



## Mechanical Engineering: Flying Flyer



### Badge Overview

Work like an engineer to create a Fling Flyer, an airplane you'll make, and explore what keeps it and other things, such as birds, planes, and space ships, in the air. When you've earned this badge, you'll have learned about the forces that affect flight as you design, build, and test a Fling Flyer. You'll know how to design an investigation—and fine-tune your design after testing it, just like engineers.

### Badge Components

#### 1. Learn about forces that affect flight

Watch this [video](#) to learn how the 4 forces (Thrust, Drag, Lift and Weight) keep an airplane in the air.

#### 2. Design and build a Fling Flyer

Choose the style of paper plane you would like to use for your fling flyer.

- There are instructions for you to choose from on this [website](#). Try making a couple of designs to see which will fly the best.
- To add the 'Fling' feature to your plane you can find instructions on this [website](#).



#### 3. Test your Fling Flyer

Now is the fun bit – Test how well it flies!

- Keep a record of your observations and what improvements you make on the Test Flight Record Card.

#### 4. Analyze and share your results

Look at your Test Flight Record Card and find out what properties are important for a successful fling flyer.

- See how far you can get your fling flyer to go. Make sure you start from the same place every time and keep everything else the same so you can make sure it is a **Fair Test**.

#### 5. Brainstorm ways to improve your design

Using the information you learned about the forces on a plane in the video, what improvements would you make to your fling flyer to make it go even further!

- Why not challenge someone in your house to make one to compete with yours?

### Materials

- Paper
- Paper Clip
- Rubber Bands
- Hot Glue Gun
- Popsicle Stick or Pencil
- [Test Flight Record Card](#)

### Florida Educational Standards

The content of all Girl Scout national proficiency Badges and Journeys have been correlated by grade level to national and state learning objectives.

[Click here](#) for more information on how Girl Scout Badge-work supports Florida's educational standards.



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Include her name, troop# and the name of the badge she's working on and we'll feature her.

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