**Forces & Motion**

**Push It!**



**Mr. Beadle – Rm 202**

**www.vhmsscience.weebly.com**

**Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period: \_\_\_\_\_\_\_\_\_\_\_**

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| **Lab Activities** | **Score** |
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| Forces & Motion Experimental Design | /72 |

**Scientific Method & Experimental Design**

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| **1 Experimental Test Question & Hypothesis /10** |
| **Overall Question**: How does mass affect the acceleration rate of objects?*Look at the variables that you’re testing and rephrase the overall question into a testable experimental question*:How does (*independent variable*) affect (*dependent variable*)?**Investigative question**: ( /4) |
| **2 If / Then / Because… Hypothesis: ( /6)** |
| **If** I (change the independent variable) **then** the (dependent variable will change based on expected outcome) **because…**(**hypothesis** – the reason behind the expected outcome)**Your Hypothesis**: ( /6)IfThenBecause |
| **3 Experimental Design: /10** |
| Summarize your experimental idea. (Hint, look at your if/then statement).

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| **Materials Needed**(Bullet Points, Quantities & Items) | **Step by Step Procedures**(1. 2. 3.) |
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| **4 Qualitative Observations** (Looking for things that may affect the experiment, or phenomenon that occurs during an experiment). |
|  (min 2):  **/4** |

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| **5 Data Table (Quantitative Observations) /20** |

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6 Graph

Title: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ /10



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| **7 Data Analysis** (min 4): **/8** |
| * What is the range of your independent & dependent data (your high and low)?
* What trends do you see?
* Why do you think this is the case?
* Do you see any points that don’t fit an expected pattern? (Hint: this could be your experimental error)
 |
| **8 Conclusion: /10** |
| * Summarize
	+ **Q**uestion & Hypothesis
	+ **P**rocedures
	+ **O**bservations, Trends, Results & Data Analysis related to the question/hypothesis.
	+ **E**xperimental errors
* Final Concluding statements
	+ **C**onclusion 1:
		- Does the data support or reject your original hypothesis?
	+ **C**onclusion 2:
		- Explain the “why” behind the phenomenon that you witnessed and provide the reasoning to support why your hypothesis is correct or incorrect.
		- Use your findings to give deeper insights in your research.
* Next Steps:
	+ How can we apply what you learned to help explain other phenomenon?
	+ What new questions did you have based on your findings & observations?
	+ What is the next step in your research

(continued on the next page) |
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Class discussion & concepts learned: