



PLTW Flight and Space Virtual Learning

# 8th Grade/Bernoulli's Paper Bag Mask

April 14, 2020



8th Grade/Flight and Space  
Lesson: April 14, 2020  
Day 2 of 2

**Objective/Learning Target:**  
**Students will understand Bernoulli's Principle of fluid dynamics and how it relates to flight.**

# Warm-Ups:

Watch these two videos to refresh your understanding of the Bernoulli Principle.

[Bernoulli's Principle and the Paper Bag Mask explained](#)

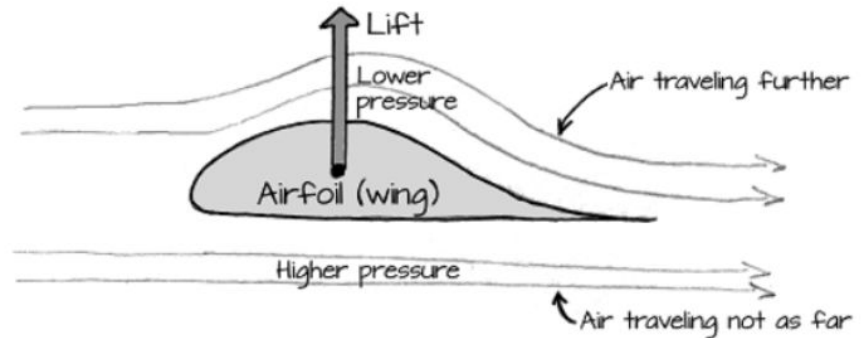
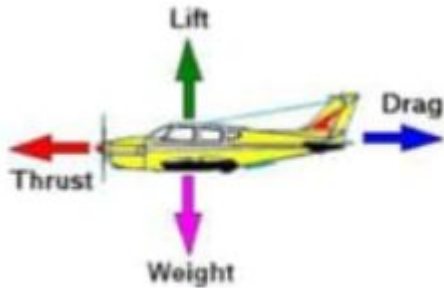
[More explanations of Bernoulli's Principle](#)

Now write down the Bernoulli Principle on your [Cornell Notes](#) or notebook paper. Answer this question: How does the Bernoulli Principle explain what happened to your paper mask tongue?

# Lesson Introduction/Background Information:

In order to overcome gravity, airplanes have to achieve lift, a force that opposes (or pushes against) gravity. The greater the weight of the airplane, the greater the lift required.

When the air we blew over the curved surface of the paper tongue was faster than the air under the tongue, the unequal air pressure lifted the tongue in the same way an airplane wing produces lift.



# Practice:

Complete the chart below on your note page from yesterday.

What did I observe in the experiment that reinforced what I already knew?	What new information did I learn while completing this experiment?

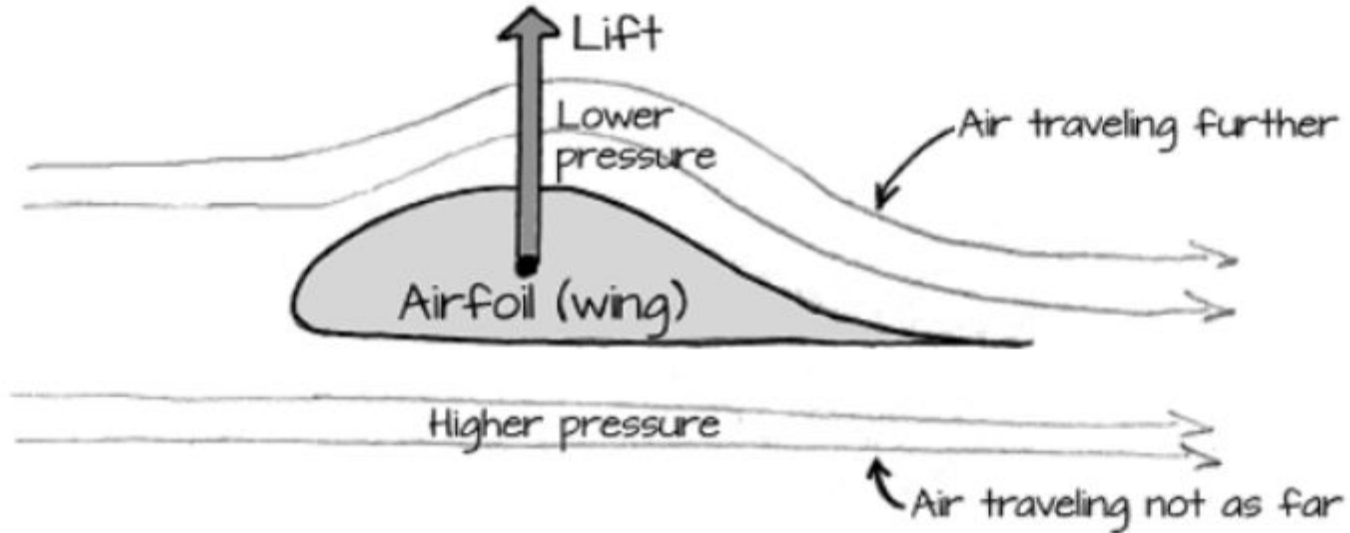
# Practice:

Create a drawing of your own in your notes to show the airflow around an airfoil.  
Label the following:

- Airfoil
- High pressure
- Low pressure
- Airflow path above airfoil
- Airflow path below airfoil

# Self-Assessment:

Describe the relationship between fast and slow moving air and air pressure. Use the graphic below to help.



# Extend Your Learning/Continued Practice:

Learn about more Bernoulli experiments [here](#) and [here](#)

More information on why planes fly [here](#)