**Rhino Solution**

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This is a recursive paper airplane puzzle using paper airplanes from Fold N' Fly (foldnfly.com) (see first letters of instructions).

Each bird's name uniquely clues you to an airplane from FoldNFly.
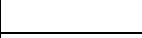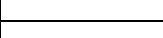
Identify the correct plane and fold the plane correctly starting face up or face down based on the document icon with the number 1. Make sure the arrow for document icon 1 is folding up (even if the plane is face down).

Once you build the plane, if you orient the plane such that the grid has a line at the bottom (and the grid should be on the left or upper side of the plane), you will spell out letter fragments in Morse Code. You will also see that each plane has a coordinate based on the grid (NW, NE, SW, SE).

Example of Popeye Arm (Sailor Wing) with the coordinate NE.
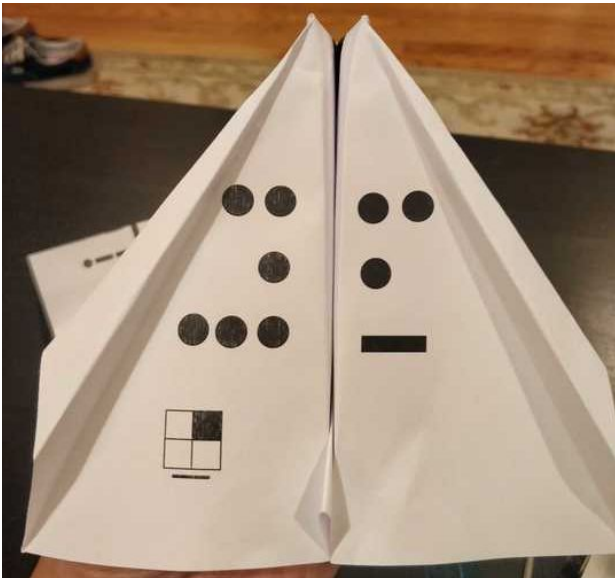
A table of bird to plane names along with the correct Morse fragments is below.

Bird Name	Plane Name	Morse	Morse Translation	Direction	Upside down or not
Aqua	Water Plane	▬▬ ·▬ ▬·· / ▬·▬·	MADC	NW	Upside Down
Below Veggies or Fries	Underside	··· ▬	ST	NW	Rotate Right.
Carrion Eater	Vulture	▬· ···· ·	NSE	SW	Upside Down
Coasting	Gliding Plane	·▬ ·▬· / ▬·▬·	ARC	NW	
Disco Ball	Light Spinner	···· ·· / ▬·▬·	HIC	NE	
Downward Spiral	Tailspin	· ·▬ ·▬·	EAR	SW	Upside Down
Dreidel	The Spinner	▬ ··· ▬·	TSN	SW	

Enjoyable Circular	Fun Flyer	▬·▬· ▬	CT	SE	Upside Down
False Report	Canard	▬▬▬ ··▬ ▬	OUT	SE	
Flo-Jo	The Sprinter	·▬· ▬▬▬ ▬·▬▬	ROY	NW	
Gordie Howe	Star Wing	·▬ ·▬·· ··	ALI	NE	Rotate Left
Horse House	The Stable	·▬ ·▬· ▬	ART	SE	
Middle Finger	The Bird	▬·▬ · ▬· ·▬▬·	KENP	SW	
Popeye Arm	Sailor Wing	···· ·· ···▬	HIV	NE	
Simple Projectile	Basic Dart	·▬· ▬▬▬ ·▬▬	ROW	SE	Upside Down

Sound Stream	Sonic Jet	▬▬▬ ··▬	OU	NE	

Grouping phrases:

Group the fragments together into four groups such that each group has one plane in each of the 4 positions. Read in order NW, NE, SW, SE to get four phrases: ARCHIVE ARROW, MAD CHICKEN PART, STOUT SNOUT, ROYAL INSECT.

See correct associations below.

