JOHN EDMONDSON HIGH SCHOOL
Assessment Notification

Faculty: Science Course: Physics Year: 11

Assessment Task: Depth Study

Assessment Weighting: 30% Due: Term 1 Week 9 Date: 25/3/2024 Period 4

Task Type: Hand in Task ☒ In Class Task ☒ Practical Task ☒

Outcomes assessed (NESA)
PH11-1 develops and evaluates questions and hypotheses for scientific investigation **PH11-2 designs and evaluates investigations in order to obtain primary and secondary data and information** **PH11-3 conducts investigations to collect valid and reliable primary and secondary data and information** **PH11-4 selects and processes appropriate qualitative and quantitative data and information using a range of appropriate media** **PH11-5 analyses and evaluates primary and secondary data and information** **PH11-7 communicates scientific understanding using suitable language and terminology for a specific audience or purpose** **PH11-8 describes and analyses motion in terms of scalar and vector quantities in two dimensions and makes quantitative measurements and calculation for distance, displacement, speed, velocity and acceleration.**
Task Description/Overview
Students are to develop an investigation question that they will then explore through experimentation. They are required to design experiment/s, conduct them, review and modify as suitable.
Detailed Assessment Task Description
Students are to investigate and utilise the equipment to **develop an investigation question** on Newton's Second Law. You are required to **design experiment/s, conduct them, review and modify as suitable**. Part A - Hand in (28 marks): Students are required to complete a scientific report that includes: ABSTRACT - (100 words) A short summary of the project and its finding. INTRODUCTION - (400 words) Background research to formulate the investigation question prior to carrying out the task. All data sources should be referenced. AIM and HYPOTHESIS A simple statement of the project's aim and the hypothesis.

APPARATUS
A list of all the equipment used.

METHOD - (400 words)
Detailed steps undertaken to complete the investigation, presented in sequential order. It should be written in past tense and include relevant labelled scientific diagrams and a risk assessment.

RESULTS - (300 words)
The data collected in the investigation and any analysis such as calculations, tables and graphs.

The Scientific Report (max 1500 words) must be submitted electronically on CANVAS by 8:25 am on Monday 25th March, Week 9.

Part B - In Class Task (12 marks):

Students are required to bring a printed copy of their Scientific Report and will be answering discussion questions based on their findings and scientific report. This will be checked by the teacher before starting the task. No laptops will be allowed.

Total: 40 marks

Students should also spend time at home to work on their investigations.
It is noted that for verification of completion of the mandatory course requirements, students must spend 5 hours at school working on their Depth Study. These lessons will be schedule in Week 7, Term 1.

NOTE: Students absent during the scheduled Depth Study periods will need to reschedule a suitable time with their teacher to fulfill their requirements.

Suggested investigations are, but not limited to:

Focus of investigation	Equipment
● Investigating the relationship between force and acceleration keeping the mass of the accelerating system constant	● Newton's trolley ● Hanging masses ● Data logger ● String ● Pulley ● Stop watches
● Investigating the relationship between mass and acceleration keeping the force constant	● Newton's trolley ● Hanging masses ● Data logger ● String ● Pulley ● Stop watches

Assessment Criteria		
Grade	**Description**	**Mark Range**
Outstanding (O)	Student has demonstrated an extensive knowledge and understanding. Student represented quantitative data in a range of appropriate formats using digital technologies. Student communicated scientific understanding effectively using language that is clear and succinct to present a logical and cohesive report that followed the guidelines provided.	**84.5-100**
High (H)	Student has demonstrated a thorough knowledge and understanding. Student represented quantitative data in a range of appropriate formats. Student communicated scientific understanding using language that is mostly clear to present a well-organised report that followed the guidelines provided.	**69.5-84**
Sound (S)	Student has demonstrated a sound knowledge and understanding of circular motion. Student represented qunatitative data in a range of appropriate formats. Student communicated scientific understanding using language that is mostly clear to present a report that followed the guidelines provided.	**49.5-69**
Basic (B)	Student has demonstrated a basic knowledge and understanding of circular motion. Student represented data in a logical format. Student communicated scientfic understanding using basic language with limited scientific terminology to present a report that follows some guidelines.	**27.5-49**
Limited (L)	Student has demonstrated a limited knowledge and understanding of circular motion. Student represented data disorganised and not in an appropriate format. Student communicated scientific understanding using basic language to present a report that lacks any structure.	**0-27**

Satisfactory completion of courses

A course has been satisfactorily completed, when the student has:

- Followed the course developed/endorsed by the NSW Educational Standards Authority (NESA)
- Applied himself/herself with diligence and sustained effort to the set tasks and experiences provided in the course.
- Achieved some or all of the course outcomes

Marking Rubric

Marks	4	3	2	1	0
COMMUNICATING (PH11-7)					
Proposal		Proposed inquiry question included, list of equipment required, risk assessment completed	Missing one detail	Missing two details	Missing three details or proposal was not submitted on time
Abstract	Summarises the question, method, key results and conclusion	Missing one detail	Missing two details	Missing three details	No abstract included
QUESTIONING AND PREDICTING (PH12-1, PH11-8)					
Introduction	Relevance of the experiment, important background and theory with references	Relevance of the experiment, important background and/or theory with references	Purpose of the experiment, important background and/or theory with no references	Purpose of the experiment OR important background/theory stated	No introduction included
Aim				Begins with the word 'To' and includes how the independent variable affects the dependent variable	No aim included or poorly written
Hypothesis				Clear statement about the predicted outcome	No hypothesis included or poorly written
PLANNING INVESTIGATIONS (PH12-2)					
Risk Assessment			In table format, 2+ risks identified and minimised	In table format, 1 risk identified and minimised	No risk assessment provided
Appropriate Method	Numbered steps, clear relevant steps are included in logical order, appropriate measuring technique with calculations included and repetition included	3 of the "4 mark" criteria	2 of the "4 mark" criteria	1 of the "4 mark" criteria	No method included
PROCESSING DATA AND INFORMATION (PH12-4)					
Table		Data recorded appropriately in table, trials & averages included, independent and dependent variable with correct units labelled	Missing one detail	Missing two details	No results recorded

Graph			Correct & appropriate use of graphs. All axis with units identified, appropriate title and line drawn correctly	Missing details	No graph included
ANALYSE DATA AND INFORMATION (PH12-5)					
Discussion Analysis of results & data incorporated in discussion			Explains trends, patterns and relationships in data and information	Identifies trends, patterns and relationships in data and information with limited analysis	Presents data with limited analysis
Reliability			Evaluates the reliability of the data	Discusses the reliability of the data	Presents limited aspects of reliability
Validity			Evaluates the validity of the data	Discusses the validity of the data	Presents limited aspects of validity
Sources of error		2 or more errors of investigation are discussed with reference to validity, reliability and accuracy	2 or more errors of investigation are discussed	1 error of investigation is discussed	No errors of investigation are discussed
Improvements suggested			2 or more significant improvements of investigation are discussed	1 improvement of investigation is identified	No improvements of investigation are identified
Conclusion				Concisely answers aim	Poorly written conclusion/conclusion not included
COMMUNICATING (PH12-7)					
Scientific language used			Correct tense used, punctuation and homophones. Less than 3 grammatical errors throughout report	3-5 grammatical errors throughout report	Grammatical errors throughout report
References			3 or more different sources referenced as per school website	1-2 sources referenced as per school website	No sources listed or not referenced as per school website
			Marks Awarded	**/40**	