

# When are we Convinced by a Theory or Series of Experiments?

## 17th and 18th Century Phlogiston Theory:

- Fire-like element that was contained within combustible bodies, and released during combustion
- Flames extinguish because air becomes saturated with phlogiston.
- No color, odor, taste or mass
- Charcoal leaves little residue upon burning because it is nearly pure phlogiston.

Baking soda + vinegar

Hydrogen peroxide + yeast

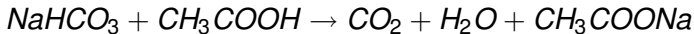
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Hydrogen peroxide + yeast:  $2H_2O_2 \rightarrow 2H_2O + O_2$

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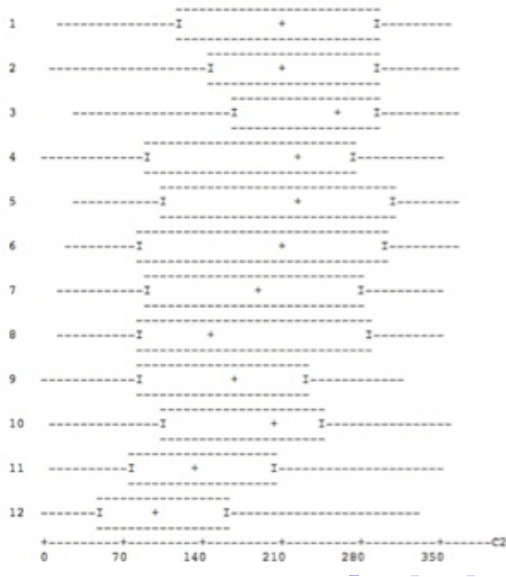
The end of phlogiston:

- Antoine-Laurent Lavoisier
- Combustion requires a gas that has weight (oxygen) and could be measured by means of weighing closed vessels
- $2\text{HgO} \rightarrow 2\text{Hg} + \text{O}_2$

# *1969 Vietnam Draft*

## 1969 Vietnam Draft

- Video
- Birthday  $\leq 195$  drafted
- Regression
- Boxplots





# General Electric Experiment

💡 1924 Illumination Study: GE funded the NRC of the National Academy of Sciences to study how worker productivity is tied to lighting. What do you think they found?

- 1) Turn Up the Lighting Slightly and Productivity Goes Up
- 2) Dim the Lighting Slightly and Productivity Goes Up
- 3) Productivity Stays the Same in Both Cases
- 4) Productivity Goes Up in Both Cases
- 5) Productivity Goes Down in Both Cases