Bird Name	Plane Name	Morse	Morse Translation	Direction	Upside down or not	Meta
Coasting	Gliding Plane	·▬ ·▬· ▬·▬·	ARC	NW		Archive Arrow
Popeye Arm	Sailor Wing	···· ·· ···▬	HIV	NE		Archive Arrow
Downward Spiral	Tailspin	· ·▬ ·▬·	EAR	SW	Upside Down	Archive Arrow
Simple Projectile	Basic Dart	·▬· ▬▬▬ ·▬▬	ROW	SE	Upside Down	Archive Arrow

Aqua	Water Plane	-- .- -.. -.-.	MADC	NW	Upside Down	Mad Chicken Part
Disco Ball	Light Spinner	.... .. -.-	HIC	NE		Mad Chicken Part
Middle Finger	The Bird	-.- . - .--.	KENP	SW		Mad Chicken Part
Horse House	The Stable	.- -. -	ART	SE		Mad Chicken Part
Below Veggies or Fries	Underside	... -	ST	NW	Rotate Right	Stout Snout
Sound Stream	Sonic Jet	--- ..-	OU	NE		Stout Snout
Dreidel	The Spinner	- ... -	TSN	SW		Stout Snout
False Report	Canard	--- ..- -	OUT	SE		Stout Snout

Flo-Jo	The Sprinter	.−. −−− −.−−	ROY	NW		Royal Insect
Gordie Howe	Star Wing	.− .−.. ..	ALI	NE	Rotate Left.	Royal Insect
Carrion Eater	Vulture	−.	NSE	SW	Upside Down	Royal Insect
Enjoyable Circular	Fun Flyer	−.−. −	CT	SE	Upsdie Down	Royal Insect

2nd Layer (2x2 planes)

Each of the 4 phrases refers to another plane from Fold N Fly (i.e. Archive Arrow = Zip Dart) and uses the four planes which made its phrase each with a distinct grid placement (one NW, one NE, one SW, one SE). You now need to build 4 2x2 planes using the paper from the first planes.

To do this, place the individual papers in the correct order (NW, NE, SW, SE) and make sure each individual page is turned such that the arrow for document icon #2 is pointing up. Then flip the pages over (all pages are face down from now on, and tape them together.

2x2 Planes

MAD CHICKEN PART (Cross Wing)

Archive Arrow (ZIP DART)
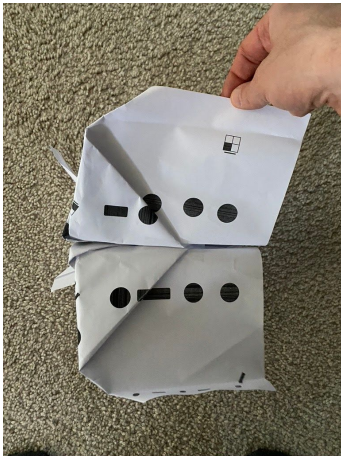
ROYAL INSECT (King Bee)

STOUT SNOUT (Heavy-Nosed Plane)

When you make each 2x2 plane, you get another set of morse characters. Each plane is also rotated to the right or the left along with another unique grid location. The four sets of characters spell out DARK BLUE.

Bird Name	Plane Name	Morse	Morse Translation	Direction	Rotation
Mad Chicken Part	Cross Wing	▬.. .▬	DA	NW	RIGHT
Archive Arrow	Zip Dart	.▬. ▬.▬	RK	NE	RIGHT
Royal Insect	The King Bee	▬... .▬..	BL	SW	LEFT
Stout Snout	Heavy Npsed Plane	..▬ .	UE	SE	RIGHT

DARK BLUE refers to the final plane which is the Navy Plane. Each of the 2x2 planes shows a grid location (NW, NE, SW,SE) of a final 4x4 paper airplane.

Arrange the 2x2 planes in the correct NW, NE, SW, SE configuration and, making sure every arrow points up for document #3, and tape them together. Make sure when you tape them together that all pages are still face down.

