

# Unit 8: Design Principles in Art and Design

NQF Level 3: BTEC National

Guided learning hours: 60

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## Unit abstract

Within the field of design there are principles that govern the development and production of design solutions. Designers use their knowledge of design principles in all stages of their work. Key considerations include how form relates to function, choice of materials, issues of cultural association, design for need and the responsibilities of designers.

Designers have to balance commercial needs whilst considering aesthetics. Designers have to consider production and financial constraints. As consumer expectations and modern technologies are continually changing, designers need to use a broad range of skills to meet the challenges of contemporary design.

In this unit, learners will experience these same constraints and situations designers face. They will be taught to consider how form relates to function in their own work, and how to evaluate and consider their choice of materials. Learners will be encouraged to identify appropriateness as a key factor in determining the choice of materials. The areas of design for specific functions and issues relating to emotional design will also be covered.

The unit will provide learners with a knowledge of technical considerations that relate directly to their practical work. Emphasis will be placed on the development stages in the design process, the production of work that addresses the constraints of design briefs and learners' evaluations.

Learners will reach conclusions informed by the knowledge and understanding gained in personal appraisal of design principles. As in the world of design, learners will adapt and shape their initial ideas as they move through the developmental process.

In studying this unit, learners will gain an understanding of the key principles of design. To produce effective design solutions, practitioners need to address the underlying questions of purpose, intended audience and their needs and cost. As society becomes ever more complex, designers' responses to design problems frequently break new ground. In understanding the principles of design, learners should be better equipped to develop coherent and responsive design solutions.

## **Learning outcomes**

**On completion of this unit a learner should:**

- 1 Understand how form relates to function in their own work
- 2 Be able to use appropriate materials in their own work
- 3 Know how cultural associations affect their own work
- 4 Understand design for need and the responsibilities of designers.

## Unit content

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### 1 Understand how form relates to function in their own work

*Understand:* eg consider formal qualities, appearance, finish or surface decoration; consider fashionable qualities, avant-garde, post modern, traditional; utilitarian properties such as functional needs or practical use; the symbolic significance of products, eg historical or contemporary, cultural, social, religious, political or philosophical

*Form relates to function:* eg functional requirements; ergonomics, aids to or substitutes for physical function, providing comfort, protection, shelter or mobility; commercial considerations, eg communication of information, persuasion or propaganda; corporate and individual needs; illustration, eg for commemorative purposes, technical accuracy

### 2 Be able to use appropriate materials in their own work

*Appropriate materials:* eg materials that relate to the design context; materials that meet the functional requirements of the brief; materials suited to creative intentions; consideration of structural qualities such as strength, weight, flexibility, durability or malleability; consideration of visual qualities such as colour, surface, texture, opacity, transparency or pattern; consideration of tactile qualities such as texture, smooth, warm, cold, comfortable, hard, soft and emotional effects such as soothing or exciting; consider visual relationships between selected materials

### 3 Know how cultural associations affect their own work

*Cultural associations:* values of contemporary society, eg cosmopolitan, world wide; context; aesthetic values; views of individuals and user groups such as cultural or social groups, commercial organisations or target market groups; cultural styles, eg western and non western, historical and contemporary; trends, fashion, individual or group identity; cultural significance of signs, symbols, stylish conventions and codes; cultural significance and impact on marketing; commercial identity, propaganda; ethical and environmental issues

### 4 Understand design for need and the responsibilities of designers

*Design for need:* eg identifying key requirements of design brief; considering questions such as who and what is it for? what is its purpose? how can the needs best be met within identified constraints?

*Responsibilities of designers:* eg ability to work as part of a team; responsibilities to other parties such as clients, the public, specified users; providing value for money; quality control; durability of design; understanding environmental impact, eg environmental sustainable design, recycling, sourcing and associated production costs; ethical issues, emotional design; health and safety considerations

## Grading grid

In order to pass this unit, the evidence that the learner presents for assessment needs to demonstrate that they can meet all of the learning outcomes for the unit. The criteria for a pass grade describe the level of achievement required to pass this unit.

Grading criteria		
To achieve a pass grade the evidence must show that the learner is able to:	To achieve a merit grade the evidence must show that, in addition to the pass criteria, the learner is able to:	To achieve a distinction grade the evidence must show that, in addition to the pass and merit criteria, the learner is able to:
P1 explain how form relates to function in their own work	M1 demonstrate skills and understanding in applying aesthetic considerations to functional requirements in their finished design work	D1 show an independent approach to research and the application of innovative design ideas
P2 use appropriate materials in their own design work	M2 show an effective and considered understanding of applying design principles when producing their own work.	D2 show how the evaluation undertaken in the design stages has been applied to the development and production of exciting, coherent and individual design work.
P3 explain how cultural associations affect their own work		
P4 explain design for need and the responsibilities of designers.		

