



Inspiring the imagination
and seeking new heights

DE LA SALLE COLLEGE STUDENT HANDBOOK 2022

**Learning Area / Subject:
BIOLOGY**

BIO201

Year Level: 12

**Curriculum
Level: 7**

**NCEA LEVEL
TWO**

FACULTY OF SCIENCE
De La Salle College, 81 Gray Avenue, Mangere East, Manukau City



De La Salle College
2022 YEAR PLANNER

COURSE: L2 Biology BIO201

WEEK		1	2	3	4	5	6	7	8	9	10	11	
DATE	24-Jan	31-Jan	7-Feb	14-Feb	21-Feb	28-Feb	7-Mar	14-Mar	21-Mar	28-Mar	4-Apr	11-Apr	
TERM 1		BIOAS2.1 (91153) Carry out a practical investigation in a biology context, with supervision. (Internal)						BIO AS2.6 (AS91158) Investigate a pattern in an ecological community, with supervision (internal)				Easter	
WEEK	1	2	3	4	5	6	7	8	9	10			
DATE	2-May	9-May	16-May	23-May	30-May	6-Jun	13-Jun	20-Jun	27-Jun	4-Jul			
TERM 2		BIO AS2.4 (91156) Demonstrate understanding of life processes at a cellular level (External)					BIO AS2.2 (91154) Analyse the biological validity of information presented to the public (Internal)						
WEEK	1	2	3	4	5	6	7	8	9	10			
DATE	25-Jul	1-Aug	8-Aug	15-Aug	22-Aug	29-Aug	5-Sep	12-Sep	19-Sep	26-Sep			
TERM 3		BIO2.7 (91159) Demonstrate understanding of gene expression (External)									Senior Exam Week		
WEEK	1	2	3	4	5	6	7	8					
DATE	17-Oct	24-Oct	31-Oct	7-Nov	14-Nov	21-Nov	28-Nov	5-Dec		INTERNAL	EXTERNAL		
TERM 4		Revision		NCEA Exams begin				NCEA Exams end					



Science

BIO201 Assessment Statement 2022

Course is endorsable

Year :12

Course : Biology

Mr A Kumar

Total Credits : 19

This is a course based on level 7 of the Biology Curriculum. Students develop practical skills, knowledge and understanding of biological ideas and concepts. Topics covered include the cell processes (2.4 and 2.1), gene expression (2.7) as well as applying knowledge about ecological patterns (2.6) and analysing information for valid biological information (2.2).

Pre Requisites

12 Level 1 Science credits including SCI AS1.9 (90948).

Additional Requirements

Year 12 Biology Student Workbook cost \$25

No	Standard Number	Version	Level	Credits	Lit / Num	Full Title	Method of Assessment	Assessment Opportunities Offered	Approximate Date	Grade	Teacher Signature
1	91153	2	2	4	Num	Biology 2.1 - Carry out a practical investigation in a biology context, with supervision	Practical	1	Term 1, Week 6		
2	91158	2	2	4	L1 Lit	Biology 2.6 - Investigate a pattern in an ecological community, with supervision	Assignment	1	Term 2 Week 1		
3	91154	2	2	3	L1 Lit	Biology 2.2 - Analyse the biological validity of information presented to the public	Assignment	1	Term 3, Week 2		
4	91156	2	2	4	L1 Lit W Lit	Biology 2.4 - Demonstrate understanding of life processes at the cellular level	Exam	External	Term 3, Week 8		
5	91159	2	2	4	L1 Lit	Biology 2.7 - Demonstrate understanding of gene expression	Exam	External	Term 3, Week 8		
6						Prelim Exam for: Biology 2.4 - Demonstrate understanding of life processes at the cellular level	Exam	1	Term 2, Week 8		

School Assessment Procedures - You can view your rights and obligations in the school's assessment procedures in the **Student Assessment Handbook**

Record your internal grades and ask your teacher to sign it off as correct. You can then use this as evidence of your achievement.

2022 Course Outline – Y12 Biology (BIO201)

Subject: Biology

NCEA Level: Two

Entry Requirements: a minimum of 12 credits from NCEA Level One Science

Number of credits gained: 19

Method of assessment:

- Both internal and external assessment
- Internal assessments are given after a series of mock practice runs where practical
- Mock externals at the end of each unit of work
- Mid-Year Examinations
- Preliminary Examinations

Looking Ahead:

- Level 3 Biology
- Tertiary level study
- A diverse range of careers stem from Biology -
e.g. food technologist, community pharmacist, forensic scientist, fishery officer, marine zoologist, veterinary scientist.

Course Description

Course aims:

This course is aimed at those students who have achieved well in Year 11 and who know that they wish to pursue a career that requires biology. Such careers include medicine, vet, pharmaceuticals and much more.

The course consists of Achievement Standards from the Level 2 Biology, Science and Environmental Sustainability courses.

