Year 11 HEALTH SCIENCE (level 1) 2016 Student Information

Health Science 101 Course Outline

This course focuses on developing the Science understanding of students looking at continuing in the Health field.

The Health field is one of the fastest growing career areas worldwide. The focus for Kapiti College would be around promoting achievement in Health Science areas so as to enhance career options for all interested students.

According to the research, one of the reasons that students fail to progress through in the Health Sciences is due to an inability to make the transition up to Level 2, particularly in Chemistry. Consequently there will be some class time devoted to covering some of the introductory parts of the Level 2 Chemistry course (and reinforcing some parts of the level one general Science course) so students are more likely to succeed at Level 2.

Health Science 101 (HSC 101) Course Assessment

The Health Science 101 (HSC101) Course contributes 20 credits towards the Level 1 National Certificate in Educational Achievement (NCEA). The course is made up of 7 topics.

Topic 1:	**Investigate life processes and environmental factors that affect them**	(Sci. 1.10)	AS 90949
Topic 2:	**Report on a Biological issue**	(Bio. 1.2)	AS 90926
Topic 3:	**Demonstrate understanding of aspects of chemical reactions**	(Chem. 1.5)	AS 90934
Topic 4:	**Demonstrate understanding of the physics of an application**	(Phys. 1.2)	AS 90936
Topic 5:	**Demonstrate understanding of biological ideas relating to a mammal as a consumer**	(Bio. 1.5)	AS 90929
Topic 6:	**Carry out a practical investigation in a biological context, with direction**.	(Bio. 1.1)	AS 90925
Topic 7:	**Introduction to Level 2 Chemistry**		

The **two external Achievement Standards** will be assessed in two 3-hour examinations at the end of the year.

You can gain the following grades in the Achievement Standards.

Not Achieved	N	Did not meet the standard
Achieved	A	The standard was met (Shows ability to describe scientific ideas.)
Merit	M	The standard was met (Shows ability to describe and explain scientific ideas.)
Excellence	E	The standard was met (Shows ability to describe, explain and discuss scientific ideas.)

Standards that contribute to Level 1 Literacy and Numeracy

The Biology 1.2 (Biological issue), Biology 1.5 (Mammal as a consumer) and Physics 1.2 (Physics of an application) standards contribute credits to Level 1 Literacy. The Biology 1.1 (Practical Investigation) standard contributes credits towards Level 1 Numeracy.

Further assessment Opportunities

NO further assessment opportunity will be made available for the internal Standards (**AS 90949, AS 90925, AS 90926, and AS 90936)**. However, there will be one **resubmission** opportunity for each internal Standard.

Class Tests and the School Exam

While the class tests and the school exam are not worth credits they are important. If a student misses the end of year exam and qualifies for a derived grade then their mark is taken **solely** from these practice assessments

Refer to the Kapiti College NCEA Policy and Procedures handbook for assessment procedures, including authenticity, missed assessments and appeals.

Health Science 101 Assessment Schedule 2016

	Week	Assessment task	Internal /external	Credits	Grade N,A,M,E
Term 1	1				
	2				
	3				
	4				
	5				
	6	Investigate Life processes and environmental factors that affect them (Sci. 1.10) 90949	Internal	4	
	7				
	8				
	9				
	10				
	11	Report on a Biological issue (Bio 1.2) 90926	Internal	3	
Term 2	1				
	2				
	3				
	4				
	5	Demonstrate understanding of aspects of chemical reactions (Chem. 1.5) 90934	External	4	
	6				
	7				
	8				
	9	Demonstrate understanding of the physics of an application (Phys. 1.2) 90936	Internal	2	
	10				
Term 3	1				
	2				
	3				
	4	School Exam – this will cover AS 90934 and be the end of topic test for AS 90929	External	7	
	5				
	6				
	7				
	8				
	9	Carry out a practical investigation in a biological context, with direction. (Bio. 1.1) AS 90925	Internal	4	
Term 4	1	Introduction to level 2 Chemistry	NA	NA	
	2	Revision			
	3	Revision			
	4	Revision – School ends Thursday			

Due to the dynamic nature of learning, some assessment dates may be adjusted slightly. If this occurs you will be informed well in advance.

