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| **SUBJECT KNOWLEDGE AUDIT & TRACKER**  **Design Technology**  **2024-25** |  | Secondary  PGCE |

**Purpose of the Audit**

Your indications of specialist subject knowledge strengths and areas for development are used as a basis for discussion during your PGCE training.

At the start of the course, the audit will also be used to inform planning for the development of key ‘gap’ areas of subject knowledge, and then in subsequent school placements alongside your School Based Mentor to identify areas of curriculum about which you have less security of knowledge/which need revision. In terms of a tracker, you are able to chart the progression of both your knowledge and application of knowledge over the training year.

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| **Colour & date** | **Pre-course** | **End-SE1** | **End-SE2** | **End-SE3** |
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| **Key Stage 3 & 4** | | **I don’t know this** | **SK insecure** | **SK secure** | **I can teach this** | **I know several ways to teach this** |
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| **KS3 Curriculum Content** | **DESIGN – teach pupils to** |  |  |  |  |  |
| Use research and exploration to identify user needs |  |  |  |  |  |
| identify and solve design problems and understand how to reformulate problems given |  |  |  |  |  |
| Develop specifications to inform the design of innovative, functional, appealing products responding to needs |  |  |  |  |  |
| Use a variety of approaches including biomimicry and user-centred design, to generate creative ideas. |  |  |  |  |  |
| Use annotated sketches |  |  |  |  |  |
| Use detailed plans |  |  |  |  |  |
| Use 3D and mathematical modelling |  |  |  |  |  |
| Use oral and digital presentations |  |  |  |  |  |
| Use computer-based tools |  |  |  |  |  |
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| **MAKE – teach pupils to** |  |  |  |  |  |
| **KS 3 Curriculum content** | Select and use specialist tools, techniques, processes, equipment and machinery precisely, including computer-aided manufacture |  |  |  |  |  |
| select from and use a wider, more complex range of materials, components and ingredients, taking into account their properties |  |  |  |  |  |
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| **EVALUATE – teach pupils to** |  |  |  |  |  |
| reflect and analyse the work of past and present professionals and others to develop and broaden their understanding |  |  |  |  |  |
| investigate new and emerging technologies |  |  |  |  |  |
| test, evaluate and refine ideas and products against a specification, taking into account the views of intended users and other interested groups |  |  |  |  |  |
| understand developments in design and technology, its impact on individuals, society and the environment, and the responsibilities of designers, engineers and technologists |  |  |  |  |  |
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| **Technical knowledge – teach pupils to** |  |  |  |  |  |
| understand and use the properties of materials and the performance of structural elements to achieve functioning solutions |  |  |  |  |  |
| understand how more advanced mechanical systems used in their products enable changes in movement and force |  |  |  |  |  |
|  | Understand how more advanced electrical and electronic systems can be powered and used in their products, e.g. input, output, circuits |  |  |  |  |  |
| apply computing and use electronics to embed intelligence in products that respond to inputs, e.g. sensors, and control outputs e.g actuators, using programmable components e.g microcontrollers. |  |  |  |  |  |
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| **KS 3 Curriculum content** | **Food Technology – teach pupils to** |  |  |  |  |  |
| understand and apply the principles of nutrition and health |  |  |  |  |  |
| cook a repertoire of predominantly savoury dishes so that they are able to feed themselves and others a healthy and varied diet |  |  |  |  |  |
| become competent in a range of cooking techniques [for example, selecting and preparing ingredients; using utensils and electrical equipment; applying heat in different ways; using awareness of taste, texture and smell to decide how to season dishes and combine ingredients; adapting and using their own recipes] |  |  |  |  |  |
| understand the source, seasonality and characteristics of a broad range of ingredients. |  |  |  |  |  |
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| **GCSE KS4 Technical principles** | the impact of new and emerging technologies on industry, enterprise, sustainability, people, culture, society and the environment, production techniques and systems |  |  |  |  |  |
| how energy is generated and stored |  |  |  |  |  |
| developments in modern and smart materials, composite materials and technical textile |  |  |  |  |  |
| how electronic systems provide functionality to products and processes, including sensors and control devices |  |  |  |  |  |
| the use of programmable components to embed functionality into products |  |  |  |  |  |
| the functions of mechanical devices, to produce different sorts of movement, changing the magnitude and direction of forces |  |  |  |  |  |
| the categorisation of the types and properties of materials |  |  |  |  |  |
| Stock forms, types and sizes in order to calculate and determine the quantity of materials |  |  |  |  |  |
| alternative processes that can be used to manufacture products to different scales of production |  |  |  |  |  |
| specialist techniques and processes that can be used to shape, fabricate, construct and assemble |  |  |  |  |  |
| appropriate surface treatments and finishes |  |  |  |  |  |
| **GCSE KS4 Designing and making principles** | understand that all design and technological practice takes place within contexts which inform outcomes |  |  |  |  |  |
| identify and understand client and user needs |  |  |  |  |  |
| demonstrate an ability to write a design brief and specifications from their own and others’ considerations |  |  |  |  |  |
| investigate factors, such as environmental, social and economic challenges, in order to identify opportunities and constraints that influence designing and making |  |  |  |  |  |
| explore and develop their ideas |  |  |  |  |  |
| investigate and analyse the work of past and present professionals and companies |  |  |  |  |  |
| use different design strategies |  |  |  |  |  |
| develop, communicate, record and justify design ideas, applying suitable techniques, e.g formal and informal 2D and 3D drawing; system and schematic diagrams; annotated sketches, etc |  |  |  |  |  |
| design and develop at least one prototype that responds to needs |  |  |  |  |  |
| make informed and reasoned decisions, respond to feedback about their own prototypes |  |  |  |  |  |
| **Additional notes:** | | | | | | |