

Internal Assessment Resource

Education for Sustainability Level 3

This resource supports assessment against Achievement Standard 91735

Standard title: Evaluate measures that may be taken to sustain and/or improve a biophysical environment

**Credits:** 4

Resource title: A home for the ruru?

**Resource reference:** Education for Sustainability 3.2B v3

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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 Version 3To support internal assessment from 2015 |
| 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 carry out an inquiry about their school gully (as a biophysical environment) in order to critically evaluate the effectiveness of different measures that could be taken to sustain or improve the ruru habitat there. Their findings will form the basis of a speech in a class discussion, after which the class will decide what measure(s) they will recommend to the Board of Trustees.

Conditions

It is suggested that this assessment activity take place over an extended period of time, for example 8-10 weeks of in- and out-of-class time.

Make sure you have evidence of students’ assessments to be used for moderation. This may mean recording students’ speeches.

Resource requirements

Students should have access to:

* Internet, for research and communication.
* Technology and equipment, as and where appropriate.

Additional information

This assessment activity is based on the assumption that students have an in-depth understanding of: the principles and aspects of sustainability; sustainable futures; research methods and data analysis; evaluation; and wherever possible Māori concepts and values relating to the environment as well as a familiarity with Article 2 of the Treaty of Waitangi.

The activity used to assess against this standard, with the choice of a suitable context, could be used in conjunction with assessment activities for EfS 3.1 (AS90828) and 3.5 (AS90832).

Other possible contexts

Although this resource is focused on a gully environment, you may adapt it to other more relevant biophysical environments and species. If you change the context for the activity, you need to provide equivalent relevant resources.

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Student instructions

Introduction

This assessment activity requires you to evaluate the effectiveness of different measures that could be taken to sustain or improve the ruru habitat located in the school gully.

You are going to be assessed on how well you critically evaluate potential ruru habitat restoration measures that could be undertaken in the gully. Your evaluation will compare the potential success of measures to improve and sustain the ruru habitat.

The following instructions provide you with a way to structure your work to demonstrate what you have learnt to allow you to achieve success in this standard.

Teacher note: You will need to read these student instructions and modify them if necessary to meet the needs and interests of your students.

Task

Present the findings from your evaluation in a speech that will contribute to a class discussion, after which your class will decide what measures they will recommend to the Board of Trustees.

You may work individually or in a group, but you will be assessed individually. Include evidence of your individual contributions in your logbook if working in a group.

You have 8 weeks to complete this task.

Gather information

* Carry out research and a practical investigation about the gully environment, and specifically the ruru habitat in the gully.
* Visit the gully.
* Collect and analyse data and evidence about the ruru habitat and relevant aspects of the wider gully ecosystem. You will need to name key species and describe their inter-relationships, and describe relevant physical systems that determine the habitat.
* Make sure the data collection and measurement methods are suitable and appropriate. These could include transects, quadrats, mapping. You should include maps, showing the location of the ruru habitat and any data collection points.
* Research what social, cultural, economic and/or technological measures have been, or could be, undertaken in the gully in order to restore the ruru habitat.

Write your speech

Organise your findings.

Your speech will include:

* Analysis of:
* the characteristics of the gully environment relevant to the ruru habitat
* the nature of the relationship between humans and the ruru habitat, and the interactions between them in relation to aspects of sustainability. Interrelationships may be those that promote or disrupt the sustainability of the environment
* the potential of different measures to sustain and/or improve the ruru habitat, both now and in the future.
* Your informed conclusions about which measures may be most effective in terms of sustaining and/or improving the ruru habitat.
* Your insightful conclusions about the effectiveness of the measures with reference to the aspects of sustainability. These conclusions may include:
* projecting future impacts and discussing wider implications
* using criteria related to the aspects of sustainability to help you evaluate the measures
* making recommendations.

Submit for assessment

Present your speech for assessment together with your logbook if you were working in a group.

Resources

Useful websites include:

<http://www.gullyguide.co.nz/>

<http://www.doc.govt.nz>. Search for articles about ruru, plants pests and native plants.

<http://www.forestandbird.org.nz/saving-our-environment>

<http://www.waikatoregion.govt.nz/Environment/>

<http://www.nzpcn.org.nz/>

<http://waikatobiodiversity.org.nz/biodiversity_information/>

<http://www.biodiversity.govt.nz>.

Assessment schedule: Education for Sustainability 91735 - A home for the ruru?

