Home Access to Learning 2020-21

In the event that individual students are not attending school and are able to complete work, these are the **core topics** being covered by each subject each half term and the relevant links to learning materials to use.

A specialist maths and computing school

Subject: Design and Technology   Year: 7

Term	Core topic/s	Learning resources to access	Additional suggested tasks
Autumn 1	▪ the design and organisation of the workplace including automation and the use of robotics ▪ buildings and the place of work ▪ tools and equipment ▪ lean production	▪ BMW augmented reality (2:37) ▪ https://www.youtube.com/watch?v=＿＿uxqYhUDU ▪ https://www.bbc.co.uk/programmes/m000f3ky ▪ https://www.youtube.com/watch?v=cLVCGEmkJs0 ▪ The impact of Technology (3:14) ▪ The Rise of the Machines – Why Automation is Different this Time (11:32) ▪ Robots and automation in car manufacturing with Stef McGovern & James May (6) ▪ https://www.bbc.co.uk/teach/class-clips-video/business-ks4-gcse-steph-mcgovern/zdp6gwx (6) ▪ https://operationsroom.wordpress.com/2015/03/10/lean-operations-for-apparel/ ▪ https://www.youtube.com/watch?v=SQjXaTlGHIY	1. Create a mind map or list examples of ways in which technology has changed the way we work (think about how we communicate in the workplace and how we manufacture products). Compare your examples with two or three other students. 2. Explain the benefits of using automation in various industries. 3. Explain the potential impact of automation on employment. 4. Explain how lean manufacturing minimises the cost and maximise the efficiency of a manufacturing process. 5. Carry out some research into a new technology that is likely to reduce the impact that products have on the environment. Write a short summary of what the technology is, its benefits and drawbacks.
Autumn 2	▪ Crowdfunding ▪ virtual marketing and retail ▪ co-operatives ▪ fair trade	▪ What is Crowdfunding? Crowd Funding planning? What, How, Why and when (3:41) ▪ Fairtrade Footballs (7:53) ▪ What is a Co-Operative? (1:45) ▪ Fairtrade and sustainability (3:28) ▪ The hidden cost of Apple (8:14)	1. Explain how crowd funding benefits an entrepreneur or business person. 2. State the meaning of the term fair trade. 3. Explain why designers have a responsibility to consider fair trade and ethics when sourcing materials or when considering methods of manufacturing. 4. Explain how a co-operative works. 5. Using examples, explain the relationship between fair trade and sustainability.

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Spring 1	- the impact of resource consumption on the planet: - renewable resources - non-renewable resources - disposal of waste - circular economy	- What happens to plastics you throw away? (4) - The Circular Economy. (3:40) - https://www.youtube.com/watch?v=7b9R82vrA40(4:55) - The true cost of Samsung. (7:51) - https://www.youtube.com/watch?v=PLBK1ux5b7U	1. Explain difference between renewable and non-renewable resources? 2. Many products end up in landfill sites. Explain the impact this has on the environment. 3. Using an example of a named product, explain how a circular economy works.
Spring 2	- the Trade Description Act and sale of Goods Act - product labelling and its importance - BSI and CE standards - intellectual property rights - design regulations	- https://www.youtube.com/watch?v=IXyB1Zj-DFo (4:19) - https://www.youtube.com/watch?v=J0uHJw9d9bU (22:56)	1. Explain the importance of the Trade Description Act to a consumer. 2. Using an example of a named product explain in detail why it is importance to label products with quality and safety information. 3. Name 5 products that are labelled to protect the consumer from harm. 4. Explain the importance of Sale of Goods Act to the consumer. 5. Draw the BSI and the CE logos. 6. Explain the difference between a CE mark and a BSI/ British Standards Kitemark. 7. Name 4 intellectual property rights. 8. Explain how a Patent benefits a designer. 9. Name 3 Trademarks 10. Define a copyright. 11. Give an example of a regulation that is designed to protect a designer's idea.

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Summer 1	- computer aided design (CAD) - computer aided manufacture (CAM) - flexible manufacturing systems (FMS) - just in time (JIT) or lean manufacturing	- An introduction to CAD (1:40) - An introduction to 3D printing (2:20) - Designing for laser cutting (1:45) - Laser Cutting (1:43) - CNC Embroidery (4:27) - JIT/TPS (3) 3D Printing-Car Parts (2:16) - Manufacturing System in 3 Minutes (3:11) - Lean manufacturing at Nissan with James May (6:15) - Just in time manufacturing at Mini with Stef McGovern & James May 6:07) - Dyson does it: Build (1:11)	1. Define the term CAD 2. Define the term CAM. 3. Describe two advantages of using CAD over traditional design methods, such as using a pencil and paper. 4. Sate a type of CAM machine that could be used to make a 2D plastic model of a cat. 5. Explain how the named CAM machine works. 6. State the 2 main functions of a laser cutter. 7. Outline three disadvantages of using CAD/CAM technology in manufacturing. Explain how Just-in-time (JIT) manufacturing minimises the cost and maximise the efficiency of a manufacturing process
Summer 2	- planned obsolescence - design for maintenance - ethics - the environment	- https://www.facebook.com/motherboardtv/videos/3629879953699208/?t=2 (2.57) - https://www.bbc.co.uk/news/business-38472652 (text) - The Truth about Planned Obsolescence (7:04) - Planned obsolescence (2:35) - Apple Fined $27 Million by France - Planned Obsolescence? (6:06) - https://www.theguardian.com/world/2016/sep/19/waste-not-want-not-sweden-tax-breaks-repairs (text) - Life Cycle Analysis (2:47) - Apple Planned Obsolescence (2:39) - BBC Bitesize GCSE Business - Ethics video (5:11) - Why your old phones collect in a junk drawer of sadness (7:51	1. Explain why planned obsolescence is bad for the environment. 2. Study the Life Cycle Assessment stages below and explain the impact each process has on the environment when manufacturing a Plastic bottle or T-shirt 3. Acquiring raw materials, Material processing, Manufacturing, Transportation, Use and End of life. 4. Explain the difference between finite and non-finite resources.