

Combustion Practical 1

- To plan an investigation into the effect of volume of air on the time it takes for a candle to go out.
- To carry out an investigation

An investigation into how the volume of a beaker will affect the time it takes for a candle to extinguish

How do you think having less oxygen will affect a candle?

- V1: Independent variable: The volume of the beaker.
- V2: Dependent variable: The time it takes for the candle to go out.

KS3 Practical Mark Scheme		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30				
Section 1																Section 2																			
Hypothesis																Practical Skill																			
H1 State a reasonable hypothesis (prediction).																P1 You have demonstrated that you can measure accurately. This means you are measuring to the nearest 0.1g in solids or the nearest 0.5ml in liquids.																			
H2 Explain hypothesis (prediction) using accurate science.																Graph																			
Diagram																G1 Your graph has a sensible x (across) axis, labelled with units.																			
D1 State some equipment.																G2 Your graph has a sensible y axis (up) with units.																			
D2 State all of the equipment needed.																G3 Your graph has its points plotted in the right places in pencil.																			
D3 Draw a scientific diagram in pencil, with a ruler.																G4 Your graph has a line of best fit, or a sentence saying there is no correlation if there is none.																			
Variables																Analysis																			
V1 Stated your independent variable.																A1 You have stated whether your results supports your prediction or not.																			
V2 Stated your dependent variable.																A2 You have used two points of data (numbers) to describe how your results supports your prediction or not.																			
V3 Stated 2 or more controlled variables.																A3 You have referred to overall trend in your graph, and whether this supports or not your prediction.																			
V4 Explained how you have controlled these two variables.																Context																			
Method																C1 You have stated a real life context where the results of this experiment apply.																			
M1 Written a step by step method with most of the steps.																C2 You have explained how the trend in your results would apply to this real life context.																			
M2 Described in detail all of the steps, including how to record measurements.																Evaluation																			
M3 If I follow your method I will get accurate results.																E1 You have stated one source of error in your method/results. This cannot be human error.																			
M4 There is no spelling errors, or punctuation missing from your method.																E2 You have described how you could reduce this error if you repeated the experiment.																			
M5 Your method explains why you will need to repeat the experiment.																Table																			
Risk Assessment																T1 Your results table has your variables as headings.																			
R1 You have stated two risks and how to prevent them.																T2 Your results table includes appropriate units for all of your headings.																			
R2 You have stated what you will do if someone is hurt with these two risks (remedial actions).																<table border="1"> <tr> <td>Section 1 Total</td> <td>/18</td> <td>Section 2 Total</td> <td>/12</td> <td>Practical total</td> <td>/30</td> </tr> </table>														Section 1 Total	/18	Section 2 Total	/12	Practical total	/30
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Circle your target level

Each section done right is worth one mark

Use this to work out how much you need to do.

This is based on the accuracy of your measurements and how safe you are during the practical.

The maximum mark you can get is 30

The sections everyone should be doing this lesson

Hypothesis

- H1 State a reasonable hypothesis (prediction).
- H2 Explain hypothesis (prediction) using accurate science.

- Your hypothesis must refer to both your independent variable and you dependent variable.
- Use words like increase/decrease **NOT** change.

Diagram

D1 State some equipment.

D2 State all of the equipment needed.

D3 Draw a scientific diagram in pencil, with a ruler.

Variables

V1 Stated your independent variable.

V2 Stated your dependent variable.

V3 Stated 2 or more controlled variables.

V4 Explained how you have controlled these two variables.

Method

M1 Written a step by step method with most of the steps.

M2 Described in detail all of the steps, including how to record measurements.

M3 If I follow your method I will get accurate results.

M4 There is no spelling errors, or punctuation missing from your method.

M5 Your method explains why you will need to repeat the experiment.

Risk Assessment

R1 You have stated two risks and how to prevent them.

R2 You have stated what you will do if someone is hurt with these two risks (remedial actions).

- 2 risks needed for R1, you can do all this in a table e.g..

RISK	Prevention	Remedial Action

Table

T1 Your results table has your variables as headings.

T2 Your results table includes appropriate units for all of your headings.

