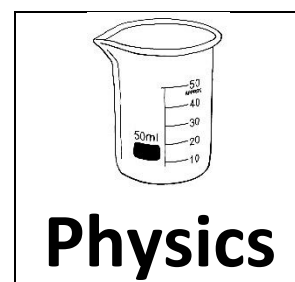




Depth study



Subject:	Physics
Year:	12
Task:	1
Due Date:	3.03.20
Mark:	43
Weighting:	25%
Assessment Mode:	Depth Study

Outcomes

- develops and evaluates questions and hypotheses for scientific investigation PH11/12-1
- selects and processes appropriate qualitative and quantitative data and information using a range of appropriate media PH11/12-4
- analyses and evaluates primary and secondary data and information PH11/12-5
- PH11/12-6 solves scientific problems using primary and secondary data, critical thinking skills and scientific processes
- communicates scientific understanding using suitable language and terminology for a specific audience or purpose PH11/12-7
- The knowledge and Understanding outcome achieved will be dependent on the inquiry question that the student investigates. PH12-12, or PH12-13, or PH12-14, or PH12-15

Submission / Late Policy

Students are expected to submit their assessment tasks during the period the class meets on the due date. Students submitting assessment tasks at the staff room should only submit these tasks to their teacher or a nominated representative from the faculty. If the task is collected by anyone else the student **MUST** ask for a signed submission receipt.

Year 11-12 students will receive a zero for failing to submit their assessment task by the due date unless they have a doctor's certificate stating the nature of their absence. This is in line with NESA's ACE manual.

If you are absent on the due date you must submit the assessment task with a doctor's certificate on the first day that you return to school, whether you have the class or not. Failure to supply a doctor's certificate may result in a zero being awarded for the task

Assessment Task Year 12 Physics

Pick one Inquiry question from the following:

Module 5: Advanced Mechanics

Projectile Motion - Inquiry question: How can models that are used to explain projectile motion be used to analyse and make predictions?

Circular Motion- Inquiry question: Why do objects move in circles?

Motion in Gravitational Fields -Inquiry question: How does the force of gravity determine the motion of planets and satellites?

Module 6: Electromagnetism

Charged Particles, Conductors and Electric and Magnetic Fields- Inquiry question: What happens to stationary and moving charged particles when they interact with an electric or magnetic field?

The Motor Effect - Inquiry question: Under what circumstances is a force produced on a current-carrying conductor in a magnetic field?

Electromagnetic Induction - Inquiry question: How are electric and magnetic fields related?

Applications of the Motor Effect - Inquiry question: How has knowledge about the Motor Effect been applied to technological advances?

Module 7: The Nature of Light

Electromagnetic Spectrum- Inquiry question: What is light?

Light: Wave Model- Inquiry question: What evidence supports the classical wave model of light and what predictions can be made using this model?

Light: Quantum Model -Inquiry question: What evidence supports the particle model of light and what are the implications of this evidence for the development of the quantum model of light?

Light and Special Relativity- Inquiry question: How does the behaviour of light affect concepts of time, space and matter?

Module 8: From the Universe to the Atom

Origins of the Elements - Inquiry question: What evidence is there for the origins of the elements?

Structure of the Atom -Inquiry question: How is it known that atoms are made up of protons, neutrons and electrons?

Quantum Mechanical Nature of the Atom -Inquiry question: How is it known that classical physics cannot explain the properties of the atom?

Properties of the Nucleus -Inquiry question: How can the energy of the atomic nucleus be harnessed?

Deep inside the Atom- Inquiry question: How is it known that human understanding of matter is still incomplete?

Section 1:

Find a YouTube clip that addresses your Inquiry Question and: (3 marks)

- Copy the URL onto your response. (1 mark)

- write 5 questions on the clip that can be answered by your classmates. (5 marks)

- evaluate the source (Author) of the YouTube video to make sure that they are reliable, accurate. You can use: (10 marks)

CRAAP Test: Tips on Evaluating Sources

Some things to consider in evaluating the quality of research sources:

Currency: the timeliness of the information

- How recent is the information?
- Can you locate a date when the page(s) were written/created/updated?
- Based on your topic, is the information current enough?

Reliability: consistency of information across different sources.

- What kind of information is included in the Web site?
- Is the content primarily fact, or opinion? Is the information balanced, or biased?
- Does the author provide references for quotations and data?
- If there are links, do they work?

Authority: the source of the information

- Can you determine who the author/creator is? is there a way to contact them?
- What are their credentials (education, affiliation, experience, etc.)?
- Who is the publisher or sponsor of the site? Are they reputable?

Accuracy: the reliability, truthfulness, and correctness of the information

- Is it accurate? Is it supported by evidence?
- Is the information balanced or biased?
- Was it peer-reviewed?
- Can you verify the information from another reliable source?
- Are there spelling, grammar, or typographical errors?
- Can you determine who the author/creator is? is there a way to contact them?

