**NZQA**

**Approved**

Achievement standard: 91068 Version 4

Standard title: Undertake development of design ideas through graphics practice

Level: 1

Credits: 6

Resource title: Mobile phone attachment

Resource reference: Design and Visual Communication VP-1.35 v2

Vocational pathway: Construction and Infrastructure

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Vocational Pathway Assessment Resource

Achievement standard: 91068

Standard title: Undertake development of design ideas through graphics practice

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Resource title: Mobile phone attachment

Resource reference: Design and Visual Communication VP-1.35 v2

Vocational pathway: Construction and Infrastructure

Learner instructions

# Introduction

This assessment activity requires you to develop design ideas for a piece of equipment or attachment to a phone for a building inspector having difficulty using a mobile phone to communicate with his office, when out in the field.

You are going to be assessed on how effectively you develop design ideas through graphics practice for a piece of equipment or attachment to a phone for a building inspector having difficulty using a mobile phone to communicate with his office, when out in the field.

The following instructions provide you with a way to structure your work so you can 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

Design a piece of equipment, attachment or adaptation to a phone for a building inspector having difficulty using a mobile phone to communicate with his office when out in the field, by doing the following:

* Reflect the specific requirements of the user so that your solution focusses on how the building inspector can use the mobile phone, perhaps in a hands free manner.
* Consider the functional elements of the piece of equipment (that is the way it works), for example durability, materials, maintenance, construction, ergonomics and ease of use.
* Consider the piece of equipment’s aesthetic elements (that is the way it looks) for example style, form, shape and colour.
* Develop a portfolio to show the progression of your design ideas. This could include visual diaries, sketches, drawings, models, photographs, digital media, display boards or installations.

Compiling your portfolio involves three phases, initial research, initial ideas and ideas development.

***Part 1: Initial research***

During this phase do the following:

* Identify the needs and problems people have in the use of mobile phone devices when there are restrictions in their ability to hold the phone and perform other duties.
* Research mobile phones, attachments and other apparatus to get an idea of the types of materials, shapes and designs of equipment that may enable a person, with restricted mobility, to more easily use a phone on a construction site. Collect images of phone devices and phone attachments from magazines, the internet or books and evaluate the designs, materials and products in these images against the brief.
* Record this information in your portfolio, with photographs, diagrams and notes. Refer to it as you develop your design ideas.

## Part 2: Initial ideas

During this phase do the following:

* Produce different initial ideas for your piece of equipment using drawings and/or mock-ups. These are your starting points for potential development.
* Consider the function of the piece of equipment or attachment (that is the way it works) and aesthetic features (that is the way it looks) for your design ideas as well as sources of inspiration. Your inspiration should mainly come from your initial research but you may also be inspired by other sources, for example other designs you have seen, ideas related to the construction setting and your own imagination.

## Part 3: Ideas development

In developing your design ideas for the piece of equipment you need to:

* Explore alternative shapes and forms of equipment or apparatus to suggest different realistic possibilities that make the mobile phone device easier to use for a building inspector (who may have restricted mobility) when out in the field.
* Refine and make conclusions about the way it looks, and the way it works for your design features. The development of your ideas should be logical, related to research and linked to the initial ideas.
* Gather and use further research, when needed, to help you develop your ideas; for example:
  + information about commonly used materials
  + how the equipment is utilised within different environments, for example when used in a vehicle or moving around a building site.
* Also consider:
  + the changes you made in the development of your ideas
  + how these changes have altered the quality of your ideas
  + other potential changes that you could make to further improve your ideas.
* Make sure the features of your final design outcome are clearly established and identified at the conclusion of your development work.

Throughout the design development process make sure that you:

* Convincingly explore and refine your design ideas in a coherent and connected way that integrates design features (that is, the intent of the design is obvious to someone viewing it), and there is a good design flow throughout the development.
* Make design judgements that are convincing and coherent (that is, the logical and connected design judgements need to promote your selected ideas and the decisions you make as you develop your ideas).
* Integrate the design principles of aesthetics (that is the way it looks) and function (that is the way it works) with the design judgements you make.
* Support your design judgements by:
  + qualitative data that is subjective and reflects the tastes and views of stakeholders
  + quantitative data gained from measuring people to develop appropriate size ranges gathered through research
  + evidence of computer modelling and/or mock-up of the design to validate ergonomics and usability requirements.
* Visually communicate the detail of the design ideas that you have explored, in response to the design brief. This will show through the visual communication of the ideas you present, for example the drawing skills you display, the sketches and the modelling you produce.

When you submit your completed portfolio for assessment, make sure it includes all the visual and written work required.

