**8 SCIENCE INVESTIGATION**

OBSERVING CHEMICAL REACTIONS

Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Teacher:\_\_\_\_\_\_\_\_\_\_\_\_

Form:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Due date:\_\_\_\_\_\_\_\_\_\_\_

**IMPORTANT INFORMATION**

**Plagiarism**

The experiment is to be done in your science group but your write-up and results are to be done individually.

**Presentation**

Neat writing (if you struggle with this, type your information).

Assignment neatly stapled together with this sheet attached to the front.

**Assessment policy**

Have sick note/legitimate reason from parent = new negotiated due date.

Assignment not submitted on due date and no sick note from parents = -20% mark

Assignment not submitted on new negotiated due date = -40% mark

+ Letter home to parents

+ Must attend academic completion to complete assignment

**OR**

Submit assignment to student services before academic completion date and academic completion not necessary.

Academic completion not attended = zero on assignment + Saturday detention

**If you know that you cannot submit your assignment on the due date, let your teacher know BEFORE the due date (email them if you are not in school) or just email them your assignment the night before.**

**Introduction**

Every chemical reaction is accompanied by a change in temperature. Sometimes the change is barely noticeable and other times it is extreme. Sometimes the temperature goes up and other times it goes down.

**Aim:** To observe the chemical changes in two chemical reactions.

**PART ONE**

**Materials:**

⬩ Teaspoon

⬩ Tablespoon

⬩ 2 tablespoons 3% hydrogen peroxide

⬩ 3 teaspoons yeast

⬩ Plastic cup

⬩ Thermometer

⬩ Stopwatch

**Dependent variable: (1 mark)**

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**Method**

1. Put 2 tablespoons of hydrogen peroxide into a cup.

2. Place a thermometer into the cup.

3. Hold the thermometer and cup so that they do not fall over.

4. Read the temperature and record the time in the results table for zero seconds.

5. Tip 1 teaspoon of yeast into the cup.

6. Gently swirl the cup while one group member calls out the time every 10 seconds.

7. When each 10 seconds is called, the other group member calls out the temperature and the third group member records the temperature in the table.

**Results:**

**Table (show results taken from experiment). (3 marks)**

**Graph: show your group results. Draw on graph paper and attach (6 marks)**

- Use graph paper.

- Use a sharp pencil and ruler.

- Have a title at the top (independent variable versus dependent variable).

- Work out whether you need to draw a bar graph (different groups of data) or a line graph (showing data changing over time).

- Put the independent variable and dependent variable on the correct axis.

- Label each axis.

- Record the units of measurement in brackets next to each label.

- Use an appropriate scale that has the same pattern the whole way along.

**Discussion (describe one mistake/error that occurred, Explain how it affected the results and how it could be avoided next time) (3 marks)**

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1. Was this chemical reaction an endothermic reaction or an exothermic reaction?

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2. Explain the reason for your answer by relating to your results. **(2 marks)**

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**PART TWO**

**Materials:**

⬩ Teaspoon

⬩ Tablespoon

⬩ 2 tablespoons vinegar

⬩ Baking soda

⬩ Water

⬩ Plastic cup

⬩ Thermometer

⬩ Stopwatch

**Dependent variable: (1 mark)**

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**Method**

1. Put 2 tablespoons of vinegar into a cup.

2. Place a thermometer into the cup.

3. Hold the thermometer and cup so that they do not fall over.

4. Read the temperature and record the time in the results table for zero seconds.

5. Tip 1 teaspoon of baking soda into the cup.

6. Gently swirl the cup while one group member calls out the time every 3 seconds.

7. When each 3 seconds is called, the other group member calls out the temperature and the third group member records the temperature in the table.

**Results:**

**Table (show results taken from experiment). (3 marks)**

**Graph(show your group results, draw on graph paper and attach). (6 marks)**

- Use graph paper.

- Use a sharp pencil and ruler.

- Have a title at the top (independent variable versus dependent variable).

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2. Explain the reason for your answer by relating to your results. **(2 marks)**

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**MARKING KEY**

|  |  |  |  |
| --- | --- | --- | --- |
| **Content** | **Description** |  | **Your**  **mark** |
| **PART ONE** | | | |
| Dependent  Variable | Listed the dependent variable. | 1 |  |
| Results  table | Drawn neatly in pencil and using a ruler.  Includes the headings and units of measurement.  Includes all the data collected during the experiment. | 1  1  1 |  |
| Results  graph |  | 6 |  |
| Discussion | Describes at least one mistake/error that occurred.  Explains how this mistake/error affected the results.  Explains how this mistake/error could be avoided. | 1  1  1 |  |
| Discussion  questions | Question 1 completed correctly  Question 2 completed correctly | 1  2 |  |
| **PART TWO** | | | |
| Dependent  Variable | Listed the dependent variable. | 1 |  |
| Results  table | Drawn neatly in pencil and using a ruler.  Includes the headings and units of measurement.  Includes all the data collected during the experiment. | 1  1  1 |  |
| Results  graph |  | 6 |  |
| Discussion | Describes at least one mistake/error that occurred.  Explains how this mistake/error affected the results.  Explains how this mistake/error could be avoided. | 1  1  1 |  |
| Discussion  questions | Question 1 completed correctly  Question 2 completed correctly | 1  2 |  |
| Presentation | Correct spelling, grammar, full sentences.  Written neatly or typed up neatly. | 1  1 |  |
| **Total mark** | | 34 |  |

Mark as percentage %

Teacher’s comments:

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