St Benet Biscop Sixth Form

Personal Development

Design & Technology (Product Design)

1. Online videos and tutorials

Drawing, Designing and Manufacturing:

Spencer Nugent: line weightPintrest.com Marker Rendering, 2 Point Sketch-a-day

Design Technology TV: CAD Play list

Bringing a product to market: 10 steps, 5 steps, Real Business.

BMW – *A look into automation in the car industry*
https://www.youtube.com/watch?v=CBmsOvbGh-Y

How It's Made
A comprehensive set of YouTube videos which aim to give learners an insight into the world of manufacturing.
https://www.youtube.com/results?search_query=how+it%27s+made

Ergonomics and Design
https://www.youtube.com/watch?v=LAKlmdMHpdE&list=PL7M35dpw3U3B1Qc9hZ6OyPyOSnCjR4Q9h&index=1

How high can we build?
A 60 second animation looking at how tall buildings have changed over the years and finding out how high future plans will take us.
https://www.bbc.co.uk/teach/how-high-can-we-build/zjkyxyc

To seek wholeness through faith, quest and learning, to become what God intends us to be.

ST BENET BISCOP CATHOLIC ACADEMY
Part of the Bishop Bewick Catholic Education Trust

BBC TEACH

The following links give us a look at the world of designing and making for clients and manufactures.

How to Build

Some of Britain's most iconic and secretive engineering companies reveal how they build the world's most amazing machines.
https://www.bbc.co.uk/teach/class-clips-video/design-and-technology-ks3--gcse-how-to-build/zbgg7nb

The Imagineers

Presenter Fran Scott meets the next generation of engineers working on major global challenges.
https://www.bbc.co.uk/teach/class-clips-video/design-and-technology-science-ks3-ks4-gcse-the-imagineers/zjfvpg8

Bio-mimetics: Designed by Nature

A unique look into some of the latest biomimetics technology and pioneers working on ways to interpret nature's biological mechanisms.
https://www.bbc.co.uk/teach/class-clips-video/gcse-design-and-technology-biomimetics-designed-by-nature/zrcj92p

The following videos and tutorials are designed to support the topic areas cover in both your exams and your NEA.

Topic 1: Exploring Contexts

Exam content - Understand that all design practice is context dependent and that investigations are required to identify what makes a context distinct in relation to:

i) environment and surroundings
ii) user requirements
iii) economic and market considerations product opportunities.

NEA content a. Understand methods of investigating and analysing contexts in order to identify problems and opportunities that offer potential for an innovative design solution.

Story of Electronics

YouTube video showing the impacts of electronic products. This will help lifecycle analysis and help learners to think more broadly, beyond the obvious life of a product.
https://www.youtube.com/watch?v=sW_7i6T_H78&t=193s

Stakeholder Analysis
The purpose of performing a stakeholder analysis is to provide the project manager and project team with an overview of the people who have interest in the project. The model provides an overview of how much stakeholders will be affected by the project and how much influence they have on the project.
https://www.youtube.com/watch?v=sV8uMPhcsuw

Lifecycle Analyses (LCA)
Beiersdorf uses LCA to assess and reduce the environmental impact associated with all stages of a product's lifecycle. The model we use, considers inputs and impacts across raw materials, our own production processes, transportation, product use, recycling and disposal.
https://www.youtube.com/watch?v=6RNnzfUHwY8

Lifecycle Assessment: GORE-TEX® Footwear GORE-TEX® Products
Gore uses the Lifecycle Assessment (LCA) as an ecological evaluation tool. LCA is the most sophisticated standard method of assessing the total environmental influences of a finished product from manufacturing raw materials to its final disposal ('from cradle to grave').
https://www.youtube.com/watch?v=iD-m6qBij8Q

Topic 1: Implications when considering the conflict between moral and commercial factors

Exam content 3.1 What factors need to be considered whilst investigating design possibilities?

NEA content a. Understand the impact of social, moral, and ethical factors when investigating and analysing existing products, systems, technologies and technological developments in order to consider and apply these principles when designing and creating prototypes.

