**9 SCIENCE INVESTIGATION**

THE pH OF SHAMPOO

[](http://www.google.com.au/url?sa=i&rct=j&q=cat+and+shampoo&source=images&cd=&cad=rja&uact=8&docid=ApEMSEY5lZHccM&tbnid=p7K3NonQ0tFKhM:&ved=0CAYQjRw&url=http://www.fugly.com/pictures/20010/shampoo_cat.html&ei=CScoU_i1LYzNkQX13YCoAg&psig=AFQjCNH98S7b833_HyIPSJsTAll-2XoUbw&ust=1395226734963243)

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.

Plagiarising = instant zero on assignment and you will have to re-do it.

**Presentation**

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

Correct spelling, grammar and full sentences.

Clear, labeled diagrams using pencil.

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.**

**Aim:** To investigate how shampoos designed for different hair types will have different pH.

**Materials:**

⬩ Diluted Palmolive shampoo for normal hair

⬩ Diluted Palmolive shampoo for coloured hair

⬩ Diluted Palmolive shampoo for dry hair

⬩ Diluted Garnier Fructis shampoo for normal hair

⬩ Diluted Garnier Fructis shampoo for coloured hair

⬩ Diluted Garnier Fructis shampoo for dry hair

⬩ Diluted Organic Care shampoo for normal hair

⬩ Diluted Organic Care shampoo for coloured hair

⬩ Diluted Organic Care shampoo for dry hair

⬩ Distilled water

⬩ Spot tray

⬩ Universal indicator

⬩ Colour matching chart

**Hypothesis (one sentence statement of what you think will happen): (2 marks)**

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**Independent variable: (1 mark)**

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**Dependent variable: (1 mark)**

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**Two controlled variables: (2 marks)**

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**Method (starting from step one, list the steps that were taken): (3 marks)**

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**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 at least two mistakes/errors that occurred, explain how these affected the results and how they could be avoided next time): (6 marks)**

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**1.** Explain two reasons why the pH of distilled water was tested in the experiment.  **(2 marks)**

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**2.** Why was universal indicator rather than litmus paper used in this experiment? **(2 marks)**

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**Conclusion** (two sentence statement. First sentence gives general result of experiment, second sentence states whether the hypothesis was proven or not proven.)  **(2 marks)**

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**MARKING KEY**

|  |  |  |  |
| --- | --- | --- | --- |
| **Content** | **Description** |  | **Your**  **mark** |
| Hypothesis | Includes both independent and dependent variable.  Does not use ‘I’, ‘we’ etc. | 1  1 |  |
| Independent  Variable | Listed the independent variable. | 1 |  |
| Dependent  Variable | Listed the dependent variable. | 1 |  |
| Controlled  Variables | Listed two controlled variables. | 2 |  |
| Method | Is written in past tense.  Is written in numbered step-by-step.  Includes all the steps completed in experiment. | 1  1  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 two mistakes/errors that occurred.  Explains how these mistakes/error have affected the results.  Explains how these mistakes/errors could be avoided | 2  2  2 |  |
| Discussion  questions | Question 1 completed correctly  Question 2 completed correctly | 2  2 |  |
| Conclusion | One sentence stating the result of the experiment.  One sentence stating whether the hypothesis was proven  or disproven. | 1  1 |  |
| Presentation | Correct spelling, grammar, full sentences.  Written neatly or typed up neatly. | 1  1 |  |
| **Total mark** | | 32 |  |

Mark as percentage %

Teacher’s comments:

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