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Teacher's Introduction

Overview

This resource has been produced to support teaching and learning of the **GCSE AQA Design and Technology specification 3.2 Specialist technical principles: metal based materials**. The learning content is covered by the following sets of keywords with matching descriptions, which cover all of the topics in **3.2 Specialist technical principles**:

- Selection of materials or components
- Sources, origins and ecological and social footprint
- Using and working with materials and forces and stresses
- Stock forms, types and sizes
- Specialist techniques, processes and scales of production
- Specialist techniques, processes and how to shape and form
- Quality control, tolerances and surface finishes and treatments
- Material management
- Metal-specific terms*

For each set, there are a number of different keyword activities on CD designed to give you a range of different options for classroom, homework and revision. This variety enables you to take a different approach to different topics – such as using the Crosswords as homework for one topic, and the Match Up as a starter for another.

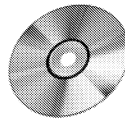
Alternatively, differentiate the activity for a given topic; for example, you might want to give your stronger students the **Crosswords** early on while you start weaker learners on the **Match Up** (where terms and definitions are both available). **Domino** and **Bingo** activities add an element of fun and reinforcement, as well as potential for pair and group work. Finally, the **Flash Cards** come into their own for revision and the **Table Fill** and **Write Your Own Glossary** allow students to test their understanding by correctly filling in keywords or definitions.

***Please note:** The key terms within this topic are collated from across the rest of the pack and are specific to this material category. This allows students who are covering multiple material categories with a lot of crossover to study a concise set of terms specific to that category, as well as terms that relate to the specification points. This topic also helps to consolidate knowledge and provides extra revision for each material category.

For more information about the different activities included, see overleaf →

Digital Format!

All of the activities are provided electronically on the accompanying CD. To use on a school network, the entire contents of the CD needs to be copied and pasted into an accessible location.



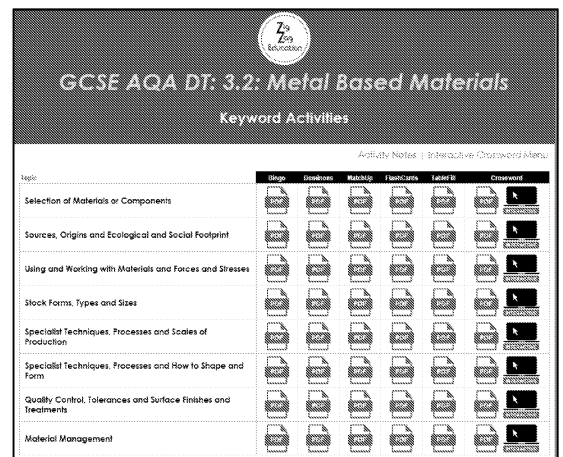
Providing easy access to the activities are two HTML menus:

1. Access All Menu

Location: [index.html](#)

This menu, designed primarily for teacher use, includes links to everything on provided on the CD – allowing you to easily select what you need when preparing your lessons.

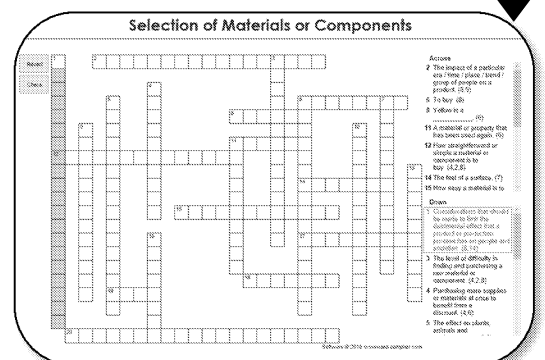
If you intend to give learners access to this menu, then be aware that it does include links to the solutions.



2. Interactive Crossword Menu

Location: [interactive-crosswords/index.html](#)

This menu, which can be accessed via the Access All Menu is included to allow learner access to just the interactive crosswords (without the answers).



Free Updates!

Register your email address to receive any future free updates* made to this resource or other DT resources your school has purchased, and details of any promotions for your subject.

* resulting from minor specification changes, suggestions from teachers and peer reviews, or occasional errors reported by customers

Go to zzed.uk/freeupdates

Activity Types

All activities are provided as PDF files, allowing for easy printing and sharing on your school's internal network or VLE. In addition, each of the single-page activities (*crosswords*, *match up* and *table fill*), as well as the solutions, are provided on paper too.

The activities included in this resource are as follows:

Bingo

Each student is given a different bingo card containing a selection of words from the set. The teacher reads the definitions using the Keyword Answers and the student must match the definition to the words on their card to complete rows, columns, and the full bingo card. The bingo activity is available for sets with 12 or more words.

✓ PDF

Crosswords

These traditional keyword activities are equally effective as lesson or homework activities – and are also an excellent way to ease students into their revision programme.

✓ PDF ✓ PAPER



In addition to the photocopiable worksheets and pdf, the crosswords are provided in interactive format on the accompanying CD-ROM. These are web-based (HTML5) and will run straight from your Internet browser.

