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Sample Assessment Task 1
MEASURING ACCELERATION DUE TO GRAVITY

Marking Scheme

Practical Work

| Description | Marks |
|---|-------|
| <ul style="list-style-type: none">Student assembles equipment in accordance with the instructions and completes three trials. | 2 |
| <ul style="list-style-type: none">Student assembles equipment in accordance with the instructions. ORStudent completes three trials. | 1 |

Report

| Description | Marks |
|---|-------|
| <ul style="list-style-type: none">Report is presented in the instructed format. | 1 |

| Description | Marks |
|--|-------|
| <ul style="list-style-type: none">Correct aim is included. | 1 |

Results and Calculations

| Description | Marks |
|--|-------|
| <ul style="list-style-type: none">Includes a table that makes visual sense with units in headers, results for 50 drops, results for one drop and consistent significant figures/decimal points for three trials. | 5 |
| <ul style="list-style-type: none">Any four of the above. | 4 |
| <ul style="list-style-type: none">Any three of the above. | 3 |
| <ul style="list-style-type: none">Any two of the above. | 2 |
| <ul style="list-style-type: none">Any one of the above. | 1 |

| Description | Marks |
|---|-------|
| <ul style="list-style-type: none">Calculates an average value for the time for one drop and correctly uses it in the formula to calculate the acceleration due to gravity. | 3 |
| <ul style="list-style-type: none">Does not use average value for time or acceleration due to gravity but calculates correctly from individual values for time. ORUses average value for acceleration due to gravity and uses formula but calculates incorrectly. | 2 |
| <ul style="list-style-type: none">Calculates average value for acceleration due to gravity only. | 1 |

Discussion

This section requires two compromises to validity to be identified. The marking scheme below applies to each individually making this section out of eight marks (four marks each).

| Description | Marks |
|---|-------|
| <ul style="list-style-type: none">Identifies a compromise to validity, explains why it compromises validity, correctly identifies an improvement and explains how the improvement would improve validity. | 4 |
| <ul style="list-style-type: none">Any three of the above. | 3 |
| <ul style="list-style-type: none">Any two of the above. | 2 |
| <ul style="list-style-type: none">Any one of the above. | 1 |

| Description | Marks |
|---|-------|
| <ul style="list-style-type: none">Identifies that reliability was incorporated into the experiment through repetition, compares appropriate values and makes a correct statement about the reliability of the recorded results. | 3 |
| <ul style="list-style-type: none">Identifies that reliability was incorporated into the experiment through repetition and makes a correct statement about the reliability of the recorded results. | 2 |
| <ul style="list-style-type: none">Identifies that reliability was incorporated into the experiment through repetition. ORMakes a correct statement about the reliability of the recorded results. | 1 |

| Description | Marks |
|---|-------|
| <ul style="list-style-type: none">Correctly compares the average measured value to the accepted value in the data section provided for accuracy. | 2 |
| <ul style="list-style-type: none">Correctly compares the individual measured values to the accepted value in the data section provided for accuracy. ORMakes an incorrect comparison using the average measured value and the accepted value in the data section provided for accuracy. ORMakes a comparison without using the value provided for accuracy. | 1 |

Questions

Question 1a)

| Description | Marks |
|--|-------|
| <ul style="list-style-type: none">• Draws a graph with axes labelled with units, axes drawn as instructed, points plotted correctly, line of best fit and uses at least three-quarters of the graph paper. | 4 |
| <ul style="list-style-type: none">• Any four of the above. | 3 |
| <ul style="list-style-type: none">• Any three of the above. | 2 |
| <ul style="list-style-type: none">• Any two of the above. | 1 |

Question 1b)

| Description | Marks |
|--|-------|
| <ul style="list-style-type: none">• Calculates gradient from the graph and calculates g from the gradient. | 2 |
| <ul style="list-style-type: none">• Calculates gradient from the graph but rearranges formula incorrectly to arrive at an incorrect value. OR• Uses individual values to calculate g using the formula. OR• Calculates the gradient of the graph only. | 1 |

Question 1c)

| Description | Marks |
|---|-------|
| <ul style="list-style-type: none">• Provides two points of comparison and evaluates the better method on the basis of the comparisons. | 4 |
| <ul style="list-style-type: none">• Provides two points of comparison but the evaluation is not included or does not reflect the comparisons. | 3 |
| <ul style="list-style-type: none">• Provides one point of comparison and evaluates the better method on the basis of this comparison. | 2 |
| <ul style="list-style-type: none">• Provides a correct statement about the two methods. | 1 |