**Making Moon Craters Worksheet**

**Prediction**

I think that \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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**Data Collection**

During the activity, record in the tables below the impact depth measurements (in cm or mm) for each trial. Later, you will use this data for graphing.

***Trial 1***

|  |  |
| --- | --- |
| **Height** | **Impact Depth** |
| **12 g** | **24 g** |
| 30 cm |  |  |
| 45 cm |  |  |
| 60 cm |  |  |

***Trial 2***

|  |  |
| --- | --- |
| **Height** | **Impact Depth** |
| **12 g** | **24 g** |
| 30 cm |  |  |
| 45 cm |  |  |
| 60 cm |  |  |

***Trial 3***

|  |  |
| --- | --- |
| **Height** | **Impact Depth** |
| **12 g** | **24 g** |
| 30 cm |  |  |
| 45 cm |  |  |
| 60 cm |  |  |

**Graphing**

Make a graph of your data so you can better visualize the energy in this experiment.

**Making a *height vs. impact depth* graph**

1. Using graph paper, make a two-axis graph.
2. Make sure your x-axis and y-axis are each at least 10 squares long.
3. Number your y-axis
	1. For example, if you measured height in feet, put 30 cm at the lowest square and 60 cm at the highest square. (Each square represents 3 cm.)
4. Number your x-axis from 0 to 5 cm.
	1. Put 0 at the furthest left square and 5 at the furthest right square. (Each square represents at 0.5 cm.)
5. Plot the data points on your graph.
6. Using a ruler, connect all points that came from the 12 g trials.
7. Using a ruler, connect all points that came from the 24 g trials.

**Optional Activity – Freefall Highscore**

**Prediction**

I think that \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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**Data Collection**

During the activity, re-record in the tables below the time it takes for the phone to fall for each trial. Later, you will need this data for graphing.

***Trial 1 Trial 2***

|  |  |
| --- | --- |
| **Height** | **Time** |
| 30 cm |  |
| 45 cm |  |
| 60 cm |  |

|  |  |
| --- | --- |
| **Height** | **Time** |
| 30 cm |  |
| 45 cm |  |
| 60 cm |  |

***Trial 3 Trial 4***

|  |  |
| --- | --- |
| **Height** | **Time** |
| 30 cm |  |
| 45 cm |  |
| 60 cm |  |

|  |  |
| --- | --- |
| **Height** | **Time** |
| 30 cm |  |
| 45 cm |  |
| 60 cm |  |

**Graphing**

Use your data to create a ***height vs. time*** graph and a ***height vs. average velocity*** graph. Show your work.