|  |  |  |  |  |
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| Year 13 Theory PLC |  | R | A | G |
| **SCALE OF PRODUCTION** | **To be able to identify and explain:** |  |
| Manufacturing systems | How you would use one of these to manufacture your product | One-off production |  |  |  |
| Batch production |  |  |  |
| High volume production |  |  |  |
| Modular/cell production |  |  |  |
| Just-in-time manufacture |  |  |  |
| Standardised parts | Example |  |  |  |
| How to use in your design |  |  |  |
| Bought in components | Example |  |  |  |
| How to use in your design |  |  |  |
| Implications(positive and negative) | Economic |  |  |  |
| Social |  |  |  |
| Environmental |  |  |  |
| Include supporting sketches where appropriate |  |  |  |
| **COMMERCIAL ISSUES** | **To be able to identify and explain:** |  |
| Commercial practice | Role of marketing when bringing a product onto the market | Assessing consumer needs | Methods of data collection |  |  |  |
| Cost implications |  |  |  |
| Product development | Methods of research and testing |  |  |  |
| Cost implications |  |  |  |
| Pricing | Methods of pricing |  |  |  |
| Promotion | Consumer |  |  |  |
| Methods |  |  |  |
| Cost implications |  |  |  |
| Distribution  | Methods |  |  |  |
| Cost implications |  |  |  |
| Advertising your product | Reaching target audience – TV, Radio, Social Media |  |  |  |
| Regulations |  |  |  |
| Cost implications |  |  |  |
| Design rights and patents that you would use to protect your product | Intellectual property |  |  |  |
| Design rights |  |  |  |
| Patents |  |  |  |
| **PRODUCTION TECHNOLOGIES** | **To be able to identify and explain:** |  |
| The use of digital technology in designing and manufacturing processes | How CAD/CAM could be used in the production of your design | CAD | Definition |  |  |  |
| how you would use it |  |  |  |
| CAM | Definition |  |  |  |
| how you would use it |  |  |  |
| How you would use CAD/CAM in the development stages of your product | Testing |  |  |  |
| Modelling |  |  |  |
| Rapid prototyping |  |  |  |
| How you would use digital technology for: | Stock control |  |  |  |
| Monitoring |  |  |  |
| Purchasing logistics |  |  |  |
| How you would use CAM for: | High volume production |  |  |  |
| Distribution  |  |  |  |
| The implications of using digital technologies in industry (positive and negative) | Economic |  |  |  |
| Social |  |  |  |
| Environmental |  |  |  |
| **SUSTAINABILITY/ENVIRONMENTAL ISSUES** | **To be able to identify and explain:** |  |  |  |
| The impact of design and manufacturing on the environment | Modifications to your product to make it more sustainable |  |  |  |
| Life cycle analysis of your product | Extraction of raw material |  |  |  |
| Material processing |  |  |  |
| Manufacture |  |  |  |
| Distribution |  |  |  |
| Use |  |  |  |
| Disposal |  |  |  |
| Cost implications of environmental improvements |  |  |  |
| **CULTRAL ISSUES** | **To be able to identify and explain:** |  |
| Addressing cultural issues surrounding a product | Modifications you could make to your product to address a cultural issue |  |  |  |
| Consideration of materials relating to cultural differences |  |  |  |
| Consideration of manufacturing techniques relating to cultural differences |  |  |  |
| Consideration of the impact of your product  |  |  |  |
| **MORAL ISSUES** | **To be able to identify and explain:** |  |
| Moral and ethical issues surrounding a product | Modifications to improve the ethics of your product |  |  |  |
| Materials |  |  |  |
| Manufacture |  |  |  |
| Economic implications of these ethical improvements  |  |  |  |
| **AESTHETICS/FASHION** | **To be able to identify and explain:** |  |
| Aesthetics and function, shape, form, colour, taste and trends | Modifications to improve its appeal to a wider audience: | Identifying a group to appeal to |  |  |  |
| How you would change your product |  |  |  |
| Sketches to support modifications  |  |  |  |
| Commercial viability  | Product life span |  |  |  |
| Planned obsoleting  |  |  |  |
| Market push/technology pull |  |  |  |
| Levels of production | Method of production |  |  |  |
| Why? |  |  |  |
| **MARKETING** | **To be able to identify and explain:** |  |
| Promotion and selling of a product | How you would gather information, engage and target your market | Surveys/questionnaires |  |  |  |
| Focus groups |  |  |  |
| Testing |  |  |  |
| Social media |  |  |  |
| advertising |  |  |  |
| Unique selling points of your product |  |  |  |
| Modification for batch production | What would change? |  |  |  |
| Economic viability |  |  |  |
| **INCLUSIVE DESIGN** | **To be able to identify and explain:** |  |
| Making products available to all ages and abilities | Modifications you would make to improve your product’s inclusivity | Identify an improvement based on an age/ability bracket |  |  |  |
| Suggest modifications to improve ease of use of your product for that bracket |  |  |  |
| Sketch improvements |  |  |  |
| How your product is made to improve inclusivity | Materials |  |  |  |
| Manufacturing techniques |  |  |  |
| Cost implications relating to the modifications |  |  |  |
| **ERGONOMICS** | **To be able to identify and explain:** |  |
| How a product is designed to fit the human body using anthropometric data | Modifications you would make to improve your product’s ergonomic design |  |  |  |
| Materials that could be used |  |  |  |
| Economic implications of improvements |  |  |  |
| **HUMAN FACTORS** | **To be able to identify and explain:** |  |
| How a human interacts with a product during use | Details of human factors that affect your design | Sight |  |  |  |
| Touch |  |  |  |
| Sound |  |  |  |
| Smell |  |  |  |
| Taste |  |  |  |
| Any modifications you would make to improve your product’s human interface |  |  |  |
| Cost implications of these modifications |  |  |  |
| **SAFETY AND LEGISLATION** | **To be able to identify and explain:** |  |
| Health and Safety of designers, makers and consumers | Modifications needed to make your product safer to use (CONSUMER) | Current risk/hazard |  |  |  |
| Prevention improvements |  |  |  |
| Sketches to illustrate |  |  |  |
| Materials required for improvements |  |  |  |
| Manufacturing techniques required for improvements |  |  |  |
| How you would protect your design | BSI British Standards |  |  |  |
| Intellectual property |  |  |  |
| Patenting |  |  |  |
| Copyright |  |  |  |