**NZQA**

**Approved**

Achievement standard: 91054 Version 3

Standard title: Demonstrate understanding of basic human factors in design

Level: 1

Credits: 4

Resource title: Applying ergonomics to fashion

Resource reference: Generic Technology VP-1.11 v2

Vocational pathway: Manufacturing and Technology

|  |  |
| --- | --- |
| Date version published | February 2015 Version 2  To support internal assessment from 2015 |
| Quality assurance status | These materials have been quality assured by NZQA.  NZQA Approved number A-A-02-2015-91054-02-7369 |
| 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

Achievement standard: 91054

Standard title: Demonstrate understanding of basic human factors in design

Level: 1

Credits: 4

Resource title: Applying ergonomics to fashion

Resource reference: Generic Technology VP-1.11 v2

Vocational pathway: Manufacturing and Technology

Learner instructions

# Introduction

This assessment activity requires you to demonstrate your understanding of basic human factors used in the design of a range of garments.

You are going to be assessed on how comprehensively you demonstrate your understanding of basic human factors used in the design.

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

When creating garments, fashion designers need to consider how basic human factors affect their product. Complete a storyboard showing a range of garments with all associated analysis to demonstrate your understanding of the basic human factors used in design.

Explore garments suitable for a coming season and a consumer group. For example take photographs and record any evidence (see Resource B) that will enable you to analyse the use of the distinctive styles and trends for this coming winter.

Gather and analyse the data you may need by:

* identifying a range of techniques that can be used to gather data about human factors and be used to analyse such data. How do anthropometric, psychological, and sensory data gathering inform fashion design? For example, in order to analyse factors affecting garment design, you could look at the requirements for different consumer groups i.e. based on age, gender
* identifying basic human factors to be considered in designing garments. This may include its function, user-friendliness, comfort, adjustability, enjoyment and other positive responses
* distinguishing between personal preferences and group preferences (cost, standard size, popularity). How might they impact on the style and trends in garment designs?

Organise and document all your evidence to support any decision-making. You may wish to include annotated drawings, photographs of current trends, graphs illustrating demographics, and personal and/or group preferences for the season.

Your storyboard will need to include:

* discussions of why human factors need to be considered when designing a range of garments. How do human factors (ergonomic and aesthetic) impact on garment design and how have you taken these factors into account? For example basic human factors such as size, lifestyle, function, ease of use and appearances, and demographics (average size and height range)
* explanations of how personal preference, group preference, style and trends impact on garment design, for example aesthetic factors that influence designers (such as up-coming trends for a specified season) could be explained here
* discussions about the suitability of data gathering and analysis techniques that may be used in designing fashion garments. Compare and contrast the advantages of specific data gathering techniques (anthropometric, psychological and sensory) to inform your own storyboard. For example, discussing why measuring and analysing demographics is a suitable anthropometric data gathering technique (Resource B) used by fashion designers.

Find relevant information of how human factors are used in fashion design by:

* visiting your local library or museum, and fashion shops, boutiques
* researching websites and books (Resource A)
* visiting a local fashion designer.

# Resource A

## Useful information

Woodson, W, Tillman, B and Tillman, P 1992, *Human Factors Design Handbook*, McGraw-Hill Education.

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

Ergonomics:

<http://designmuseum.org/design/page75806>

Fashion trends and history:

<http://www.fashion-era.com>

# Resource B

## Example of data gathering

This is an example where psychological data from interviewing the target market (women aged 25 to 40) has been collected in relation to designing a range of summer sportswear for women.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Target Market | Size | Style | Money | Lifestyle | Data results |
| Mum  Age:36 | 14 | Wash and wear but trendy to go to the gym. | Middle income so cost of garments is important. | Has three children, so not a lot of time. Fit. | Outgoing and likes trendy sportswear to wear to the gym. Has kids so not a lot of time, garments will need to be wash and wear, affordable cost and long lasting. |
| Aunt Betty  Age:32 | 12 | Trendy, fun to wear to gym but also to go out for coffee.  Easy care. | Middle income so wants garments to have more than one use and will pay more for quality as wants garments to last a long time. | Varied lifestyle, will wear to gym, coffee and at home. One child and works part time, very fit. | Confident, fun and trendy, has busy lifestyle so wants garments to wear to gym, home and to coffee. Must be easy care and cost affordable, although will pay more for quality. |

Vocational Pathway Assessment Resource

Achievement standard: 91054

Standard title: Demonstrate understanding of basic human factors in design

Level: 1

Credits: 4

Resource title: Applying ergonomics to fashion

Resource reference: Generic Technology VP-1.11 v2

Vocational pathway: Manufacturing and Technology

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 demonstrate comprehensive understanding of basic human factors used in garment design.

# Conditions

This is an individual activity. Learners could work individually or in groups to look at ergonomic and aesthetic factors to understand what is meant by the terms personal preference, group preference, style, and trends and how these affect different design tasks. The format of this activity is a storyboard; you may wish to take learner preferences into account to decide on another format.

# Resource requirements

Learners require access to the internet for research.

# Additional information

None.

