

# AMAZING AIR

What's something we can not see or hear, but is all around us? It's air! There is a mix of gases around us called air that we use all the time!

## KEYWORDS:

### Air

The gases around our planet, Earth

### Wind

When air (or gas) blows from place to place

### Drag

When air pushes on something to slow it down

## ASK YOUR CLASS:

**Q:** How do we know there is air around us? **A:** From the experiment in this lesson, we can feel it when we move our hands quickly causing wind. In the paper towel experiment, air filled the cup as we put it under water and kept the paper towel dry. Discuss other ways we might test for the presence of air without being able to see it.

**Q:** Form a hypothesis about why air moves from place to place. **A:** Air moves when there is a force, a push or a pull, applied to it. It moves from a place of high pressure (added force) to a place of low pressure (no added force). When you blow out a candle, you add pressure to the air in your lungs and you make **wind** that moves outside your lungs where there is no pressure. (3-PS2-1)

**Q:** What are in the bubbles in the water when Professor Ian puts the plastic egg under water? **A:** The bubbles are full of air. There is air inside the egg that escapes through the holes in the egg and floats up through the water in the form of a bubble!

**Q:** How does a parachute affect the speed of a falling object? **A:** Parachutes use **drag**, a force, to slow down the fall of an object. The parachute interacts with more air molecules than the object on it's own and those air molecules push on the parachute slowing it down as it falls to Earth. (K-PS2-1 & K-PS2-2)

**Q:** What are ways that you could change the parachute to make it more effective (slows the fall more) or less effective (the object falls faster)? **A:** Take ideas from the class. Some suggestions could be: different materials - something with holes would not be very effective; change the size - a bigger parachute would push on even more air molecules

## K-3RD NGS STANDARDS COVERED:

- 3-PS2-1:** Plan and conduct an investigation to provide evidence of the effects of balanced and unbalanced forces on motion of an object.
- K-PS2-1:** Plan and conduct an investigation comparing the effects of different strengths or directions of pushes and pulls on the motion of an object
- K-PS2-2:** Analyze data to determine if a design solution works as intended to change the speed or direction of an object with a push or a pull.