

Internal Assessment Resource

Biology Level 1

This resource supports assessment against Achievement Standard 90926 version 3

Standard title: Report on a biological issue

**Credits:** 3

Resource title: Use of performance-enhancing drugs

**Resource reference:** Biology 1.2C

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| This resource:   * Clarifies the requirements of the standard * Supports good assessment practice * Should be subjected to the school’s usual assessment quality assurance process * Should be modified to make the context relevant to students in their school environment and ensure that submitted evidence is authentic |

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| Date version published by Ministry of Education | February 2015  To support internal assessment from 2015 |
| Quality assurance status | These materials have been quality assured by NZQA.  NZQA Approved number A-A-02-2015-90926-01-9030 |
| Authenticity of evidence | Teachers must manage authenticity for any assessment from a public source, because students may have access to the assessment schedule or student exemplar material.  Using this assessment resource without modification may mean that students’ work is not authentic. The teacher may need to change figures, measurements or data sources or set a different context or topic to be investigated or a different text to read or perform. |

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Teacher guidelines

The following guidelines are supplied to enable teachers to 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. The achievement criteria and the explanatory notes contain information, definitions, and requirements that are crucial when interpreting the standard and assessing students against it.

Context/setting

This assessment activity requires students to collect and process data and/or information to report on the use of performance-enhancing drugs in sport, a biological issue on which people hold different opinions or viewpoints.

The activity could easily be modified and applied to any issue on which people hold differing viewpoints. Students could either be given the issue, or they could select it for themselves. If the latter applies, you will need to negotiate and approve a context that will engage your students. In any event you need to modify the student instructions and resources and ensure the assessment schedule (including evidence statements) aligns with the activity in its final form.

Conditions

Students will need sufficient time to carry out the research, processing, and reporting required for this activity. As a guide, it is expected that the research component could be completed in three to four hours with a further one to three hours required to complete the report. This time could be allocated in a single fortnight or could be spread over a longer interval, such as a school term.

The processing of information and preparation of the report is to be completed individually. Authenticity of student work needs to be assured. This should be through standard school practices such as keeping student work between classes, or signed authenticity statements for any extra research carried out or work done between classes.

Assessment could involve a written report, a PowerPoint presentation, a “press release” to inform the public or an article, or an oral presentation or debate.

Resource requirements

Information for processing is to be collected from a range of sources that may be provided. At least three sources of information are to be recorded in such a way that others can access them. All processed material is to be submitted as evidence of the student’s processing.

Students will need access to computers and the Internet, either at school and/or at home, for their research and reporting, as well as a range of primary or secondary data and/or information sources. Use of primary sources (for example, interviews) is acceptable.

You will need to provide students with information on the biological ideas and processes related to the issue and on the different points of view held by people.

A suggested resource for the issue of using performance-enhancing drugs in sport:

<http://www.drugfreesport.com/drug-resources/performance-enhancing-drugs-steroids.asp>

Additional information

Suitable contexts could involve reporting on other substances that may be taken to improve sport performance, including human growth hormone (hGH) and energy drinks.

Students need to consider what makes a biology topic an “issue”, and how to take a general question or purpose about an issue and refine it to make it suitable to guide their research.

*Making multiple links* involving biological ideas includes describing and explaining the biological ideas related to the question or purpose and identifying multiple links between the different ideas and the question.

*Processing data/information* could involve listing, sorting, collating, highlighting, or summarising relevant scientific information. It includes selecting biological ideas relevant to the issue from a range of sources and organising the ideas for reporting. A range is likely to involve at least three sources, which can be the same type, for example, all from the Internet.

*Evaluating sources* includes: identifying sources that provide biological ideas relevant to the question and checking each source for accuracy, how up to date it is, and/or bias; providing reasons why a particular source was/was not used.

*Using evidence to support different points of view* includes selecting at least two different points of view and then selecting biological ideas that support why a person or a group and/or organisation holds each of those points of view.