Course learning outcomes:

- To be able to research information in the field of biotechnology and process and interpret that information in the form of a scientific report.
- To be able to present a report based on research that illustrates the interaction between humans and the living world.
- To be able to describe the consequences of human activity within the biophysical environment and how that relates to a sustainable future on our planet.
- To be able to use collected scientific data from a field excursion to investigate an interrelationship or pattern in an ecological population or community.
- To be able to describe cell structure and function in living organisms.
- To be able to describe genetic variation and change in living organisms.
- To be able to describe the different factors and processes that have been involved in the evolution of New Zealand's plants and animals.

2022 Course Assessment Statement – Y12 Biology (BIO201)

HOW WILL I BE ASSESSED IN THIS SUBJECT

Achievement Standard	Level/ Credit Value	Internal or External Assessment	Brief Description	My grade for prelims	My final grade for internals
BIO2.1 (91153) Carry out a practical investigation in a biology context, with supervision.	Level 2 4 Credits	I	Apply knowledge of osmosis to calculate the isotonic solution for potatoes, collecting data, graphing data, and analysing data		
BIO2.6 (91154) Investigate a pattern in an ecological community, with supervision	Level 2 4 credits	I	Investigation involves analysing, and interpreting information about an ecosystem.		
BIO2.2 (91154) Analyse the biological validity of information presented to the public.	Level 2 3 Credits	I	Analyse three texts on a biological issue, identifying and discussing inaccuracies and their validity.		
BIO2.4 (91156) Demonstrate understanding of life processes at the cellular level.	Level 2 4 Credits	E	Understanding cells (both plant and animal) and the life processes and biological ideas they encompass.		
BIO2.7 (91159) Demonstrate understanding of gene expression	Level 2 4 Credits	E	Understanding the genetic code / DNA. Structures and processes related to the code and how information is inherited.		

Note: All the Achievement Standards listed have no option for re-assessment. All internals require substantial time investment by the student and the additional time is not available in the school year.

Note: Depending on class ability. Extra internal assessments might be added if required and if the challenge and time is warranted.



De La Salle College – Biology Level 2 (BIO201) - Year Planner 2022

Subject: 12 Biology Teacher in charge: Mrs. Ranita Spencer Year Level: 12 Curriculum Levels: 7

