

Internal Assessment Resource

Biology Level 2

This resource supports assessment against Achievement Standard 91154 version 2

Standard title: Analyse the biological validity of information presented to the public

**Credits:** 3

Resource title: Do sports drinks really work?

**Resource reference:** Biology 2.2C

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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-02-2015-91154-01-9031 |
| 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 activity requires students to analyse the biological validity of information presented to the public on using sports drinks during exercise, and the impact on people using them. 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 them to prioritise aspects in relation to their significance in using sports drinks, 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 the biology of cell processes and metabolism. An understanding of the meanings of the terms used in EN 2 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..

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.

Resource requirements

Students need access to a wide range of resources on articles relating to the context chosen.

Access to computers may be required.

Additional information

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’ and faster metabolism. Students will need to check with the teacher on the suitability of topic as well as the suitability of sources.

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 tohelp 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.

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Student instructions

Introduction

This assessment activity requires you to present a report that analyses the biological validity of three different types of information (articles/presentations) presented to the public on the use of sports drinks during exercise and their impact on people in using them. A wide range of sports drinks are available and are often used by athletes to improve performance.

You will analyse this information and decide on what is accurate, inaccurate or biased using your biological knowledge.

You are going to be assessed on how comprehensively you analyse the biological validity of information present to the public on the use of sports drinks during exercise.

Task

This consists of two parts.

In Part 1 you will select three different types of articles/presentations on the use of sports drinks to improve performance from the range of resources you have researched and/or from those provided by your teacher. You will 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 sports drinks 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

Teacher note: Insert information on checkpoints and the time allowed for the duration of the assessment, number of class periods (with dates), and homework time.

**Part 2** - Presentation

Teacher note: Insert information about how the presentation will be completed, for 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 the use of sports drinks to improve performance during exercise 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 website and the date accessed.

Part 2: Presentation

Write a report that analyses the biological validity of the information presented to the public on the use of sports drinks to improve performance during exercise in each of the three articles/presentations you chose in Part 1. For each article/presentation:

* 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 on the use of sports drinks to improve performance duringexercise. 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 comprehensiveness of your analysis of the validity of the biological information presented in the three articles/presentations presented to the public on the use of sports drinks, and not on the quality of the presentation itself.

It is important to ensure you provide references for any data, quotes, graphs, diagrams 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 a small number of facts can be copied but should be written in quote marks and have the reference beside them in the report to show the source.

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: Biology 91154 Do sports drinks really work?

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| Evidence/Judgements for Achievement | Evidence/Judgements for Achievement with Merit | Evidence/Judgements for Achievement with Excellence |
| The student is able to analyse the biological validity of information presented to the public on the use of sports drinks during exercise, by processing information from articles/presentations selected across at least three different genres to:   * recognise and describe at least two biological features in each article * use biological knowledge to identify the biological features as either accurate, inaccurate or biased * identify the purpose of the information   For example:  Biological features relating to cell processes and replacing electrolytes, and maintaining hydration, are described  The statement, ‘…’ on the benefit to the kidney of using this isotonic sports drink is not correct biology.  The article was written by Herbal Vitality for the general public. The intended audience is likely to be performance athletes to promote the use of and sell their…sports drink.  *The examples above are indicative samples only.* | The student is able to analyse in-depth the biological validity of information presented to the public on the use of sports drinks during exercise, by processing information from articles/presentations selected across at least three different genres to:  recognise and describe at least two biological features in each article   * use biological knowledge to identify the biological features as either accurate, inaccurate or biased * identify the purpose of the information * give two reasons on why or how, in at least one article/presentation, within or between any of the following: * 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.   For example:  Biological features relating to cell processes and replacing electrolytes, and maintaining hydration, are described  The statement, ‘…’ on the benefit to the kidney of using this isotonic sports drink is not correct biology.  The article was written by Herbal Vitality for the general public. The intended audience is likely to be performance athletes to promote the use of and sell their…sports drink.  The article produced by…advocating the use of…sports drink would be dangerous biologically because it ignores the biology of how the kidney works...by…  There is not a clear link between the facts listed and the biology of how the…sports drink will improve the performance of athletes during a marathon.”  In my view performance athletes would not be well informed by this article and could put themselves at risk because...  *The information in the article is biased and the vested interest for the makers of…sports drink is to raise its profile and help sell the product.*  *The examples above are indicative samples only.* | The student is able to comprehensively analysethe biological validity of information presented to the public on the use of sports drinks during exercise by, processing information from articles/presentations selected across at least three different genres to:   * recognise and describe at least two biological features in each article * use biological knowledge to identify the biological features as either accurate, inaccurate or biased * identify the purpose of the information * give two reasons on why or how in at least one article/presentation within or between any of the following: * 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. * prioritise, with reasons, aspects of the information in relation to their significance in the context in at least one article. * evaluating the overall impact of one article/presentation on the public, and linking this to the reasons for the accuracy or inaccuracy of the information and related bias.   For example:  Biological features relating to cell processes and replacing electrolytes, and maintaining hydration, are described  The statement, ‘…’ on the benefit to the kidney of using this isotonic sports drink is not correct biology.  The article was written by Herbal Vitality for the general public. The intended audience is likely to be performance athletes to promote the use of and sell their…sports drink.  The article produced by…advocating the use of…sports drink would be dangerous biologically because it ignores the biology of how the kidney works...by…  There is not a clear link between the facts listed and the biology of how the…sports drink will improve the performance of athletes during a marathon.  In my view performance athletes would not be well informed by this article and could put themselves at risk because...  The information in the article is biased and the vested interest for the makers of…sports drink is to raise its profile and help sell the product  Firstly, the most important information in this article is…since...Secondly, the next piece of important information is…because...  The article on isotonic sports drinks on the …website gives a balanced view and seems a trustworthy source of information for the public because it comes from…where rigorous peer review processes would ensure validity of information.  The article reports on the biological implications of using sports drinks and 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 interested athletes.  The article invites further information-finding opportunities and gives good links to other information sources.  The article presents a group of ideas that can be sorted as being more or less important to the athlete’s own view or decision-making process.  *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.