

# Construction

**Entry Level 3: Producing a product (H/501/6369)**

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## Introduction

Our Skilled for Life resources are designed to provide you with ideas for delivering the unit content and engaging tasks and activities that will help learners work towards assessment.

The materials consist of standalone sheets that can be used in a range of ways to suit most situations. Whether you are working in a classroom or a less formal learning environment, with individual learners or with groups, it is hoped that you will find these sheets and the accompanying tutor guidance notes useful.

The sheets are in pdf format; they are downloadable and may be photocopied for use only within your institution. Alternatively, learners can access them on-screen – the write-in sections are interactive so that answers to activities can be recorded electronically.

Each sheet addresses one or more of the assessment criteria in the unit (ACs are clearly marked at the top of each page). Page 1 of each sheet provides a starter stimulus or introductory idea based around the suggested unit content in the specification; it can be used to explain key concepts, or as the basis for a discussion. You could use the stimulus to draw together key learning points and encourage learners to engage with the topic or concept from the outset. There is plenty of scope for you to introduce your own content or ideas as well.

Page 2 of each sheet includes tasks that will consolidate learners' knowledge and understanding and, in some cases, may provide evidence for assessment.

This tutor guidance document provides detailed suggestions for how to use each of the resource sheets in the unit, and includes tips and advice together with suggested extension activities, alternative ideas and useful reference sources.

## Guidance for tutors

### Unit overview

This unit provides learners with the opportunity to develop practical skills while investigating the different stages of the design process. Valuable entrepreneurial ideas and experience may be gained from being involved in a production activity, albeit on a small scale. Learners will be expected to identify the skills required to make their product, work safely during its production and evaluate the end result.

Learners who wish to develop their design and analytical skills further can progress onto the Level 1 unit, also called 'Producing a product'.

**NOTE:** These resource sheets suggest activities that enable learners to prepare for the practical tasks they will need to undertake in this unit. However, the tutor will need to ensure that the assignment chosen will generate suitable evidence to fully meet the assessment criteria. This evidence may be in the form of photographs (of the process and the finished product), observation records, or witness statements.

### Learning and teaching activities in this unit

#### **Resource sheet 1 - *How do you start to make something?***

This starter stimulus illustrates the different stages within the design process. Use this sheet to determine your learners' existing knowledge of this concept by asking what the phrase 'design process' means to them. Try to get learners to suggest alternative phrases, or ask them to explain the importance of each step. Collect these statements from the learners in a central point (such as a white board or flip chart) and ask learners to discuss each statement generated and its potential meaning.

For further engagement, ask 'What would be the consequence of skipping a stage?'



#### **Stretch activity**

Given the inherent feedback mechanisms within the design process, a simple circle may not be the best way to represent this process. Challenge the learners to come up with a better graphic organiser which illustrates their own understanding of the processes behind designing and making a product.

### **Activity 1 - Step-by-step!**

Use the statements gathered from the starter stimulus to name each step the learner will need to follow to produce a product in this activity sheet. For example, if a learner wanted to create a wooden puzzle, they would need to consider the following:

- The appropriate types of timber and other materials to be used.
- What tools they would need and whether they have the skills to operate machinery.
- Could they examine similar products and identify any improvements?

Discuss initial ideas that learners may have about the products they wish to produce and ask the learners to use these ideas to complete the table in this sheet.

Remind learners that before prototypes are actually built, it is often useful to sketch-out design proposals on paper in order to identify any problems. However, learners may not fully appreciate this stage until they have been through this cycle a few times. Experience will highlight the pitfalls of making a product before being absolutely clear about its use. On the other hand, making a product is often the only way of testing whether it will actually work.

In creating a product, learners need to develop self-critical thinking skills about what they are doing and why. This activity is a way of making that thought-process more visible and structured. It may be useful to return to this sheet after they have completed the practical tasks to help reinforce the significance of each stage on the final product.

### **Resource sheet 2 - Get the skills!**

This starter stimulus encourages learners to 'drill-down' and identify the skills they require to produce their items. It is written in such a way as to promote self-reflection, specifically with reference to the creative process. The activity sheet which follows asks learners to suggest phrases which could describe the meaning behind each separate point on this starter stimulus. For instance:

- Planning – choosing what to make and deciding how to make it.
- Making – what specific skills are required, e.g. joinery.
- Finishing – the finer motor-skills that might be required to raise the quality.
- Evaluating – judging whether it worked, and if not, why not.

You may need to read the case study to learners and discuss where each of these points relate to Michael's story. Ask them to suggest what they

think Michael should or should have done, and what they think he could do next.