<p>Unit Title: BIO2.6 (AS91158 Biology Internal) Investigate a pattern in an ecological community, with supervision</p> <p>Achievement objectives:</p> <ul style="list-style-type: none"> (Ecology) Explore ecological distribution patterns and explain possible causes for these patterns <p>Learning outcomes/skills:</p> <ul style="list-style-type: none"> To be able to select, process, and interpret information to produce a comprehensive scientific report based on observations and data collection in relation to an ecological distribution pattern <p>Assessment tasks/method:</p> <ul style="list-style-type: none"> Investigation involves analysing, and interpreting information about the ecosystem. The information may come from direct observations, collection of field data, tables, graphs, resource sheets, photographs, videos, websites, and/or reference texts. A community pattern may include: succession, zonation, stratification, or another distribution pattern in response to an environmental factor. Environmental factors likely to affect patterns in a community include abiotic and/or biotic factors. <p>Key competencies: Thinking, Managing self, Using language, symbols, and texts.</p> <p>Values: Innovation, inquiry and curiosity, excellence</p> <p>Approximate time required: 4 weeks</p>	<p>Unit Title: BIO2.3 (AS91155 Biology Internal) Demonstrate understanding of adaptation of plants or animals to their way of life.</p> <p>Achievement objectives:</p> <ul style="list-style-type: none"> (Life Processes) Explore the diverse ways in which animals and plants carry out the life process of osmosis <p>Learning outcomes/skills:</p> <ul style="list-style-type: none"> To be able to plan and carry out a practical involving the key concepts from osmosis and cell biology, observing, data collection, and drawing conclusions. <p>Assessment tasks/method:</p> <ul style="list-style-type: none"> Write up a lab report, involving planning a method, collecting data, graphing, analysing, drawing conclusions based on scientific knowledge. Working in groups for the practical, individual work for write up <p>Key competencies: Thinking, Managing self, Using language, symbols, and texts, Participating and contributing.</p> <p>Values: Inquiry and curiosity, excellence, respect.</p> <p>Approximate time required: 4 weeks</p>	<p>Unit Title: BIO2.2 (AS91154 Biology Internal) Analyse the biological validity of information presented to the public.</p> <p>Achievement objectives:</p> <ul style="list-style-type: none"> (Communicating in science) Use accepted science knowledge, vocabulary, symbols and conventions when evaluating accounts of the natural world and consider the wider implications of the methods of communication and/or representation employed. <p>Learning outcomes/skills:</p> <ul style="list-style-type: none"> recognising and describing biological features in the information and identifying them as accurate, inaccurate or biased using biological knowledge. identifying the purpose of the information (eg who produced it and the intended audience) inaccuracies and/or bias may have consequences or impacts for the public vested interest is conveyed in the information. prioritising, with reasons, aspects of the information in relation to their significance in the context evaluating the overall impact of the article on the public, based on bias and the balance of accurate and inaccurate features. <p>Assessment tasks/method:</p> <ul style="list-style-type: none"> Students will analyse three texts of their choice identifying accuracies, inaccuracies and bias around a scientific issue. Students will discuss what view they hold on the issue based on their analysis. A final scientific report will be used to assess. <p>Key competencies: Thinking, Managing self, Using language, symbols, and texts, Participating and contributing.</p> <p>Values: Inquiry and curiosity, excellence.</p> <p>Approximate time required: 4 weeks</p>
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<p>Unit Title: BIO2.4 (AS91156 Biology External) Demonstrate understanding of life processes at the cellular level.</p> <p>Achievement objectives:</p> <ul style="list-style-type: none"> (Life Processes) Explore the diverse ways in which animals and plants carry out the life processes <p>Learning outcomes/skills:</p> <p><i>To be understand the life processes at the cellular level, including:</i></p> <ul style="list-style-type: none"> photosynthesis respiration cell division (DNA replication and mitosis as part of the cell cycle). <p><i>To understand biological ideas, as they relate to each of the life processes at the cellular level, including:</i></p> <ul style="list-style-type: none"> movement of materials (including diffusion, osmosis, active transport) enzyme activity (specific names of enzymes are not required) factors affecting the process details of the processes only as they relate to the overall functioning of the cell (specific names of stages are not required) reasons for similarities and differences between cells such as cell size and shape, and type and number of organelles present. <p>Assessment tasks/method:</p> <ul style="list-style-type: none"> Mid Year Mock Examinations (Term 2). Preliminary Mock Examinations (Term 3). External NCEA examination at year's end. <p>Key competencies: Thinking, Managing self, Using language, symbols, and texts, Participating and contributing.</p> <p>Values: Inquiry and curiosity, Excellence.</p> <p>Approximate time required: 7-8 weeks</p>	<p>Unit Title: BIO2.7 (AS91159 Biology External) Demonstrate understanding of gene expression</p> <p>Achievement objective</p> <ul style="list-style-type: none"> (Evolution) Understand that DNA and the environment interact in gene expression <p>Learning outcomes/skills:</p> <p><i>To understand the following key concepts:</i></p> <ul style="list-style-type: none"> Gene expression Biological ideas and processes relating to nucleic acid structure and nature of the genetic code. Biological ideas and processes relating to the significance of proteins Biological ideas and processes relating to protein synthesis. Biological ideas and processes relating to the determination of phenotype via metabolic pathways. Understanding the effect of the environment on genotype through mutations. Biological ideas and processes relating to the effect of environment on expression of phenotype involve ways that environmental factors may change phenotype without changing genotype. <p>Assessment tasks/method:</p> <ul style="list-style-type: none"> Preliminary Mock Examinations (Term 3). External NCEA examination at year's end. <p>Key competencies: Thinking, Managing self, Using language, symbols, and texts, Participating and contributing.</p> <p>Values: Inquiry and curiosity, Excellence.</p> <p>Approximate time required: 7-8 weeks</p>	
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Achievement Standard

Subject Reference	Biology 2.1		
Title	Carry out a practical investigation in a biology context, with supervision		
Level	2	Credits	4
		Assessment	Internal
Subfield	Science		
Domain	Biology		
Status	Registered	Status date	17 November 2011
Planned review date	31 December 2020	Date version published	20 November 2014

This achievement standard involves carrying out a practical investigation in a biology context, with supervision.

Achievement Criteria

Achievement	Achievement with Merit	Achievement with Excellence
<ul style="list-style-type: none"> Carry out a practical investigation in a biology context, with supervision. 	<ul style="list-style-type: none"> Carry out an in-depth practical investigation in a biology context, with supervision. 	<ul style="list-style-type: none"> Carry out a comprehensive practical investigation in a biology context, with supervision.

Explanatory Notes

- This achievement standard is derived from *The New Zealand Curriculum*, Learning Media, Ministry of Education, 2007, Level 7. It is aligned with the following achievement objectives in the Nature of Science stand:
 - Investigating in Science
 - Develop and carry out investigations that extend their science knowledge, including developing their understanding of the relationship between investigations and scientific theories and models
 - Understanding about Science
 - Understand that scientists have an obligation to connect their new ideas to current and historical scientific knowledge and to present their findings for peer review and debate;
 and is related to the material in the *Teaching and Learning Guide for Biology*, Ministry of Education, 2010 at <http://seniorsecondary.tki.org.nz>.