Dominoes / Loop Cards

This is essentially another match-up activity, but this one is designed to be used in a more active way to engage students. It is recommended that students work in pairs or small groups.

✓ PDF

Half of each card contains a keyword, and the other contains a description. To complete the activity, students must align all the cards in the correct order. There is a 'Start' and a 'Finish', meaning that if any cards are left outside of the chain, then students have gone wrong somewhere.

Match Up

Students match descriptions to their keyword by drawing lines between them. Because there are similar descriptions and keywords, students are likely to make the odd mistake while completing the activity, so it is recommended that they use a pencil to start with! By eliminating the keywords that they are familiar with, students can then think about and learn the ones that they are less confident with.

✓ PDF ✓ PAPER

Flash Cards

These are a helpful revision tool. To make the cards, fold the page in half, then cut each card and stick together so the keyword is on one side and the definition the other. In addition, students could use these to play a game of pairs. Cut each card in two and place face down on the table. Students will then take it in turns to turn over two cards with the aim of matching up a keyword to its definition. Matched up cards are removed and the game is finished when all the cards have been matched.

✓ PDF

Glossary Builders

Table Fill

Nothing fancy – students simply write the keyword which is being described, without any other help. Because this activity tests the students' own knowledge, it is best used as a homework activity at the end of each topic or during revision. This then acts as a check that they have grasped the key terminology for each topic. Alternatively, they could be given to students at the beginning of the topic, to see what they already know.

✓ PDF ✓ PAPER

Write Your Own Glossary

Like the Table Fill, this activity can be used to test pupils before learning a topic, or as a revision tool after learning a topic. Students are given a list of the keywords and need to produce their own definitions. Using Table Fill and Write Your Own Glossary, lessons can be differentiated for all levels of learner.

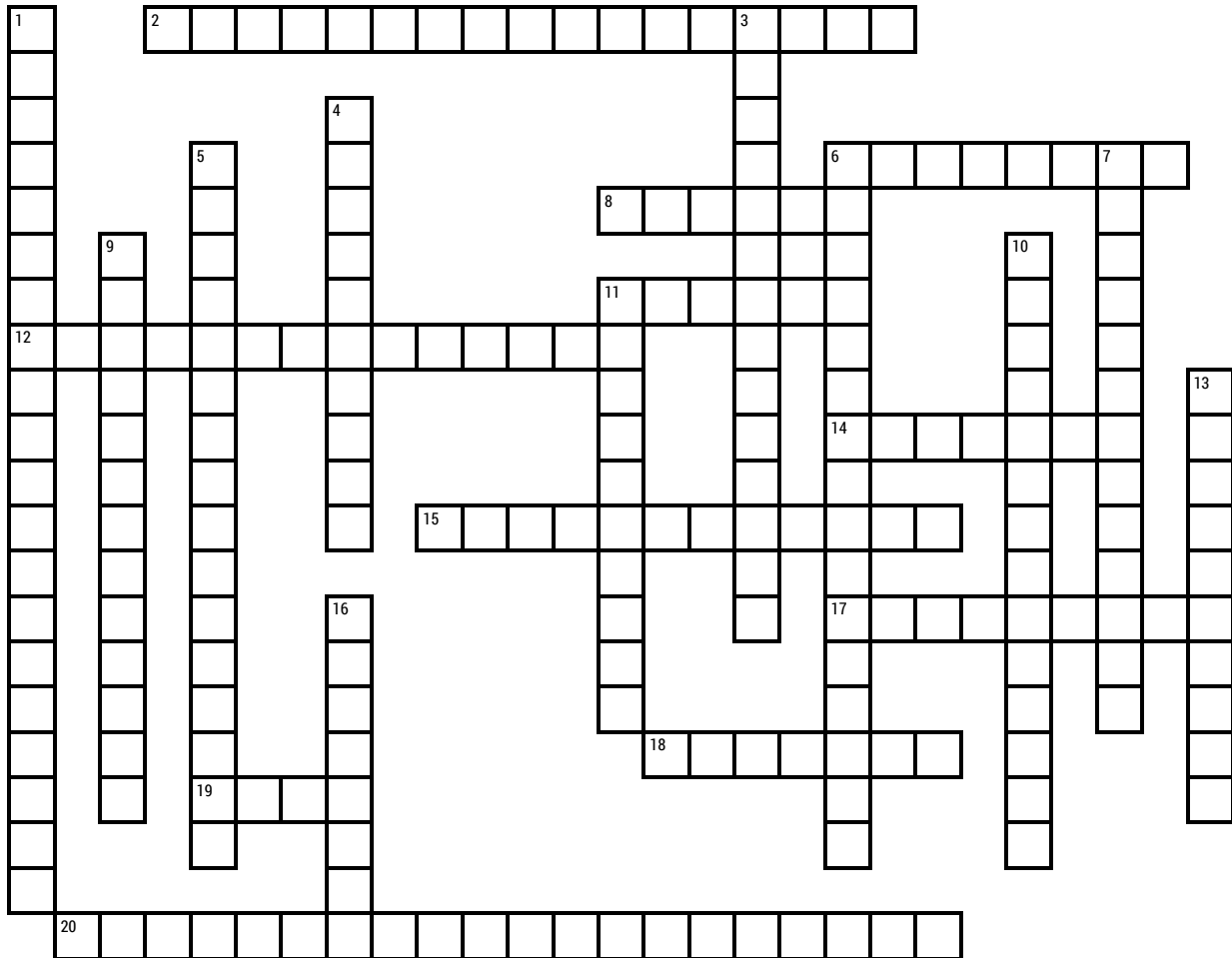
✓ PDF

Selected Activities and Completed Glossary Page

This sample shows one example of several activities.
The whole resource contains approximately 70 activities –
6 or 7 activities for each of the 9 topics.

