

Internal Assessment Resource

Biology Level 2

This resource supports assessment against:

Achievement Standard 91154 version 2

Analyse the biological validity of information presented to the public

Resource title: Climate Change



NAME _____

Internal Assessment Resource

Achievement Standard Biology 91154: Analyse the biological validity of information presented to the public

Resource reference: Biology 2.2B v2

Resource title: Your Genes Your Choice

Credits: 3

Teacher guidelines

The following guidelines are designed to ensure that teachers can carry out valid and consistent assessment using this internal assessment resource.

Teachers need to be very familiar with the outcome being assessed by the Achievement Standard Biology 91154. The Achievement Criteria and the Explanatory Notes (EN) contain information, definitions, and requirements that are crucial when interpreting the standard and assessing students against it.

Context/setting

This activity requires students to analyse the biological validity of information presented to the public and the impact on people in using it. Students are required to identify and explain how or why the way in which accurate, inaccurate or biased biological information is presented to the public. A comprehensive analysis requires students to prioritise aspects in relation to their significance in using the technology, and evaluating the overall impact on the public.

Evidence is provided in response to a range of pieces of communication (articles/presentations), selected across **at least three different genres**, which may include: advertisements, documentaries, newspaper articles, historical accounts, and videos.

Students will need to have a base of knowledge of inheritance, the biotechnology chosen, enzyme control of metabolism and the applications of genetic research. This activity could follow learning experiences in genes and inheritance. An understanding of the meanings of the terms used in EN2 of the standard is essential. They will also need practice at reading and analysing biological information for its validity (EN 3). Understanding the importance of referencing sources and the implication this has on analysing validity is recommended. Referencing and/or the provision of a reference list are not used as the basis for making judgements against the Achievement Criteria. They do, however, provide supporting evidence for in-depth and comprehensive analysis.

Conditions

Articles/presentations for analysis may be provided by the teacher or selected by the student. If the latter applies, the selection must be approved by the teacher. In either case, the processing of information and preparation of the report is to be completed individually.

Assessment may involve a portfolio of written evidence or a single assessment report.

The task consists of two parts:

Part 1 - Collecting and processing information

Part 2 - Presentation

Students complete both parts of the task individually. All processed material is to be submitted as evidence of the student's processing. Authenticity will need to be assured by the teacher, using appropriate measures. Checkpoints could be established over the duration of Part 1 where students conference with the teacher in order to check their sources of information and clarify ideas. Collecting the students' research material at this time also allows the teacher to check that the information is relevant, as well as allowing them to check the references.

Sufficient time will need to be given to ensure students have opportunities to select their three articles/presentations, analyse and process the information, and prepare their reports.

It is suggested that students be provided with 4 - 6 class periods and some homework time over a 2 - 3 week period in which to complete Part 1. This will depend on whether some or all articles/presentations are provided by the teacher. The presentation for Part 2 could be produced during class time over 3 or more days, although more time can be given if needed.

Access to computers may be required.

Where manageable, one re-assessment opportunity could be provided for all students.

Resource requirements

Students need access to a wide range of resources relating to their chosen biotechnology.

The EPIC database – “Opposing Viewpoints” may be accessed by schools from <http://www.tki.org.nz/epic2> using the allocated school user name and password. This brings together all the information that is needed to fully understand an issue: pro and con viewpoint articles, reference articles that provide context, full-text magazines, academic journals, newspapers, primary source documents, government and organizational statistics, multimedia, links to hand-selected websites, and more. This database aims to help develop critical thinking and information literacy skills by assisting students with researching, analysing, and organising various types of data for research assignments, persuasive essays, and debates.

To use a conservation issue as a context, local information or the Panda habitat destruction in China could be considered.

<http://nationalzoo.si.edu/Education/ConservationCentral/pdfs/Module 5.pdf> – search in web browser

Local government, industry, or education facilities may be able to assist in compiling data used in community consultation for set up of an information file relevant to a case study for a local issue, for example, construction, mining, forestry, water access, fishing rights, and CO₂ emissions.

Other topics could include the wide range of contemporary 'self improvement' articles appearing in the media, for example, exercise/fitness programmes, diet (e.g. low carbohydrate/high protein), 'improved energy,' faster metabolism, curing baldness,

shinier/healthier hair. Students will need to check with the teacher on the suitability of using this type of information.

Additional information

This standard is derived from *The New Zealand Curriculum*, Learning Media, Ministry of Education, 2007, Level 7 achievement objectives in the Nature of Science strand (EN 1).

Other possible formats for the presentation in Part 2 of all or some of the three reports are listed below. Teachers need to ensure that the format used allows students to complete a comprehensive analysis of the information in the article.