This is what it looks like face up when all attached correctly. To make the airplane, make sure the top is still heading forward and make sure all of the pages are face down.
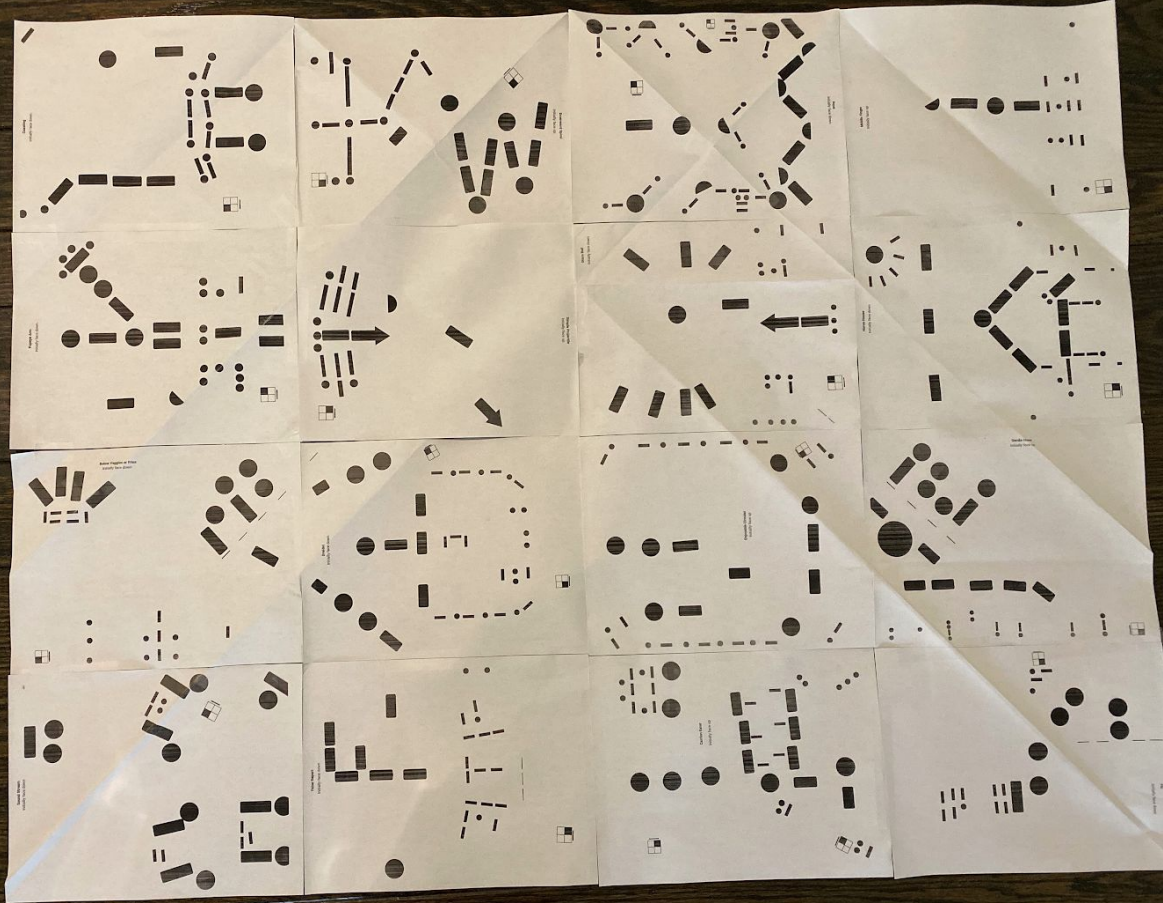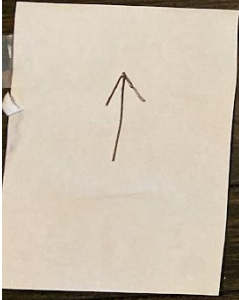
When you construct the final 4x4 you see the final answer FLIGHT.

