



National Certificate of Educational Achievement
TAUMATA MĀTAURANGA Ā-MOTU KUA TAEA

King's High School

Name:

Not Achieved	Achieved	Merit	Excellence

Internal Assessment

Chemistry Level 2

Achievement Standard 91163 (2.3)

Demonstrate understanding of the chemistry used in the development of a current technology

Forsyth Barr Stadium Roof

3 credits

Achievement	Achievement with Merit	Achievement with Excellence
Demonstrate understanding of chemistry used in the development of a current technology.	Demonstrate in-depth understanding of the chemistry used in the development of a current technology.	Demonstrate comprehensive understanding of the chemistry used in the development of a current technology.

Student instructions

Introduction

Discoveries in chemistry often occur as a result of a mistake, hunch, or intuition.

The materials we use today are the result of historical developments, planned research, accident and economic demand.

The chemistry of new materials gives them certain properties; the properties of these materials make them useful to society.

Timeframes

Until the end of Term 3



Due date:

Task

In this assessment, you will research a polymer.

The polymer you will research is a type of Teflon.

The specific Teflon polymer you will research is ETFE (ethylene tetra fluoro ethylene co-polymer)

You will prepare an A3 poster/brochure demonstrating understanding of the chemistry of that development.

You will independently...

- **Part 1:** Perform secondary research
- **Part 2:** Record notes
- **Part 3:** Prepare a brochure/A3 poster

You will be assessed on both your poster and the recorded notes you used to produce your poster

Part 1: Perform secondary research

Your teacher will provide you with information, and links to relevant information.

You will independently research the chemistry involved in the discovery of Teflon, and leading onto the development of ETFE.

- Find out what experimentation, events and/or discoveries led to the development of these materials.

Ask your teacher for clarification if you encounter difficult or unfamiliar concepts in the course of your research.

Part 2: Process information and record notes

Using the information provided, (and that from your own research), record notes.

Your recorded notes should include enough information to allow you to comprehensively describe

- the historical developments in chemistry that led to the discovery of Teflon
- the discovery of ETFE
- the chemistry of Teflon and ETFE
- the chemistry of the process by which Teflon and ETFE was developed
- the usefulness of ETFE to society
- the research references you used, including web sites

Part 3: Prepare a Poster

Using only your own notes, prepare and present a brochure/A3 poster to comprehensively describe the points in Part 2 (above).

You must also....

- Use appropriate chemistry vocabulary, symbols and conventions
- Include how the development of ETFE relates to chemistry ideas and how it is useful to society
- Provide evidence for your conclusions
- Hand in your notes with your report.

You will be assessed on both your poster and the recorded notes you used to produce your poster

Structure your poster/brochure with 3 key sections

1. Timeline/flowchart of the discovery of Teflon through to the development and use of ETFE as a building material today

This could include limitations and evaluations of these products. Why did they do what they did when they did?

2. Detailed description of what they did to make Teflon and ETFE.

Detailed description of the chemistry of relevant properties of these polymers

Use pictures, diagrams, equations and explain the chemistry in your own words.

3. Explain and evaluate the effectiveness of some of the current uses of ETFE in society today.

Relate it back to the chemistry.

What does the future hold?