A Spoon You Can Eat Is a Tasty Alternative to Plastic Waste
Plastic cutlery has been around for years, it's widely considered the only choice for cheap, disposable cutlery. Knowing the threat plastic poses to our environment and health, Narayana Peesapathy created a tasty and nutritious alternative: edible cutlery.
https://www.youtube.com/watch?v=r4Cc5zmy0eY

WWF website
WWF forests campaign can be an ideal resource to outline issues of sustainability of wood and problems surrounding public awareness.
https://www.wwf.org.uk/what-we-do/projects/forests-campaign-businesses

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Topic 2: Exploring and analysing the needs, wants and interests of primary users and wider stakeholders

Exam content - What can be learnt by undertaking stakeholder analysis? How can usability be considered when designing prototypes?

NEA content a. Understand the central importance of obtaining and taking account of the needs, wants, values and views of users and stakeholders throughout the iterative design processes. b. Be able to identify and state user and stakeholder requirements in a form that will direct, inform and offer the opportunity for reflection of their designing and making progress throughout the design process.

Ergonomics and Design MisterRolls
Video that explains the need to consider ergonomics when designing for comfortable human use.
https://www.youtube.com/watch?v=LAKlmdMHpdE&list=PL7M35dpw3U3B1Qc9hZ6OyPyOSnCjR4Q9h&index=1

Topic 3: Writing a Design Brief
NEA content b. Be able to develop and prioritise specific issues identified for attention in order to produce a design brief and determine the next steps for design development.

Writing a Design Brief
Watch videos of problems encountered by people and use the issues outlined to create a design brief covering the fundamental issues.
https://www.youtube.com/channel/UCVYwsZAvnI8snvJ6aufbvCg

Understanding Design Briefs
Listen to Podcast covering design briefs in detail. Skip to (05:30) and listen to relevant aspects from playlist.
http://therealmagic.com/podcast-episode/episode-6-good-bad-design-briefs/

Topic 3: Implications related to distribution of goods
Exam content - What factors need to be considered when distributing products to markets?
a. Understand the issues related to the effective and responsible distribution of products, such as: • • cost effective distribution • • environmental issues and energy requirements • • social media and mobile technology • • global production and delivery. b. Demonstrate an understanding of the implications of intellectual property (IP), registered designs, registered trademarks, copyright, design rights and patents, in relation to ethics in design practice and consumer rights.

Copyright, trademark and patent: What's the difference?
A short movie outlining the key differences in copyright and trademark law. A good starting point for learners.
https://www.youtube.com/watch?v=HsTi3vD_Usw&%20index=13&list=PL7M35dp%20w3U3B1Qc9hZ6OyPyOSn%20CjR4Q9h

Mushroom® packaging Ecovative
Mushroom packaging is a sustainable replacement for EPS, EPE, EPP and other petroleum based plastic foams
https://www.youtube.com/watch?v=zw2O1PhrzA0

Saltwater Brewery "Edible Six Pack Rings"
Most of the plastic six-pack rings end up in our oceans and pose a serious threat to wildlife.
https://www.youtube.com/watch?v=-YG9gUJMGyw&index=18&list=PL7M35dpw3U3B1Qc9hZ6OyPyOSnCjR4Q9h&t=52s

Topic 4: Implications of designing in isolation
Exam content 3.5 How can skills and knowledge from other subject areas, including mathematics and science, inform decisions in design?

NEA content b.
Be able to draw on and apply skills and knowledge from other subject areas, including mathematics and science, to inform and support decisions when designing or when developing technological aspects of their product.

Both primary and secondary research form an important part of any planned design task. To make best use of the data driving designing, learners should become familiar with identifying and managing possible sources of bias. An example of this is the well-known car manufacturer VW making false claims about the performance of diesel engines CO2 emissions in 2015, leading to them having to recall vehicles and pay very heavy penalties in fines and compensation internationallyhttp://www.bbc.co.uk/news/business-34324772

2. Books

- Deconstructing Product Design by William Lidwell and Gerry Manacsa.
- The Measure of Man and Women: Human Factors in Design. By Alvin R. Tilley & Henry Dreyfuss Associates
- Design Museum: Contemporary Design. By Catherine McDermott
- Process: 50 Product Designs from Concept to Manufacture. By Jennifer Hudson
- Icons of design: the 20th Century by Volker Albus, Reyer Kras and Jonathan M. Woodham.
- The Eco-Design Handbook. By Alastair Faud –Luke
- Material Matters – New Materials in Design by Phil Howes and Zoe Laughlin.
- Sketching User Experiences: getting the design right & the right design. By Bill Buxton
- Rapid Contextual Design: Guide to key techniques for user centred design. By Karen