- Web page
- Power point presentation (including any supporting information)
- Seminar
- Video

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

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Achievement Standard Biology 91154: Analyse the biological validity of information presented to the public

Resource reference: Biology 2.2B v2

Resource title: Climate Change

Credits: 3

Achievement	Achievement with Merit	Achievement with Excellence
Analyse the biological validity of information presented to the public.	Analyse in-depth the biological validity of information presented to the public.	Comprehensively analyse the biological validity of information presented to the public.

Student instructions

Introduction

This assessment activity requires you to present reports that comprehensively analyse the biological validity of three different types of information (articles/presentations) presented to the public on our use of a biotechnology to solve a problem, and the impact on people in using them. Some biotechnologies you could consider are genetically modified plants/animals, cloning, transgenesis and the use of stem cells. Your teacher may provide other suggestions. You will analyse this information and decide on what is *accurate*, *inaccurate* or *biased* using your biological knowledge.

Task

The activity consists of two parts.

In Part 1 you will select three different types of articles/presentations on our use of a biotechnology from the range of resources you have researched and/or from those provided by your teacher and use these to produce a folder with all of your processed material which is to be submitted as evidence of processing.

For Part 2 you will write a report that analyses the biological validity of the information presented to the public on our use of a biotechnology for EACH of the three articles/presentations you chose in Part 1.

This is an individual assessment with resources either collected by you and/or provided by the teacher.

Part 1 - Collecting and processing information -

Lockdown : Checkpoints and the time allowed for the duration of the assessment, number of class periods (with dates), and homework time. Please ensure you connect with me regularly through email.
maxineu@ch.steiner.school.nz

Part 2 - Presentation

Negotiated after Lockdown: the presentation will be completed, or example, "The 4 lessons during the week starting _____ will be used to produce your presentation and the due date is _____."

Part 1: Collecting and processing information

Select **three** different types of articles/presentations on our use of a biotechnology from the range of resources you have researched and/or from those provided by your teacher.

You must select these across at least three different genres. For example: advertisements, documentaries, newspaper articles, historical accounts, and videos.

As you select and process your information think about these questions:

- Are there two sides to the story – or more than two sides?
- Is there a compromise that is reached when decisions are made?
- What information is the public given – is it scientifically correct?
- How do we know if the biological information is correct?
- What are the consequences to the public of the use of good or bad science in an article or presentation?
- Is some information more important than other information?

These questions are starting points only, to indicate the kind of evidence you will need to produce a report for each article in Part 2 below.

Produce a folder that includes the three articles/presentations you used, and any other resources related to these that you may have used, for example, notes from documentaries or other videos, pamphlets, advertisements, newspaper articles, historical accounts, and photos. All of your processed material must be submitted as evidence of processing and include information that identifies the source. For example: author, year, title, publisher, place published; or URL and date accessed.

Part 2: Presentation

Write a report that analyses the biological validity of the information presented to the public on our use of a biotechnology for EACH of the three articles/presentations you chose in Part 1. Your three individual reports must:

- Identify and explain the biological features in the information as **accurate**, **inaccurate** or **biased** using your biological knowledge. You can show how or why these biological features are biased or inaccurate by making corrections to

them.

- Identify the **purpose** of the information. This should include who produced it and who the intended audience is. Explain why or how vested interest (for example, strong personal interest or personal agenda) is shown to the intended audience.
- Explain why or how any inaccuracies and/or bias could impact on the public.
- Prioritise, with reasons, aspects of the information in the article in relation to their significance in people's decision making in using the biotechnology. This may include identifying why some information is more important than others.
- Evaluate the overall impact of the article on the public, and link it to the reasons you have given for the article information being accurate, inaccurate, or biased.

Your report will be assessed on the analysis you have completed of the validity of the biological information presented in the three articles/presentations presented to the public on our use of a biotechnology, and not on its presentation.

It is important to ensure you provide references for any data, quotes, graphs, diagrams, maps, and so on in the body of your report so that information sources are acknowledged and can be located again. A small amount of information or facts can be copied but it should be written in quote marks and have the reference beside it in the report to show where you collected it from.

Include a reference list of sources that you used and record the information in a way that allows the sources to be located again.

