**NZQA**

**Approved**

Achievement standard: 91355 Version 3

Standard title: Select and use planning tools to manage the development of an outcome

Level: 2

Credits: 4

Resource title: Street furnishings

Resource reference: Generic Technology VP-2.2 v2

Vocational pathway: Construction and Infrastructure

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| Quality assurance status | These materials have been quality assured by NZQA.  NZQA Approved number A-A-02-2015-91355-02-8250 |
| Authenticity of evidence | Assessors/educators must manage authenticity for any assessment from a public source, because learners may have access to the assessment schedule or exemplar material.  Using this assessment resource without modification may mean that learners’ work is not authentic. Assessors/ educators 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. |

Vocational Pathway Assessment Resource

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Learner instructions

# Introduction

This assessment activity requires you to select and use planning tools to manage the development of a street furnishings outcome from an assessor/educator approved brief.

You are going to be assessed on how efficiently you manage the development to optimise time and material use to ensure completion of the street furnishings outcome using selected planning tools.

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

Assessor/educator note: It is expected that the assessor/educator will read the learner instructions and modify them if necessary to suit their learners.

# Task

You are to use planning tools to manage the design and development of a street furnishings outcome (for example benches, seating, public art, rubbish bins, street lights) and present evidence supporting how efficiently you have developed and managed this process.

You require an assessor/educator brief that contains a conceptual statement, which describes what is to be done and why, and measurable specifications. The outcome can be a conceptual design for an outcome and/or the technological outcome itself (prototype).

## Selecting planning tools

Explore existing planning tools and how they are used, for example, by industry mentors and/or practicing technologists (i.e. engineers, builders, and/or construction specialists contracted to local councils).

Research other planning tools. These might include brainstorms, Gantt charts, PMI charts (plus-minus-interesting), reflective diaries and/or journals, plans of action, mind-maps, flow diagrams or graphic organisers.

Analyse how they may help you manage the development of a street furnishings outcome by recording the following information:

* identify each planning tool used
* at what stage of the project would this planning tool be relevant
* how does it help you:
  + plan the actions required
  + effectively prioritise and manage resources
  + make key planning decisions that will ensure the completion of the outcome (conceptual and/or prototype).

Select the best planning tools to use from the information you have collected and explain how they are best suited to help you manage the development of the street furnishings outcome.

## Using planning tools

Use your planning tools to:

* set achievable goals
* establish required resources (for example, time, materials, tools and equipment)
* research information such as community (local council) and work-based specialist knowledge and skills (engineers and construction specialists such as brick layers, carpenters)
* determine critical review points (i.e. those that ensure the street furnishings outcome will be completed safely and on time) at key stages of your practice, such as:
  + on the completion of research, and/or
  + having gained feedback on your conceptual designs
* provide evidence of how you are reviewing your progress and any revisions you are making to your planning to ensure you complete the outcome.

## Reviewing planning tools

During the development of the street furnishings outcome you will need to ensure you have provided evidence of how you:

* revised and/or confirmed your goals and the resources and planning tools you are using in order to complete your outcome (conceptual and/or prototype)
* optimised your use of time and materials.

## Submitting your evidence

You will need to provide evidence showing how effectively and efficiently you have managed your development process to ensure the completion of the street furnishings outcome (for example, you could organise and present this evidence through a blog or visual diary).

You will need to submit evidence of:

* your completed street furnishings outcome (conceptual and/or prototype)
* your selection and use of planning tools used in the development process (i.e. how you arrived at the final outcome).

# Resources

In selecting suitable planning tools, you may:

* find examples of planning tools on the internet and in books:

<http://www.mindtools.com>

<http://softwareforlearning.tki.org.nz>

* look at other technology projects you or other learners may have completed
* study learner projects published by <http://www.technology.tki.org.nz> (Learner Showcase and Classroom Practice Case Studies).