Investigations must be based on contexts arising from content at Level 7 of *The New Zealand Curriculum*, Learning Media, Ministry of Education, 2007, Living World strand.

Procedures outlined in *Safety and Science: a Guidance Manual for New Zealand Schools*, Learning Media, Ministry of Education, 2000, must be followed. Investigations must comply with the Animal Welfare Act 1999, as outlined in *Caring for Animals: a Guide for Teachers, Early Childhood Educators, and Students*, Learning Media, Ministry of Education, 1999.

This standard is also derived from Te Marautanga o Aotearoa. For details of Te Marautanga o Aotearoa achievement objectives to which this standard relates, see the [Papa Whakaako](#) for the relevant learning area.

- Carry out a practical investigation* involves:

 - developing a statement of the purpose written as a hypothesis linked to a scientific concept or idea
 - using a method that describes:
 - for a fair test: a range for the independent variable, the measurement of the dependent variable and the control of some other key variables
 - for a pattern seeking or modelling activity: the data that will be collected, range of data/samples, and consideration of some other key factors
 - collecting, recording, and processing data relevant to the purpose of the investigation
 - interpreting and reporting on the findings
 - reaching a conclusion based on the student's processed data which is relevant to the purpose of the investigation
 - identifying and including relevant findings from another source.

Carry out an in-depth practical investigation involves:

- using a method that describes:
 - for a fair test: a valid range for the independent variable, the valid measurement of the dependent variable and the control of other key variables with consideration of factors such as sampling bias and sources of errors
 - for a pattern seeking or modelling activity: a valid collection of data with consideration of factors such as sampling bias and sources of errors
- collecting, recording, and processing data which enables a trend or pattern (or the absence of a trend or pattern) to be determined
- reaching a valid conclusion based on the student's processed data which is relevant to the purpose of the investigation
- a discussion of the biological ideas relating to the investigation that is based on the student's findings and those from other source(s).

Carry out a comprehensive practical investigation involves justification of the choices made during the sound investigation, ie evaluating the validity of the method or reliability of the data and explaining the conclusion in terms of the biology ideas relevant to the investigation.

- A practical investigation* is an activity covering the complete investigation process: planning and carrying out the investigation, collecting primary data, processing and

interpreting data, and reporting on the investigation. Students may make changes to their initial method as they work through the investigation.

- 4 Assessment against this standard may be based on a stand-alone or an individual investigation that can contribute findings to a larger group or class investigation. In a group or class investigation, individual findings may be discussed and individual students may interpret their own findings in the light of other students' investigations and findings. Findings from outside the group or class such as published information or historical findings relevant to the investigation may also be used.
- 5 The nature of the investigation could be the manipulation of variables (fair test), the investigation of a pattern or relationship or the use of models.
- 6 It is intended that this investigation be carried out with supervision. This means that the teacher provides guidelines for the investigation such as the context for the investigation, instructions that specify the requirements for a comprehensive investigation, and broad experimental conditions such as the availability of equipment or chemicals. Students then develop and complete the investigation from the initial guidelines given by the teacher. Supervision may involve discussion between teachers and individual students in order to clarify the students' ideas and may also involve teachers managing the process of sharing findings.
- 7 Conditions of Assessment related to this achievement standard can be found at <http://ncea.tki.org.nz/Resources-for-Internally-Assessed-Achievement-Standards>.

Replacement Information

This achievement standard replaced AS90457.

Quality Assurance

- 1 Providers and Industry Training Organisations must have been granted consent to assess by NZQA before they can register credits from assessment against achievement standards.
- 2 Organisations with consent to assess and Industry Training Organisations assessing against achievement standards must engage with the moderation system that applies to those achievement standards.

Consent and Moderation Requirements (CMR) reference

0233

Achievement Standard

Subject Reference	Biology 2.6			
Title	Investigate a pattern in an ecological community, with supervision			
Level	2	Credits	4	Assessment Internal
Subfield	Science			
Domain	Biology			
Status	Registered	Status date	17 November 2011	
Planned review date	31 December 2020	Date version published	20 November 2014	

This achievement standard involves the investigation of a pattern in an ecological community, with supervision.

Achievement Criteria

Achievement	Achievement with Merit	Achievement with Excellence
<ul style="list-style-type: none"> Investigate a pattern in an ecological community, with supervision. 	<ul style="list-style-type: none"> Investigate in-depth a pattern in an ecological community, with supervision 	<ul style="list-style-type: none"> Comprehensively investigate a pattern in an ecological community, with supervision.

Explanatory Notes

Version 1 was republished in March 2012 to correct an error in the description of *investigate in depth* in Explanatory Note 2.

- This achievement standard is derived from *The New Zealand Curriculum*, Learning Media, Ministry of Education, 2007, Level 7. It is aligned with the following achievement objective in the Living World strand:
Ecology
 - Explore ecological distribution patterns and explain possible causes for these patterns
 and is related to the material in the *Teaching and Learning Guide for Biology*, Ministry of Education, 2010 at <http://seniorsecondary.tki.org.nz>.

