

# The Fifth Graders have Gone Bananas

## Variables

January 15, 2013

Definition: *Variables used in an experiment can be divided into three types: "dependent variable", "independent variable", or other. The "dependent variable" represents the output or effect, or is tested to see if it is the effect. The "independent variables" represent the inputs or causes, or are tested to see if they are the cause. Other variables may also be observed for various reasons. (taken directly from Wikipedia - [http://en.wikipedia.org/wiki/Dependent\\_and\\_independent\\_variables](http://en.wikipedia.org/wiki/Dependent_and_independent_variables), January 15, 2013*

**We believe that bananas exposed to higher concentrations of ethylene gas will ripen faster than bananas exposed to lesser amounts.**

Since we do not have the necessary equipment to test ethylene gas concentrations in our experiment, we are quite confident in the following assumptions:

1. Any bag or container we put the banana in will allow ethylene gas concentrations to rise.
2. Smaller bags will allow concentrations to rise faster due to available air space
3. Paper bags, being more porous than plastic, will allow ethylene gas concentrations to rise more slowly

### For our experiment:

**Independent Variable** – The higher concentration of ethylene gas created by the use of various bags types and sizes.

**Dependent** – The visual ripening process changes made to the banana compared to the description chart developed

**Controls** – We were very careful to control as many of the other variables which we could identify.

1. Humidity
2. Light
3. Handling
4. All bananas came from the same box at the grocery store hoping to control
  - a. That all came from the same tree, and
  - b. Same harvest time, and
  - c. Same ripening room date

**Note: There are several assumptions made in various portions of this test. We are comfortable with our assumptions and believe we have properly managed all the control variables within our ability.**