

# Unit 2: **Materials, Techniques and Processes in Art and Design**

**NQF Level 3: BTEC National**

**Guided learning hours: 60**

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## **Unit abstract**

Artists, craftworkers and designers employ a broad range of materials, techniques and processes in their work, sometimes combining traditional craft with contemporary art and design in innovative ways. Developments in new technologies have brought a wealth of new opportunities to the creative process. Practitioners' use of materials, techniques and processes has a direct bearing on the look and feel of artefacts and products, their presentation and the cost of production.

The aim of this unit is to develop learners' knowledge, skills and understanding in working safely and creatively with the materials, techniques and processes associated with their specialist pathway. It will enable learners to explore, experiment with, and understand the use of a range of materials, techniques and processes.

As the unit develops, learners will be made aware of the importance of the health and safety issues related to the associated technologies of their specialist disciplines. As a result, it underpins all other units in the qualification and is essential in preparing learners for vocational progression.

Learners should demonstrate their skills and understanding in their developmental work and in the production of finished work. In order to select and use appropriate materials and techniques, learners will evaluate the different qualities and properties associated with different media. They will learn to critically review their experiments at different stages of development in order to modify and refine their work as it progresses. Learners will also be made aware of the significance and value of studying the work of professional practitioners for the development of their own work.

## **Learning outcomes**

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

- 1 Know how to explore materials, techniques and processes safely
- 2 Be able to use materials, techniques and processes
- 3 Understand and evaluate the suitability of selected materials, techniques and processes at relevant stages of the process.

## Unit content

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### 1 Know how to explore materials, techniques and processes safely

*Variety of materials:* eg 2D, 3D, 4D, papers, natural and synthetic fabrics, card, glass, perspex, aluminium foils, wood, clay, plastics, concrete, steel, aluminium sheeting, computers, hardware and software, time-based media

*Markmaking:* eg wet, dry, lens-based (photograms, pin-hole cameras), textiles (dyeing, printing, distorted weft), collage, montage, 3D shaping, fabricating (carving, modelling, gluing, welding, riveting, tying)

*2D processes:* eg monoprinting, relief printing, tapestry, weaving, machine embroidery, pigment printing, imprinting/transfer printing, painting, mixed media drawing, thumbnail sketches, lens-based (black and white photography, exposing, developing and printing photosensitive films)

*3D processes:* eg maquette making, armature construction, mould-making, mixed media work, toiles, model-making (paper engineering for realisation purposes)

*4D processes:* eg time-based media and techniques such as video, audio, performance, music, storyboard, film, web design, index cards and flipbooks

The above could involve an analysis of methods, exploring surfaces, the exploration of parameters of materials (wet, dry, malleable or non-malleable); investigation into equipment and technologies (manual, mechanical, electronic or digital); sequential and time-lapse photography, animation, drawing and painting onto film, the use of index cards and sound recording

*Health and safety:* elimination of risk to self and others; thinking and working safely within a studio environment; following the appropriate COSHH guidance on materials; understanding risk assessments

### 2 Be able to use materials, techniques and processes

*Potential and limitations of materials, techniques and processes:* selecting materials, techniques and processes to suit the intentions and context of the work to be produced; experimental materials testing; exploring material potential, eg surfaces; the exploration of parameters of techniques and processes, eg wet, dry, malleable or non-malleable; investigation into equipment and technologies, eg manual, mechanical, time-based, electronic or digital; sketchbook work, design developments and drawings; using materials, techniques and processes to produce finished pieces

### 3 Understand and evaluate the suitability of selected materials, techniques and processes at relevant stages of the process

*Analyse suitability:* aesthetic qualities and fitness for purpose; considering the suitability of alternative combinations; analysing methods of working; use of equipment and technologies; explaining decisions taken about materials, techniques and processes in terms of suitability

## 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 explore materials, techniques and processes safely	M1 show considered understanding of the characteristics and uses of materials, techniques and processes through in-depth investigation and producing diverse experimental work	D1 perceptively use analysis, evaluation and experimental techniques to creatively and imaginatively develop work that recognises the full potential and limitations of materials, techniques and processes and shows sophistication, fluency, flair and understanding.
P2 use materials, techniques and processes	M2 carry out purposeful analysis and evaluation of materials, techniques and processes in terms of suitability for the intended outcomes.	
P3 evaluate the suitability of selected materials, techniques and processes at relevant stages of the process.		