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| Evidence/Judgements for Achievement  | Evidence/Judgements for Achievement with Merit | Evidence/Judgements for Achievement with Excellence |
| Evaluate measures that may be taken to sustain and/or improve a biophysical environment. The student has:* Carried out research and a practical inquiry to:
* analyse the characteristics of the gully environment as relevant to the ruru habitat

*“I was very excited when we started this project to learn that there is at least one ruru that lives in our gully. We know this because when we interviewed neighbours, they said they had heard it and that scientists had confirmed it. That is pretty unusual in a Hamilton gully. We were surprised because the gully seemed to be a pretty messy environment. It is full of plant pest species such as willow, blackberry and morning glory and until we looked carefully it seemed as if there weren’t very many native plants, let alone native birds. However, there are several native plant species such as coprosmas, pittosporums, hangihangi and flax (harakeke). There are also a range of native birds. We identified tūī, grey warblers and waxeyes by their calls. There are also many introduced birds. There is a small stream running through the bottom of the gully. Our surveys showed that the gully stream was in surprisingly good health (reference data from stream life surveys). The gully is part of a large gully network in Hamilton, where streams have carved down into the substrate. This substrate was brought down and deposited by the Waikato River from the Taupo area so consists of sand and pumice etc.* *The gully is quite deep (measurements quoted) in most places with steep sloping sides. This means the stream gathers sediments, oil, chemicals, soil etc. which change the water quality, especially when it rains. This influences the ecology of the gully as….. We don’t know exactly where the ruru is living, or even if it is there all the time. A good ruru habitat includes…..”** analyse the nature of the relationship between humans and the ruru habitat.

*“The gully was well used in the past. It was used by local Māori for traditional purposes such as collecting kai (especially koura) and harakeke (flax for weaving). It has special significance to local Māori because of its historical uses, and also because of the presence of the ruru, which is seen as a good omen (reference interview material). It is very overgrown now and isn’t used anymore by Māori. In fact it isn’t used by many people nowadays, probably because it is pretty overgrown, uncared for and lacks good access. There is a bit of a track running along part of the gully, and one end opens onto a park. There is more human activity at this end, as there is a track that leads from the school to the park. Our school cross country track runs along the top of the gully, and along that track into the park. Because we don’t know exactly where the ruru is living, it may be affected by any of these human activities, but because the gully is so overgrown, its habitat may be being left alone. Our lack of knowledge means that although it is obvious that environmental sustainability is important here, we will need more information before we can think about how human activity might impact on sustaining the ruru habitat right now.”* * Analysed the potential of possible measures that might be designed to sustain or improve the ruru habitat.

*“Other gullies in Hamilton have been restored in different ways. The council and community groups have used a range of methods on other gullies and we could use some of them in ours. One is to restore and replant the gully. Most have had pest and weed eradication and control and this is a first step before planting can happen effectively (reasons given). Another is to increase public awareness and understanding of the importance of gullies and the environment. Some plans are council initiatives, some are community initiatives and some are partnerships. Most involve some sort of planting programme after pest and weed eradication and control. All these have some benefits and potential for success in our gully, and all have some disadvantages too. Some are easier to do, some more costly and some much more long term. For example….”** Drawn conclusions about which measure(s) may be most effective in terms of sustaining and/or improving the ruru habitat.

*“Community partnerships with council to restore and manage gullies have the advantage in terms of sustainability because not only does it have positive environmental outcomes for the gullies and the organisms such as ruru living in them, but groups are developed, that can be involved in the ongoing programme. The best first step for our gully I believe is to create a partnership between the school and the city and regional councils that will firstly identify, eradicate and continue to monitor pest species in the gully that might have an impact on the ruru. Until we know more about the gully, the ruru habitat, where our ruru is actually living, and what it depends upon, we need to do something that will not disturb it. Some measures such as weed control, or clearing the gully might negatively impact on the ruru habitat by accident.”* In addition to the speech, the student has submitted a logbook containing evidence of their individual contributions.*The examples above are indicative samples only.* | Evaluate in depth measures that may be taken to sustain and/or improve a biophysical environment.The student has:* Carried out research and a practical inquiry to:
* analyse the characteristics of the gully environment as relevant to the ruru habitat

