2.





Fold the nose down toward you again and crease along fold line 3.

Fold the top edge down toward you again and crease along fold line 4.



Flip the plane over and fold the right half over the left half along fold line 5.



Flip the wings down along fold lines 6 and the winglets up along fold lines 7. Cut slits along the back wing edge for the elevator adjustment. Add wing dihedral by tilting the wings up slightly away from the fuselage. The wings will have a slight "V" shape when viewed from the front. You are ready to fly!