 This standard is also derived from Te Marautanga o Aotearoa. For details of Te Marautanga o Aotearoa achievement objectives to which this standard relates, see the [Papa Whakaako](#) for the relevant learning area.
- Investigate* involves describing observations or findings, and using those findings to identify the pattern (or absence of a pattern) in an ecological community, relating this

pattern to an environmental factor, and describing how the environmental factor might affect chosen species within the community.

Investigate in-depth involves providing a reason for how or why the biology of one of the chosen species relates to the pattern (or absence of a pattern). The biology involves structural, behavioural or physiological adaptations of the organism which are related to the environmental factor and to an interrelationship with an organism of another species (eg competition, predation, or mutualism).

Investigate comprehensively involves using an environmental factor and the biology of interrelated organisms of different species to explain the pattern (or absence of a pattern). The explanation may involve elaborating, applying, justifying, relating, evaluating, comparing and contrasting, and analysing.

- Investigation involves analysing, and interpreting information about the ecosystem. The information may come from direct observations, collection of field data, tables, graphs, resource sheets, photographs, videos, websites, and/or reference texts.
- A community pattern may include: succession, zonation, stratification, or another distribution pattern in response to an environmental factor.
- Environmental factors likely to affect patterns in a community include abiotic and/or biotic factors.
- Biology of the organisms refers to any adaptations of organisms that relate to the pattern being investigated and may include interrelationships such as competition, predation, or mutualism.
- Assessment against this standard may be based on a stand-alone or an individual investigation that can contribute findings to a larger group or class investigation. In a group or class investigation, individual findings may be discussed and individual students may interpret their own findings in the light of other students' investigations and findings. Findings from outside the group or class such as published information or historical findings relevant to the investigation may also be used.
- It is intended that this investigation be carried out with supervision. This means that the teacher provides guidelines for the investigation such as the context for the investigation, instructions that specify the requirements for a comprehensive investigation, and broad conditions such as the availability of equipment and/or resource material. Students then develop and complete the investigation from the initial guidelines given by the teacher. Supervision may involve discussion between teachers and individual students in order to clarify the students' ideas and may also involve teachers managing the process of sharing findings.
- Conditions of Assessment related to this achievement standard can be found at <http://ncea.tki.org.nz/Resources-for-Internally-Assessed-Achievement-Standards>.

Replacement Information

This achievement standard replaced unit standard 8929, 8930, and AS90460.

Achievement Standard

Subject Reference

Biology 2.2

Title

Analyse the biological validity of information presented to the public

Level

2

Credits

3

Assessment

Internal

Subfield

Science

Domain

Biology

Status

Registered

Status date

17 November 2011

Planned review date

31 December 2020

Date version published

20 November 2014

This achievement standard involves analysing the biological validity of information presented to the public.

Achievement Criteria

Achievement	Achievement with Merit	Achievement with Excellence
<ul style="list-style-type: none"> Analyse the biological validity of information presented to the public. 	<ul style="list-style-type: none"> Analyse in-depth the biological validity of information presented to the public. 	<ul style="list-style-type: none"> Comprehensively analyse the biological validity of information presented to the public.

Explanatory Notes

- This achievement standard is derived from *The New Zealand Curriculum*, Learning Media, Ministry of Education, 2007, in Level 7. It is aligned with the following achievement objectives in the Nature of Science strand:
 - Participating and Contributing
 - use relevant information to develop a coherent understanding of socio-scientific issues that concern them, to identify possible responses at both personal and societal levels
 - Understanding about Science
 - understanding that scientists have an obligation to connect their new ideas to current and historic scientific knowledge and to present their findings for peer review and debate
 - Communicating in Science
 - use accepted science knowledge, vocabulary, symbols and conventions when evaluating accounts of the natural world and consider the wider implications of the methods of communication and/or representation employed;

and is related to the material in the *Teaching and Learning Guide for Biology*, Ministry of Education, 2010 at <http://seniorsecondary.tki.org.nz>.

This standard is also derived from Te Marautanga o Aotearoa. For details of Te Marautanga o Aotearoa achievement objectives to which this standard relates, see the [Papa Whakaako](#) for the relevant learning area.

2 Analyse involves:

- recognising and describing biological features in the information and identifying them as accurate, inaccurate or biased using biological knowledge. Recognising inaccuracies may be demonstrated by making corrections to inaccurate biological features
- identifying the purpose of the information (eg who produced it and the intended audience).

Analyse in-depth involves giving reasons why or how:

- each biological feature is accurate or inaccurate, or contains bias
- inaccuracies and/or bias may have consequences or impacts for the public
- vested interest is conveyed in the information.