3rd Layer (4x4 plane)

Bird Name	Plane Name	Morse	Trigram	Direction	Order
Dark Blue	Navy Plane	..−. .−.. .. −−. .... −	FLIGHT	None	
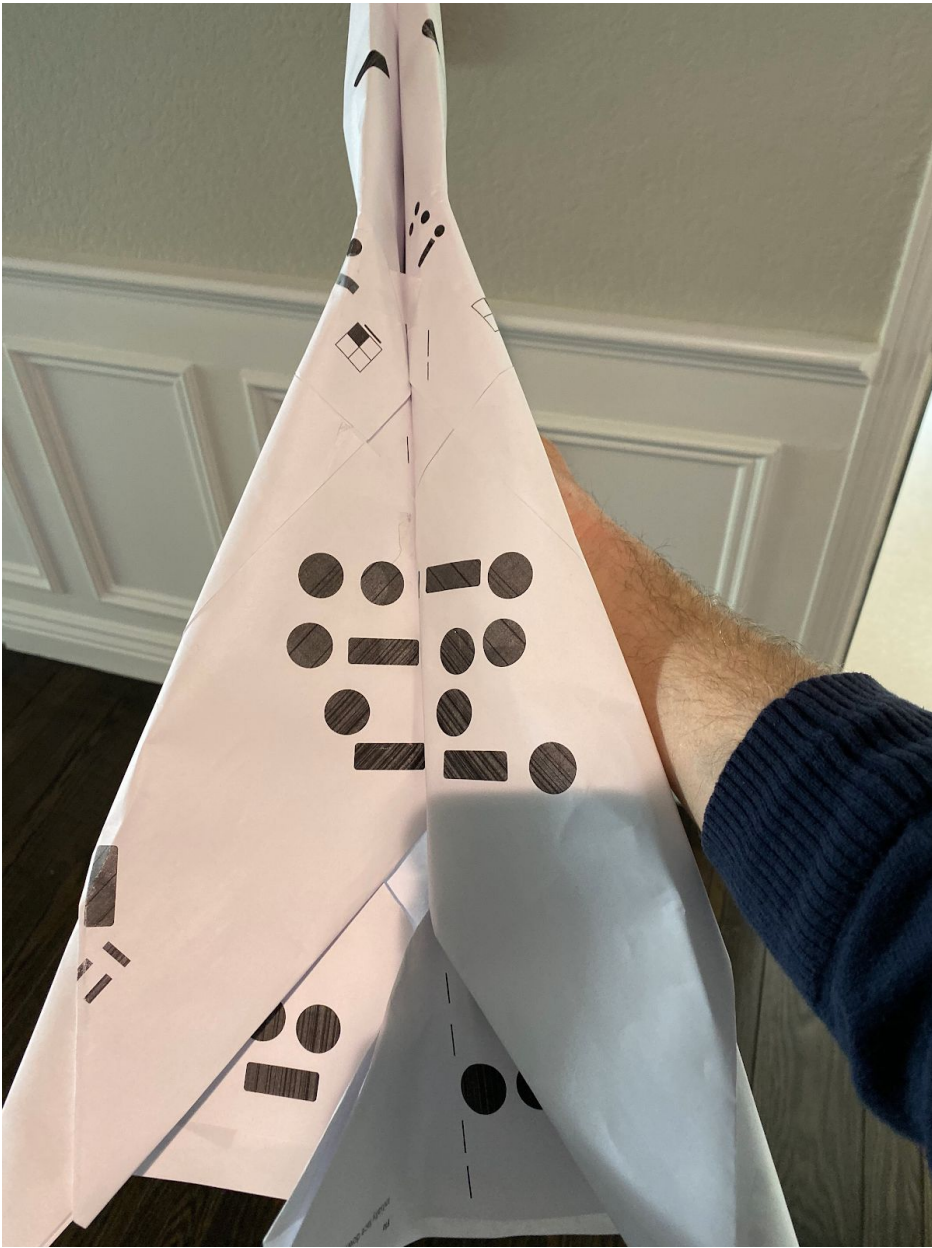
To make sure it was harder to back-solve (and because it is cool to see a huge airplane in flight) teams were asked to send a video of their latest creation to get the second answer - DARKSTRIDER.

Acknowledgements:

A HUGE thank you to Yar for strongly pushing to make this easier/clearer by adding the document icons with orientations. Originally the puzzle did not have the icons and required you to figure out the orientation by rotating the paper for the next layer in exactly the same way you rotated the plane to get the morse. (For example, if you read the morse from the plane upside down, when you built the next layer the paper should be upside down). While this was an elegant way to get the next layer and it hid the aha that there was a third layer, it ended up causing a ton of frustration since one error would get playtesters stuck for hours.