Health Science Standards - 2016

Conditions of Assessment and other resources related to any of the internal achievement standards can be found at http://ncea.tki.org.nz/Resources-for-Internally-Assessed-Achievement-Standards.

Assessment Specifications and other resources related to any of the external achievement standards can be accessed through the Science Resources page found at www.nzqa.govt.nz/ncea/resources.

Following is an outline of what is required in each of the available Achievement Standards.

Subject Reference		**Science 1.10**			
Title		**Investigate life processes and environmental factors that affect them**			
Number		**AS 90949**		**Version 3**	
Level	**1**	**Credits**	**4**	**Assessment**	**Internal**
Assessment Type		**Class test**	**Further assessment**		**No**

This achievement standard involves investigating life processes of plants and/or animals and investigating environmental factors that affect these processes.

Achievement Criteria

Achievement	Achievement with Merit	Achievement with Excellence
• Investigate life processes and environmental factors that affect them.	• Investigate, in depth, life processes and environmental factors that affect them.	• Investigate, comprehensively, life processes and environmental factors that affect them.

Explanatory Notes

2 This investigation involves collecting information about life processes and environmental factors that affect them. The information may come from a variety of sources such as direct observations, collection of experimental data, resource sheets, photos, videos, websites, and reference texts.

The procedures outlined in *Safety and Science: A Guidance Manual for New Zealand Schools*, Learning Media, Ministry of Education, 2000, must be followed during any practical component investigation.

3 *Investigate* involves describing observations or findings about the structure, function and environmental factors related to life processes of the organism.

4 *Investigate in depth* involves using observations or findings, and biological ideas, to give reasons how or why the structure, function and environmental factors are related to life processes of the organism.

5 *Investigate comprehensively* involves using observations or findings, and biological ideas to make significant links between the structure, function and environmental factors related to life processes of the organism, including the implications for the organism. It may involve explaining, elaborating, applying, justifying, relating, evaluating, comparing and contrasting, or analysing.

6 *Life processes* may be selected from: support and movement, reproduction, sensitivity, growth, excretion, nutrition, and gas exchange. At least two of these processes must be selected.

7 *Environmental factors* that affect life processes may be internal or external factors and may include: temperature, pH, light intensity, photoperiod, moisture levels, concentration of gases, hormone levels, and nutrient supply.

8 Biological ideas relating to a life process include the following:

- structural features of the organism such as its organ system or tissues as appropriate to the organism
- functioning of the components of any organ system or tissues
- identifying the biological processes carried out by the organ system or tissues
- environmental factors that affect the life process.

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Subject Reference		Biology 1.2			
Title		Report on a Biological Issue			
Number		AS 90926		Version 3	
Level	1	Credits	3	Assessment	Internal
Assessment Type		Research	Further assessment		No

This achievement standard involves collecting and processing data and/or information to report on a biological issue.

Achievement Criteria

Achievement	Achievement with Merit	Achievement with Excellence
• Report on a biological issue.	• Report in depth on a biological issue.	• Report comprehensively on a biological issue.

Explanatory Notes

2 *Report* involves:
- refining a given or agreed question or purpose
- describing the biological ideas that are related to the question or purpose
- collecting and processing primary or secondary data and/or information from a range of sources
- taking a position on the issue
- presenting findings.

3 *Report in depth* involves:
- refining a given or agreed question or purpose
- explaining the biological ideas that are related to the question or purpose
- collecting and processing primary or secondary data and/or information from a range of sources
- identifying at least two different points of view supported by evidence
- taking and justifying a position on the issue
- presenting findings.

4 *Report comprehensively* involves:
- refining a given or agreed question or purpose
- identifying multiple links between the biological ideas that are related to the question or purpose
- collecting and processing primary or secondary data and/or information from a range of sources
- evaluating sources of information/data in respect to the question or purpose
- identifying at least two different points of view supported by evidence
- taking and justifying a position on the issue with a recommendation for action
- presenting findings.

5 An *issue* is a subject on which people hold different opinions or viewpoints. The biological ideas and processes related to the issue must be derived from the Living World strand, Level 6 of *The New Zealand Curriculum*.

6 Data or information for processing must be collected from a range of sources. Sources may be provided to the student. Sources of data and information must be recorded in a way that can be accessed by others.