## Other possible contexts for this vocational pathway:

* Focus on a design era: learners could consider and discuss garments that were typical of a particular era, for example Victorian or the disco era.
* Environmental architecture: learners could consider and discuss spatial design, for example theatre design, fashion shows and relevant fashion internet sites.
* Industrial design: learners could consider and discuss, for example the design of accessories such as handbags, shoes etc.

# Assessment schedule: Generic Technology 91054 – Applying ergonomics to fashion

|  |  |  |
| --- | --- | --- |
| Evidence/Judgements for Achievement | Evidence/Judgements for Achievement with Merit | Evidence/Judgements for Achievement with Excellence |
| The learner demonstrates understanding of basic human factors used in designing a range of fashion garments by:   * describing human factors that need to be considered when designing fashion garments   For example:  The learner describes human factors affecting the intended target market: physical attributes as well as the way people feel, think, and behave.   * explaining how personal preference, group preferences, style and trends may impact on fashion garment designs   For example:  The learner explains how the target market was a busy mum with a varied lifestyle, who required sportswear able to be worn at the gym, going for coffee and at home. Annotated drawings further demonstrate how these garments are designed to provide comfort and are functional in various environments. The learner also explains how styles and trends may be linked: how the up-and-coming trend of ‘confident and outgoing’ would suit the busy lifestyle of mums who want trendy yet comfortable sportswear. The learner’s storyboard includes three garments that demonstrate how these designs meet the personal style of the intended demographic group.   * describing data gathering and analysis techniques that may be used in planning for a range of fashion garments, such as how each technique is carried out (how the information is collected and analysed) and how it then informs garment designs   For example:  The learner describes interviews as one useful data gathering technique in fashion design. The description includes a summary of the interviews of the target market (women aged 25 to 40, busy mums with varied lifestyles who require trendy, easy care and affordable sportswear). By analysing the interviews, the learner was able to provide further detail in annotated drawings showing typical measurements and adjustments that could be made to ensure comfort.  *The above expected learner responses are indicative only and relate to just part of what is required.* | The learner demonstrates in-depth understanding of basic human factors used in designing a range of fashion garments by:   * explaining the human factors that need to be considered when designing fashion garments   For example:  The learner explains human factors affecting the intended target markets (physical attributes as well as the way they feel, think, and behave).   * explaining how personal preference, group preferences, style and trends may impact on fashion garment designs   For example:  The learner explains how the target market was a busy mum with a varied lifestyle, who required sportswear able to be worn at the gym, going for coffee and at home. Annotated drawings further demonstrate how these garments are designed to provide comfort and are functional in various environments. The learner also explains how styles and trends may be linked: how the up-and-coming trend of ‘confident and outgoing’ would suit the busy lifestyle of mums who want trendy yet comfortable sportswear. The learner’s storyboard includes three garments that demonstrate how these designs meet the personal style of the intended demographic group.   * explaining data gathering and analysis techniques that may be used in planning for a range of fashion garments, such as how each technique is carried out (how the information is collected and analysed) and how it then informs garment designs   For example:  The learner explains more than one data gathering technique and more than one analysis technique. The learner explains how interviews are one useful data gathering technique in fashion design, and includes a summary of the interviews of the target market (women aged 25 to 40, busy mums with varied lifestyles who require trendy, easy care and affordable sportswear). By analysing the interviews the learner was able to provide further detail in annotated drawings showing typical measurements and adjustments that could be made to ensure comfort.  *The above expected learner responses are indicative only and relate to just part of what is required.* | The learner demonstrates comprehensive understanding of basic human factors used in designing a range of fashion garments by:   * discussing why human factors identified for designing fashion garments need to be considered   For example:  The learner compares and contrasts how designing garments for a target market differs from designing for an individual, or how designing garments for one environment (e.g. home) differs from designing garments for another environment (e.g. a gym). The learner discusses why the human factors identified are important (e.g. why the average size of the population can be used to generate likely sizes required in a fashion range, to minimise material wastage). The discussion may include that ignoring the human factors in designing fashion garments may lead to a lack of saleability of the product.   * explaining how personal preference, group preferences, style and trends may impact on fashion garment designs   For example:  The learner explains how the target market was a busy mum with a varied lifestyle, who required sportswear able to be worn at the gym, going for coffee and at home. Annotated drawings further demonstrate how these garments are designed to provide comfort and are functional in various environments. The learner also explains how styles and trends may be linked: how the up-and-coming trend of ‘confident and outgoing’ would suit the busy lifestyle of mums who want trendy yet comfortable sportswear. The learner’s storyboard includes three garments that demonstrate how these designs meet the personal style of the intended demographic group.   * discussing the suitability of data gathering and analysis techniques that may be used in designing fashion garments.   For example:  The learner compares and contrasts the advantages and disadvantages of interviews and compares these with the advantages and disadvantages of observing in order to decide which of these techniques may provide better qualitative data for their specific purpose. The learner also discusses the advantages and disadvantages of current trends by comparing existing successful styles to a prototype created within computer-aided drafting software. The discussion covers the use of databases as a tool for analysis, how these are created and why they are useful in fashion design, how anthropometric data could be used to determine average height and size, and how this type of measurement can be collected into a database which becomes a useful designer’s tool, giving standardised measurements for groups of the population.  *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.