**8 SCIENCE INVESTIGATION**

The Pendulum

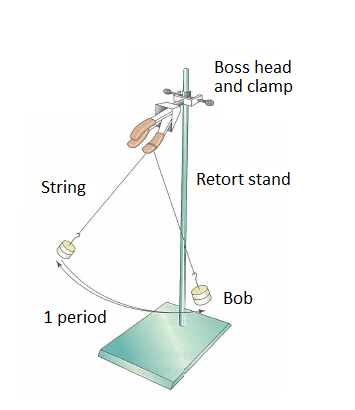


Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Teacher:\_\_\_\_\_\_\_\_\_\_\_\_

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

**Background:** A pendulum is a mass (called a bob) attached to a rod, chain or rope that swings back and forth repeatedly. One complete swing, back and forth is called a period. The frequency is the number of complete swings it makes every second.

**Aim:** To investigate the effect that either the length of the string or the mass of the bob on a pendulum has on the time it takes for 5 complete swings.



*Tick the variable that your group has chosen to change.*

The length of the string 🞏

The mass of the bob 🞏

**Suggestions:** measure how many seconds it takes for 5 complete swings and do this a number of times then take the average result. For example, have three trials in your results table then just graph the average times.

Clamp the base of your retort stand to the bench top to keep it stable.

**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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**Materials (detailed, how many of each item etc.): (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 trials). (3 marks)**

**Diagram (scientific labelled diagram showing equipment set up). (2 marks)**

**Graph (show average trial results, draw on graph paper and attach). (5 marks)**

**Discussion (describe at least two mistakes/errors that occurred, explain how these affected the results and how they could be avoided next time): (3 marks)**

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**Conclusion (two sentence statement): (2 marks)**

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**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.**

**MARKING KEY**

|  |  |  |  |
| --- | --- | --- | --- |
| **Content** | **Description** |  | **Your**  **mark** |
| Hypothesis | If, then statement.  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 |  |
| Materials | Listed all materials used.  Is specific – has number of items used. | 1  1 |  |
| 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 |  |
| Scientific  diagram | Is drawn neatly in pencil.  Is labelled showing the pieces of equipment set up. | 1  1 |  |
| Results  graph | Drawn neatly in pencil and using a ruler.  Has the correct variables on the axis.  Is the correct type of graph.  Has the units of measurement and headings on both axis.  Has an appropriate title. | 1  1  1  1  1 |  |
| 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 | 1  1  1 |  |
| 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** | | 28 |  |

Mark as percentage %

Teacher’s comments:

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