Within 24 hours of putting in the newer version testers solved it much quicker and were much happier with the puzzle. This situation was a great lesson for me that if people are struggling with a puzzle, take more drastic actions to make it easier so they can get to the fun parts.

With that in mind, a big thank you to everyone who tested this early on (Stribs, Nina, Todd, JDO, Justin) and suffered through the earlier version and helped correct errors.

Q&A

Why did you create this puzzle?
Very early on I thought it would be fun to make a recursive airplane puzzle where you ended up creating a mega 4x4 airplane. (because how is that not fun?). I found foldnfly,com searching the web and found it would be a great site to do this. I did not know the site beforehand.

How did you create this puzzle?

- I bought the foldnfly.com templates and created 2 copies of every airplane version that did not require cutting (I believe that made 64 planes). I then marked up all visible areas on the wings identically on each copy and unfolded one copy. This gave me the template for the visible area. I then identified which plane(s) would best fit for the 2x2 and 4x4 versions. I really liked the aesthetic of the navy plane and liked that it had very little wing surface area so it became pretty easy to use that as the final plane. Once I picked Navy plane and realized it started sideways, I picked out 4 2x2 planes that had 2 layers on its wings so I could put morse on each layer and therefore have morse ideally on each of the 1x1 planes that made a 2x2. From there I laid out the colored templates of the 2x2's and 4x4 and squinted to find where each 1x1 could fit and where it could be rotated to fit laying them all out on the floor.
- I picked morse code as I felt it was really hard to short-cut characters if you did not know the orientation and if I put in red-herring morse.
- I drew morse code on each of the 1x1 template planes. I then combined them to build a 2x2 plane and marked the area with a different color. Finally I combined them all into a 4x4 and marked the surface area with a third marker. I then scanned them all in and recreated all of the dots & dashes in Illustrator.
- Once I had the "real" dots and dashes, I came up with the fake pictures that went around the real morse to obfuscate it.
- I then spent a TON of time testing and tweaking, breaking it and then fixing one part and breaking another in an endless game of whack-a-morse.
- Finally I tried to move the components such that the morse would come out even if you printed 4 sheets to a page.

Why rotate the planes to get Morse Code?

- You'll notice to get morse code you need to rotate some of the planes 90, 180, or 270 degrees. As mentioned above, originally the puzzle did not have the document icons showing you how to rotate the pages for each layer. Instead it required you to figure out the rotation of the plane and use that rotation when building the next layer. How you rotated the plane to read the morse matches the way you need to rotate the paper for the next layer. Once we put in the document icons we left the rotations to obfuscate the morse.

How long did it take you?

- I am embarrassed to say it but overall this took me over 80+ hours and 200+ airplanes. Mostly because I am a terrible airplane folder, a bad artist and brand new to Adobe Illustrator (and also because a few of the instructions for the paid templates differed from their video instructions -which meant I had to redo a bunch of planes). Eventually the paper airplanes started taking over the house...

What are some fun tidbits?

- I found out after building this puzzle that Jake Olefsky - the creator of Foldnfly - is a big fan of puzzles and actually has a link to MITMH on one of his websites. I would love to see his reaction to finding out there is a foldnfly puzzle in MITMH :).
- The "creature" in the top right of the Carrion Eater is actually a small suitcase as he was originally a Carry-on eater.
- To get rid of extraneous morse on airplanes I had to basically destroy the Sprinter plane artwork. It is an abstract "flow" sprinter. Sorry!
- The planes with heavy noses (like Heavy Nose Plane, Underside) flew the best. The fancier planes (Sonic Jet, Vulture, Fun-flyer) did not fly well.
- The plane I had to build the most was the Vulture (I believe I had to build 20 of those) followed by Sonic Jet.
- If you like building paper-airplanes, I highly recommend purchasing the foldnfly.com template access. You'll get access to all of the templates which makes building the planes much easier and it is a lot of fun.

Hope you enjoyed it!