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# Air and Its Characteristics

## An Educator's Reference Desk Lesson Plan

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**Grade Level(s):** 4, 5, 6, 7

**Subject(s):**

- Science/Physical Sciences

**DESCRIPTION:** What is it that you can touch but cannot feel? What has no size or shape but still is real? Air! This is a lesson plan on discovering air and its properties. This will let the students discover that air displaces, weighs, contains moisture, and cannot feel it. Or can we?

**BACKGROUND INFORMATION:** This science lesson can be used in many grade levels and in this form is best suited for grades 4-7. It can be manipulated for other grades by adding to the lesson or simplifying certain parts. It will teach through guided discovery that air has many of the same qualities of common objects and we don't even realize it.

**CONCEPTS:**

The students will be able to:

1. Understand that air has many of the same characteristics as water. The students will compare experimental results to water.
2. Realize that air plays many important roles in our lives. Some of the roles will be discovered in the experiments for example: Does Air Weigh? Move? etc.....
3. See that air contains moisture and its' relationship to temperature.

**MATERIALS:**

- Two Glasses
- One straw and pop bottle
- One funnel and a piece of clay
- One flat piece of cardboard
- One Stick Balance to cover a glass
- Two Balloons to inflate
- water and ice cubes

## **PROCEDURES:**

Concept #1: Air takes up space much like water displaces. Use a bottle with a funnel sealed to the glass with a piece of clay. Rapidly pour water into the bottle. Why doesn't water flow into the glass? Stick a straw in the funnel to allow the air to escape and the water to flow. Why does the water flow? The water flows because the air is allowed to escape.

CONCEPT #2: Air has weight. Inflate two balloons and attach them to each end of a stick. Balance the stick by tying a string in the middle. Then pop one balloon and observe what happens to the balance. Is the balance still balanced? Not anymore because air does have weight/mass.

CONCEPT #3: Warm air holds more moisture than cold air. Fill one glass with warm water. Fill another glass with water and ice cubes. Water collects on the outside of the glass which has the ice cubes in it. Why does the glass with ice form water droplet on the outside of the glass? This is because the cold glass contacts the warm moist air around the glass.

## **ASSESSMENT:**

Review with the students about the properties of air and their similarities to water. Also review the results of the experiments that proved some of the theories and confirmed ones that we may have already known.