*“I was very excited when we started this project to learn that there is at least one ruru that lives in our gully. We know this because when we interviewed neighbours, they said they had heard it and that scientists had confirmed it. That is pretty unusual in a Hamilton gully. We were surprised because the gully seemed to be a pretty messy environment. It is full of plant pest species such as willow, blackberry and morning glory and until we looked carefully it seemed as if there weren’t very many native plants, let alone native birds. However, there are several native plant species such as coprosmas, pittosporums, hangihangi and flax (harakeke). There are also a range of native birds. We identified tūī, grey warblers and waxeyes by their calls. There are also many introduced birds. There is a small stream running through the bottom of the gully. Our surveys showed that the gully stream was in surprisingly good health (reference data from stream life surveys). The gully is part of a large gully network in Hamilton, where streams have carved down into the substrate. This substrate was brought down and deposited by the Waikato River from the Taupo area so consists of sand and pumice etc.* *The gully is quite deep (measurements quoted) in most places with steep sloping sides. This means the stream gathers sediments, oil, chemicals, soil etc. which change the water quality, especially when it rains. This influences the ecology of the gully as….. We don’t know exactly where the ruru is living, or even if it is there all the time. A good ruru habitat includes…..”** analyse the nature of the relationship between humans and the ruru habitat.

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*“Other gullies in Hamilton have been restored in different ways. The council and community groups have used a range of methods on other gullies and we could use some of them in ours. One is to restore and replant the gully. Most have had pest and weed eradication and control and this is a first step before planting can happen effectively (reasons given). Another is to increase public awareness and understanding of the importance of gullies and the environment. Some plans are council initiatives, some are community initiatives and some are partnerships. Most involve some sort of planting programme after pest and weed eradication and control. All these have some benefits and potential for success in our gully, and all have some disadvantages too. Some are easier to do, some more costly and some much more long term. For example….”** Drawn informed conclusions about which measure(s) may be most effective in terms of sustaining and/or improving the ruru habitat.

*“Community partnerships with council to restore and manage gullies have the advantage in terms of sustainability because not only does it have positive environmental outcomes for the gullies and the organisms such as ruru living in them, but groups are developed, that can be involved in the ongoing programme (examples given). The best first step for our gully I believe is to create a partnership between the school and the city and regional councils that will firstly identify, eradicate and continue to monitor pest species in the gully that might have an impact on the ruru. The economics of the programme might have to involve fundraising, but it is likely that some support will come from the council partners, which is an advantage to having a partnership with them (funding availability referenced). Until we know more about the gully, the ruru habitat, where our ruru is actually living, and what it depends upon, we need to do something that will not disturb it. Some measures such as weed control, or clearing the gully might negatively impact on the ruru habitat by accident. Gully restoration is a long term process, one step at a time, and in other gullies (data, research evidence referenced) it has been important to involve people so they become attached to the place and project…”* In addition to the speech, the student has submitted a logbook containing evidence of their individual contributions.*The examples above are indicative samples only.* | Critically evaluate measures that may be taken to sustain and/or improve a biophysical environment.The student has:* Carried out research and a practical inquiry to:
* analyse the characteristics of the gully environment as relevant to the ruru habitat

*“I was very excited when we started this project to learn that there is at least one ruru that lives in our gully. We know this because when we interviewed neighbours, they said they had heard it and that scientists had confirmed it. That is pretty unusual in a Hamilton gully. We were surprised because the gully seemed to be a pretty messy environment. It is full of plant pest species such as willow, blackberry and morning glory and until we looked carefully it seemed as if there weren’t very many native plants, let alone native birds. However, there are several native plant species such as coprosmas, pittosporums, hangihangi and flax (harakeke). There are also a range of native birds. We identified tūī, grey warblers and waxeyes by their calls. There are also many introduced birds. There is a small stream running through the bottom of the gully. Our surveys showed that the gully stream was in surprisingly good health (reference data from stream life surveys). The gully is part of a large gully network in Hamilton, where streams have carved down into the substrate. This substrate was brought down and deposited by the Waikato River from the Taupo area so consists of sand and pumice etc.* *The gully is quite deep (measurements quoted) in most places with steep sloping sides. This means the stream gathers sediments, oil, chemicals, soil etc. which change the water quality, especially when it rains. This influences the ecology of the gully as….. We don’t know exactly where the ruru is living, or even if it is there all the time. A good ruru habitat includes…..”** analyse the nature of the relationship between humans and the ruru habitat.

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*“I believe that the best measure to protect the habitat for our ruru is to create a school- community partnership. Having the iwi involved in partnership would be even better as it means that long term the restoration programme can involve some acknowledgement of the history of the gully. There maybe even wāhi tapu sites that could be protected too. (Interviews with iwi referenced.) People working together will mean that the knowledge and skills of all of them can be utilised and everyone will be involved and ready to keep going long term, so culturally and socially, as well as environmentally, this measure is working towards sustainability.**I recommend that as a class we make a proposal to the Board of Trustees that…..”*In addition to the speech, the student has submitted a logbook containing evidence of their individual contributions.*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.