Assessment schedule: ANOTHER CONTEXT Biology 91154 Your Genes Your Choice

Evidence/Judgements for Achievement	Evidence/Judgements for Achievement with Merit	Evidence/Judgements for Achievement with Excellence
<p>Processed material is submitted as evidence of the student's processing.</p> <p>The student is able to analyse the biological validity of information presented to the public on our use of a biotechnology by processing information from articles/presentations selected across at least three different genres to:</p> <ul style="list-style-type: none"> recognise and describe at least two biological features in each article identify these as either accurate, inaccurate or biased using biological knowledge. (Recognising inaccuracies may be demonstrated by making corrections to the inaccurate biological information.) identify the purpose of the information (e.g. who produced it and who the intended audience is). <p>For example: The You Tube clip http://www.youtube.com/watch?v=NjFiOxRNAnY, was really good, and it would be understandable for kids who don't know much about CF. The girl who made it, Katy, suffers from CF, and she wants teenagers like her to understand what the disease is and how she feels about the reaction of other people. The web site http://www.cfnz.org.nz/ provided information that I believe to be reliable. This is a NZ website and provides information to the public about CF. Because it is provided by the Cystic</p>	<p>Processed material is submitted as evidence of the student's processing.</p> <p>The student is able to analyse in-depth the biological validity of information presented to the public on our use of a biotechnology by processing information from articles/presentations selected across at least three different genres to:</p> <ul style="list-style-type: none"> recognise and describe at least two biological features in each article identify these as either accurate, inaccurate or biased using biological knowledge. (Recognising inaccuracies may be demonstrated by making corrections to the inaccurate biological information.) identify the purpose of the information (e.g. who produced it and who the intended audience is). <p>AND for at least one article/presentation give two reasons on why or how for any of the following:</p> <ul style="list-style-type: none"> each biological feature is accurate or inaccurate, or contains bias how inaccuracies and/or bias may have consequences or impacts for the public vested interest (personal agenda) is conveyed in the information. <p>For example:</p>	<p>Processed material is submitted as evidence of the student's processing.</p> <p>The student is able to comprehensively analyse the biological validity of information presented to the public on our use of a biotechnology by processing information from articles/presentations selected across at least three different genres to:</p> <ul style="list-style-type: none"> recognise and describe at least two biological features in each article identify these as either accurate, inaccurate or biased using biological knowledge. (Recognising inaccuracies may be demonstrated by making corrections to the inaccurate biological information.) identify the purpose of the information (e.g. who produced it and who the intended audience is). <p>AND for at least one article/presentation give two reasons on why or how for any of the following:</p> <ul style="list-style-type: none"> each biological feature is accurate or inaccurate, or contains bias how inaccuracies and/or bias may have consequences or impacts for the public vested interest (personal agenda) is conveyed in the information. <p>AND for one article/presentation:</p>

<p><i>Fibrosis Association of NZ, and because the Association do not have a reason to present distorted information, I feel their web site is reliable and informative for anyone who might want to decide whether or not to abort a baby if they found out that their baby will suffer from CF.</i></p>	<p><i>The article used by the group arguing against the use of cloning “Cloned Animals May Suffer” by Meg Gordon, Contemporary Issues Companion: Cloning, 2000, ignores some of the basic rules of biology which makes me think it is a poor article. The writer advocates the reproduction of a single cloned sheep to produce a flock of 10,000 identical animals, which would be dangerous biologically because diversity is necessary for the health of animals. All animals with the same genetic makeup would be vulnerable to the same disease or other selection pressure. This would mean the scientists would lose all their precious animals in one hit – which would be a very costly loss. I would therefore doubt the credibility or worth of this article. The article is very generalised and quotes academics, carefully detailing their name and status, but not does refer to the work these scientists have completed. Instead, it refers to a short comment they may have made in the media, which means that the writer is trying to validate the article as a whole by using the names of highly esteemed people, but not in the context of the article subject matter. There is not a clear link between the facts listed and the argument against cloning. John and Elsa would not be well informed by this article in my view</i></p>	<ul style="list-style-type: none">• prioritise (e.g. by identifying why some information is more important than others), with at least 2 reasons, aspects of the information in relation to their significance in the context• evaluate the overall impact of the article/presentation on the public, and link this to the reasons for the accuracy or inaccuracy of the information and related bias. <p>For example: <i>The article on the Otago School of Medical Science website about gene therapy found at http://highschoolbiology.otago.ac.nz/genether.html gives a balanced view and seems a trustworthy source of information for the public because it comes from the University of Otago where rigorous peer review processes would ensure validity of information. The article reports on both successes as well as failures in gene therapy techniques. It makes reference to studies that have been carried out in a sound scientific manner. These science studies and their results are linked to the website and can easily be accessed and checked by the reader. The article invites further information-finding opportunities for the reader and gives good links to other information sources. The article presents a group of ideas that can be sorted out by the reader as being more or less important to the reader's own view or decision-making process. This website would inform Martin's family and help them to make a decision about gene therapy as an option for someone like Martin.</i></p>
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Final grades will be decided using professional judgement based on a holistic examination of the evidence provided against the criteria in the Achievement Standard.