PLTW Flight and Space Virtual Learning

8th Grade/Bernoulli's Bag

April 9, 2020

8th Grade/Flight and Space
Lesson: April 9, 2020
Day 1 of 2

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

Warm-Ups:

See a video about Bernoulli's Principle here

Learn about Bernoulli's Principle here

Lesson Introduction/Background Information:

Fluid dynamics sounds scary, but it's not. It just means how fluid moves. A fluid is defined as a substance that has no fixed shape and yields easily to external pressure; a gas or a liquid. Air and water are both forms of a fluid.

We are studying fluid dynamics in order to understand how the movement of air, a fluid, creates lift on a plane. Lift is what overcomes the forces of gravity and weight to allow the plane to fly.

We will be completing 2 experiments to study Bernoulli's Principle.

Practice:

Procedure:

1. Blow 5 breaths into the bag.
2. On a piece of paper record how well you did.
3. Draw a picture to represent the inflated bag.

Now try again using this method:

1. Hold the bag open, removing folds, and place it 6’’ - 12’’ from your mouth.
2. Blow one large breath into the bag as you step back.
3. On a piece of paper record how well you did.
4. Draw a picture to represent the inflated bag.

Self-Assessment:

Consider the results of your 2 trials.

Was one more effective than the other?

How do you think Bernoulli’s Principle affects this?

Extend Your Learning/Continued Practice:

Learn about more Bernoulli experiments here

More on Bernoulli's Principle here