

Internal Assessment Resource

Education for Sustainability Level 3

This resource supports assessment against Achievement Standard 90828 version 2

Standard title: Evaluate a personal action that contributes towards a sustainable future

**Credits:** 6

Resource title: Dotty for dotterels

**Resource reference:** Education for Sustainability 3.1B 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 3  To 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. |

**Internal Assessment Resource**

Achievement standard: 90828

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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 plan, undertake and critically evaluate a personal action that contributes to the survival of the New Zealand dotterel.

Conditions

It is suggested that the assessment activity take place over 8-10 weeks of in- and out-of-class time.

Resource requirements

Students should have access to:

* Internet, for research and communication.
* Technology and equipment, as and where appropriate.
* Information concerning ethical considerations.
* Useful websites containing relevant information related to dotterels and their environment.

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.

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 3.2 (AS91735) and 3.5 (AS90832).

Other possible contexts

Although this resource is focused on a specific species and its habitat, you may adapt it to other contexts more relevant to your location and your students’ interests. 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 a personal action that contributes to the survival of the New Zealand dotterel.

You are going to be assessed on your critical evaluation of your personal action that contributes to the survival of the New Zealand dotterel.

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

Plan, carry out and evaluate a personal action that contributes to the survival of the New Zealand dotterel.

Your personal action may be an extension of action begun in previous years.

Submit a report that outlines your planning, action, critical evaluation and conclusions, as well as a log that documents your action and your findings.

You may plan and conduct your action as part of a group, but you will be assessed individually. Include evidence of your individual contributions in your log if working in a group.

You have 10 weeks to complete this assessment activity.

Research and develop a plan

Carry out research and/or a practical investigation about the dotterel and its habitat. This will include visiting the dotterels’ habitat.

Identify issues impacting on the dotterels’ survival.

Select one issue that faces the dotterel, to focus your action on.

Brainstorm a range of possible actions that could be taken to prevent, mitigate or remedy your chosen issue.

Explore the positive and negative consequences that could occur as a result of each possible action. Consider actions already being undertaken by other interest groups or stakeholders before making your final decision on the action you will implement. Check with stakeholders to find out whether you will be able to complete your action. Also check with your teacher to make sure your action is feasible.

Choose one action to implement.

Develop a plan for your personal action, including:

* an outline of the importance of the issue with reference to aspects of sustainability
* a rationale for how data is to be gathered and analysed . The information may come from direct observations, collection of field data, tables, graphs, resource sheets, photographs, videos, websites, and/or reference texts
* a time-frame and steps required to take action
* what equipment will be used
* any ethical considerations
* predictions about the impact and expected outcome(s) of your action
* consultation with relevant stakeholders.

Take action

Carry out your personal action, following your plan. You may find that you need to modify the plan if things don’t work out as expected.

At key stages, record your thoughts and reflections about the action. Ask yourself self-critical questions such as:

* What progress have I made?
* How do I feel about my progress?
* What have I learned?
* What (if any) changes have we made to our plan and why?
* What consultation with stakeholders have I done?
* What do I plan to do next?

Keep an ongoing log of your planning and action. You could use videos, photos, interviews, a scrapbook, flow charts, etc.

Finalise your report

Organise your report.

Include:

* Your research and development of the plan.
* The action you undertook.
* An analysis of aspects of sustainability and their connections in relation to the personal action.
* Conclusions about:
  + the validity and reliability of the data
  + the effectiveness of the plan in relation to expected outcomes
  + an explanation of any modifications made to the plan
  + how the action contributed to a sustainable future based on aspects of sustainability addressed in the plan.
* Informed conclusions about how the personal action changed your attitudes or behaviours in relation to a sustainable future based on the aspects of sustainability.
* Insightful conclusions about how the outcomes of the action contribute towards a sustainable future.

Use qualitative and/or quantitative evidence from your research to support your conclusions.

Submit for assessment

Submit your completed report and log for assessment.

Resources

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

[http://www.biodiversity.govt.nz](http://www.biodiversity.govt.nz/seas/biodiversity/index.html)

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

<http://www.waikatobiodiversity.org.nz/educational_resources/>

<http://www.doc.govt.nz/conservation/native-animals/birds/birds-a-z/nz-dotterel-tuturiwhatu/>

<http://nzbirdsonline.org.nz/species/new-zealand-dotterel>

<http://www.waihigold.co.nz/environment/biodiversity-projects/the-nz-dotterel>.