## Essential guidance for tutors

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### Delivery

In planning this unit, tutors will need to structure a course of practical exploration that ensures coverage of all the required outcomes. Given the exploratory nature of the unit, it is expected that it will be integrated into all other core and specialist units. The aim of the unit is to broaden learners' knowledge, skills and understanding of the materials, techniques and processes associated with the nature of their vocational specialism.

Delivery should be structured within a framework of activities or design briefs. This could form part of learners' induction. This would be an opportunity to introduce a general range of materials, techniques and technology, together with health and safety principles and legislation, to a whole cohort of learners. At this stage, learners might be given activities to develop and broaden their ability to test the properties and qualities of different media and materials and to select appropriate tools and techniques for specific purposes.

For learning outcomes 1 and 2, learners should be encouraged to explore the potential of a medium or technique and to record findings from their experiments. It is expected that tutors will structure a series of different activities or briefs that encourage learners to develop specific skills and a creative approach to handling a variety of materials, techniques and processes.

It would be highly appropriate to integrate this unit with one or more specialist pathway assignments and, in so doing, tutors will need to ensure they track full coverage of the required outcomes.

Learners will need to be advised of, and adhere to, all aspects of current legislation associated with health and safety practices in the studio or workplace. Learners should be aware of appropriate COSHH guidance material.

For learning outcome 2, tutors should encourage learners to develop a versatile approach when developing and resolving specific technical problems. When evaluating the suitability of different materials, techniques and processes, learners could work on a one-to-one basis with the tutor, or in groups, contribute to whole group discussions commenting on the qualities and properties of materials they have explored. Similarly, learners should continuously evaluate their practical exploratory work with regard to 'fitness for purpose' or quality of work produced and be encouraged to develop their critical, analytical vocabularies in discussion and written evaluative notes. Frameworks, question sheets and audiovisual taped discussions or presentations might be used to promote learners' use of technical terms and inform their critical, analytical understanding.

The main purpose of this unit is the exploration and application of practical knowledge within the design area. Work generated in this context will be influenced by the technical opportunities and constraints of the specialism. Investigation and exploration may arise from the needs of a given situation but may also be stimulated by curiosity, extending personal vocabulary or style. Learners should expect to produce a range of work that demonstrates their breadth of understanding when using different materials, techniques and processes associated with their specialist pathway.

## Assessment

To achieve a **pass** grade, learners will produce evidence that meets the required standard of all three pass criteria.

The evidence produced for P1 should demonstrate the ability to carry out methodical, safe investigations of a range of materials, techniques and processes. Activities or tasks could be set requiring learners to explore the different properties and characteristics of a range of media and materials. Learners should be able to compare the different qualities and properties of media and to investigate their suitability for specific tasks. Similarly for time-based and digital media, learners would be expected to explore the different programmes, functions and settings of 4D media and materials.

Evidence for P1 could be a series of test pieces, trials, swatches, sketchbook studies, print-outs, video/film clips, annotated worksheets etc. Observation sheets and witness statements might support further evidence of understanding, with tutor/learner feedback on task sheets supporting their achievement. Learners could evidence their knowledge and understanding of health and safety in the same way.

For P2, learners will evidence their creative and skilful use of media and processes. This could be achieved through tutors setting a range of increasingly complex activities for learners to experiment with different ways of exploring and manipulating media, materials and techniques. Learners could use assignments and/or briefs undertaken for their specialist units as further evidence for P2.

