1. **What is our independent variable? What is our dependent variable?**

   The Independent variable is words

   The Dependent variable is time taken to identify the color of the words

2. **What is an appropriate set of hypotheses for this task? What kind of statistical test do you expect to perform? Justify your choices.**

   Question 2a: Establish hypotheses

   Mean time for congruent condition: μ_C

   Mean time for incongruent condition: μ_I

   Alternative Hypothesis $\mathbf{H_A}$ **:** $\mu_C - \mu_I \neq 0$(Reject the null)

   Null Hypothesis $\mathbf{H_0}$ **:** $\mu_C - \mu_I = 0$(Fail to reject the null)

   Question 2b: Establish a statistical test

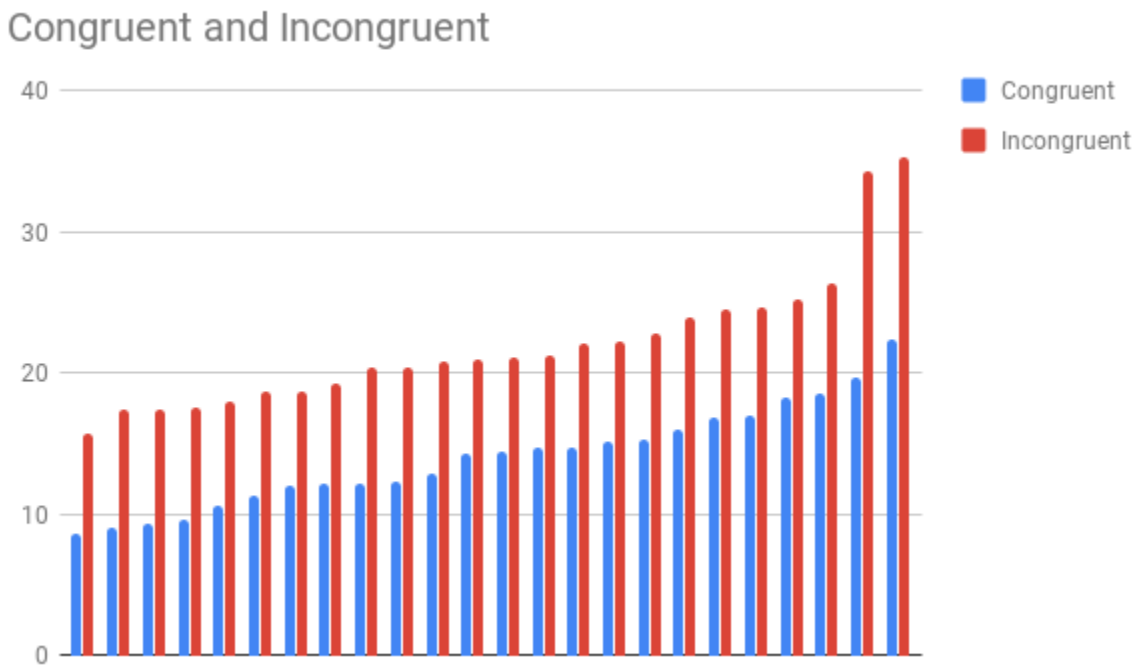
   Two tailed t-Test

3. **Report some descriptive statistics regarding this dataset. Include at least one measure of central tendency and at least one measure of variability.**

	Mean	**Median**	**Variance**	**Standard deviation**
Congruent	13.691	14.356	12.270	3.502
Incongruent	21.440	21.017	22.384	4.731

4. **Provide one or two visualizations that show the distribution of the sample data. Write one or two sentences noting what you observe about the plot or plots.**

   In the below plotted bar chart, I observed that time taken by incongruent is always higher than the congruent.



5. **Now, perform the statistical test and report your results. What are your confidence level and your critical statistic value? Do you reject the null hypothesis or fail to reject it? Come to a conclusion in terms of the experiment task. Did the results match up with your expectations?**

   α = 0.05
   N=24
   Degrees of freedom = 23
   t-critical = ± 1.714