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| --- | --- |
| **Description** | **Marks** |
| **Questioning and predicting** | |
| Correctly identifies the variable to be changed (independent variable).  The distance that the slingshot is pulled back. | 1 |
| Correctly identifies the variable to be measured (dependent variable).  How far ( The distance) the marshmallow goes | 1 |
| Correctly identifies at least two controlled variables.  1 mark each – for each correct, Max 2 marks  Same size marshmallow, same slingshot, same measuring tapes/rulers, same ground the chair is one, same size chair etc | 1-2 |
| **Subtotal** | **4** |
|  |  |
| Writes a question that can be investigated and is reasonable.  If the slingshot is pulled back further what will happen to the distance that the marshmallow flies? – must mention both independent and dependent variable  If correct 2 marks needs to be brought down to 1 next year | 2  1 next year |
|  |  |
| Writes a prediction that describes a relationship between the dependent variable and the independent variable;  If the slingshot is pulled back further then the marshmallow will travel further | 1 |
| Provides a reasonable explanation for choosing this prediction.  There is more (force) or more (elastic potential energy) or any other suitable explanation that cause the marshmallow to fly further | 1 |
| **Subtotal** | **3** |
|  |  |
| Identifies safety risks associated with the investigation.  2  Could get marshmallow or elastic band in eye (must be specific – must mention item)  Could trip over chair | 1-2 |
| Suggests ways to minimise the risks.  Wear safety glasses……. Or fire marshmallow in the same direction  Space out with suitable distance to work | 1-2 |
| **Subtotal** | **4** |
|  |  |
| Draws a table that includes:   * descriptive title containing dependent and independent variables.   Table1: Distance the marshmallows travels when the slingshot is pulled back further  1 mark   * Conducts and collects information relevant to the investigation.   Successfully completes the activity and records reasonably accurate information  If away with reasonable cause, can use supplied data to achieve mark.  If mucks around and does not complete the activity to get data, provided data does not get them the mark   * appropriate column headings with units of measurement. Both must be correct with relevant unit 1 mark total  |  |  |  |  |  | | --- | --- | --- | --- | --- | | (IV) Distance slingshot id pulled back  (cm) | (DV)  Distance marshmallow travels  (m) | | | | | T1 | T2 | T3 | X | |  |  |  |  |  | |  |  |  |  |  | |  |  |  |  |  | | 1-3 |
| **Subtotal** | **3** |
| **Processing data** |  |
| Graphs data collected from the investigation:   * provides appropriate graph title. Must include IV and DV * labels axes correctly with the actual titles not just IV /DV, axes are drawn in. * includes appropriate units of measurements. * plots data correctly. And scale must therefore be accurate, plus plots averages. * Next year have extra mark separate scale * draws the appropriate type of graph. – PR says can accept bar graph   Must be a line Graph, no follow through if do wrong graph and it affects the rest | 1-5 |
| **Subtotal** | **5 6 next year** |
| **Analysing data** | |
| Describes relationships or trends in the results.  The further the slingshot was pulled back the further the marshmallow went (1 mark)  Directly proportional relationship (1 mark) | 1-2 |
| Refers to specific data when describing relationships or trends.  Uses specific data from their results, making comparisons between the distances  Or gives a range of largest distance – shortest distance as such | 1 |
| Compares the results to their prediction. | 1 |
| **Subtotal** | **4** |
| **Evaluating** | |
| Identifies difficulties experienced when conducting the investigation.  May include reference to, but not limited to: quality of the data, correct use of equipment, choice of equipment.  Elastic bands snapping  Marshmallow getting crushes when pulling it back in the slingshot  Accurately measuring the distance  Or any other suitable  Need 2 specific ones, 1 mark each | 1-2 |
| Makes suggestions to overcome the difficulties described, including ways to improve the quality of the data.  Newer thicker elastic bands – better quality  Having a cup instead of the leather so didn’t damage actual marshmallow when pulling slingshot back  Using tape measure instead of cones and metre rulers  Suggestion must be relevant and appropriate to the difficulty  1 mark each | 1-2 |
| **Subtotal** | **4** |
| **Total** | **28** |