- Tables must be complete for T1

KS4 Practical Mark Scheme		
Section 1		Section 2
<p>Sources</p> <p>S1 Two relevant sources are identified. (if websites full URL needed).</p> <p>S2 The usefulness of one source is commented on.</p> <p>S3 A comparison between the usefulness of the two sources is made.</p> <p>Hypothesis</p> <p>H1 State a reasonable hypothesis (prediction).</p> <p>H2 Explain hypothesis (prediction) using accurate science.</p> <p>Variables</p> <p>V1 Stated your independent variable.</p> <p>V2 Stated your dependent variable.</p> <p>V3 Stated 2 or more controlled variables.</p> <p>V4 Explained how you have controlled these two variables.</p> <p>V5 Explained how not controlling these variables could affect your results.</p> <p>V6 Identified one of your variables that is difficult to measure accurately.</p> <p>V7 Explained why this variable is difficult to measure accurately.</p> <p>V8 Suggest how this variable could be measured more accurately.</p> <p>Diagram</p> <p>D1 State some equipment.</p> <p>D2 State all of the equipment needed.</p> <p>D3 Draw a simple scientific diagram with equipment labelled in ruler and pencil.</p> <p>Method</p> <p>M1 Written a step by step method with most of the steps.</p> <p>M2 Described in detail all of the steps, including how to record measurements.</p> <p>M3 If I follow your method I will get accurate results.</p> <p>M4 Your Method includes a reference to the precision at which measurements must be made.</p> <p>M5 Your method explains why you will need to repeat the experiment.</p> <p>M6 You have clearly identified controls stated how they are monitored.</p> <p>M7 There is no spelling errors, or punctuation missing from your method.</p> <p>Risk Assessment</p> <p>R1 You have identified any significant hazards.</p> <p>R2 You have stated appropriate control measures for the hazards.</p> <p>Table</p> <p>T1 Your results table has your variables as headings.</p> <p>T2 Your results table includes appropriate units for all of your headings.</p> <p>Intervals</p> <p>I1 You have stated an interval used for your independent variable, including units.</p> <p>I2 You have stated whether or not the interval was suitable with a detailed explanation.</p> <p>I3 You have stated whether or not the interval was suitable with a detailed explanation.</p>	<p>Practical Skill</p> <p>P1 You have demonstrated that you can measure accurately. This means you are measuring to the nearest 0.1g in solids or the nearest 0.5ml in liquids. Your teacher will decide whether or not you have achieved this, you do not need to write anything down.</p> <p>Graph</p> <p>G1 Your graph has a suitable x (control) axis, suitable y axis (ppt) labelled with units.</p> <p>G2 Your graph has a point plotted in the right place to within 1mm to pencil.</p> <p>G3 Your graph has it's axes plotted in the right place to within 1mm to pencil.</p> <p>G4 Your graph has a suitable line of best fit, or a smooth curve, with a no correction if there is one.</p> <p>Analysis</p> <p>A1 You have stated whether your results supports your prediction or not.</p> <p>A2 You have used four points of data (numbers) to describe how your results support your prediction or not.</p> <p>A3 You have referred to overall trend in your graph, and whether this supports or not your prediction.</p> <p>Evaluation</p> <p>E1 You have correctly identified any anomalous results or stated that you have no anomalous results.</p> <p>E2 You have identified whether you needed to repeat any results.</p> <p>E3 You have stated one source of random error in your method/results. This cannot be human error.</p> <p>E4 You have stated one source of systematic error in your method/results. This cannot be human error.</p> <p>E5 You have stated how these errors can affect your actual results (numbers).</p> <p>E6 You have described how you could reduce these errors if you repeated the experiment.</p> <p>Looking at another Group's Results</p> <p>L1 You have compared your results (overall trend/system) with another group's results.</p> <p>L2 You have included data (numbers) in your comparison.</p> <p>L3 You have stated why we compare our results with other groups (reproducibility pattern, check).</p> <p>Context</p> <p>C1 You have stated a real life context where the results of this experiment apply.</p> <p>C2 You have explained how the trend in your results apply to this real life context.</p> <p>C3 You can state how your results can be used in the context.</p>	
Section 1 Total	/30	Section 2 Total /20 Practical total /50