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**Knowledge Rich Curriculum Plan**

GCSE Design Core

Core Technical Principles - 1.1 New and emerging technologies



| **GCSE Design Core** | **Core Technical Principles****1.1 New and emerging technologies** |  |  |  |
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| **Lesson/Learning Sequence**  | **Intended Knowledge:***Students will know that…* | **Tiered Vocabulary**  | **Prior Knowledge:***In order to know this students, need to already know that…* | **Assessment**  |
| **Lesson:** **Industry** | * Students will know how automations is used during the manufacture of products
* Students will know that manufacture means to make (something) on a large-scale using machinery.
* Students will know how industry is used to manufacture products
* Students will know that industry means processing of raw materials and manufacture of goods in factories.
* Students will know the advantages and disadvantages of automation
* Advantage: Faster, More accurate
* Disadvantages: Costly, reduces human productivity, can break down
* Students will know that automation means the use or introduction of automatic equipment in a manufacturing or other process or facility.
 | Industry: economic activity concerned with the processing of raw materials and manufacture of goods in factories.Automation: the use or introduction of automatic equipment in a manufacturing or other process or facility. | * ***Students need to already know about robotics***
* ***Students need to already know the term ‘production'***
* ***Students need to already know the term ‘innovation’***
 | How can the use of robotics affect the manufacture of a product?Compare the effectiveness of workshop manufacture to that of industrial manufactureUsing an example, how can industrial manufacture aid production? |
| **Lesson:** **Sustainability** | * Students will know how finite resources are used
* Finite: having definite or definable limits
* Students will know how non-finite resources are used
* Non-finite: resources that can be reused
* Students will know the term ‘sustainability’
* Sustainability: avoidance of the depletion of natural resources in order to maintain an ecological balance.
 | Finite: having definite or definable limitsNon-finite: resources that can be reusedSustainability: avoidance of the depletion of natural resources in order to maintain an ecological balance | * ***Students need to already know the term renewable***
* ***Students need to already know the term non-renewable***
* ***Students need to already know the term finite***
* ***Students need to already know the term non-finite***
 | How does the use of sustainable materials aid the product?What are the concerns consumers could have with sustainable materials?How does the sourcing of non-sustainable materials affect the consumer? |
| **Lesson:** **Market pull** | * Students will know the term market pull
* Market pull: a scenario in which the market demands a product (or service) type, or defines a problem
* Students will know how market pull can develop a product
* Students will know why products develop
 | Product: an article or substance that is manufactured or refined for sale.Demand: an insistent and peremptory request, made as of right.Market pull: a scenario in which the market demands a product (or service) type, or defines a problem | * ***Students need to already know that products change***
* ***Students need to already know the term consumer***
* ***Students need to already know the term development***
 | Why does the interest of the market affect the products manufacture?How can the market help develop a product? |
| **Lesson:** **Technology push** | * Students will know how products change due to technology developments
* Technology: machinery and equipment developed from the application of scientific knowledge.
* Students will know the term technology push
* Technology push: Research and development in science and industry can lead to new discoveries, which can be used to improve existing products or develop new ones.
* Students will know about consumer choice
* Consumer: a person who purchases goods and services for personal use.
 | Consumer: a person who purchases goods and services for personal use.Technology push: Research and development in science and industry can lead to new discoveries, which can be used to improve existing products or develop new ones. | * ***Students need to already know how technology has developed over the years***
* ***Students need to already know the differences in technology***
* ***Students need to already know the term ‘technology’***
 | Does the development of technology really change a product?Compare the market to technology, which development affects the product the most? |