



Activity: Flight - Bernoulli



Grade Level(s)	Timeframe
6-8	30 - 60 min


ABSTRACT


This lesson was done as part of the Guinness World Record attempt for the World's Largest Practical Science Lesson. It includes the Water Mister and Kissing Balloons experiments.


This is lesson 1 of 3 in Don's Flight series.

1 hour

EXTRA FILES

 010_2.pdf

 010_3.pptx

 010_4.mp4

SUPPLIES AND EQUIPMENT

- For the Kissing Balloons, we will need:
- Two balloons per child. Two pieces of string per child (about 20 cm long).
- For the Water Mister, we will need, for each child:
- One plastic or Styrofoam cup
- Two short straws (one 6 cm long, the other 10 cm long).
- A cup of water.

GETTING READY

The students can do the 2 experiments at home before or after the EIR's visit. The equipment required is probably available in every home. The experiments are described in Bernoulli Lesson Plan.pdf pages 2 - 4.

#todo get and upload the pdf

We will do the two experiments that illustrate the Bernoulli Principle: Kissing Balloons and Water Mister. The children can do these experiments. We can discuss why the Bernoulli Principle explains the results of the experiments.

Note that this Lesson Plan came from the World's Largest Science Class that was done across Canada in October 2012. I gave the class at the downtown offices of Natural Resources Canada.

We talk about how air pressure exerts forces on surfaces in all directions on all surfaces e.g. on the top and bottom of each desk. The force of air on a desk top is about the same as my weight. But it does not break because the air is exerting the same force in an upward direction from underneath the desk.

I usually do Kissing Balloons first and Water Mister second. For Kissing Balloons, blow gently and continuously between the balloons, not at the balloons. For Water Mister, blow as hard as you can, in a short burst.

Kissing Balloons video is uploaded here. Water Mister is on YouTube.
<https://www.youtube.com/watch?v=OT2G4XSvo3Y>

To explain how the 2 experiments work, show slides 12 - 19 in the attached slide show. For each experiment, ask what the air speed is where the boxes appear, both before and during the experiment. In each case, the following slide shows the answers. Bernoulli's Principle says that when the air speed goes up, the air pressure goes down. This explains how both experiments work.