Assessment schedule: Education for Sustainability 90828 – Dotty for dotterels

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| Evidence/Judgements for Achievement | Evidence/Judgements for Achievement with Merit | Evidence/Judgements for Achievement with Excellence |
| Evaluate a personal action that contributes towards a sustainable future.  The student has:   * Carried out research and/or a practical investigation about the dotterel and its habitat to inform a plan for a personal action, including: * An outline of the importance of an issue impacting the survival of the dotterel, with reference to aspects of sustainability.   *“New Zealand dotterel/tūturiwhatu are shorebirds. They are found on sandy beaches and sand spits or feeding on tidal estuaries. Their colouring merges effectively with their habitat. The local I met down at the beach told me that they make a ‘chip-chip’ sound and it is often heard before you can see them, they are quite difficult to see. They are endangered and are only found in NZ. They were once widespread and common but there are only about 1700 birds left.*  *The issue is one that relates to the environmental aspect of sustainability. As they are endangered, we are in danger of losing them permanently from our range of birds, altering the ecosystem that they are part of. The public use of the beaches is impacting on the dotterel population as they nest out in the sand, well camouflaged and they are exposed to many threats such as; predators, people in vehicles and even people using the beach for recreation. In our area there is a nesting site on Kawhia Beach. This is where we want to take action.”*   * An analysis of a range of possible actions.   *“There are currently many actions being taken by groups like DOC to try and protect the dotterel population. These include fencing off nesting areas and putting signs up. These actions don’t always work because they rely largely on people having some knowledge of the importance of following the guidelines on the notices or not going through the taped barriers. These breeding areas are not always obvious from every angle, and as we are a beach-going nation, it is hard to control how everyone uses the beach, and expecting everyone to always be vigilant is a big ask. We could try to put more signage up, but will have the same problems the current signs have.”*   * Developed a plan for a personal action that contributes to the survival of the dotterel by addressing the selected issue, that includes: * A choice of one action to implement.   *“We decided as a group that we would take action to protect the dotterels nesting on Kawhia Beach, in the sand dunes there. The action we decided to take was to monitor the nesting site for predator numbers and see what other impacts there might be on the breeding success of this pair of birds.”*   * A time-frame and steps of action.   *“The first thing we had to do was to find out from DOC what would be the proper monitoring methods. We found there was a variety they used, and we followed their advice. It meant we had to spend three weeks with two weeks to analyse the data watching the nesting site, recording the interactions of the dotterels and their environment, and finding out what predators might be around. My job was to do the tracking tunnels. Everyone in our group had a slightly different task.”*   * A rationale for how data is to be gathered and analysed.   *“Because we were working closely with DOC, and also the Waikato Regional Council, we were happy that the methods we used to collect information were OK. For example, we borrowed tracking tunnels from the regional council to keep a record of rodents for one week, replacing the ink and paper each morning.”*   * Any ethical considerations.   *“These tracking tunnels do not harm the animals that crawl through them, so we knew they were ethically OK to use. We also had to check with the dune replanting group because we needed to go into where they had planted, and they didn’t want anyone to disturb their plantings.”*   * Expected outcomes.   *“I think I will see lots of hedgehogs and maybe mice. Hedgehogs are predators and eat the dotterel eggs. DOC does trap them during nesting time. My data will help them by letting them know how many hedgehogs are around.”*   * Carried out a personal action, following the plan and modifying it if necessary.   Evidence of carrying out the activity is found in the student’s log.   * Drawn conclusions about: * the validity of the data collection and measurement methods used   *“My data collection method was effective. I knew this would be OK because DOC had approved our method. Each night I found a number of prints. Three out of the 7 nights I monitored the numbers were so great that I couldn’t distinguish between the prints. This is problematic, as I couldn’t rely on data for those nights. If I were to do this again I would use more tracking tunnels.”*   * an explanation of any modifications made   *“When we first started none of us knew what we were going to find. I thought to start with that I might find hedgehogs in my tracking tunnels but I didn’t, so I went to the council woman and she helped me set up a different sized tunnel and we found that rats were what were making most of the footprints.”*   * the effectiveness of the plan and action compared to expected outcomes   *“I think that our plan was effective, because we got some very good data about the environment the dotterels nesting at Kawhia Beach have to live in. My tracking tunnels showed rats and mice. My other group members showed that people who were using the beach ……Most of these things were what we expected to see.”