Purpose: the reason the information exists

- What's the intent of the Web site (to persuade, to sell you something, etc.)?
- What is the domain (.edu, .org, .com, etc.)?
- Are there ads on the Web site?
- How do they relate to the topic being covered (e.g., an ad for ammunition next to an article about firearms legislation)?
- Is the author presenting fact, or opinion? Who might benefit from a reader believing this Web site?
- Based on the writing style, who is the intended audience?

Section 2

Write a Hypothesis that can identify a concept that can be investigated scientifically to address your inquiry question. (2 marks)

Write an aim and method of an investigation to scientifically test your hypothesis. (7 marks)

Find and record data that supports or rejects your hypothesis. Explain how this data supports or rejects your hypothesis. (12 marks)

Include a bibliography (3 marks)

Marking guideline

The URL is correct and allows the clip to be viewed. -1 mark

Mark	3	2	1	0
Selection of clip PH11/12-7	YouTube clip addresses the chosen Inquiry question and is suitable for the targeted audience (Year 12 Physics class)	YouTube clip partially addresses the chosen Inquiry question and is suitable for the targeted audience or YouTube clip addresses the chosen Inquiry question and is not suitable for the targeted audience	YouTube clip partially addresses the chosen Inquiry question and is not suitable for the targeted audience	YouTube clip does not addresses the chosen Inquiry question and is not suitable for the targeted audience

Mark	5	4	3	2	1
Questions on clip PH11/12-7 PH12-12,or PH12-13,or PH12-14,or PH12-15	5 Clear questions that can be answered by viewing the clip, pitched at the correct academic level of the targeted audience and are relevant to the Inquiry question.	4 clear questions addressing the criteria for full marks or 5 questions missing one of the criteria.	3 clear questions addressing the criteria for full marks or 5 questions missing two of the criteria.	2 clear questions addressing the criteria for full marks or 5 questions missing three of the criteria.	1 clear question addressing the criteria for full marks or 5 questions not meeting the criteria.

Mark	10-9	8-7	6-5	4-3	2-1	0
Evaluation of the source PH11/12-5	Outstanding evidence of systematic review addressing all aspects of the CRAP analysis.	Very careful reviewing, addressing 5 elements of the CRAP analysis.	Evidence of reviewing using the CRAP analysis	Incomplete and not systematic, but adequate to identify parts of the literature review	Little or no evidence of systematic approach, incomplete review	No evidence of literature review

Section 2-

Mark	1		2	
Hypothesis PH11/12-1	Hypothesis related to the inquiry question and can be scientifically tested		Hypothesis does not relate to the inquiry question and can be scientifically tested or A statement related to the Inquiry question that cannot be scientifically tested.	
Marks	7-6	5-4	3-2	1
Aim and Method PH11/12-1	Contains an aim that addresses the inquiry question. Contains relevant information about the methods used clearly and systematically described using the students own words. Correctly describes the formal design of the study, including an accurate specification of the variables.	Good structure, but some relevant information has been omitted.	Somewhat confused and bits are missing. Parts have been put into the wrong order.	Steps are missing or confused.
Marks	6-5	4-3	2	1
Results PH11/12-4	Logical and clear presentation of relevant descriptive and inferential statistical results. Clear, well-labelled figures and tables, with a clear accompanying written description of what they show, in the context of the study.	Standard deviations or standard errors missing from tables or graphs, figures/tables labelled incorrectly. Does show some understanding, and has presented the information in a logical format.	Does not appear to have understood the results. No graphs, or graphs are in the wrong place. Only skimpy or inaccurate explanations supplied. Has included irrelevant graphs, or has included the raw data in the results section.	Has graphs or tables, but without any accompanying written explanation. OR has some writing, but no tables or graphs.
Mark	6-5	4-3	2	1
Explains how the data supports or rejects the hypothesis PH11/12-4 PH11/12-6	Clear summary of main results, followed by a successful attempt to relate the findings to relevant previous theoretical and empirical research. Intelligent evaluation of the strengths, weaknesses and limitations of the study that was performed, and sensible suggestions for possible improvements and extensions to it. Well organised and clearly written.	Poor structure, but contains the essential elements. OR the structure is good, but elements are missing.	Poor structure, things in the wrong order, shows little understanding of what the study was about, what the results mean, or how they relate to previous work.	Skimpy (e.g. one paragraph) with no attempt to relate results to relevant theoretical and empirical research.
Mark	3-2			1
Bibliography PH11/12-5	References in the text consist of author(s) surnames (no initials) and date only; references in the reference list should be full references, in alphabetical order. References in text and reference-list should match -i.e. there should be no missing references.			List of references.