## Essential guidance for tutors

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### Delivery

This unit should be delivered as an integral component of the teaching and learning for the programme, rather than a stand-alone unit. The key principles of design can be addressed through integrated projects that also cover other units. Theoretical consideration of the broad principles of design can be explored through historical and contextual studies.

In this unit, learners should consider theory of design principles when applied to practical design briefs. They should study at least one project as part of a group or team, reflecting professional practice in design. Where possible, learners should be given opportunities to observe and record examples of professional practice. In this way they can consider the importance of design principles as applied to different levels of design, from basic economy products through to high end specialist design.

Initial exercises considering design principles may need to be tutor led. Subsequent exercises should encourage learners to develop an independent approach through research using books and other printed matter, the internet, face-to-face questioning, market research and professional practice.

Learning outcome 1 can be delivered across a number of integrated practical units. It can be linked to aspects of *Unit 5: Contextual Influences in Art and Design*.

Learners should be given sufficient examples of form and function to consider. Learners should record the stages of their design development whilst referring to questions relating to form and function. In this way their ideas should be compatible with the principles of design and should be informed by them.

Records of evaluation, both of examples of design and of their own work, will need to be ordered and clearly identifiable. Design appreciation should be linked to learners' specialist pathways rather than whole sections of the history of design.

Learning outcome 2 can be delivered through a series of design briefs asking for responses against clear constraints. Learners will need to be taught the necessary project management skills. They should be encouraged to explore materials and techniques in developing their ideas.

Learners will need to record evaluations clearly across different projects. Initially, it may be useful for tutors to provide a template for evaluation against the principles of design that learners can apply to their developmental work. Learners should clearly identify their reasons for selecting certain materials over others. Learners should be encouraged to experiment with materials in a creative way, combining different visual elements to create visually dynamic finished work.

Learning outcome 3 involves learners in considering aspects of cultural association and this process will need to be supported by a range of relevant examples. As learners' understanding grows, tutors should be able to introduce more complex issues relating to cultural styles and codes.

Where possible, learners should be provided with a design brief that explicitly challenges preconceptions.

The process of questioning the purpose of symbols, styles and conventions will also relate to learning outcome 4. Learners will need to record their research into cultural associations with visual materials and examples sourced clearly identifiable. Learners should be taught the necessary skills to evaluate how their work is affected by cultural ideas. As this knowledge grows, learners should be expected to develop independence in exploring these issues further.

Learning outcome 4 will have been touched upon when delivering the other learning outcomes. The ability to question the purpose of a design brief and establish the needs of users, and to provide valid answers to these questions, is a skill. This skill will need to be developed through tutor-led consideration of examples.

Learners should be encouraged to develop knowledge and understanding through consistent questioning of items, products or situations from the world around them. Learners should gather information on the responsibilities of designers that will assist their approach to practical work. The responsibilities to other team members and to users and clients should also be studied and responses recorded.

Issues such as emotional design should also be highlighted. Learners should consider what responsibilities designers have to reduce any harmful impact on the environment, or to design with renewable or recycled materials.

## Assessment

To achieve a **pass** grade, learners must achieve the four pass criteria listed on the grading grid.

For P1, learners will be able to create finished work that meets the constraints of design briefs and show an understanding of how form relates to function in their own work.

For P2, learners will use appropriate materials in their own work. Learners will show a basic understanding of the qualities of materials, and will make limited evaluations of design needs in projects. Materials selected for use meet the requirements of the brief but will not provide creative solutions. Solutions to problems will be obvious.

For P3, learners will show a basic level of understanding of the values of user groups. Evaluations will provide a limited range of conclusions, but without real insight. The application of knowledge gained to design solutions will be basic. Learners will be able to show understanding of purpose in design, and will record considerations in a basic format. There will be some application of knowledge gained when working to design briefs, but conclusions reached will be obvious.

For P4, learners will understand the responsibilities of designers, but the range of research and conclusions will lack breadth. Evaluation will provide a basic level of knowledge, and responses will be described in limited depth.

To achieve a **merit** grade, the learner must achieve all of the pass grade criteria plus the two merit grade criteria.

For M1, learners will show independence and skill in researching and recording their observations on the principles of design. They will apply these principles independently to the development of their design work. Learners will demonstrate skill and understanding in applying aesthetic considerations to the development of their design work. They will make direct links between their evaluations and how they have applied knowledge gained in their design process. Design work will show a skilful level of awareness and responsiveness to briefs.

For M2, learners will show an effective, considered understanding of applying design principles when producing their own work. Learners will analyse examples of design and their own work to produce coherent conclusions. Critical awareness will be shown in the clarity of conclusions reached and subsequent actions taken.

To achieve a **distinction** grade, the learner must achieve all of the pass and merit grade criteria plus the two distinction grade criteria.

For D1, learners will show an individual approach in researching design ideas. Conclusions reached will be well informed and will be applied to support the development of innovative design ideas. Learners' records will be concise and show clarity of thought. Learners' development work will consistently apply the principles of design.

