HPS Mark Schemes Assignment 2021 Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Per \_\_\_\_\_

OBJECTIVE: design and conduct a personal investigation (explained in the IB Mark Scheme. See Mark Scheme Rubric for more details) Obj 6

BACKGROUND INFO: Mark Scheme is a Rubric designed to assess labs. 9th grade HPS students focus on the Exploration component Semester 1 and the Analysis component Semester 2.

PART I: Tuesday (9/7)

A. Read & discuss the Mark Schemes.

B. HW: Complete the Exploration component of a lab write up using the following prompt: Investigate some physical property of a Whirlybird. You will use the Exploration Checklist to help guide you through the process.

PART II: Wednesday (9/8)

A. Discuss Exploration

B. Collect Data and finish the practice lab in the packet.

PART III: Thursday (9/9)

A. Using the Exploration Checklist, analyze a partner’s exploration. Give good, specific feedback.

B. Look at the feedback your partner gave you, and edit your exploration as you see fit. Reflect on the process: what did you do well? What do you need to improve on next time?

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| --- | --- |
| Question |  |
| Independent Variable |  |
| Dependent Variable |  |
| Controlled Variables |  |
| Introduction:  How you’ll control your variables, safety and ethical considerations (if any) |  |
| Materials List |  |
| Method/Procedure:  how the I.V. will be manipulated— includes description of sample sizes, trials & replicates (3x3) |  |

D. Reflection: What went well? What do I need to improve for next time?

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| **Exploration** | |
| Mark | Descriptor |
| 0 | · The student’s report does not reach a standard described by the descriptors below. |
| 1–2 | · The topic of the investigation is identified and a research question of some relevance is stated but it is not focused.  · The background information provided for the investigation is superficial or of limited relevance and does not aid the understanding of the context of the investigation.  · The methodology of the investigation is only appropriate to address the research question to a very limited extent since it takes into consideration few of the significant factors that may influence the relevance, reliability and sufficiency of the collected data.  · The report shows evidence of limited awareness of the significant safety, ethical or environmental issues that are relevant to the methodology of the investigation\*. |
| 3–4 | · The topic of the investigation is identified and a relevant but not fully focused research question is described.  · The background information provided for the investigation is mainly appropriate and relevant and aids the understanding of the context of the investigation.  · The methodology of the investigation is mainly appropriate to address the research question but has limitations since it takes into consideration only some of the significant factors that may influence the relevance, reliability and sufficiency of the collected data.  · The report shows evidence of some awareness of the significant safety, ethical or environmental issues that are relevant to the methodology of the investigation.\* |
| 5–6 | · The topic of the investigation is identified and a relevant and fully focused research question is clearly described.  · The background information provided for the investigation is entirely appropriate and relevant and enhances the understanding of the context of the investigation.  · The methodology of the investigation is highly appropriate to address the research question because it takes into consideration all, or nearly all, of the significant factors that may influence the relevance, reliability and sufficiency of the collected data.  · The report shows evidence of full awareness of the significant safety, ethical or environmental issues that are relevant to the methodology of the investigation.\* |

Exploration Checklist:

\_\_\_\_ Focused research question or problem-- may include a clear hypothesis

\_\_\_\_ Introduction describes current knowledge on the topic, provides a clear overview of this investigation, and explains how you will control for your variables.

\_\_\_\_ Independent variable (I.V.) & Dependent variable is (D.V.) are identified and quantitative

\_\_\_\_ Controlled variable(s) is/are identified and justified

\_\_\_\_ Materials list is provided

\_\_\_\_ Safety, ethical or environmental considerations are described

\_\_\_\_ Method describes how the I.V. will be manipulated—should include description of sample sizes, trials &   
 replicates

\_\_\_\_ Method describes how controlled variables are held constant—needs to be clear and concise

\_\_\_\_ Describe apparatus & setup and/or provides a diagram/picture with annotations—including materials   
 specific to the

investigation

\_\_\_\_ If applicable, cite reference for standard collection procedure—use CBE/CSE, MLA or APA

\_\_\_\_ Methods are not written in person-point-of-view

\_\_\_\_ Method describes how the D.V. will be measured

\_\_\_\_ Method describes how data will be collected/measured

\_\_\_\_ Method provides for collection of sufficient data points (3 recommended)

\_\_\_\_ Method provides for replication of data points (3-5 replicates per data point / consistent results are met)