The resource covers 181 key terms.

Selection of Materials or Components



Across

- 2** The impact of a particular era / time / place / trend / group of people on a product. (8,9)
- 6** To buy. (8)
- 8** Yellow is a _____. (6)
- 11** A material or property that has been used again. (6)
- 12** How straightforward or simple a material or component is to buy. (4,2,8)
- 14** The feel of a surface. (7)
- 15** How easy a material is to get hold of, how fast you can source it and what form it comes in. (12)
- 17** When a product stops being useful, wanted or needed. (3,2,4)
- 18** Meeting high moral, and sometimes environmental, standards or expectations. (7)
- 19** The monetary value/input needed to produce a product. (4)
- 20** Actions and decisions that affect our natural surroundings. (13,7)

Down

- 1** Considerations that should be made to limit the detrimental effect that a product or production process has on people and societies. (6,14)
- 3** The level of difficulty in finding and purchasing a raw material or component. (4,2,8)
- 4** Purchasing more supplies or materials at once to benefit from a discount. (4,6)
- 5** The effect on plants, animals and environments. (10,6)
- 6** The stages an item goes through from design to disposal. (7,4,5)
- 7** The outward appearance of a product and how it has been treated, protected or enhanced. (7,6)
- 9** How simple the material is to use to make a product. (4,2,7)
- 10** Influence on a product or the way a product is perceived that is specific to a place, heritage or belief system. (8,6)
- 11** A material or product that can be easily processed in order to salvage the raw materials. (10)
- 13** Design term for the 'look' of a product. (10)
- 16** What the product does and how it does it. (8)

Selection of Materials or Components (Table Fill)

What the product does and how it does it.	
The appearance or look of a product.	
Actions and decisions that affect our natural surroundings.	
The effect on plants, animals and environments.	
How easy a material is to get hold of, how fast you can source it and what form it comes in.	
The monetary value/input needed to produce a product.	
Purchasing more supplies or materials at once to benefit from a discount.	
Considerations that should be made to limit the detrimental effect that a product or production process has on people and societies.	
Influence on a product or the way a product is perceived that is specific to a place, heritage or belief system.	
The impact of a particular era / time / place / trend / group of people on a product.	
Meeting high moral, and sometimes environmental, standards or expectations.	
A material or product that can be easily processed in order to salvage the raw materials.	
A material or property that has been used again.	
The feel of a surface.	
The pigment or shade of a material or an object. This can be altered through various finishes or treatments.	
The outward appearance of a product and how it has been treated, protected or enhanced.	
How simple the material is to use to make a product.	
How straightforward or simple a material or component is to buy.	
The level of difficulty in finding and purchasing a raw material or component.	
The exchange of goods for money.	
When a product stops being useful, wanted or needed.	
The stages an item goes through from design to disposal.	

Selection of Materials or Components *(Match Up)*

1	A material or product that can be easily processed in order to salvage the raw materials.
2	A material or property that has been used again.
3	Actions and decisions that affect our natural surroundings.
4	Considerations that should be made to limit the detrimental effect that a product or production process has on people and societies.
5	How easy a material is to get hold of, how fast you can source it and what form it comes in.
6	How simple the material is to use to make a product.
7	How straightforward or simple a material or component is to buy.
8	Influence on a product or the way a product is perceived that is specific to a place, heritage or belief system.
9	Meeting high moral, and sometimes environmental, standards or expectations.
10	Purchasing more supplies or materials at once to benefit from a discount.
11	The appearance or look of a product.
12	The effect on plants, animals and environments.
13	The exchange of goods for money.
14	The feel of a surface.
15	The impact of a particular era / time / place / trend / group of people on a product.
16	The level of difficulty in finding and purchasing a raw material or component.
17	The monetary value/input needed to produce a product.
18	The outward appearance of a product and how it has been treated, protected or enhanced.
19	The pigment or shade of a material or an object. This can be altered through various finishes or treatments.
20	The stages an item goes through from design to disposal.
21	What the product does and how it does it.
22	When a product stops being useful, wanted or needed.

Function	
Aesthetics	
Environmental factors	
Ecological impact	
Availability	
Cost	
Bulk buying	
Social responsibility	
Cultural factor	
Cultural influence	
Ethical	
Recyclable	
Reused	
Texture	
Colour	
Surface finish	
Ease of working	
Ease of purchase	
Ease of sourcing	
Purchase	
End of life	
Product life cycle	