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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 effectively design a piece of equipment or modification to an existing phone for a building inspector who has difficulty using a mobile phone to communicate with his office, when out in the field.

Learners need to produce a portfolio of design work using graphics practice that shows the development of the design for the equipment, apparatus or modification for the mobile phone.

# Conditions

This is an individual activity.

Check learners’ work during the assessment task as they work towards an outcome. These checks could be at key stages of the process or other appropriate points.

# Resource requirements

Learners need access to:

* the internet
* design books
* local telecommunications expertise, if available.

# Additional information

The learner may meet the requirements of the standard without producing a formal final design.

# Assessment schedule: Construction and Infrastructure 91068 – Mobile phone attachment

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| Evidence/Judgements for Achievement | Evidence/Judgements for Achievement with Merit | Evidence/Judgements for Achievement with Excellence |
| The learner undertakes development of design ideas, through graphics practice, for a piece of equipment, or attachment to a phone, for a building inspector having difficulty using a mobile phone to communicate with his office when out in the field by:   * exploring design ideas by considering possible alternatives * refining the design ideas by considering design details * making design judgements that consider qualities of design ideas in terms of the principles of aesthetics and function in response to the design brief * visually communicating the details of design ideas in response to the design brief   For example:  The learner produces a portfolio of design development that shows:   * + how the phone attaches to the building inspector’s body allowing hands free operation   + how the user operates the device   + the ease of use of the device.   The learner talks to potential users to gain feedback on the device.  Throughout their design development the learner focuses on how the appearance and function of their design ideas may work for the client.  The learner visually communicates, with sketches, drawings, models, the detail of the design ideas they have explored in response to the design brief.  The design outcome meets the requirements of the brief, leading to a possible solution for the building inspector having difficulty using a mobile phone to communicate with his office when out in the field.  *The above expected learner responses are indicative only and relate to just part of what is required.* | The learner undertakes informed development of design ideas, through graphics practice, for a piece of equipment or attachment to a phone, for a building inspector having difficulty using a mobile phone to communicate with his office when out in the field by:   * purposefully exploring and refining design ideas in relation to the considerations and decisions that are meaningful to the design context * making design judgements where ideas and decisions are informed by design principles and the brief context   For example:  The learner produces a portfolio that shows that through their development they have considered, explored, refined and added detail to the design ideas. This could be in the form of:   * + how the person is able to select and use all the numbers of the dial pad   + the solution is visually attractive to the user   + the design development is logical to follow   + the design development follows a flow that informs a usable solution   + modelling has been used to inform design development   + the equipment, apparatus or adaptation to the phone is easily transferred on and off the body of the user   + the solution is user friendly when in use.   The learner uses research data that informs the solution.  The learner finds a solution that meets the requirements of the user which could be shown through the analysis of testing.  The learner makes design judgements throughout the design development process that are informed by the way the equipment, apparatus or modification looks and works and the context of the brief.  The design outcome meets the requirements of the brief, leading to a possible solution for the building inspector having difficulty using a mobile phone to communicate with his office when out in the field.  *The above expected learner responses are indicative only and relate to just part of what is required.* | The learner undertakes effective development of design ideas, through graphics practice, for a piece of equipment or attachment to a phone for a building inspector having difficulty using a mobile phone to communicate with his office when out in the field by:   * convincingly exploring and refining design ideas in a coherent and connected way that integrates design features * making design judgements that are convincing and coherent in promoting ideas selected and decisions made   For example:  Throughout the development of their design ideas, the learner considers, explores and refines alternative versions of the piece of equipment or attachment:   * + detail is added to the dial pad which enables the user to easily use and interact with the dial pad   + the solution is visually attractive, and the user can interact with it easily   + the design development flows in a logical way and is easy to follow, e.g. there could be easy and obvious changes in the mode of the equipment from phone, radio to camera   + there is evidence of modelling through the use of 3D computer programs used to validate the design against the brief   + there is evidence of user trials with mock-ups which verify design judgements about appearance and adjustability.   The learner makes design judgements throughout the design development process that are convincing to promote the design ideas selected and the design decisions made.  The learner supports design judgements by qualitative data that is subjective and reflects tastes and views to meet the client needs; research is used to justify decisions made in the development of the equipment or attachment.  The learner justifies the material used e.g. *I believe that it will be durable and hard wearing* or *I like bright colours and have used them here as I think that will be a good visual indicator for the person to see the equipment.*  The outcome meets the requirements of the brief, leading to a possible solution for the building inspector having difficulty using a mobile phone to communicate with his office when out in the field.  *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.