

Name: _____

Engineering Flight

Interactive At-Home Activity

Student Copy

Welcome Engineers!

Today you will be designing a flying machine. But don't be intimidated- we will help you along the way. We have broken down the process of bringing an idea to life into four steps:

1. Mission
2. Design
3. Materials
4. Manufacturing

Follow these steps and you'll be airborne in no time!

The key to success here is making your choices for each step work together as well as possible- good luck!

1. Missions

The first step in any project is deciding what your goal is. For your flying machine, there are four different **missions**:

- *Distance traveled*
- *Time spent in the air*
- *Speed*
- *Creativity*

You can decide to focus on all three, or full send on one; as the head engineer of this project, the choice is yours!

2. Design Choice

Now that you have decided on your **Mission(s)**, brainstorm a design for a flying machine to meet those goals. Here are some basic ideas to get you started. You can totally just use these ones, or you could completely design your own!

Detailed blueprints are on later pages.

01. "Glider" (Page 4)

02. "Twirler" (Page 5)

03. "Classic" (Page 6)

3. Material Choice

At this point, we can pick what we want to make our flying machine out of! Make sure to keep your **Mission** and **Design** in mind.

Paper:

Lightweight and flexible, but easily damaged

Cardstock:

Heavier than paper, but less fragile

Cardboard:

Strong and durable, but heavy

Plastic:

Lightweight and strong, but hard to work with

4. Manufacturing

With all these design choices made, its time to get down to **Manufacturing**, or actually making our flying machine! Blueprints and instructions for the designs mentioned in **Step 2** are on the following pages if you need them.

Remember to *take your time!*

The better the craftsmanship, the better the results.

P.S.

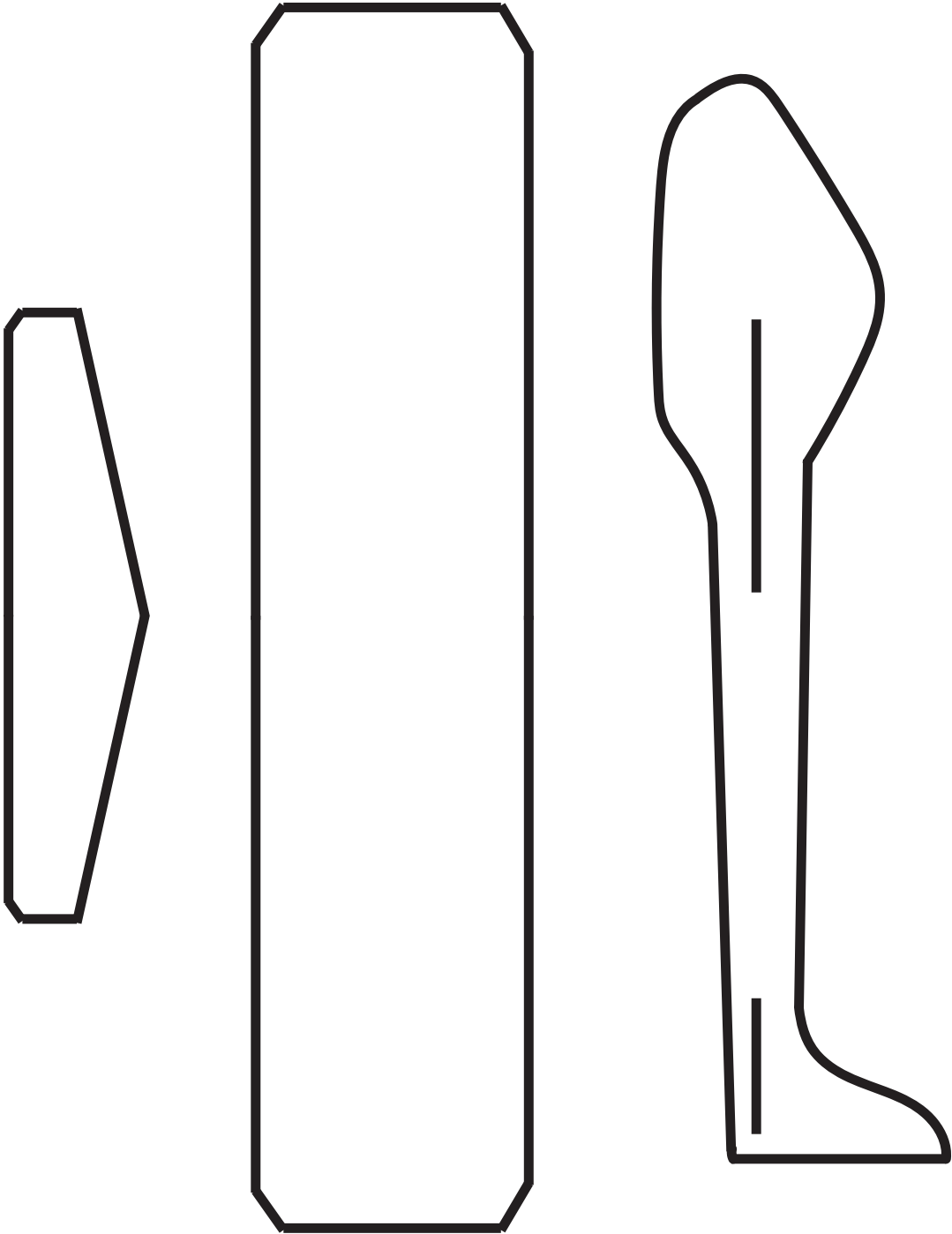
Hey! Congrats on engineering your own flying machine! We would love to see what you created- take a picture of your design and send it to:

