



ORANGE HIGH SCHOOL

ASSESSMENT TASK NOTIFICATION

Subject	Physics
Year	12 (HSC)
Weighting	25%
Teacher	Ms Wilson
Head Teacher	Mr Shea
Date given	Thursday the 1 st of November 2018 – Week 3A Term 4
Date and school week	Wednesday the 21 st of November 2018 – Week 6B Term 4

Assessment Outline

PART 1 – Conducting the investigation

- To complete this task, students are required to conduct an investigation to determine the effect that changing the launch angle has on the range of flight of a projectile.
- The practical investigation will be performed in class time on Monday November 19th
- Students will need to calculate the value of the initial velocity of the projectile.
- Carry out a safety audit for the investigation
- Compile the following sections of a scientific report for the investigation: aim, hypothesis, safety audit, equipment list, method, results table and calculations.

PART 2 – Formal in-class analysis of the investigation and other projectile motion related questions

- Students are required to submit Part 1 and to complete a formal in-class test. They are able to utilise the data collected from the scientific investigation to assist and support their responses to the in-class test.
- Students will be required to answer a series of questions as part of their analysis including graphing, tabling, review and analysis of projectile motion and the mathematics associated.

Non-completion of Task:

If you know you are going to be away on the day that the task is due, you must make alternative arrangements with your classroom teacher. If you are away on the day of the examination, you must catch up with your classroom teacher on the first day you return to make alternate arrangements to catch up on this task.

Failure to follow the above procedures may result in a zero award.

Outcomes Assessed

- PH12 – 1** develops and evaluates questions and hypotheses for scientific investigation
- PH12 – 2** designs and evaluates investigations in order to obtain primary and secondary data and information
- PH12 – 3** conducts investigations to collect valid and reliable primary and secondary data and information
- PH12 – 5** analyses and evaluates primary and secondary data and information
- PH12 – 6** solves scientific problems using primary and secondary data, critical thinking skills and scientific processes
- PH12 – 12** describes and analyses qualitatively and quantitatively circular motion and motion in a gravitational field, in particular, the projectile motion of particles.

HSC PHYSICS ASSESSMENT TASK 1

PRACTICAL FIRST-HAND INVESTIGATION: PROJECTILE MOTION

ASSESSMENT DATE – WEDNESDAY NOVEMBER 21st, 2018

TASK OVERVIEW:

This assessment task contains two parts.

Task 1: CONDUCTING THE INVESTIGATION – This will be conducted in-class on Monday November 19th

- You are required to conduct an investigation to determine the effect that changing the launch angle has on the range of flight of a projectile.
- Calculate the value of the initial velocity of the projectile.
- Carry out a safety audit for the investigation
- Submit (Wednesday November 21st - week 6) the following sections of a scientific report for the investigation: aim, hypothesis, safety audit, equipment list, method, results table, calculations

Task 2: COMPLETE AN IN-CLASS FORMAL COMPONENT OF THE TASK – This will be conducted in-class on Wednesday November 21st.

- On November 21st (Wednesday - week 6) you will submit TASK 1 and complete an in-class analysis of the investigation and other related questions.
- Conduct calculations on projectile motion

CONTENT

- analyse the motion of projectiles by resolving the motion into horizontal and vertical components, making the following assumptions:
 - a constant vertical acceleration due to gravity
 - zero air resistance
- apply the modelling of projectile motion to quantitatively derive the relationships between the following variables :
 - initial velocity
 - launch angle
 - maximum height
 - time of flight
 - final velocity
 - launch height
 - horizontal range of the projectile
- conduct a practical investigation to collect primary data in order to validate the relationships derived above.

SYLLABUS OUTCOMES:

PH12 – 1 develops and evaluates questions and hypotheses for scientific investigation

PH12 – 2 designs and evaluates investigations in order to obtain primary and secondary data and information

PH12 – 3 conducts investigations to collect valid and reliable primary and secondary data and information

PH12 – 5 analyses and evaluates primary and secondary data and information

PH12 – 6 solves scientific problems using primary and secondary data, critical thinking skills and scientific process

PH12 – 12 describes and analyses qualitatively and quantitatively circular motion and motion in a gravitational field, in particular, the projectile motion of particles.

TASK 1: Conducting your investigation

Name

		<u>Marks</u>
Aim /2	2 marks – clear aim using appropriate scientific terms 1 mark – correct aim for investigation	
Hypothesis /2	2 marks – clear hypothesis linking independent and dependent variable 1 mark – hypothesis present	
Safety Audit /6	6 marks – 3 potential safety hazards identified and 3 steps you have taken to overcome each safety hazard (1 mark awarded for each of the above)	
Equipment list /2	2 marks – detailed list of equipment 1 mark – missing some equipment	
Method /6	6 marks – detailed and clear method that includes the following: appropriate order, numbered steps, how the dependent variable is measured and repetition. 5 marks – method that includes the following: appropriate order, numbered steps, how the dependent variable is measured and repetition. (1 mark awarded for each of the above)	
Presentation of first-hand data /5	5 marks – First-hand data clearly organized into a table with appropriate heading and units. 1 mark for each of the following: <ul style="list-style-type: none"> • Results presented in a table • Table is enclosed • Correct headings for columns • Appropriate units are used for results • Results are sequenced in ascending order 	
Constant initial velocity clearly stated /2	2 mark – Clear calculation demonstrating how the constant initial velocity was determined with appropriate units. 1 mark – one mistake in calculation of constant initial velocity.	

Total _____/25

Comments: