

21st Century Aerospace Vehicles

NASA research in nanotechnology, information technology, and biologically inspired technology is opening the door to a new era in aircraft development. It is envisioned that aerospace vehicles in the 21st century will employ sensors that act like a bird's "nervous system" to measure air pressure over the surface of an airplane's wings. Actuators will respond to the sensors like a bird's muscles," and change the shape of the wings to maintain optimal flight characteristics.

These aircraft of the future will be built of self-healing materials. They will monitor their own performance, their environment, and even their operators. In order to improve safety, increase fuel efficiency, and minimize airframe noise. <https://www.nasa.gov/aeroresearch>

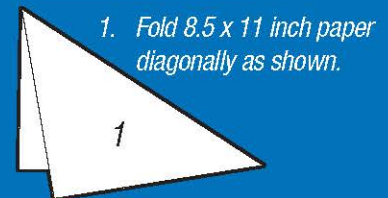
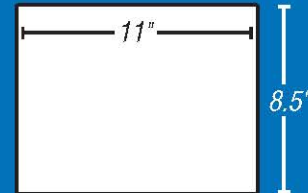


Provided by Civil Air Patrol www.gocivilairpatrol.com/ae from the book, *AEX for Middle School Physical Science*.

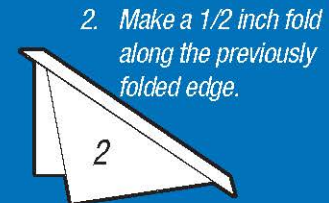
Contact ae@capnhq.gov for more aerospace/STEM education products and programs.

Ring Wing Glider

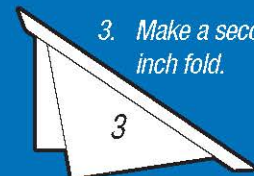
This wing demonstrates the great room there is for aeronautics innovation. Can you design a better wing?



1. Fold 8.5 x 11 inch paper diagonally as shown.

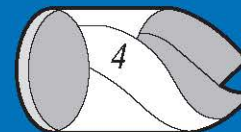


2. Make a 1/2 inch fold along the previously folded edge.



3. Make a second 1/2 inch fold.

4. Curl the ends of the paper to make a ring and tuck one end into the fold of the other.



5. Gently grasp the "V" between the two "crown points" with your thumbs and index fingers and toss the glider lightly forward.

The folds in the paper make an airplane wing where the front end is heavy and the back end is light. Curling the ends to make a ring changes the shape of the wing and improves the wing's flight performance.