INSERT TITLE HERE

1. EXPLORATION

1.1 RESEARCH QUESTION

Insert research question here (make sure it is **fully focussed**)

1.2 INTRODUCTION

Insert introduction here. It should be at least half a page and include:

- Background theory that references scientific literature (either footnotes or in-text citations)
- Evidence of a relevant application for the investigation (demonstrates personal engagement)

1.3 AIM

Include a brief aim (less detailed than the research question – basically established the link between the IV and DV)

1.4 HYPOTHESIS

Make a prediction with a justification (should relate to what was discussed in the introduction)

1.5 VARIABLES

INDEPENDENT VARIABLE:

State what it is and identify the range of values selected (with a justification as to why that range was chosen)

DEPENDENT VARIABLE:

State what it is and how it will be measured

CONTROLLED VARIABLES:

Table 1.5.1: Controlled variables and their method of control

Controlled Variable	Significance	Method of Control

UNCONTROLLED VARIABLES:

Table 1.5.2: Uncontrolled variables and their effect on results

Uncontrolled Variable	Potential Impact

1.6 MATERIALS AND METHOD

REQUIRED MATERIALS:

Insert material here

- Include quantities required for entire experiment (i.e. all trials)
- Where appropriate, include uncertainties for measurement devices
- May choose to separate equipment and consumables (purely a preference decision)

METHODOLOGY

Insert methodology as numbered steps (could divide into sections for ease of communication)

- Set up (outline preparation of any reaction mixtures)
- Conducting experiment (outline steps taken as part of methodology)
- Collecting data (outline how dependent variable is quantitated)

LABELLED DIAGRAM

Entirely optional

2. ANALYSIS

2.1 QUALITATIVE DATA

Insert qualitative observations here (may not be much to say, but it doesn't hurt to include!)

2.2 QUANTITATIVE DATA

RAW DATA

Table 2.2.1: Insert appropriate title

Independent Variable	Dependent Variable						
	Trial 1	Trial 2	Trial 3	Trial 4	Trial 5	Average	Standard Deviation

Be sure to include sample calculations as appropriate (or refer to the appropriate Excel function)

OUTLIERS

Table 2.2.1: Insert appropriate title

Independent Variable	Q1	Q3	IQR	Upper Bound	Lower Bound	Outlier

Be sure to include sample calculations for Q1, Q3 and IQR – also include an explanation of what constitutes an outlier

PROCESSED DATA

Insert an appropriate graph, including:

- Error bars (± one standard deviation)
- Trend line (should be consistent with the trend suggested in the hypothesis)
- Correlation coefficient (use Pearson's for linear trendlines and Spearman's for non-linear trendlines)

2.3 DISCUSSION

Discuss the entirety of the data

- Summarise the trends (as per the graph) and explain the results according to the established theory
- Identify and discuss any anomalous data points or unexpected patterns
- Assess the relevance of the data in terms of both accuracy and precision (error bars and t-test data)

3. EVALUATION

3.1 STRENGTHS

Insert strengths of the design here

- Obvious ones include the use of repeats, negative control (and control variables), low measurement uncertainty

3.2 LIMITATIONS

Insert limitations and suggested improvements here (may use table format, but will depend on available space)

Limitation	Impact on Results	Suggested Improvement

3.3 CONCLUSION

Include a brief conclusion (less detailed than the discussion – basically determines if hypothesis is supported or rejected)

3.4 EXTENSION

Suggest avenues for further investigation (not design improvements – those should be in the limitations section)

4. REFERENCES

Include all references here (use the Harvard referencing system)

NOTE:

The following sections will still need to be included in your final IA report (undertaken next year):

- Percentage Uncertainties – this will allow you to better assess the accuracy of your measurements
- Safety Considerations – including environmental and ethical considerations (if appropriate)
- Statistical Processing – this may involve use of a t-test to determine if a trend is statistically significant