

Task Distributed: Tuesday 10th June

Unit: Module 7: The Nature of Light

Task Type: In-class Skills Task

Task Weighting: 30%

Outcomes: PHY12-2, PHY12-3, PHY12-4, PHY12-6, PHY12-7, PH12-14

Task Description

Throughout history, light has been the subject of rigorous scientific investigations since the pioneering work of Sir Isaac Newton. Over time, our understanding of light and its interactions with matter has evolved significantly, thanks to groundbreaking contributions of renowned scientists such as James Clerk Maxwell, Heinrich Hertz, Christiann Huygens, Max Planck, and Albert Einstein, all of whom have shaped the theories and models we employ to study and comprehend this aspect of Physics.

For this in-class practical skills task, you will apply your knowledge of Light Theory and demonstrate your ability to connect theoretical concepts with practical observations. This will involve various skills, including, but not limited to qualitative and quantitative analysis of experimental data, detailed descriptions of observations, precise calculations, graphing, describing relationships between variables, assessing limitations and errors, utilising appropriate scientific notations, using scientific language effectively, and drawing well-supported conclusions about major findings.

In-class assessment (45 minutes)

You will be presented with experimental data in the form of multiple choice, short answer and longer response questions. The assessment will require you to:

- Connect the provided experimental data to the relevant Physics concepts and theories.
- Analyse and interpret the experimental data, identifying patterns, relationships, and explaining the observed phenomena.
- Utilise appropriate scientific skills and knowledge, including accurate calculations, graphical representation, and effective use of scientific notation.

NESA Glossary of Key Words

Understand the verb associated with the task. The verb will provide an understanding of the detail needed to successfully answer the question.

- **Explain:** Relate cause and effect; make the relationships between things evident; provide why and/or how
- **Discuss:** Identify issues and provide points for and/or against
- **Identify:** Recognise and name
- **Outline:** Sketch in general terms; indicate the main features of
- **Analyse:** Identify components and the relationship between them; draw out and relate implications

Check the NESA Glossary of Key Words for further guidance <https://educationstandards.nsw.edu.au/wps/portal/nesa/11-12/hsc/hsc-student-guide/glossary-keywords>

Details of Submission

- The Task will be undertaken during class time on Thursday 20 June (period 1).
- All answers with full working should be completed on the paper to maximise marks.

Equipment required:

- Board approved calculator
- Blue or black pen
- Pencil
- Ruler
- HSC Physics data sheet (will be provided).

Teacher Feedback and Student Self-Reflection

- The task will typically be returned to students within 14 days of the due date.
- At this time feedback including information on how to improve will be provided through mechanisms such as marking criteria, and/or written comments.
- Students can clarify or seek further feedback by speaking with their teacher or the assessment marker.
- Upon return of the task, students are also expected to complete a self-reflection. This is an important part of the learning process as it provides an opportunity to reflect on the strength of our performance and any areas requiring attention and further development.

How does this link to my learning?

- This task will draw together the above outcomes, by providing students with the opportunity to demonstrate their knowledge, understanding and skills in Year 12 Physics.
- This will allow them to gain feedback on areas of strength, as well as areas in which to improve.
- Students will utilise their problem-solving skills to solve real-world, science-based problems.

Marking

- Marks will be indicated on the paper for each question.
- The task consists of a mixture of multiple-choice questions (1 mark each), as well as short answer questions and longer response questions worth 1 mark or more. Students should show all working to achieve maximum results.
- Marking criteria, including feedback, will be provided with the marked paper.

Assessment Procedures

All students should be fully aware of the School Assessment Procedures for their year group. These were provided at the beginning of the school year and are available off the school website under the Learning Tab for each year group.

Any student who is absent on the day of the task must follow the illness/misadventure procedures in the school's assessment policy. Non-completion of the task without successful illness/misadventure appeal will receive a zero-mark and an N-Warning notification, as outlined in the Year 12 Assessment Booklet.