Comprehensively analyse involves:

- prioritising, with reasons, aspects of the information in relation to their significance in the context
- evaluating the overall impact of the article on the public, based on bias and the balance of accurate and inaccurate features.

- Biological validity* refers to scientifically accurate information that is used in an unbiased way to convey a biological idea.

- Conditions of Assessment related to this achievement standard can be found at <http://ncea.tki.org.nz/Resources-for-Internally-Assessed-Achievement-Standards>.

Quality Assurance

- Providers and Industry Training Organisations must have been granted consent to assess by NZQA before they can register credits from assessment against achievement standards.
- Organisations with consent to assess and Industry Training Organisations assessing against achievement standards must engage with the moderation system that applies to those achievement standards.

Consent and Moderation Requirements (CMR) reference

0233

Achievement Standard

Subject Reference	Biology 2.4		
Title	Demonstrate understanding of life processes at the cellular level		
Level	2	Credits	4
Subfield	Science	Assessment	External
Domain	Biology		
Status	Registered	Status date	17 November 2011
Planned review date	31 December 2020	Date version published	20 November 2014

This achievement standard involves demonstrating understanding of life processes at the cellular level.

Achievement Criteria

Achievement	Achievement with Merit	Achievement with Excellence
<ul style="list-style-type: none"> Demonstrate understanding of life processes at the cellular level. 	<ul style="list-style-type: none"> Demonstrate in-depth understanding of life processes at the cellular level. 	<ul style="list-style-type: none"> Demonstrate comprehensive understanding of life processes at the cellular level.

Explanatory Notes

- This achievement standard is derived from *The New Zealand Curriculum*, Learning Media, Ministry of Education, 2007, Level 7. It is aligned with the following achievement objective in the Living World strand:
Life Processes
 - Explore the diverse ways in which animals and plants carry out the life processes and is related to the material in the *Teaching and Learning Guide for Biology*, Ministry of Education, 2010 at <http://seniorsecondary.tki.org.nz>.

This standard is also derived from Te Marautanga o Aotearoa. For details of Te Marautanga o Aotearoa achievement objectives to which this standard relates, see the [Papa Whakaako](#) for the relevant learning area.

- Demonstrate understanding* involves defining, using annotated diagrams or models to describe, and describing characteristics of, or providing an account of, life processes at the cellular level.

Demonstrate in-depth understanding involves using biological ideas to give reasons how or why life processes occur at the cellular level.

Demonstrate comprehensive understanding involves linking biological ideas about life processes at the cellular level. The discussion of ideas may involve justifying, relating, evaluating, comparing and contrasting, analysing.

- Life processes at the cellular level include:
 - photosynthesis
 - respiration
 - cell division (DNA replication and mitosis as part of the cell cycle).
- Biological ideas, as they relate to each of the life processes at the cellular level, are selected from:
 - movement of materials (including diffusion, osmosis, active transport)
 - enzyme activity (specific names of enzymes are not required)
 - factors affecting the process
 - details of the processes only as they relate to the overall functioning of the cell (specific names of stages are not required)
 - reasons for similarities and differences between cells such as cell size and shape, and type and number of organelles present.
- Cells include plant cells and animal cells.
- Assessment Specifications for this achievement standard can be accessed through the Biology Resources page found at <http://www.nzqa.govt.nz/qualifications-standards/qualifications/ncea/subjects/>.

Quality Assurance

- Providers and Industry Training Organisations must have been granted consent to assess by NZQA before they can register credits from assessment against achievement standards.
- Organisations with consent to assess and Industry Training Organisations assessing against achievement standards must engage with the moderation system that applies to those achievement standards.

Consent and Moderation Requirements (CMR) reference 0233

Achievement Standard

Subject Reference Biology 2.7

Title Demonstrate understanding of gene expression

Level 2 **Credits** 4 **Assessment** External

Subfield Science

Domain Biology

Status Registered **Status date** 17 November 2011

Planned review date 31 December 2020 **Date version published** 20 November 2014

This achievement standard involves demonstrating understanding of gene expression.

Achievement Criteria

Achievement	Achievement with Merit	Achievement with Excellence
<ul style="list-style-type: none"> Demonstrate understanding of gene expression. 	<ul style="list-style-type: none"> Demonstrate in-depth understanding of gene expression. 	<ul style="list-style-type: none"> Demonstrate comprehensive understanding of gene expression.

Explanatory Notes

- 1 This achievement standard is derived from *The New Zealand Curriculum*, Learning Media, Ministry of Education, 2007, Level 7. It is aligned with the following achievement objective in the Living World strand: Evolution

- Understand that DNA and the environment interact in gene expression and is related to the material in the *Teaching and Learning Guide for Biology*, Ministry of Education, 2010 at <http://seniorsecondary.tki.org.nz>.