For D2, learners will show how they have applied information from evaluations. This information will have been used to enhance the design process and development work. Ideas will be consistently applied to the production of coherent, dynamic and individual design work. There will be a level of individuality and personal involvement with the design process that distinguishes the work from that merit level.

### **Links to National Occupational Standards, other BTEC units, other BTEC qualifications and other relevant units and qualifications**

This unit links with all other units within which the principles of design can be applied.

There are opportunities for the development of key skills in this unit. It also provides development opportunities for some of the underpinning knowledge and skills in NVQ Design Level 2 (SFEDI) Unit 23: Develop Design Responses to Meet Agreed Requirements and Unit 24: Contribute to Producing Detailed Design Work.

### **Essential resources**

The unit will require substantial teaching and the tutor will provide the initial focus for developing an understanding of design principles. As understanding develops the focus should change from the tutor to a more independent approach referring to resources such as books, other reference materials, digital information sources, interviews with designers and the public in relation to design projects, market research and professional practice.

Practical facilities, sufficient to support a range of 2D and 3D design studies, must be provided. Live projects or client-led briefs may also be used to provide sufficient opportunities for learners to experience aspects of professional practice.

Advantage should be taken of any relevant design exhibitions or events suited to learners' specialist pathways. These may be useful in providing a suitable backdrop against which to pose the questions that relate to the key principles of design.

## Indicative reading for learners

### Books

Butler J et al – *Universal Principles of Design: 100 Ways to Enhance Usability, Influence Perception, Increase Appeal, Make Better Decisions and Teach Through Design* (Rockport Publishers Inc, 2003)

De Saumarez M – *Basic Design: The Dynamics of Visual Form* (Herbert, 1983)

Dormer P – *Design Since 1945* (Thames & Hudson, 1993)

Feill C and Feill P – *Design of the 20th Century* (Taschen, 2001)

Feill C and Feill P – *Designing the 21st Century* (Taschen, 2005)

Forty A – *Objects of Desire* (Thames & Hudson, 1986)

Giedion S – *Space, Time and Architecture – 5th Edition* (Harvard University Press, 1967)

Gregory R L – *Eye and Brain – 5th Edition* (Oxford University Press, 1998)

Gregory R L – *The Intelligent Eye* (Weidenfeld and Nicolson, 1970)

Kepes G – *Module, Symmetry, Proportion* (Studio Vista, 1966)

Norman D A – *The Design of Everyday Things* (Basic Books, 1998)

Norman D A – *Emotional Design* (Basic Books 2005)

Sparke P – *Design in Context* (Quarto, 1987)

Wilson F – *Structure: The Essence of Architecture* (Studio Vista, 1971)

## Key skills

Achievement of key skills is not a requirement of this qualification but it is encouraged. Suggestions of opportunities for the generation of Level 3 key skill evidence are given here. Staff should check that learners have produced all the evidence required by part B of the key skills specifications when assessing this evidence. Learners may need to develop additional evidence elsewhere to fully meet the requirements of the key skills specifications.

<b>Improving own learning and performance Level 3</b>	
<b>When learners are:</b>	<b>They should be able to develop the following key skills evidence:</b>
<ul style="list-style-type: none"> <li>• responding to design briefs and developing timescales</li> <li>• working to realise the brief</li> <li>• evaluating outcomes and receiving feedback.</li> </ul>	<p>LP3.1 Set targets using information from appropriate people and plan how these will be met.</p> <p>LP3.2 Take responsibility for their learning, using their plan, to help meet targets and improve their performance.</p> <p>LP3.3 Review progress and establish evidence of their achievements.</p>
<b>Problem solving Level 3</b>	
<b>When learners are:</b>	<b>They should be able to develop the following key skills evidence:</b>
<ul style="list-style-type: none"> <li>• analysing and responding to design briefs and constraints</li> <li>• producing responses to the brief addressing constraints</li> <li>• evaluating outcomes, fitness for purpose and receiving feedback.</li> </ul>	<p>PS3.1 Explore a problem and identify different ways of tackling it.</p> <p>PS3.2 Plan and implement at least one way of solving the problem.</p> <p>PS3.3 Check if the problem has been solved and review their approach to problem solving.</p>

<b>Working with others Level 3</b>	
<b>When learners are:</b>	<b>They should be able to develop the following key skills evidence:</b>
<ul style="list-style-type: none"> <li>• working with peers, identifying roles and tasks</li> <li>• liaising with clients/peers and reviewing progress on the project</li> <li>• presenting final work, evaluating, receiving feedback and reviewing team roles.</li> </ul>	<p>WO3.1 Plan work with others.</p> <p>WO3.2 Seek to develop co-operation and check progress towards your agreed objectives.</p> <p>WO3.3 Review work with others and agree ways of improving collaborative work in future.</p>