ehyang@andrew.cmu.edu

Feel free to try em' all, as long as you help with clean-up afterwards :)

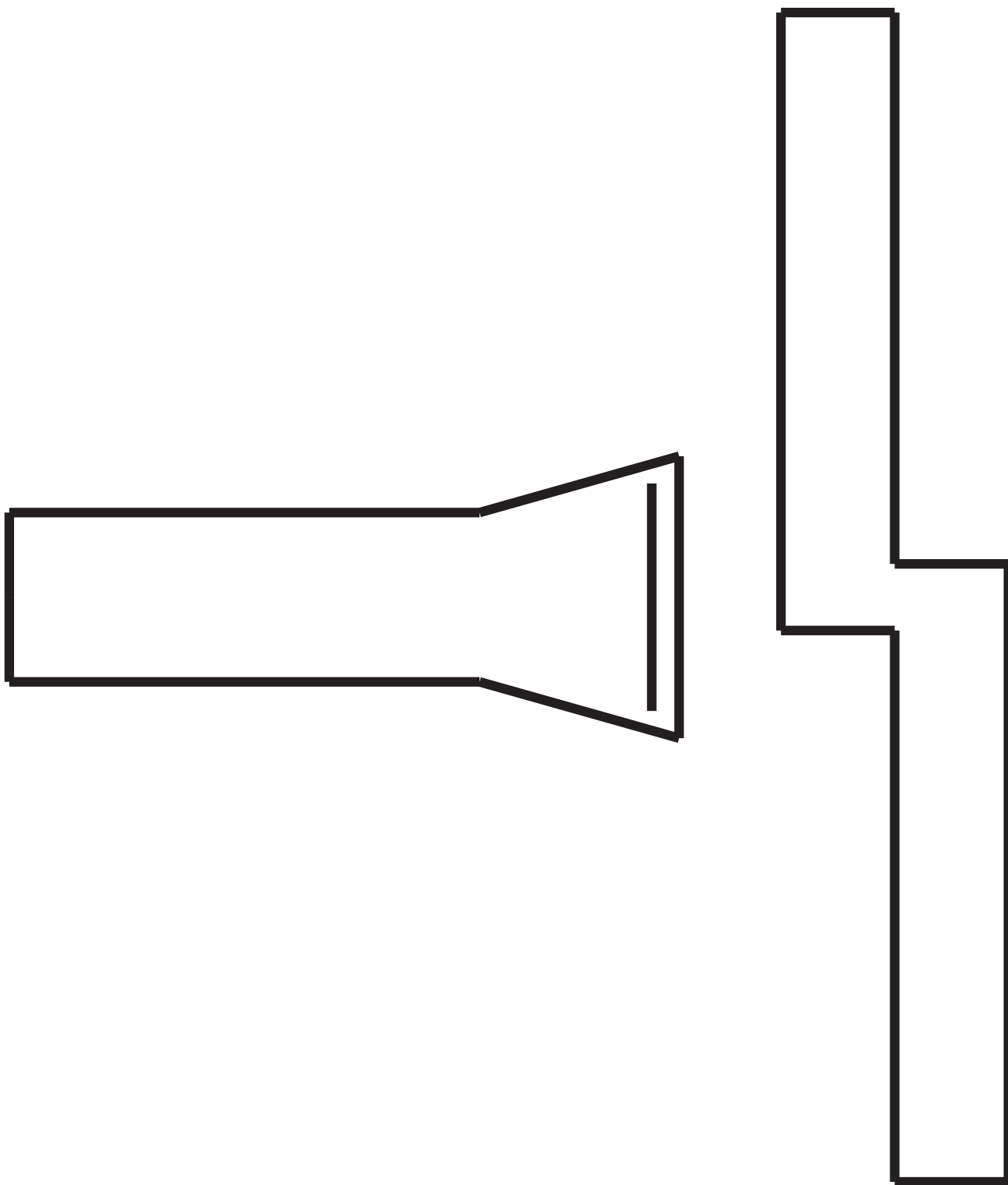
01. Glider

Design focused on Distance



02. Twirler

Design focused on Air-Time



03. Classic

Design focused on Versatility