This standard is also derived from Te Marautanga o Aotearoa. For details of Te Marautanga o Aotearoa achievement objectives to which this standard relates, see the [Papa Whakaako](#) for the relevant learning area.

- 2 *Demonstrate understanding* involves defining, using annotated diagrams or models to explain, and giving characteristics of, or an account of, gene expression.

Demonstrate in-depth understanding involves providing a reason as to how or why biological ideas and processes affect gene expression.

Demonstrate comprehensive understanding involves linking biological ideas and processes about gene expression. The explanation may involve justifying, relating, evaluating, comparing and contrasting, or analysing.

- 3 *Gene expression* involves a selection from the following biological ideas and processes:
 - nucleic acid structure and nature of the genetic code
 - significance of proteins
 - protein synthesis
 - the determination of phenotype via metabolic pathways
 - effect of environment on genotype through mutations
 - effect of environment on expression of phenotype.
- 4 Biological ideas and processes relating to nucleic acid structure and nature of the genetic code are selected from:
 - molecular components and their role in carrying the genetic code: nucleotide monomers, deoxyribose and/or ribose sugar, phosphate, nitrogenous bases, complementary base pairing resulting in coding and template strand
 - nature of the genetic code including triplets, codons and anticodons
 - redundancy due to degeneracy within the code.
- 5 Biological ideas and processes relating to the significance of proteins are selected from:
 - proteins as the products of gene expression: DNA → mRNA → polypeptide or protein
 - identification of one gene → one polypeptide relationship
 - significance of proteins is limited to their structural and catalytic role in living things.
- 6 Biological ideas and processes relating to protein synthesis are selected from:
 - the role of DNA sequence in determining the structure of a protein and how that protein is produced (transcription and translation)
 - the role of enzymes in controlling the process (specific names of enzymes are not required).
- 7 Biological ideas and processes relating to the determination of phenotype via metabolic pathways are selected from:
 - biochemical reactions are catalysed by specific enzymes and every enzyme is coded for by a specific gene(s)
 - biochemical reactions do not occur in isolation but form part of a chain reaction so that the product of one becomes the substrate of another step in metabolism
 - phenotype is determined by the presence, absence, or amount of specific metabolic products.
- 8 Biological ideas and processes relating to the effect of the environment on genotype through mutations are selected from:
 - mutagens (specific mutagens are recognised but their effect at molecular level is not required)
 - the potential effect on genotype and phenotype of gene mutations at the gene level.
- 9 Biological ideas and processes relating to the effect of environment on expression of phenotype involve ways that environmental factors may change phenotype without changing genotype.

- 10 Assessment Specifications for this achievement standard can be accessed through the Biology Resources page found at <http://www.nzqa.govt.nz/qualifications-standards/qualifications/ncea/subjects/>.
-

Quality Assurance

- 1 Providers and Industry Training Organisations must have been granted consent to assess by NZQA before they can register credits from assessment against achievement standards.
- 2 Organisations with consent to assess and Industry Training Organisations assessing against achievement standards must engage with the moderation system that applies to those achievement standards.

Consent and Moderation Requirements (CMR) reference 0233

2022 Biology Level 2 (BIO201) – Student Guide to Bibliographies / Referencing

Plagiarism includes using another person's ideas and presenting them as your own AND paraphrasing (rewording) without acknowledging who those ideas came from.

You must reference using **APA format**. This is putting the authors name and date published after each section of information that you use that is not yours, e.g. (Roy, 2022), and have a bibliography.

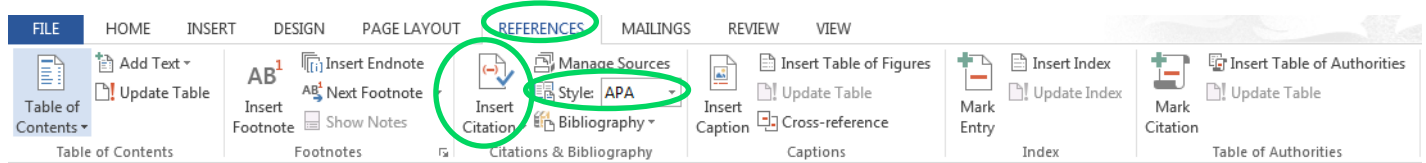
You need to include in-text citations and a bibliography. In-text citations must be placed at the end of the sentence, which includes information from that source. **This sentence, however, must be written in your own words.**

A bibliography is the 'trail' of reading that you did to inform your thinking for your essay or assignment. A bibliography is organised alphabetically by the author's last name. Different sources of information need to be referenced in a different format in your bibliography– eg. Books, websites, journal articles. The following link gives you clear examples of how to format using APA referencing.