Students need to:

* state their own opinion (for or against) on aspects of the issue and why they hold that opinion, with reference to specific information they have researched
* say what they believe should be done about the issue and why
* structure their report to present their findings clearly and record their research sources in a way that allows others to access them.

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Student instructions

Introduction

This assessment activity requires you to report on the issue of performance-enhancing drugs.

You are going to be assessed on how comprehensively you report on the issue of athletes using performance-enhancing drugs in sport.

Task

This activity requires you to report on the biological issue of the use of performance enhancing drugs. This is a topic about which people hold different opinions and viewpoints.

Performance-enhancing drugs include any substance taken to perform better athletically. This typically refers to anabolic steroid use in sports by professional and amateur athletes. Other substances may also be taken to improve performance.

This task involves three stages. See Resource A for further guidance.

Teacher note: Insert conditions, such as: format of assessment; time allocations; in- or out-of-class work; processes for authentication of work; checkpoints; additional material you may require them to hand in with the report, such as research notes; due date.

Develop and refine a research question

Develop possible questions for research relating to the issue on the use of performance-enhancing drugs in sport.

Select and refine one question or purpose on which to focus your research. This must relate to the biology of the use of performance-enhancing drugs in sport.

Submit your research question or purpose to your teacher by <teacher to insert due date> for approval before beginning your research.

Collect and process information

Using at least threesources; collect and process information relating to your question. Include biological ideas about your issue.

Include information on:

* the differing viewpoints that named people and groups and/or organisations have expressed about the issue
* your position or own opinion on the issue, supported with evidence or quotes from your research.

Record all research sources you collect information from in a way that allows another person to find the same source.

Evaluate the usefulness of each research source as you find it. Make notes on any sources you do not use and give reasons why they were unsuitable.

Present your findings in a written report

Write a report of your findings, including:

* recommendations for future actions to help solve or address the issue
* an evaluation of the usefulness of your research sources.

Support your findings with specific evidence and quotes from your research.

Resource A: Further guidance

Collect and process information

Make sure you collect enough information to allow you to take and justify a position (that is, your own opinion) on the issue.

Processing informationcould involve, for example: listing, sorting, collating, highlighting, using Post-its, or summarising relevant scientific information.

Possible sources of data/information include:

Teacher note: Insert a list of potential resources. This may include website addresses.

Evaluate sources

This involves explaining why the research sources and information you used were suitable (or not). Use the questions below to direct your evaluation of sources.

* Is the information the resource contains useful?
* Does it contain accurate biological information?
* Is the information up to date? (Check the date it was developed or last updated)
* Is the information fact or opinion?
* Is the source biased to one particular point of view?

Report your findings

In your report:

* include your refined research question or purpose based on the biological issue
* describe and explain the biological ideas relating to your question or purpose – aim to make multiple links between relevant biological ideas
* identify at least two different points of view on the issue, giving reasons why named people and groups and/or organisations hold those viewpoints
* state and justify your own position on the issue and provide evidence from your research to support it
* make a recommendation, with reasons, for action in the future to solve or address the issue
* evaluate at least threeresearch sources of information you have used
* record the research sources you used in a way that allows another person to find them.

Hand in all your processed information with your report.