7 *Processing* information could involve listing, sorting, collating, highlighting, or summarising relevant scientific information.

Subject Reference		Chemistry 1.5			
Title		Demonstrate understanding of aspects of chemical reactions			
Number		AS90934		Version 4	
Level	1	Credits	4	Assessment	External
Assessment Type		NZQA Exam	Further assessment		No

This achievement standard involves demonstrating understanding of aspects of chemical reactions.

Mutual exclusion exists between this standard and AS90947.

Achievement Criteria

Achievement	Achievement with Merit	Achievement with Excellence
• Demonstrate understanding of aspects of chemical reactions.	• Demonstrate in-depth understanding of aspects of chemical reactions.	• Demonstrate comprehensive understanding of aspects of chemical reactions.

Explanatory Notes

2 *Demonstrate understanding* typically involves describing, identifying, naming, drawing, giving an account of, and classifying chemical reactions. This typically requires the use of chemistry vocabulary, symbols and conventions (including names and formulae), and completing word equations.

3 *Demonstrate in-depth understanding* typically involves explaining the classification of chemical reaction based on experimental observations and/or equations. This typically requires the use of chemistry vocabulary, symbols and conventions (including names and formulae), and writing word equations or completing given symbol equations.

4 *Demonstrate comprehensive understanding* typically involves linking aspects of chemical reactions when explaining, elaborating, justifying, relating, evaluating, comparing and contrasting, or analysing the classification of reactions. This typically requires the use of chemistry vocabulary, symbols and conventions (including names and formulae), and writing balanced symbol equations.

5 *Aspects of chemical reactions* will be selected from the following types of reactions:

- Combination reactions. These are limited to reactions of elements with other elements.
- Exchange/precipitation reactions. These are limited to the formation of:
  - chlorides and iodides of silver and lead
  - sulfates of calcium, barium and lead
  - hydroxides of copper, iron(II), calcium, barium and magnesium
  - carbonates of copper, iron(II), calcium, barium, magnesium, zinc, and lead.
- Decomposition reactions. These are limited to thermal decomposition of hydroxides, carbonates and hydrogen carbonates, and catalytic decomposition of hydrogen peroxide.
- Displacement reactions. These are limited to the displacement of metal ions in solution by other metals.

Subject Reference		Physics 1.2			
Title		Demonstrate understanding of the physics of an application			
Number		AS90936		Version 3	
Level	1	Credits	2	Assessment	Internal
Assessment Type		Research	Further assessment		No

This achievement standard involves understanding the underlying physics of a chosen application.

Achievement Criteria

Achievement	Achievement with Merit	Achievement with Excellence
• Demonstrate understanding of the physics of an application.	• Demonstrate in-depth understanding of the physics of an application.	• Demonstrate comprehensive understanding of the physics of an application.

Explanatory Notes

2 *Demonstrate understanding* involves providing characteristics of, or an account of, the physics related to the use of the chosen application.

3 *Demonstrate in-depth understanding* involves explaining how or why the physics applies to the use of the chosen application.

4 *Demonstrate comprehensive understanding* involves linking ideas to integrate the relevant physics of the chosen application with its use, and may involve explaining, elaborating, justifying, relating, evaluating, comparing and contrasting, or analysing.

5 The chosen application must operate in a way that involves physics principles. It may be technological or biological.

Subject Reference		Biology 1.5			
Title		Demonstrate understanding of biological ideas relating to a mammal as a consumer			
Number		AS90929		Version 4	
Level	1	Credits	3	Assessment	External
Assessment Type		NZQA Exam	Further assessment		No

This achievement standard involves demonstrating understanding of biological ideas relating to a mammal(s) as a consumer(s).

Achievement Criteria

Achievement	Achievement with Merit	Achievement with Excellence
• Demonstrate understanding of biological ideas relating to a mammal(s) as a consumer(s).	• Demonstrate in-depth understanding of biological ideas relating to a mammal(s) as a consumer(s).	• Demonstrate comprehensive understanding of biological ideas relating to a mammal(s) as a consumer(s).

Explanatory Notes

3 *Demonstrate understanding* involves defining, using annotated diagrams, and giving characteristics of, or an account of, a mammal(s) as a consumer(s).

