1.What was the independent variable in this experiment? What are the levels of the independent measure? What was the dependent variable?

Since the independent variable is controlled in a scientific experiment to test the effects on the dependent variable so the independent variable in this experiment was whether the word name match the font color (word-colour match) or different (word-colour mismatch). The dependent being tested and measured in a scientific experiment was the reaction time was taken to name the font colour.

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

I used a dependent paired t-test(two-tailed test) that measures if there is any statistically difference between mean times of incongruent and congruent for participant groups to recognize word-colour.
The time responding to congruent and incongruent does very so we reject the null hypothesis (Ho: incongruent - congruent = 0) and accept the Alternative Hypothesis (Ha: incongruent - congruent > 0) because incongruent word-ink color pairing does have an effect on participant reading time is higher than congruent time.

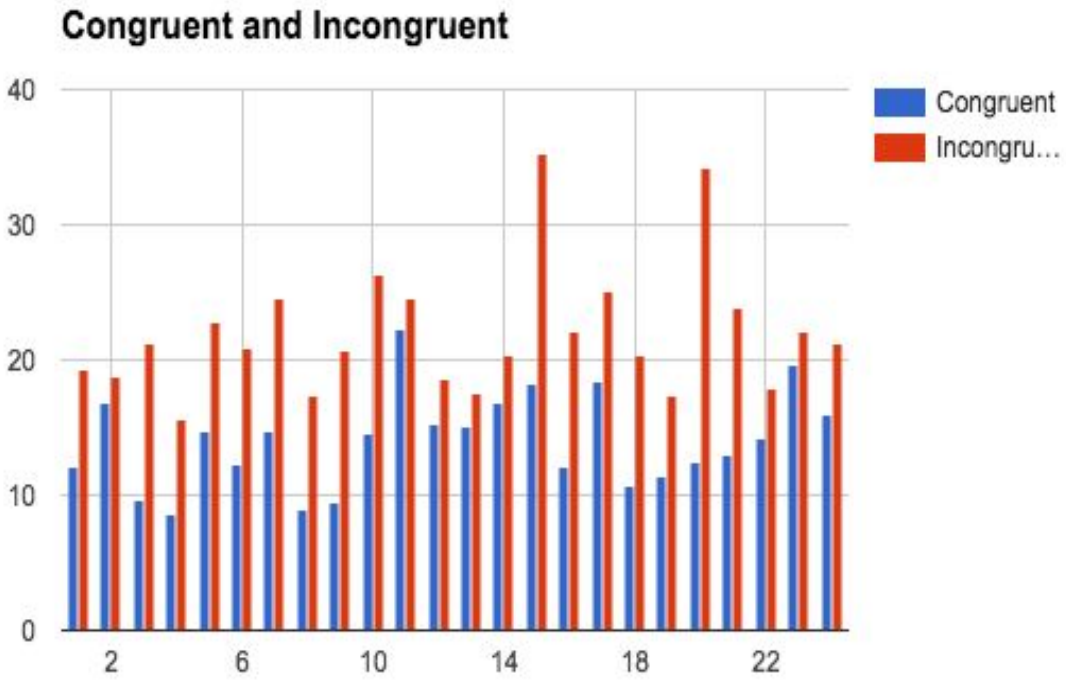
I choose to use Two-tailed test There are two-sided alternatives to measure the effects of two methods
to see the time impact in participants in both direction if its slower or faster with two conditions because we need to compare two methods Two tailed test significance level of 0.05 with .025 is in each tail of the distribution Because it is a dependent t-test.

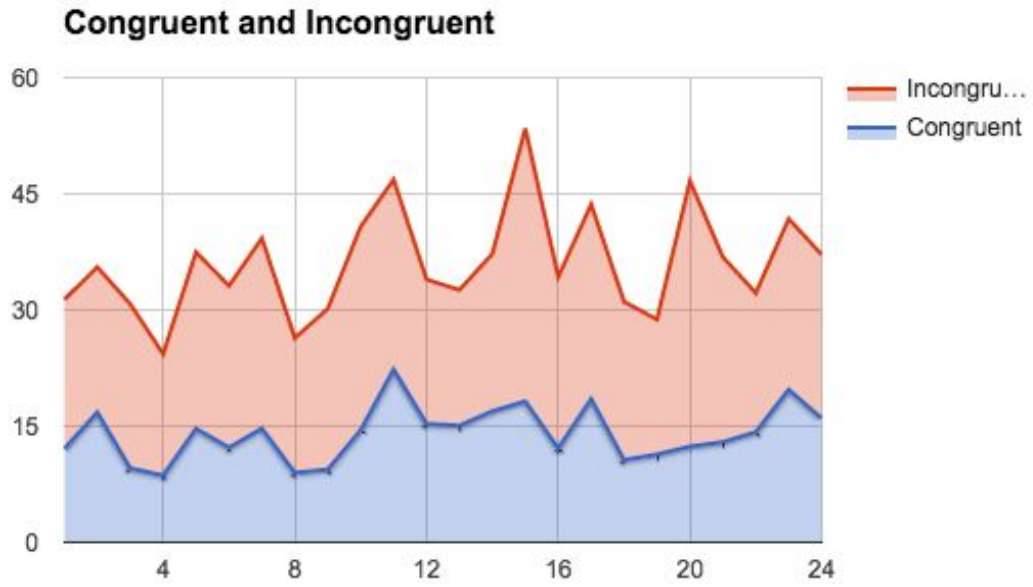
5. Now, perform the statistical test and report your results. What is your confidence level and your critical statistic value? Do you reject the null hypothesis or fail to reject it? Come to a conclusion in terms of the experiment task. Did the results match up with your expectations?

Degrees of freedom 24:(n-1): 23
s= 4.86
T-statistic=-7.85
T-critical=+- 2.069
95% confidence interval:
Upper :-5.92
Lower : -10.019
t = -8.0207

With a p-critical value of 0.05, and 2.5% distributed in both directions so our confidence interval is 95, which results in a lower value of -10.019 and an upper value of -5.92 .
The degrees of freedom df= 23,(n – 1).
P-value is under 0.05 so we reject the the Ho and accept the alternative Hypothesis and there is a significance difference in time between two groups which is in line with my expectation.

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.





For the Incongruent the median time is larger than the congruent because participants are making more errors and taking more time to recognize the color-word

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

	Congruent	**Incongruent**
mean	14.05	22.01
median	14.36	21.01
sd	3.56	4.69
variance	12.67	23.01