Useful books include:

Stensel, P 2007, *Design & Technology – Design For Life*, Pearson Education South Asia, Singapore

Reith, C 2008, *Technology Made Easy: NCEA Level 1*, Pearson Education, New Zealand

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Assessor/Educator guidelines

# Introduction

The following guidelines are supplied to enable assessors/educators to carry out valid and consistent assessment using this internal assessment resource.

As with all assessment resources, education providers will need to follow their own quality control processes. Assessors/educators must manage authenticity for any assessment from a public source, because learners may have access to the assessment schedule or exemplar material. Using this assessment resource without modification may mean that learners' work is not authentic. The assessor/educator may need to change figures, measurements or data sources or set a different context or topic. Assessors/educators need to consider the local context in which learning is taking place and its relevance for learners.

Assessors/educators 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 learners against it.

# Context/setting

This activity requires learners to select and use planning tools to efficiently manage the development of a street furnishings outcome from an assessor/educator approved brief.

Learners will be assessed on how efficiently they manage its development, through ongoing reflection of goals, resources and planning tools, to optimise time and material use to ensure the completion of a street furnishings outcome.

This may be a conceptual design for an outcome and/or the technological outcome itself (prototype).

# Conditions

Provide learners with opportunities to critically evaluate planning tools that they and others have used.

# Resource requirements

Assessors/educators will provide learners with:

* internet and library access
* access to examples of planning tools.

# Additional information

Visits to industry or from practicing technologists may also be helpful.

