DO WE NEED BIG SCIENCE?

Stage 2 Physics – Assessment Type 1: Investigations Folio

Science as a Human Endeavour Task

Some of the tools needed to investigate cutting edge physics are large projects that require large teams of scientists and millions (or billions) of dollars - this is often termed “Big Science”.

Your task is to explain the physics behind your chosen topic related to the stage 2 Physics course and focus on **an aspect** (or several aspects) of **Science as a Human Endeavour** in the development, influences, collaboration/communication or application of the project.

This table contains some examples of “Big Science”, however there are many more examples and please feel free to find a project that interests you that is not in the list:

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| --- | --- |
| *The Square Kilometre Array* | *Australian Synchrotron* |
| *OPAL (Open-Pool Australian Lightwater reactor)* | *Bragg Institute* |
| *The Relativistic Heavy Ion Collider* | *Large Hadron Collider* |
| *Laser Interferometer Gravitational-Wave Observatory* | *Hubble Telescope* |
| *National Ignition Facility (High powered LASER)* | *Juno (Jupiter Orbiter)* |
| *ITER (International Thermonuclear Experimental Reactor)* | *Advanced Light Source* |
| *Super-Kamiokande Neutrino Detector* | *The Earthscope* |

It is important that you consider the physics of the project as well as the **interplay between physics and society** - how society shapes physics and how physics in turn shapes society. Please read the subject outline but this graphic gives you an overview of the main aspects of Science as a Human Endeavour.



Based on your investigation, you will prepare a scientific report, which must include the use of scientific terminology and:

* an introduction to identify the focus of the investigation and the key concept(s) of science as a human endeavour that it links to
* relevant physics concepts or background
* an explanation of how the focus of the investigation illustrates the interaction between science and society
* a discussion of the potential impact or application of the focus of the investigation, e.g. further development, effect on quality of life, environmental implications, economic impact, intrinsic interest
* a conclusion summarising the connection between the big science project and your selected SHE concepts
* citations and reference list or bibliography.

The scientific report should be a maximum of 1500 words\* if written, or a maximum of 10 minutes for an oral presentation, or the equivalent in multimodal form.

*\*The word-count includes headings, direct quotations, and footnotes that are used as explanatory notes. The word-count does not include the title/question page or the reference list or bibliography (including footnotes or in-text references that are used to list author, date, and page numbers).*