SAINT GEORGE CATHOLIC COLLEGE

Year 9 Design & Technology: Independent projects

You should conduct an Independent research project on the work of Norman Foster
Your project may take the form of a booklet, a powerpoint presentation, a stop frame animation or a film that you have created. choose which method you think you would be able to produce to the best quality given your available resources.

Your presentation should include:

- *Information regarding Norman Foster's background. (How did he get into design? Did he have a particularly interesting upbringing?) You may use the information to the right to help get you started, but you should look to find further information of your own.)*
- *A selection of the work that Norman Foster is most well known for. (This should include at least 3 or 4 images, these could be photographs or your own drawings)*
- *Your own descriptions and opinions of the work that Norman Foster has created. (Does Norman Foster's work remind you of anything that you have seen before? Does it follow a particular trend or design movement?)*
- *Some design ideas (At least 4) for creating your own Building inspired by Norman Foster. (You should have a specific purpose for your building. Will it be an office block, a restaurant? ect) Your designs should be clear and using isometric projection where possible. You should fully annotate your designs to make them clear in how they have been influenced by Norman Foster.*
- *A final design/ product on minimum of A4 paper (Preferably larger if available) which shows your design influenced by the work of Norman Foster.*
- *A sketchup CAD model of your final design (Using sketchup online is a free to use CAD modelling software) the more you can practise with this software the better as it will help you design future products successfully. * This step will only be possible if you have access to IT facilities and the internet. **
- *A model of your design using recycled materials such as empty packaging containers, cardboard or plastercene.*

Norman Foster

Born in Manchester, Norman Foster is considered one of the most famous exponents of modern architecture. He was raised in a humble family with few aspirations, his mother, Lilian Smith, a waitress and his father, Robert Foster, owner of a pawn shop, a situation that did not prevent him of climbing higher.
This imposing 180 meter high skyscraper in the shape of a gherkin "The Gherkin", emerges with 40 floors each designed with 6 ventilation ducts, allowing maximum use of light and natural ventilation, in turn, translates into reduction of expenses for lighting concept up to 50% which is quite significant, because it managed to combine energy savings added to a design that offers a kind of internal microclimate adaptable to summer and winter.

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Year 9 Design & Technology: Designing to respond to current events

Below there are 8 different design tasks. Each of them works towards finding a design based solution for a very real and current crisis that we are currently facing as a country. At this time, there are lots of designers and engineers pulling together to think of new ways to support the NHS in their mission to help as many people suffering from corona virus as possible. Can you use your creativity and design skills to respond to one (Or as many as you like) of the below contexts? Remember to send photos of written/drawn or digital work into your teacher so that we can share your excellent work on our school website, and give you the credit and feedback that you deserve.
(Mrs Gilbank: lgilbank@stgcc.co.uk Mr Kerslake: mkerslake@stgcc.co.uk)

1. ***Many people are living in isolation, this can be a lonely time for some. Design a way to make people feel connected. (This could take the form of an idea for an App, a social distancing game that can be played over the phone, a physical product or anything else that you can think of.)***

2. Covid-19 and other viruses are often spread through poor hygiene, design a way to encourage people to keep their hands clean. (This could be in the form of a physical product or in a graphic design based fashion)

3. Many people are currently social distancing from others to stop the spread of Covid-19. Design a product to keep people at a distance when out and about.

4. With sports clubs, gyms, swimming pools and other active areas now closed, Design a way for people to stay active indoors.

5. The surgical face mask, although serves a purpose, doesn't go with many outfits. Re-design this mask for a client of your choice. It should be practical and functional as well as aesthetically pleasing.

6. Hand washing is the best defense for the spread of germs. How can the process of hand washing be improved?

7. If you are very ill and in bed, you often can't get up and move very far. Design a way to keep all the things you need close by when you are ill, e.g. water, tv, books, phone, tissues, medication etc.

8. Pets are not used to having their humans around the house so much, some pets love it other pets hate it! Design a way to keep a pet entertained and distracted while the humans have to work.

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Design & Technology – Theory Content Core Technical Principles

Year 9 Design & Technology
Independent work for home

Task: Complete the blank boxes below by researching the theme. Can you find any examples of mechanical devices and products which include a systems approach to design in your own house? CHALLENGE: Can you design a product which includes a mechanical system or uses a systems approach to design?

Mechanical Devices:

Changing magnitude and direction of force

Levers: (First order, second order, third order). Linkages (Bell cranks, push pull) Rotary systems: (CAMs and followers, simple gear trains, pulleys and belts). Students must be able to understand the action of forces and how levers and gears transmit and transform the effects of forces. Arithmetic and numerical computation eg use ratios. Use angular measures in degrees, visualise and represent 2D and 3D objects including 2D diagrams of mechanisms/ mechanical movement. Knowledge of the function of mechanical devices to produce different sorts of movement, changing the magnitude and direction of forces.

Different Types of movement

The functions of mechanical devices to produce linear, rotary, reciprocating, oscillating movements. Students must be able to visualise and represent 2D and 3D objects including diagrams of mechanisms/ mechanical movement.

Examples: Drawn diagrams to show the working of mechanisms and mechanical movement

Systems approach to Designing:

		Examples: How are these used and where?
Inputs	The use of light sensors, temperature sensors, pressure sensors and switches. Extracting information from technical specifications. Component names interaction and operation.	
Processes	The use or programming microcontrollers as counters, timers and for decision making to provide functionality to products and processes.. Extracting information from technical specifications. Component names, interaction and operation	
Outputs	The use of buzzers, speakers and lamps to provide functionality to products and processes. Extracting information from technical specifications. Component names, interaction and operation	