Producing a product requires creativity as well as manual dexterity, so initiate a group discussion by asking the learners to identify exactly how Michael's skills could be improved. Is it simply about learning a new technique? Or are there also issues of self-confidence? Remind learners that attempting a task when you are not proficient does have risks, but that there may be some possible benefits.

### **Activity 2 - What are you good at?**

This activity provides a structure for the learners to identify their strengths and weaknesses in regards to the item they have chosen to produce. Ensure learners understand which skills are appropriate for each area. You may want to do a mind-mapping exercise where you ask learners to identify all the skills required to make a wooden puzzle or a similar item. It also allows learners to become familiar with the meaning of the four stages identified in the starter stimulus.



#### **Stretch activity**

Challenge learners thinking by asking for non-manual skills, such as 'researching existing products', or personal attributes like 'attention to detail' or 'patience'. To benefit from the activity, encourage learners to consider some areas in which they are not adept and discuss how such skills could be improved.

### **Resource sheet 3 - Before you start**

This starter stimulus refers to safe working practices. Workshop rules are often displayed to actively encourage appropriate behaviour. Ask your learners to identify the function and purpose of these rules. Ask:

- Are they merely for legislation?
- Is it to avoid repetition of instructions?
- Is there an element of a 'social contract'?
- What is the overall impression of the rules when all the phrases are negative?

You may want to develop this exercise further and encourage the learners to write their own 'ground rules', which are a set of agreed behaviours for conduct in class and/or attitudes to learning. Learners are more likely to adhere to rules they have negotiated themselves, rather than rules imposed upon them, as they will have an invested ownership in those particular statements.

### Activity 3 - Getting ready

Although the items in this activity should have been covered during the learners' induction, it is worth repeating to ensure learners are able to recall such information at a later date. Given that learners are likely to 'just tick the box', encourage them to demonstrate their knowledge, through activities such as asking them to:

- Recall a statement from the workshop rules.
- Describe why a particular item of PPE is correct for the task.
- Explain the purpose of a 'simple visual inspection'.

To promote group participation, use a strategy of differentiation by providing more straightforward questions to less able learners. Alternatively, ask one learner to nominate another, who then supplies the answer.



#### Stretch activity

To challenge learners, ask them to interpret a simple risk assessment by explaining how its structure and function is relevant to construction workers.

### Resource sheet 4 - How did I do?

This cartoon shows the whole design process, from inception and prototypes, through feedback and improvements, to success and financial payback. Ask the learners to relate what they see in these pictures to their own projects. Did their product achieve what they wanted? Or, was it simply an exercise in learning a new technique? If the intention was to make a gift for someone else, then perhaps the quality of finish becomes more significant.

This illustration also demonstrates the importance of continual evaluation and so you may want to explore the semantic differences between 'criticising', which is often seen as negative, and 'constructive criticism' which is a two-way process about improvement.



#### Stretch activity

Encourage learners to create a mind-map, Venn diagram or other graphic organiser, so they can separate out the positive attributes of feedback from the emotional aspects of 'criticism'. Ask them how language, tone of voice and different mannerisms can affect the successful outcome of 'helping someone'.

## Activity 4 - How well did it go?

This activity is to enable learners to review their work and identify areas for improvement. Try to encourage learners to put more than just a 'standard' one-word answer. Learners should reflect on the whole experience and think of situations where learning has made a 'significant change' in their cognitive, affective or psycho-motor domains.

The assessment criteria requires 'at least two observations about the product or item' and this activity will promote such reflective practices. Ask learners to go beyond simple statements, like, 'Don't use a blunt pencil', into more meaningful accounts which illustrate their own understanding of evaluation and their own attitudes about self-improvement.

## Useful resources

### Books

Fawcett I, Smith R, Whittle M – *AQA GCSE Design and Technology: Resistant Materials Technology* (Nelson Thornes, 2009) ISBN 9781408502730

Hancock, G – *GCSE Design and Technology for AQA: Resistant Materials Student Book* (Pearson, 2005) ISBN 9780435413477

Hancock G, et al – *GCSE Design and Technology for AQA: Resistant Materials Teacher's Resource File* (Pearson 2009) ISBN 9780435413484

Hughes P, ed. Ferrett E – *Introduction to Health and Safety in Construction: The handbook for construction professionals and students on NEBOSH and other construction courses* (Butterworth-Heinemann, 2011) ISBN 9780080970684

### Websites

<http://www.bbc.co.uk/schools/gcsebitesize/design/resistantmaterials/>

BBC Bitesize Resistant Materials, containing animations and other resources for Resistant Materials in Design and Technology

<http://tlp.excellencegateway.org.uk/tlp/xcurricula/enterprise/>

The Excellence Gateway Treasury provides a wide range of teaching and learning resources, for different vocational areas, all available to download for free.