



PLTW Flight and Space Virtual Learning

8th Grade/Coanda Effect

April 20, 2020



8th Grade/Flight and Space
Lesson: April 20, 2020

Objective/Learning Target:
**Students will be able to explain the Coanda Effect on the
airflow around an airfoil.**

Lesson Introduction/Background Information:

In this lesson you will perform 2 experiments to demonstrate the Coanda Effect.

Coanda effect is the phenomena in which a jet flow attaches itself to a nearby surface and remains attached even when the surface curves away from the initial jet direction.

Practice:

Experiment 1:

Supplies:

Spoon

Kitchen Sink

Procedure:

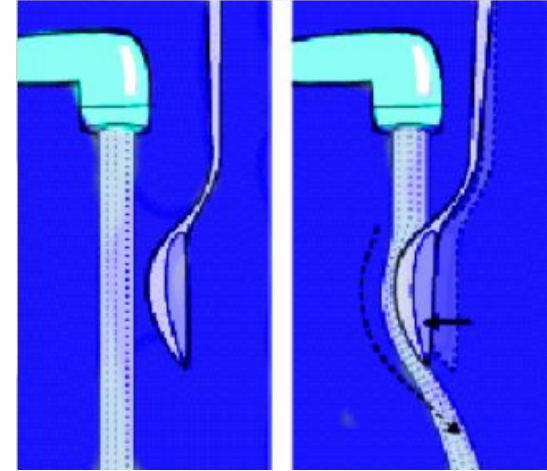
- Get a small stream of water coming down from the sink.
- Dangle the spoon next to the stream coming from the tap (hold it loosely enough so it can swing back and forth a bit).
- Move the spoon up to the edge of the stream so it barely touches.

When you do the water will flow around the bowl of the spoon and off the bottom deflected to the side and *the spoon will move into the stream*. Spoon is actually being pulled towards the stream of water.

Practice:

In you notes for today please draw pictures of what happened to the flow of water fluid when it encountered the spoon.

Record the definition of Coanda Effect.



Practice:

You will need parental permission and supervision for this experiment!

Experiment 2:

Supplies:

Lit candle

Soda bottle or large glass of similar size

Procedure:

- Place the soda bottle in front of you and the candle directly behind the soda bottle
- Blow a stream of air directly at the the soda bottle at the height of the candle flame (you may need to hold the bottle so that it doesn't fall over)

Watch this video of [Experiment 2](#) and record what happened in your notes.

Self-Assessment:

In your notes please explain how you were able to blow the candle out even though something was in the way.

Extend Your Learning/Continued Practice:

Learn more about the [Coanda Effect](#).

See how Dyson uses the Coanda Effect to make a better [curling iron](#) for styling hair!