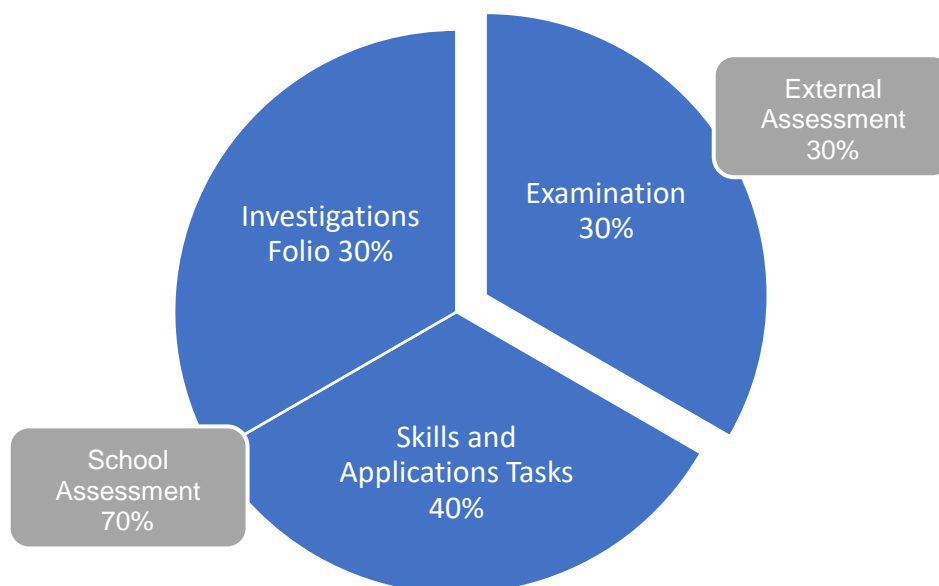


## Assessment Scope and Requirements

The following assessment types enable students to demonstrate their learning in Stage 2 Chemistry:



Students provide evidence of their learning through **eight assessments**, including the external assessment component. Students complete:

- at least **two practical investigations**
- **one** investigation with a focus on *science as a human endeavour*
- at least **three skills and applications tasks**
- **one examination.**

At least one investigation or skills and applications task should involve *collaborative work*.

*It is anticipated that from 2018 all school assessments will be submitted electronically.*

Implications for teaching

## School Assessment: Assessment Type 1, Practical Investigations

As students design and safely carry out investigations, they develop and extend their *science inquiry skills* by:

	Alignment to Specific Features
<b>Significant change in emphasis</b>	
▪ deconstructing the parts of a problem to determine the most appropriate method for investigation	
▪ formulating investigable questions and hypotheses	
▪ selecting and using appropriate equipment, apparatus, and techniques	
▪ identifying variables	
▪ collecting, representing, analysing, and interpreting data	
▪ evaluating procedures and considering their impact on results	
▪ drawing conclusions	
▪ communicating knowledge and understanding of concepts.	

### Specific Features

#### Investigation, Analysis, and Evaluation

The specific features are as follows:

- IAE1 Design of a chemistry investigation.
- IAE2 Obtaining, recording, and representation of data, using appropriate conventions and formats.
- IAE3 Analysis and interpretation of data and other evidence to formulate and justify conclusions.
- IAE4 Evaluation of procedures and their effect on data.

#### Knowledge and Application

The specific features are as follows:

- KA1 Demonstration of knowledge and understanding of chemical concepts.
- KA2 Development and application of chemical concepts in new and familiar contexts.
- KA3 Exploration and understanding of the interaction between science and society.
- KA4 Communication of knowledge and understanding of chemical concepts and information, using appropriate terms, conventions, and representations.

## Practical Investigations

Practical investigations can be conducted *individually* or *collaboratively*.  
For each investigation, students present an *individual report*.

### Significant change in emphasis

One practical investigation should enable students to investigate a question or hypothesis for which the outcome is uncertain.

### Significant change in emphasis

One practical investigation should enable students to design their own procedure and justify their plan of action.

This may include providing evidence of how the procedure has been developed.

In order to manage the process efficiently, students could *individually* design investigations and then *conduct one of these as a group*, or *design hypothetical investigations* at the end of a practical activity.