For P3, learners will demonstrate their critical, analytical skills in evaluating the qualities of materials, techniques and processes, and give reasons as to their suitability, or not, for different tasks. Evidence might be in the form of annotated visual studies or print-outs, sketchbooks/worksheets showing examples of experimental trials, samples, test pieces, video clips. Learners might also evidence their ability to use appropriate technical terms and critical vocabulary in reviewing their studies, through frameworks, witness statements, verbal evidence sheets and audio-visual taped discussions and presentations.

To achieve a merit grade, all the pass criteria plus the two merit criteria must be achieved. Learners should evidence a broad range of consistently skilful investigations into materials, techniques and processes associated with their specialist pathway.

For M1 and M2, learners might produce a series of planned and annotated exploratory studies, for example, investigating the range and potential of a new digital programme for developing and presenting multi-viewpoints of their 3D designs.

For M1, learners need to demonstrate an individual, creative and skilful use of media, for example through in-depth application of techniques in developing work for a particular specialist assignment.

For M2, learners should demonstrate the considered use of technical and critical vocabulary in explaining and reviewing their studies. This might be shown throughout an activity or assignment, where learners produce ongoing evaluations of the properties and characteristics of selected media as well as identifying and selecting the most appropriate techniques and processes for their task. Evidence could be gathered in the range of forms outlined for P3.

To achieve a distinction grade, all the pass and merit criteria and the one distinction criterion must be achieved.

For D1, learners will continuously use highly informed analysis and articulate critical vocabulary in evaluating their exploratory studies. Learners will demonstrate fluency in the imaginative manipulation of materials and employ creative experimental techniques to develop exciting work. They will present their knowledge of the potential and limitations of materials, techniques and processes showing independence and innovation in experimental studies. Their work will be characterised by fluent ongoing review and refinement towards producing sophisticated and highly skilled outcomes.

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

This unit is relevant to all specialist pathway units. It provides learners with an opportunity to further develop and extend opportunities and explorations in working with materials, techniques and processes.

There are opportunities for key skills in this unit.

### **Essential resources**

This is a core unit and is therefore mandatory across all specialist pathways. The resources needed for this unit will vary according to the specific technical and material demands of learners' work.

Essential resources include:

- *specialist workspaces*: eg studios, workshops, computer suites, video and film editing suites
- *materials, equipment and tools*: eg for 2D, 3D, 4D and associated materials, equipment and tools across all specialist areas
- *access to a learning centre*: eg for books, periodicals, journals, videos, CD ROMs, the internet
- *specialist staff*: eg for the different specialist pathways; this might also include technical support staff.

Visits to galleries, exhibitions, film reviews, plays, performance and live art, workshops, studios and advertising agencies could play an important role in designing assignments for this unit. Alternatively, bringing professional practitioners from art, design or media backgrounds in to talk about their work could help learners with the evidence requirements of this unit.

## Indicative reading for learners

### Books

Atkinson J, Harrison H and Grasdal P – *Collage Sourcebook: Exploring the Art and Techniques of Collage* (Apple Press, 2004)

Campbell-Harding V – *Fabric Painting for Embroidery* (Batsford, 2001)

Harthill B and Clarke R – *Collographs and Mixed Media Printmaking* (A&C Black, 2005)

Hughes R and Rowe M – *The Colouring, Bronzing and Patination of Metals* (Thames & Hudson, 1991)

Issett R – *Colour on Paper and Fabric* (Batsford, 2000)

McCreight T – *Jewellery: Fundamentals of Metalsmithing* (Hand Books, 2003)

Mills J – *Encyclopaedia of Sculpture Techniques* (Batsford, 2005)

Perrella L – *Artists' Journals and Sketchbooks: Exploring and creating personal pages* (Rockport Publishers Inc, 2004)