3 *Demonstrate in-depth understanding* involves explaining the life processes and biological ideas relating to a mammal(s) as a consumer(s).

4 *Demonstrate comprehensive understanding* involves linking biological ideas relating to a mammal(s) as a consumer(s). It may involve elaborating, applying, justifying, relating, evaluating, comparing and contrasting, or analysing.

5 The *biological ideas* relating to *a mammal(s) as a consumer*(s) will be selected from:
- related life processes
- structural components involved with the life processes
- the functioning of the structural components
- the overall function of the life processes.

6 Life processes related to *a mammal(s) as a consumer*(s) will be selected from:
- processing food (physical and chemical digestion, absorption, assimilation, egestion)
- transport of products of digestion within the body (circulation)
- use of food at the cell level (respiration).

Subject Reference		Biology 1.1			
Title		Carry out a practical investigation in a biological context, with direction			
Number		AS 90925		Version 3	
Level	1	Credits	4	Assessment	Internal
Assessment Type		Practical	Further assessment		No

This achievement standard involves demonstrating investigation skills by collecting, processing, and interpreting primary data in a biological context, with direction.

Achievement Criteria

Achievement	Achievement with Merit	Achievement with Excellence
• Carry out a practical investigation in a biological context, with direction.	• Carry out an in-depth practical investigation in a biological context, with direction.	• Carry out a comprehensive practical investigation in a biological context, with direction.

Explanatory Notes

3 The primary data being collected may come from field work, laboratory practical work, or from the use of models.

4 *With direction* means that general instructions for the investigation will be specified in writing and direction will be given in the form of a purpose, an outline of the method, and the equipment and/or organisms from which to choose. A template or suitable format for planning the investigation will be provided for the student to use.

5 *A practical investigation in a biological context* includes: making accurate measurements, recording primary data, appropriate processing of the data (eg calculations, tabulating, graphing), techniques relevant to the biology context (eg culturing micro-organisms, use of a microscope, quadrat sampling), identification and control of variables, interpretation of processed data, relating findings to the purpose to reach a conclusion.

6 *Carry out a practical investigation in a biological context* involves:
- developing a method with sequential steps for collecting data. The collection method will include:
  - identification of the range of the independent variable or the sample (at least three values)
  - measurement of the dependent variable (or the collection of field data) with units
- collecting, recording and processing primary data relevant to the purpose. The raw data must be within a range of values feasible for the context.
- reaching a conclusion based on interpretation of the processed data.

7 *Carry out an in-depth practical investigation in a biological context* involves:
- a statement of purpose written as a hypothesis
- a method that includes: a valid range for the independent variable (or sample); a description of, and where possible control of, other significant variables that may affect the results; accurate measurement of the dependent variable (or collection of field data) with units and consideration of factors such as sampling bias, and/or sources of error
- a method of collecting, recording and processing data that enables a trend or pattern (or its absence) to be determined
- a valid conclusion based on interpretation of the processed data that links to the purpose of the investigation.

8 *Carry out a comprehensive practical investigation in a biological context* involves justifying the choices made during the in-depth investigation, i.e. evaluating the validity of the method or reliability of the data and explaining the conclusion in terms of applicable biological ideas.

Your record of Results.

This is an important record for you to keep as results sometimes get entered incorrectly in NZQA files and this will help you check whether your results have been entered incorrectly. You should check this record with your school reports.

Internals

Number	Standard Title	No. of Credits	Grade Achieved	Parent/Guardian signature
AS 90949	**Investigate life processes and environmental factors that affect them**	**4**		
AS 90926	**Report on a Biological Issue**	**3**		
AS 90936	**Demonstrate understanding of the physics of an application**	**2**		
AS 90925	**Carry out a practical investigation in a biological context, with direction**	**4**		

Externals

Number	Achievement Standard	No. of Credits		Grade Achieved	Parent/Guardian signature
AS90934	**Demonstrate understanding of aspects of chemical reactions**	**4**	**Class Test:**		
			Exam:		
AS90929	**Demonstrate understanding of biological ideas relating to a mammal as a consumer**	**3**	**Class Test:**		
			Exam:		