 Assessment task: Standing on the shoulders of giants

Module 1: Properties and structure of matter

This document references the [Chemistry Stage 6 Syllabus](https://syllabus.nesa.nsw.edu.au/chemistry-stage6/) © 2017 [NSW Education Standards Authority (NESA)](http://syllabus.nesa.nsw.edu.au/copyright/) for and on behalf of the Crown in right of the State of New South Wales.

Outcomes

Working scientifically

Questioning and predicting

* CH11-1 develops and evaluates questions and hypotheses for scientific investigation

Processing data and information

* CH11- 4 selects and processes appropriate qualitative and quantitative data and information using a range of appropriate media

Analysing data and information

* CH11-5 analyses and evaluates primary and secondary data and information

Communicating

* CH11- 7 communicates scientific understanding using suitable language and terminology for a specific audience or purpose

Knowledge and understanding

CH11-8 explores the properties and trends in the physical, structural and chemical aspects of matter

Learning across the curriculum

Cross-curriculum priorities

[ ] Aboriginal and Torres Strait Islander histories and cultures

[ ] Asia and Australia's engagement with Asia

[ ] Sustainability

General capabilities

[x] Critical and creative thinking

[ ] Ethical understanding

[x] Information and communication technology capability

[ ] Intercultural understanding

[x] Literacy

[x] Numeracy

[x] Personal and social capability

Other areas of learning

[ ] Civics and citizenship

[ ] Difference and diversity

[x] Work and enterprise

Teacher notes

This is an open-ended task which allows students to choose their method of presentation and could include but not limited to; multimedia, PowerPoint, visual, oral, practical demonstration or a combination.

The task below has been designed to fit a few modules within the syllabus which include scientists contributing to the development of, but not limited to:

* The structure of the atom (Module 1)
* The gas laws (Module 2)
* The laws of thermodynamics (Module 4)

Teachers may provide details for each different presentation tasks or choose to modify the task to dictate certain presentation formats and focus on certain skills, such as oral communication. Additionally, teachers can choose to apply more parameters to the task including a time limit.

The task can be completed as the required depth study of 15 hours or be separated into 2 or 3 depth studies of lengths that equal 15 hours.

Task details

Introduction

In 1675 Sir Isaac Newton wrote a letter to Robert Hooke and said’ "If I have seen further, it is by standing upon the shoulders of giants". He was explaining that his own discoveries were only able to be achieved because of the research of the scientists that was conducted before his own. In this task students are asked to look at the research that has contributed to current understanding of Chemistry concepts through the lens of the Scientists that contributed to that understanding.

Task

You are asked to design and present a presentation on the focus question “How have the giants contributed to our understanding of Chemistry?”

The task below has been designed to fit a few modules within the syllabus which include scientists contributing to the development of, but not limited to:

* The structure of the atom, the periodic table, radioisotopes (Module 1)
* The gas laws (Module 2)
* The laws of thermodynamics (Module 4)

You can present in any form you wish. For example, this may include a:

* skit, sketch or cartoon strip
* video presentation, such as documentary style
* multimedia platform, such as PowerPoint, Prezi, website, etc.
* speech, including a demonstration
* write a journal article or media report

In your presentation, you must include the following:

1. Select an overarching concept including but not limited to; Atomic theory, the periodic table, radioisotopes, Gas Laws or Thermodynamics
2. An annotated timeline of the contributions and development of the overarching concept (Atomic theory, the periodic table, radioisotopes, Gas Laws or Thermodynamics)
3. Biographical information of one of the scientists that contributed to the concept being studied. This may include, but not be limited to;
	* information around their research,
	* published works,
	* significant contributions in all aspects of science,
	* area of expertise.
4. A working model, simulation or practical replication of an experiment that was used by the contributing scientist
5. Analysis of the model/simulation/practical task to justify how this experiment contributed to the development of the concept considering the knowledge at the time.