*   * how the action has contributed to a sustainable future for the dotterel, based on the aspects of sustainability addressed in the plan   *“The data I collected I took to DOC. They were interested in it and realised that there had been a large increase in predators since their last monitoring of the area. This is significant and they have decided to start predator control a few months earlier before the nesting season this year. This relates very well to the environmental aspect of sustainability, as it means if we can protect this pair of dotterels they will have a better chance of successfully breeding. The other aspect of sustainability that is obviously connected is the social one. As a nation we consider it is our right to be at the beach, and it will take more action to get some of the people’s behaviour to change. DOC can do predator control for the typical predators, but dogs that come to the beach with people were recorded by one of my group as being a significant risk for the dotterels too.”*  In addition to the completed report, the student has submitted a log containing evidence of their individual contributions and of their action and findings.  *The examples above are indicative samples only.* | Evaluate in depth a personal action that contributes towards a sustainable future.  The student has:   * Carried out research and/or a practical investigation about the dotterel and its habitat to inform a plan for a personal action, including: * An outline of the importance of an issue impacting the survival of the dotterel, with reference to aspects of sustainability.   *“New Zealand dotterel/tūturiwhatu are shorebirds. They are found on sandy beaches and sand spits or feeding on tidal estuaries. Their colouring merges effectively with their habitat. The local I met down at the beach told me that they make a ‘chip-chip’ sound and it is often heard before you can see them, they are quite difficult to see. They are endangered and are only found in NZ. They were once widespread and common but there are only about 1700 birds left.*  *The issue is one that relates to the environmental aspect of sustainability. As they are endangered, we are in danger of losing them permanently from our range of birds, altering the ecosystem that they are part of. The public use of the beaches is impacting on the dotterel population as they nest out in the sand, well camouflaged and they are exposed to many threats such as; predators, people in vehicles and even people using the beach for recreation. In our area there is a nesting site on Kawhia Beach. This is where we want to take action.”*   * An analysis of a range of possible actions.   *“There are currently many actions being taken by groups like DOC to try and protect the dotterel population. These include fencing off nesting areas and putting signs up. These actions don’t always work because they rely largely on people having some knowledge of the importance of following the guidelines on the notices or not going through the taped barriers. These breeding areas are not always obvious from every angle, and as we are a beach-going nation, it is hard to control how everyone uses the beach, and expecting everyone to always be vigilant is a big ask. We could try to put more signage up, but will have the same problems the current signs have.”*   * Developed a plan for a personal action that contributes to the survival of the dotterel by addressing the selected issue, that includes: * A choice of one action to implement.   *“We decided as a group that we would take action to protect the dotterels nesting on Kawhia Beach, in the sand dunes there. The action we decided to take was to monitor the nesting site for predator numbers and see what other impacts there might be on the breeding success of this pair of birds.”*   * A time-frame and steps of action.   *“The first thing we had to do was to find out from DOC what would be the proper monitoring methods. We found there was a variety they used, and we followed their advice. It meant we had to spend three weeks with two weeks to analyse the data watching the nesting site, recording the interactions of the dotterels and their environment, and finding out what predators might be around. My job was to do the tracking tunnels. Everyone in our group had a slightly different task.”*   * A rationale for how data is to be gathered and analysed.   *“Because we were working closely with DOC, and also the Waikato Regional Council, we were happy that the methods we used to collect information were OK. For example, we borrowed tracking tunnels from the regional council to keep a record of rodents for one week, replacing the ink and paper each morning.”*   * Any ethical considerations.   *“These tracking tunnels do not harm the animals that crawl through them, so we knew they were ethically OK to use. We also had to check with the dune replanting group because we needed to go into where they had planted, and they didn’t want anyone to disturb their plantings.”*   * Expected outcomes.   *“I think I will see lots of hedgehogs and maybe mice. Hedgehogs are predators and eat the dotterel eggs. DOC does trap them during nesting time. My data will help them by letting them know how many hedgehogs are around.”*   * Carried out a personal action, following the plan and modifying it if necessary.   Evidence of carrying out the activity is found in the student’s log.   * Analysed aspects of sustainability and their connections in relation to the personal action.   *“We know we were working on two aspects of sustainability once we had our results. We knew straight away that we were hoping to create a more sustainable future for the dotterel, and this was obviously about the environment. However, we hadn’t initially thought that the social aspect would be so largely involved. We found that people like riding quad bikes, horses, running dogs and having their children play, all in the area where the dotterel nest was.”