



Assessment Task Notification

- Course:** HSC Senior Science
- Teacher(s):** Mrs Murrie and Mrs Pawsey
- Task Number:** 3
- Date of Task:** **Wednesday 21st June 2017**
(NOTE CHANGE FROM PUBLISHED SCHEDULE)
- Task Value:** 25%
- Nature of Task:** Students will perform a scientific skills based written task.
- Other Information:** Students should ensure that they bring pens, pencil, calculator and ruler.

Outcomes
Assessed:

- H2** applies the processes that are used to test and validate models, theories and laws, to investigations
- H10** discusses ways in which different forms of energy and energy transfers and transformations are used
- H11** justifies the appropriateness of a particular investigation plan
- H12** evaluates ways in which accuracy and reliability could be improved in investigations
- H13** uses terminology and reporting styles appropriately and successfully to communicate information and understanding
- H14** assesses the validity of conclusions from gathered data and information

Task Details:

This task involves a research component to support the in-class task. The research component must be submitted on the day of the task, **Wednesday 21st June**.

You will be required to answer examination style questions during the lesson, based on **Module 9.4 Section 6 (Optical Fibre Communication Systems)**. The questions will assess both knowledge and skills.

You can bring your research into the room and use it to assist you when answering the questions.

Your research must be submitted for marking with your in-class task.

Instructions:

- **Research** information from a variety of sources to answer the following:
 1. Explain the principle of total internal reflection.
 2. Describe the structure of an optical fibre and explain how optical fibres work.
 3. Outline properties of optical fibres relevant to their use as communication carriers.
 4. What are the advantages and disadvantages of fibre optics over more conventional carriers of information?
 5. Compare and contrast copper cables with fibre optic cables in relation to:
 - Carrying capacity
 - Cost
 - Rate of transfer
 - Security
- **Summarise** your research to a maximum length of 1 double sided A4 page, typed or hand-written.
- Include a **separate reference list for each research question**. Make sure your references are in the correct format. Use an online citation maker such as <http://www.bibme.org> or refer to the school diary.
- Bring your research, reference list, pens, pencil, calculator, ruler and eraser to class on **Wednesday 21st June** and complete the **in-class task**.

Research Component Marking Guidelines
10 marks

Outcome	Marks Allocated		Marks awarded
	1	2	
H10 Knowledge and understanding of energy, energy transfers and transformations <i>Have you included relevant information to answer each question?</i>	Demonstrates a satisfactory understanding of the use of light and optical fibres in communication systems.	Demonstrates a thorough knowledge and understanding of the use of light and optical fibres in communication systems.	/2
H12 Gathering and processing reliable and valid information <i>Have you synthesised and summarised information into your own words?</i>	Satisfactorily gathers and collates information from a variety of sources.	Very effectively gathers, summarises and collates useful and relevant information from a variety of sources.	/2
<i>Have you used a variety of appropriate sources of information for each question and clearly indicated this in your reference list?</i>	Uses information from a variety of sources.	Assesses reliability and validity of secondary information by using information from a variety of reputable sources.	/2
H13 Presenting and communicating information and understanding <i>Is your information in your own words? Does it make sense? Is the layout appropriate?</i>	Satisfactorily communicates scientific concepts within the constraints of the space provided.	Effectively communicates scientific concepts clearly, accurately and succinctly within the constraints of the space provided.	/2
<i>Is your reference list in the correct format?</i>	Acknowledges information sources in a reference list.	Uses the correct format to acknowledge information sources and provides a separate reference list for each question.	/2

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