Sentence B – *Ceramics – A World Guide to Traditional Techniques* (Thames & Hudson, 2004)

Smith R – *New Artist's Handbook* (Dorling Kindersley, 2003)

Smith S and Ten Holt H F – *The Artist's Manual* (Little Brown, 1990)

## 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. Tutors 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.

Application of number Level 3	
When learners are:	They should be able to develop the following key skills evidence:
<ul style="list-style-type: none"> <li>• planning to get relevant information in order to investigate the costing, potential or limitations of materials, techniques and processes</li> <li>• carrying out a range of relevant calculations</li> <li>• checking for accuracy</li> </ul>	<p>N3.1 Plan an activity and get relevant information from relevant sources.</p> <p>N3.2 Use your information to carry out multi-stage calculations to do with:</p> <ul style="list-style-type: none"> <li>a amounts or sizes</li> <li>b scales or proportion</li> <li>c handling statistics</li> <li>d using formulae.</li> </ul>
<ul style="list-style-type: none"> <li>• interpreting numerical information associated with a brief</li> <li>• selecting, justifying and presenting their findings in two different ways.</li> </ul>	<p>N3.3 Interpret the results of their calculations, present your findings and justify their methods.</p>

<b>Communication 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>• discussing the quality and properties of materials used</li> <li>• making a formal presentation of their final outcomes</li> <li>• researching materials, techniques and processes</li> <li>• synthesising effectively information from their research</li> <li>• writing an illustrative account of their understanding of the use of materials, techniques and processes in their chosen specialism.</li> </ul>	<p>C3.1a Take part in a group discussion.</p> <p>C3.1b Make a formal presentation of at least eight minutes using an image or other support material.</p> <p>C3.2 Read and synthesise information from at least two documents about the same subject. Each document must be a minimum of 1000 words long.</p> <p>C3.3 Write two different types of documents, each one giving different information about complex subjects. One document must be at least 1000 words long.</p>

<b>Information and communication technology 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>• planning how to obtain information in order to explore a range of materials, techniques and processes using ICT and non-ICT sources</li> <li>• entering and combining information to appropriate software packages</li> <li>• developing their information in order to derive new information appropriate to their tasks</li> <li>• emailing a draft copy of work to the tutor for feedback</li> <li>• presenting a report to include combined information such as text with image, text with number or image with number</li> <li>• annotating work to identify any changes made.</li> </ul>	<p>ICT3.1 Search for information using different sources, and multiple search criteria in at least one case.</p> <p>ICT3.2 Enter and develop the information and derive new information.</p> <p>ICT3.3 Present combined information such as text with image, text with number, image with number.</p>

<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>• exploring materials, techniques and processes in response to a set brief</li> <li>• working with tutor to produce a plan or proposal with targets</li> <li>• using their plans to produce work safely within the set time constraints</li> <li>• reflecting and evaluating the suitability of selected materials, techniques and processes at relevant stages of the process</li> <li>• reviewing progress with the tutor</li> <li>• demonstrating the ability to produce an effective outcome in response to a set brief</li> <li>• evaluating finished work at the close of the project.</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 your 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>• exploring and selecting the most appropriate materials, techniques and processes in response to a set brief</li> <li>• developing a plan, in agreement with the tutor, taking account of health and safety issues</li> <li>• using their plan, reviewing progress and refining ideas if necessary</li> <li>• producing effective finished pieces</li> <li>• reviewing and evaluating their approach.</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 as a group or team developing an action plan to identify responsibilities for a group assignment or scenario</li> <li>• organising and carrying out the tasks as an effective group</li> <li>• reviewing progress with peers and tutor</li> <li>• evaluating the work undertaken and participating in a group discussion/critique.</li> </ul>	<p>WO3.1 Plan work with others.</p> <p>WO3.2 Seek to develop cooperation and check progress towards their agreed objectives.</p> <p>WO3.3 Review work with others and agree ways of improving collaborative work in the future.</p>