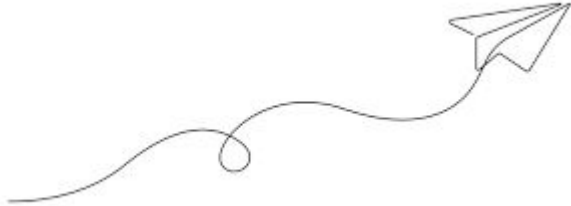


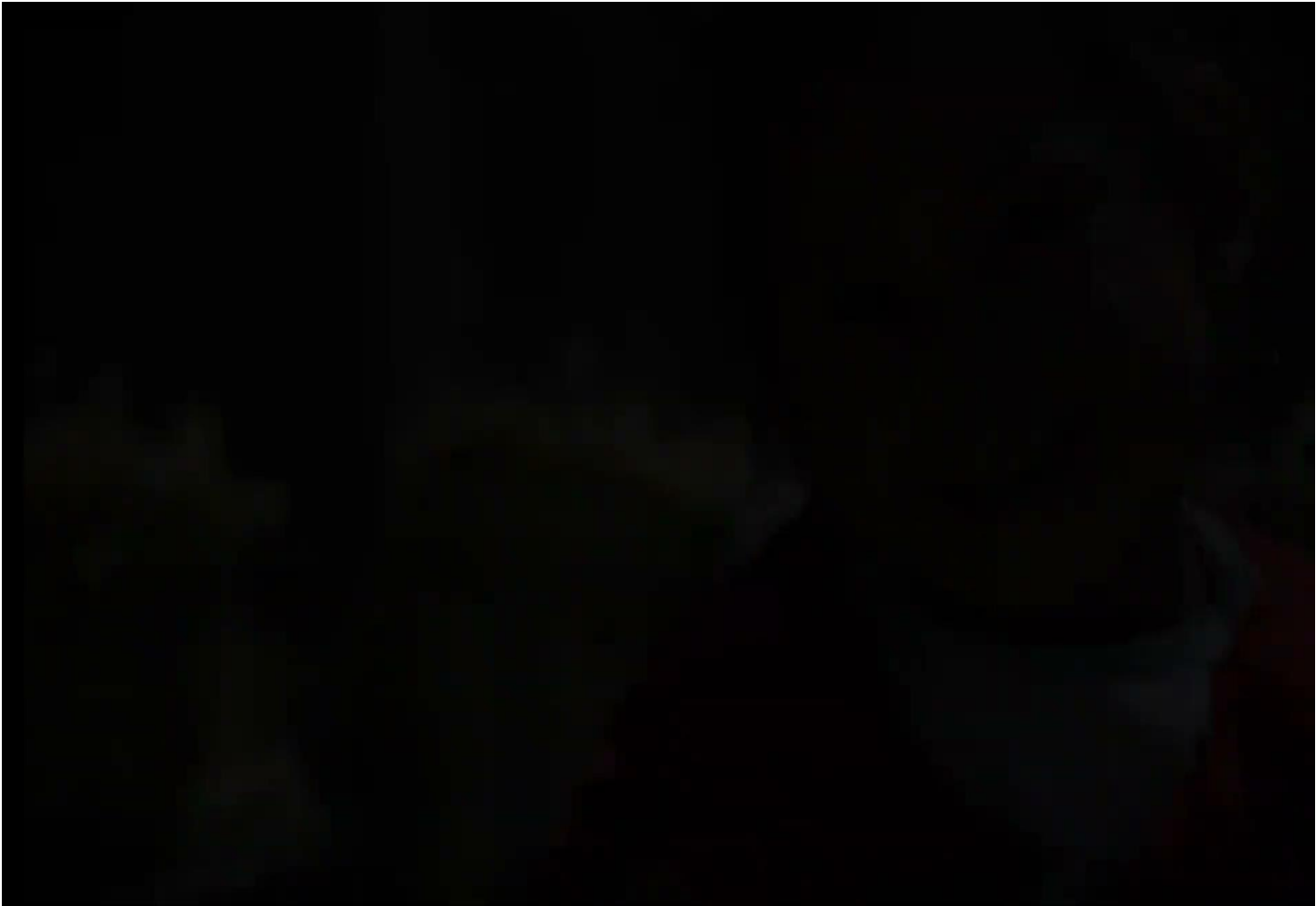
# Toolkit 1: Paper Airplanes

Flight Forge: Where Paper Takes Flight

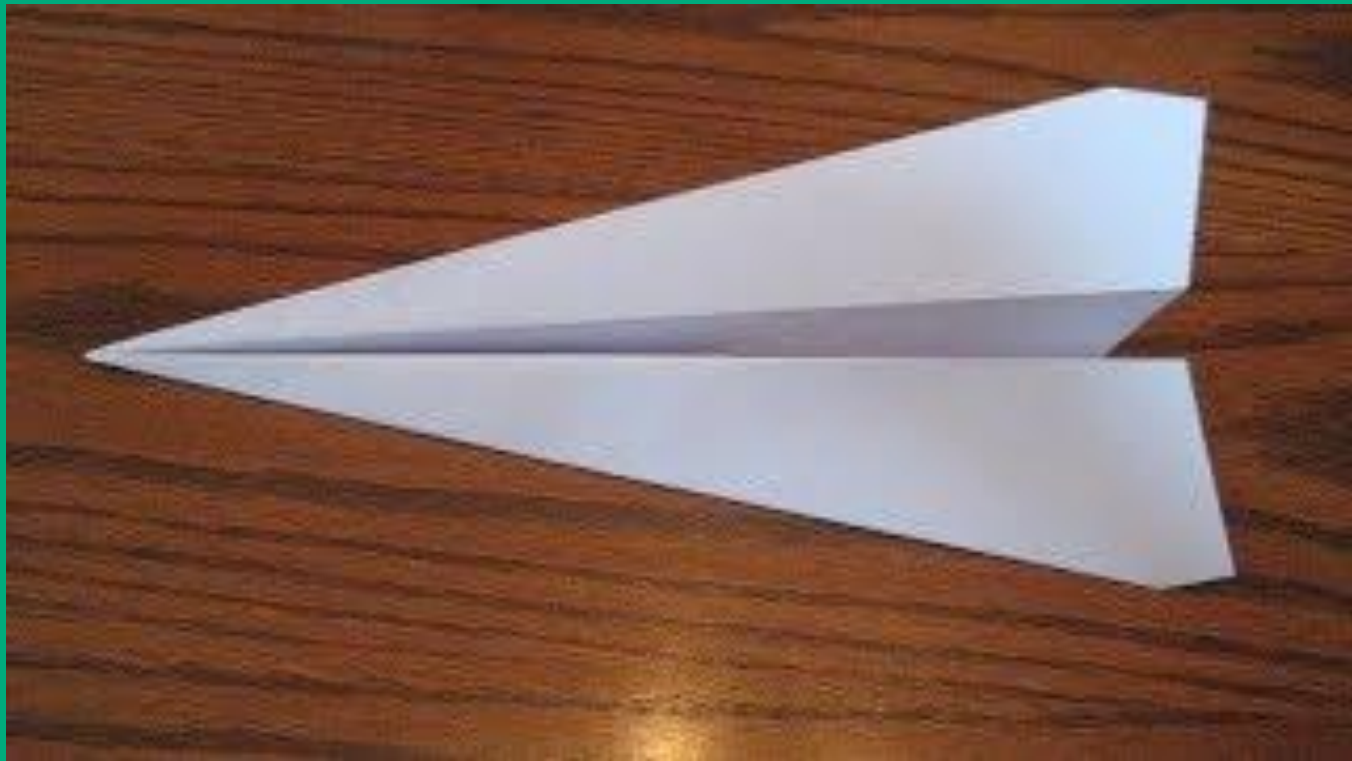




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Make a Paper  
Airplane!



# Discuss!

## Share with the people around you:

- Do you have any prior experience with making paper airplanes? If you do, how far have they travelled?
- Do you have any tips for making better paper airplanes? Do you enjoy making them?



- Now fly your plane and measure how far it goes.**
- Note it down. We will use it later :)**

# What is Aerodynamics?





# Four Forces of Flight

**Weight**



**Lift**



**Drag**



**Thrust**



# LESSON 2

# Four Forces of Flight

**Weight**



**Lift**



**Drag**



**Thrust**



How do  
Airplane  
wings  
provide  
lift?





**How does experimentation and learning from mistakes  
help us design better paper airplanes?**

# Engineering Process



**Ask:** define the problem

**Imagine:** Come with ideas to solve the problem. Do some research

**Plan:** Plan how to execute and build the solution

**Create:** start building!

**Improve:** test your design and find flaws and try to improve.

# LESSON 3

# Engineering Process



**Ask:** define the problem

**Imagine:** Come with ideas to solve the problem. Do some research

**Plan:** Plan how to execute and build the solution

**Create:** start building!

**Improve:** test your design and find flaws and try to improve.



## Observe and Note Down!



- 1. While watching observe and write down why John Collins paper airplane is able to fly so far! Observe how the folds he makes affects the four forces of flight on his paper plane.**