**Assessment schedule: Biology 90926 - Use of performance-enhancing drugs**

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| Evidence/Judgements for Achievement | Evidence/Judgements for Achievement with Merit | Evidence/Judgements for Achievement with Excellence |
| The student reports on the use of performance-enhancing drugs. The report includes:   * refining a given or agreed question/purpose * describing biological ideas related to the question/purpose   For example:  Describing possible long-term effects of using anabolic steroids and/or other performance-enhancing drugs, like impaired liver function.  Describing the short-term benefits of using Erythropoietin (EPO) by endurance athletes in sports like long distance running, swimming, rowing, who seek to increase the level of their red blood cells.   * collecting and processing data/information from at least three sources, recorded in a way that can be accessed by others   For example:  Website address, sporting magazines, sports books or sports research articles.   * processing information, which could involve listing, sorting, collating, highlighting, or summarising relevant scientific information * taking a position on the issue   For example:  “I think that while taking EPO will help me last the distance while swimming, I know that as I get older I may see the effect that this drug has had on me”  *The examples above are indicative samples only.* | The student reports in depth on the use of performance-enhancing drugs. The report includes:   * refining a given or agreed question/purpose * describing and explaining biological ideas related to the question/purpose   For example:  Explaining how and why using anabolic steroids and other performance-enhancing drugs may affect systems in the human body, like impaired liver function.  Explaining possible long-term effects of using steroids and other performance-enhancing drugs that haven't been rigorously studied.  Explaining possible short-term benefits with many potential side-effects of taking Erythropoietin (EPO) by endurance athletes e.g. higher levels of red blood cells lead to more oxygenated blood with a greater VO2 max (maximum oxygen concentration in the blood) to improve cardiovascular fitness and maximal aerobic power.   * collecting and processing data/information from at least three sources, recorded in a way that can be accessed by others * processing information, which could involve listing, sorting, collating, highlighting, or summarising relevant scientific information * identifying at least two different points of view   For example:   * The different points of view are supported by evidence and may be both for, both against or for and against. * Include evidence showing biological ideas that support why a named person, group or organisation holds their point(s) of view.   Goldman's dilemma - Bob Goldman (1992) opposes the use of anabolic steroids in sport. He asked whether athletes would take a drug that would guarantee them success in sport, but cause them to die after five years. In his research, half the athletes responded that they would take the drug. More recent research by James Connor and co-workers (2013) has yielded much lower numbers.  Paul Lowe, a former running back with the San Diego Chargers American football team, told a California legislative committee on drug abuse in 1970: "We had to take them [steroids] at lunchtime. He [an official] would put them on a little saucer and prescribed them for us to take them and if not he would suggest there might be a fine."  Dr Heinz Wuschech feels that there is little danger from anabolic steroids when the athletes are kept on strictly monitored programmes. Although the extremely dangerous side-effects are admitted, they are statistically no more likely to occur than side-effects from the birth control pill. If, that is, programmes are constantly medically monitored as to dosage.   * taking and justifying a position on the issue   For example:   * The student takes and justifies a position on the issue of using a specific performance-enhancing drug(s) in a named sport(s) with reference to specific information. This must link back to the refined question.   “Like Bob Goldman, I am against using anabolic steroids in sport because of the negative side effects, including impaired liver function, increase in estrogen, hair loss.”  *The examples above are indicative samples only.* | The student reports comprehensively on the use of performance-enhancing drugs. The report includes:   * refining a given or agreed question/purpose * describing and explaining biological ideas related to the question/purpose * identifying multiple links between biological ideas related to the question/purpose   For example:  Identifying links between the effects of using anabolic steroids and other performance-enhancing drugs on related living systems (e.g. sensitivity and co-ordination, circulation and excretion) in the human body.   * collecting and processing data/information from at least three sources, recorded in a way that can be accessed by others * processing information, which could involve listing, sorting, collating, highlighting, or summarising relevant scientific information * identifying at least two different points of view * taking and justifying a position on the issue with a recommendation for action   For example:   * A recommendation for action states what should be done to solve or address the issue and why.   *“The use of performance-enhancing drugs in sport has become an increasing problem across a wide range of endurance and non-endurance sports. When taken, they give an athlete an unfair advantage relative to a "clean" athlete. I believe the banning of these drugs promotes a level playing field among athletes.”*  *“The recommendations made by the International Association of Athletics Federations on the use of anabolic steroids should be followed because of the short and long term effects on the human body.”*   * evaluating sources of information/data used related to the question/purpose.   For example:  “I started my research using…It was a useful starting point from which I could improve my understanding of…, and it also provided a range of other possible sources of information.  These sites showed that the basic information in…was scientifically correct and up to date; however, I decided to complete most of my research using...”  *The examples above are indicative samples only.* |

Final grades will be decided using professional judgement based on a holistic examination of the evidence provided against the criteria in the Achievement Standard.