A practical report should include:

- introduction with relevant chemistry concepts, and either a hypothesis and variables, or an investigable question
- materials/apparatus\*
- method/procedure that outlines the trials and steps to be taken\*
- identification and management of safety and/or ethical risks\*
- results\*
- analysis of results, identifying trends, and linking results to concepts
- evaluation of procedures and data, and identifying sources of uncertainty
- conclusion, with justification.

The 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.

A summary sheet outlining the deconstruction process (where applicable) should be attached to the report\*. Suggested formats for the summary sheet include flow charts, concept maps, tables, or notes.

*\*The four asterisked sections (materials/apparatus, method/procedure, risks, and results) are excluded from the word count.*

Suggested formats for presentation of a practical investigation report include:

- a written report
- an oral presentation
- a multimodal product.

### Implications for teaching

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## Performance Standards

	Investigation, Analysis, and Evaluation	Knowledge and Application
<b>A</b>	<p>Designs a logical, coherent, and detailed chemistry investigation.</p> <p>Obtains records, and represents data, using appropriate conventions and formats accurately and highly effectively.</p> <p>Systematically analyses and interprets data and evidence to formulate logical conclusions with detailed justification.</p> <p>Critically and logically evaluates procedures and discusses their effect on data.</p>	<p>Demonstrates deep and broad knowledge and understanding of a range of chemical concepts.</p> <p>Develops and applies chemical concepts highly effectively in new and familiar contexts.</p> <p>Critically explores and understands in depth the interaction between science and society.</p> <p>Communicates knowledge and understanding of chemistry coherently, with highly effective use of appropriate terms, conventions, and representations.</p>
<b>B</b>	<p>Designs a well-considered and clear chemistry investigation.</p> <p>Obtains, records, and represents data, using appropriate conventions and formats mostly accurately and effectively.</p> <p>Logically analyses and interprets data and evidence to formulate suitable conclusions with reasonable justification.</p> <p>Logically evaluates procedures and their effect on data.</p>	<p>Demonstrates some depth and breadth of knowledge and understanding of a range of chemical concepts.</p> <p>Develops and applies chemical concepts mostly effectively in new and familiar contexts.</p> <p>Logically explores and understands in some depth the interaction between science and society.</p> <p>Communicates knowledge and understanding of chemistry mostly coherently, with effective use of appropriate terms, conventions, and representations.</p>
<b>C</b>	<p>Designs a considered and generally clear chemistry investigation.</p> <p>Obtains, records, and represents data, using generally appropriate conventions and formats with some errors but generally accurately and effectively.</p> <p>Undertakes some analysis and interpretation of data and evidence to formulate generally appropriate conclusions with some justification.</p> <p>Evaluates procedures and some of their effect on data.</p>	<p>Demonstrates knowledge and understanding of a general range of chemical concepts.</p> <p>Develops and applies chemical concepts generally effectively in new or familiar contexts.</p> <p>Explores and understands aspects of the interaction between science and society.</p> <p>Communicates knowledge and understanding of chemistry generally effectively, using some appropriate terms, conventions, and representations.</p>
<b>D</b>	<p>Prepares the outline of a chemistry investigation.</p> <p>Obtains, records, and represents data, using conventions and formats inconsistently, with occasional accuracy and effectiveness.</p> <p>Describes data and undertakes some basic interpretation to formulate a basic conclusion.</p> <p>Attempts to evaluate procedures or suggest an effect on data.</p>	<p>Demonstrates some basic knowledge and partial understanding of chemical concepts.</p> <p>Develops and applies some chemical concepts in familiar contexts.</p> <p>Partially explores and recognises aspects of the interaction between science and society.</p> <p>Communicates basic chemical information, using some appropriate terms, conventions, and/or representations.</p>
<b>E</b>	<p>Identifies a simple procedure for a chemistry investigation.</p> <p>Attempts to record and represent some data with limited accuracy or effectiveness.</p> <p>Attempts to describe results and/or interpret data to formulate a basic conclusion.</p> <p>Acknowledges that procedures affect data.</p>	<p>Demonstrates limited recognition and awareness of chemical concepts.</p> <p>Attempts to develop and apply chemical concepts in familiar contexts.</p> <p>Attempts to explore and identify an aspect of the interaction between science and society.</p> <p>Attempts to communicate information about chemistry.</p>