# Assessment schedule: Generic Technology 91355 – Street furnishings

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| Evidence/Judgements for Achievement | Evidence/Judgements for Achievement with Merit | Evidence/Judgements for Achievement with Excellence |
| The learner selects and uses planning tools to manage the development of a street furnishings outcome by:   * selecting planning tools informed by a review of existing planning tools * using selected planning tools to set achievable goals, establishing resources required and determining critical review points * managing the development and reviewing progress as planned to ensure completion of a street furnishings outcome   For example:  The learner researches street furnishing projects (i.e. benches and seating, public art, rubbish bins, street lights) online to understand how they were successfully carried out in order to complete a working outcome. A project overview-planning model used by a company who designs public benches and seating was selected.  The learner creates a project overview-planning sheet that determines key stages (research, conceptual, prototype), dates and resources (i.e. meeting with construction knowledge specialists). From past experience the learner decides to clearly establish a number of critical review points on the project overview-planning sheet; by allowing time for assessor/educator consultation at these points, any changes if necessary are factored in. The learner also decides to use a flow chart to manage the construction of the street furnishings outcome as an example of this had been seen in a case study example used by carpenters, making bench seats; it looked logical and easy to follow ensuring no steps would be missed.  The learner uses the project overview-planning sheet to guide progress through set goals and critical review points, however as there was limited equipment in the workshop (i.e. availability of specialist tools and equipment and assessor/educator knowledge), the learner also lists tasks and reviews progress for each week before going into the workshop, in order to complete the street furnishings outcome on time.  Evidence of reviewing progress is shown at a pre-established critical review points on the project overview-planning sheet, where the learner requires assessor/educator approval of the conceptual design of the street furnishings to ensure the technical feasibility is accurate. This review results in the learner needing to make changes to the dimensions, which takes longer than anticipated; adjustments are made to ensure the street furnishings outcome is to be completed on time.  *The above expected learner responses are indicative only and relate to just part of what is required.* | The learner selects and uses planning tools to effectively manage the development of a street furnishings outcome by:   * selecting planning tools informed by analysing existing planning tools * using selected planning tools to set achievable goals, establishing resources required and determining critical review points * reviewing progress at critical review points to revise and/or confirm goals, resources and planning tools to ensure completion of a street furnishings outcome   For example:  The learner researches street furnishing projects (i.e. benches and seating, public art, rubbish bins, street lights) online to understand how they were successfully carried out in order to complete a working outcome.  These include a project overview-planning model used by a company who designs public benches and seating. Although the project overview-planning model looked to work well, it was designed for businesses that had multiple projects to co-ordinate. While the learner did not require such complexity in their own planning tools; a suitable alternative was created based on this model.  The learner creates a project overview-planning sheet using a free program that determines key stages, dates and resources (i.e. meeting with construction knowledge specialists) required. From past experience the learner decides to establish a number of critical review points; allowing time for assessor/educator consultation, and changes factored in if necessary. The learner also decides to use a flow chart to manage the construction process, as this had been seen in a case study example used by carpenters making street seating, it looked logical and easy to follow ensuring no steps would be missed.  The learner uses established planning tools (project overview-planning sheets, flow chart, and check lists) to keep on track for example; the learner requires assessor/educator approval of the conceptual designs technical feasibility accuracy. When testing the prototypes dimensions through 3D computer modelling, the assessor/educator notes that the measurements were not reflected correctly on the conceptual design sketch, resulting in an inaccurate 3D computer model. The learner then needed to review planning to allow time for corrections and adjustments be made to the 3D model; progress is reviewed at critical review points; resources, (i.e. meeting with construction and knowledge specialists) and goals confirmed. Time is planned in advance for computer access to CAD (computer aided design).  A construction flowchart was completed to ensure the use of specialised equipment, ordering of materials, and practising techniques was planned in advance. When reviewing planning tools a checklist is added to help confirm weekly goals. The learner reviews these goals in a reflective journal thus ensuring the street furnishings outcome is to be completed on time.  *The above expected learner responses are indicative only and relate to just part of what is required.* | The learner selects and uses planning tools to efficiently manage the development of a street furnishings outcome by:   * selecting planning tools informed by analysing existing planning tools * using selected planning tools to set achievable goals, establishing resources required and determining critical review points * ongoing reflection on goals, resources, and planning tools to optimise time and material use to ensure the completion of a street furnishings outcome   For example:  The learner researches street furnishing projects (i.e. benches and seating, public art, rubbish bins, street lights) online to understand how they were successfully carried out in order to complete a working outcome.  These include a project overview-planning model used by a company who designs public benches and seating. Although the project overview-planning model looked like it would work well, it was designed for businesses that had multiple projects to co-ordinate. While the learner did not require such complexity in their own planning tools; a suitable alternative was created based on this model.  The learner creates a project overview-planning sheet using a free program that determines key stages, dates and resources (i.e. meeting with construction knowledge specialists) required.  The learner constantly uses and reviews planning tools (project overview-planning sheets, flow charts, checklists), goals and resources to keep on track. A number of critical review points are established and used to ensure the developing outcome has assessor/educator approval before any essential developments are carried out (for example, checking technical feasibility, dimensions, ergonomic factors). If this results in changes the learner optimises the time remaining by planning time for assessor/educator approval to check these changes before any further work commences. For example, initial design ideas considered long bench seating, however after further research into ergonomic factors such as comfort, the learner realised street seating should be designed to encourage sitting but discourage lying down; time was needed to incorporate this into later design ideas.  The learner optimises the remaining time available by such things as; using a reflective journal to revise and confirm goals in weekly check list, listing tasks and reviewing ongoing progress each week to allow time for such things as, computer access to work on conceptual design ideas using CAD (computer aided design).  A construction flowchart was completed to ensure the use of specialised equipment, ordering of materials and time to practise unfamiliar techniques was planned in advance. This had been seen in a case study example used by carpenters making street seating; it looked logical and easy to follow ensuring no steps would be missed.  If the learner is behind then more time is organised in the workshop or computer room at break to ensure the street furnishings outcome is to be completed on time.  *The above expected learner responses are indicative only and relate to just part of what is required.* |

Final grades will be decided using professional judgement based on an examination of the evidence provided against the criteria in the Achievement Standard. Judgements should be holistic, rather than based on a checklist approach.