*   * Drawn conclusions about: * the validity of the data collection and measurement methods used   *“My data collection method was effective. I knew this would be OK because DOC had approved our method. Each night I found a number of prints. Three out of the 7 nights I monitored the numbers were so great that I couldn’t distinguish between the prints. This is problematic, as I couldn’t rely on data for those nights. If I were to do this again I would use more tracking tunnels.”*   * an explanation of any modifications made   *“When we first started none of us knew what we were going to find. I thought to start with that I might find hedgehogs in my tracking tunnels but I didn’t, so I went to the council woman and she helped me set up a different sized tunnel and we found that rats were what were making most of the footprints.”*   * the effectiveness of the plan and action compared to expected outcomes   *“I think that our plan was effective, because we got some very good data about the environment the dotterels nesting at Kawhia Beach have to live in. My tracking tunnels showed rats and mice. My other group members showed that people who were using the beach ……Most of these things were what we expected to see.”*   * how the action has contributed to a sustainable future for the dotterel, based on the aspects of sustainability addressed in the plan   *“The data I collected I took to DOC. They were interested in it and realised that there had been a large increase in predators since their last monitoring of the area. This is significant and they have decided to start predator control a few months earlier before the nesting season this year. This relates very well to the environmental aspect of sustainability, as it means if we can protect this pair of dotterels they will have a better chance of successfully breeding. The other aspect of sustainability that is obviously connected is the social one. As a nation we consider it is our right to be at the beach, and it will take more action to get some of the people’s behaviour to change. DOC can do predator control for the typical predators, but dogs that come to the beach with people were recorded by one of my group as being a significant risk for the dotterels too.”*   * Drawn informed conclusions about how taking the action has changed the student’s own attitudes or behaviours.   *“I will go back and help DOC as a volunteer to continue monitoring and helping the dotterel. We have also now understood that the issue isn’t as simple as that, and that not just mine, but other people’s behaviour needs to change too if the dotterels have a real chance. So there is probably some more action that I will get involved in about educating the public.”*  In addition to the completed report, the student has submitted a log containing evidence of their individual contributions and of their action and findings.  *The examples above are indicative samples only.* | Critically evaluate a personal action that contributes towards a sustainable future.  The student has:   * Carried out research and/or a practical investigation about the dotterel and its habitat to inform a plan for a personal action, including: * An outline of the importance of an issue impacting the survival of the dotterel, with reference to aspects of sustainability.   *“New Zealand dotterel/tūturiwhatu are shorebirds. They are found on sandy beaches and sand spits or feeding on tidal estuaries. Their colouring merges effectively with their habitat. The local I met down at the beach told me that they make a ‘chip-chip’ sound and it is often heard before you can see them, they are quite difficult to see. They are endangered and are only found in NZ. They were once widespread and common but there are only about 1700 birds left.*  *The issue is one that relates to the environmental aspect of sustainability. As they are endangered, we are in danger of losing them permanently from our range of birds, altering the ecosystem that they are part of. The public use of the beaches is impacting on the dotterel population as they nest out in the sand, well camouflaged and they are exposed to many threats such as; predators, people in vehicles and even people using the beach for recreation. In our area there is a nesting site on Kawhia Beach. This is where we want to take action.”*   * An analysis of a range of possible actions.   *“There are currently many actions being taken by groups like DOC to try and protect the dotterel population. These include fencing off nesting areas and putting signs up. These actions don’t always work because they rely largely on people having some knowledge of the importance of following the guidelines on the notices or not going through the taped barriers. These breeding areas are not always obvious from every angle, and as we are a beach-going nation, it is hard to control how everyone uses the beach, and expecting everyone to always be vigilant is a big ask. We could try to put more signage up, but will have the same problems the current signs have.”*   * Developed a plan for a personal action that contributes to the survival of the dotterel by addressing the selected issue, that includes: * A choice of one action to implement.   *“We decided as a group that we would take action to protect the dotterels nesting on Kawhia Beach, in the sand dunes there. The action we decided to take was to monitor the nesting site for predator numbers and see what other impacts there might be on the breeding success of this pair of birds.”*   * A time-frame and steps of action.   *“The first thing we had to do was to find out from DOC what would be the proper monitoring methods. We found there was a variety they used, and we followed their advice. It meant we had to spend three weeks with two weeks to analyse the data watching the nesting site, recording the interactions of the dotterels and their environment, and finding out what predators might be around. My job was to do the tracking tunnels. Everyone in our group had a slightly different task.”*   * A rationale for how data is to be gathered and analysed.   *“Because we were working closely with DOC, and also the Waikato Regional Council, we were happy that the methods we used to collect information were OK. For example, we borrowed tracking tunnels from the regional council to keep a record of rodents for one week, replacing the ink and paper each morning.”*   * Any ethical considerations.   *“These tracking tunnels do not harm the animals that crawl through them, so we knew they were ethically OK to use. We also had to check with the dune replanting group because we needed to go into where they had planted, and they didn’t want anyone to disturb their plantings.”*   * Expected outcomes.   *“I think I will see lots of hedgehogs and maybe mice. Hedgehogs are predators and eat the dotterel eggs. DOC does trap them during nesting time. My data will help them by letting them know how many hedgehogs are around.”*   * Carried out a personal action, following the plan and modifying it if necessary.   Evidence of carrying out the activity is found in the student’s log.   * Analysed aspects of sustainability and their connections in relation to the personal action.   *“We know we were working on two aspects of sustainability once we had our results. We knew straight away that we were hoping to create a more sustainable future for the dotterel, and this was obviously about the environment. However, we hadn’t initially thought that the social aspect would be so largely involved. We found that people like riding quad bikes, horses, running dogs and having their children play, all in the area where the dotterel nest was.”*   * Drawn conclusions about: * the validity of the data collection and measurement methods used   *“My data collection methods were effective. Each night I found a number of prints. Three out of the 7 nights I monitored the numbers were so great that I couldn’t distinguish between the prints. This is problematic, as I couldn’t rely on data for those nights. If I were to do this again I would use more tracking tunnels.”*   * an explanation of any modifications made   *“When we first started none of us knew what we were going to find. I thought to start with that I might find hedgehogs in my tracking tunnels but I didn’t, so I went to the council woman and she helped me set up a different sized tunnel and we found that rats were what were making most of the footprints.”*   * the effectiveness of the plan and action compared to expected outcomes   *“I think that our plan was effective, because we got some very good data about the environment the dotterels nesting at Kawhia Beach have to live in. My tracking tunnels showed rats and mice. My other group members showed that people who were using the beach ……Most of these things were what we expected to see.”*   * Drawn informed conclusions about how taking the action has changed the student’s own attitudes or behaviours.   *“I will go back and help DOC as a volunteer to continue monitoring and helping the dotterel. We have also now understood that the issue isn’t as simple as that, and that not just mine, but other people’s behaviour needs to change too if the dotterels have a real chance. So there is probably some more action that I will get involved in about educating the public.”*   * Drawn insightful conclusions, using qualitative and/or quantitative evidence, about how the outcomes of the action contribute towards a sustainable future for the dotterel.   *“I am not sure that we have contributed to a sustainable future by our actions yet. The data I collected I took to DOC. They were interested in it and realised that there had been a large increase in predators since their last monitoring of the area. This is significant and they have decided to start predator control a few months earlier before the nesting season this year So we have provided useful data, but it will need us to do more than this to really have an impact. DOC already monitor and control predators. The issue we saw that hasn’t been effectively addressed yet is the one of people’s behaviour at the beach and we have some ideas for future action that might address this. These ideas include…..This relates very well to the environmental aspect of sustainability, as it means if we can protect this pair of dotterels they will have a better chance of successfully breeding. The other aspect of sustainability that is obviously connected is the social one. As a nation we consider it is our right to be at the beach, and it will take more action to get some of the people’s behaviour to change. DOC can do predator control for the typical predators, but dogs that come to the beach with people were recorded by one of my group as being a significant risk for the dotterels too. Many members of the public often ignored the DOC volunteer worker when they were asked to take their dogs away from the cordoned off area… Studies show that people walking near the dotterel nests, and especially people with dogs, drive the adults off the eggs and increase the likely death of the eggs before hatching. On busy beaches, from Christmas to after New Year, the situation is worse, although some birds do ‘adapt’ to people they still leave the nest as soon as a dog appears within 100 metres. Dog owners need to be made aware of the impact their actions are having on the dotterel population. An education plan should be established to inform dog owners about acceptable actions such as: keeping away from dotterel nesting areas (often marked off with orange tape by DOC rangers or beach care groups), and more importantly to keep their dogs away between the months October to February. Additionally, dogs should be kept within set dog exercise areas.”*  In addition to the completed report, the student has submitted a log containing evidence of their individual contributions and of their action and findings.  *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.