- 2. Share with the class!**



Here is an example of this process on paper airplanes by a professional.

## Your turn!

Make a paper airplane that flies the farthest distance to take first place!

**Brainstorm, Design, Research:** consider things that may influence how your plane flies, not just how it looks!

- You have today and the next whole class to make this
- At the end of the next class you will get time to have trial rounds and make changes.
- Make sure to measure how far your plane goes each time, but it'll only count for real in the final competition!

Good luck! 😊

# STUDENT PLEDGE SHEET

Record the pledges you collect here! Calculate the final amount at the end of the activity.

My Goal for Dhulikhel Hospital NPR \_\_\_\_\_

The total amount of distance my paper airplane traveled was \_\_\_\_\_ ( cm/inch )

Sponsor's Name:	Pledge Amount per Centimeter/Inch:	Donation Amount:

*Make additional copies as needed*

Grand Total NPR \_\_\_\_\_



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# LESSON 4

## Your turn!

Make a paper airplane that flies the farthest distance to take first place!

**Brainstorm, Design, Research:** consider things that may influence how your plane flies, not just how it looks!

- You have today and the next whole class to make this
- At the end of the next class you will get time to have trial rounds and make changes.
- Make sure to measure how far your plane goes each time, but it'll only count for real in the final competition!

Good luck! 😊

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