[In Microsoft word there is also an APA referencing program built in which makes this really easy to do using APA, outlined on the next page. We will also go through the steps in class.](#)

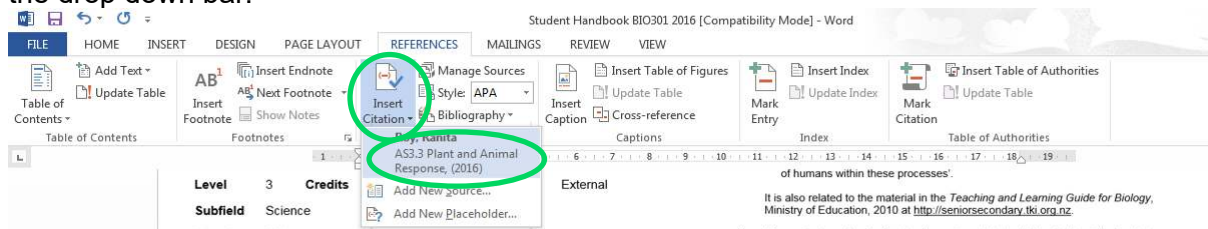
Students who fail to correctly reference or who plagiarise will automatically be awarded a Not Achieved grade.

In Microsoft word there is also an APA referencing program built in.

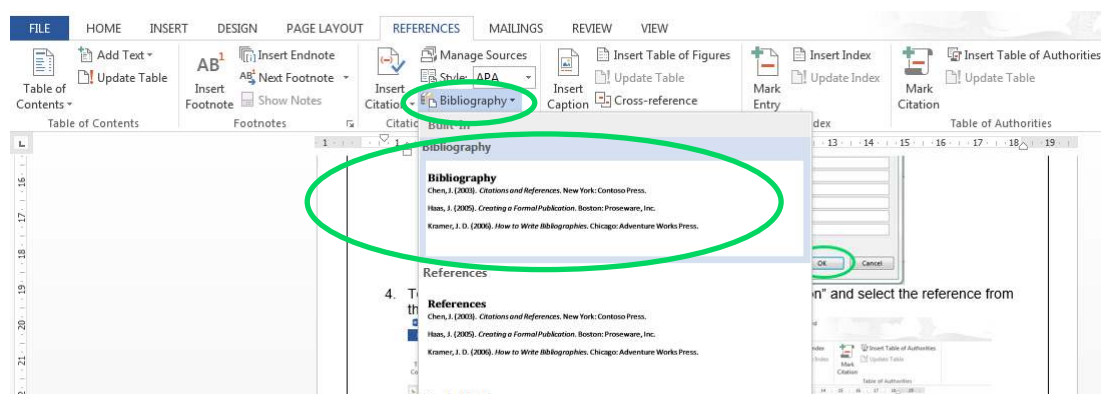


1. Select the “REFERENCES” tab in the tool bar.
2. Under “Citations and Bibliography” and “style” select “APA sixth edition” from the drop down bar.
3. To reference something new: select “insert citation” and select “add new source”, and enter the “type of source” that you used and the details, then push “OK” → (Roy, 2022)

4. To reference something you've used already: select “insert citation” and select the reference from the drop down bar.



5. To create your bibliography at the end: select “Bibliography” and select the first option of “bibliography”. This will insert a bibliography into the text



Bibliography

Roy, R. (2016, January 1st). *AS3.3 Plant and Animal Response*. Retrieved from realSCIENCE:
<http://realscience.net.nz/as3-3-plant-and-animal-responses-external>

Students who fail to correctly reference or who plagiarise will automatically be awarded a Not Achieved grade.

**De La Salle College
Assessment Result Appeal Form**

Name: _____

Class: _____

Name/number of standard being appealed: _____

Subject: _____

Teacher who marked work: _____

Grade awarded for standard: _____

Date work returned to student: _____ Date of appeal: _____

Reason for appeal:

Student signature: _____

Caregiver's signature: _____

OFFICE USE ONLY

Teacher response:

HOF response:

Principal's Nominee response:

Final decision:

De La Salle College
Absence From Internal Assessment
Application for Extension

Student: _____ Class: _____
Subject: _____ Teacher: _____

Assessment title: _____

Standard number: _____

Type of assessment activity (*test, practical, assignment etc*).

Date of assessment or due date: _____

Reason for application:

- ☐ Illness or injury: *medical certificate or a letter from parent / caregiver* must be attached.
- ☐ Family / personal trauma: documentation must be attached (*eg. a letter from parent / caregiver, counsellor or Dean*).
- ☐ School activity (*sporting or cultural*) _____

Signature of the teacher-in-charge of the activity: _____

Decision by Principal's Nominee:

- ☐ Extension granted, new due date: _____
- ☐ New assessment granted, new date: _____
- ☐ Compassionate consideration will be used to determine a grade. HOD / TIC to attach documentation of evidence used to determine the grade and the grade awarded.
- ☐ Application denied. Comment: _____

The reason for this has been explained to me and I accept the decision.

Signed: _____ (Student) _____ (Teacher)