



## SUMMER BRIDGING WORK 2023

Summer Bridging Work is an important part of your transition to Wilberforce Sixth Form College. This piece of work will count towards your effort grade. Please complete your summer bridging work in time for the start of term.

**You are required to bring evidence in paper format and hand this into/ produce this to your subject teacher during your first lesson.**

## BTEC Level 3 Engineering Extended Certificate

### OVERVIEW OF SUBJECT

BTEC Level 3 Nationals are a vocational qualification designed to help you succeed. They have been developed with universities, employers, and professional bodies with your future in mind. They are designed to help you develop the skills and confidence you need to become a good engineer.

Your new BTEC qualification takes a unit-by-unit approach to provide you with practical, work-related knowledge. Some of the units you will study will be assessed by your teachers and some by the exam board. This is a full-time course and over two years you will complete 4 different units. At the time of writing this welcome booklet they are:

- Engineering Principles
- Delivery of Engineering Processes Safely as a team
- Engineering Product Design and Principles
- Computer Aided Designing in Engineering

Your final grade reflects the achievements across all 4 units so it is important you keep working as hard as you can through the whole course. This course is ideal for those who wish to develop skills in engineering in both an academic and practical way. This course could be studied alongside traditional A Levels to help you get to university or could be used to help demonstrate the skills needed to gain an apprenticeship.

### ENTRY CRITERIA

A minimum GCSE average of 5.0 and grade 3 in GCSE English Language. A minimum of a grade 4 in GCSE Maths and a 4 in Science (or equivalent Level 2 Science course)

### LITERACY TASK

Engineering is all about solving problems and understanding how to make the best solution. To help gain a better knowledge of the subject it is often useful to look at a product and analyse it.

Look at the climbing frame below and jot some notes down to explain the Engineer Designer's thinking.



The climbing frame is made from wood. It has a sand pit under the tower, a slide and some 'monkey' bars. It is made from the following components:

Material / Part	Size	Number
Pine Square Post	2400m x 100mm x 100mm	4
Pine Square Post	2300m x 100mm x 100mm	2
Whitewood spruce boards (frame)	1000m x 100mm x 19mm	17
Whitewood spruce boards (frame)	981mm x 100mm x 19mm	8
Whitewood spruce boards (Roof)	1055mm x 100mm x 19mm	16
Whitewood spruce boards (Roof support)	790mm x 100mm x 19mm	2
Whitewood spruce boards (Roof Support)	692mm x 100mm x 19mm	2
Whitewood spruce timber (Fence newels)	676mm x 34mm x 18mm	14
Whitewood spruce timber (Fence top)	780mm x 34mm x 18mm	2
Pine Deck Board (floor)	1019mm x 95mm x 20mm	7
Pine Deck Board (floor)	777mm x 95mm x 20mm	2
Whitewood spruce timber (Bridge)	1200mm x 140mm x 38mm	2
Steel tube diameter 48mm	782mm	4
Plastic slide		1

**Produce a written description (Specification) of the following:**

**Form** (Why is the climbing frame this shape? Why does it look like it does?)

**Function** (What must it do to work well?)

**Materials** (What does the material have to do to work? Why has it been made from wood and metal?)

**Size** (What has influences the size of the frame?)

**Safety** (What should the designer have thought about to make sure the frame is safe and meets British Standard 1176)

### NUMERACY TASK

Work out the cost of the materials to be able to build this frame. Use the information below to work out your answer.

Material	Size	Cost
Pine Square Post	2400 x 100 x 100	£19.50
Whitewood spruce boards	2400mm x 100mm x 19mm	£5.48
Whitewood spruce timber	2400mm x 34mm x 18mm	£2.44
Whitewood spruce timber	2400mm x 140mm x 38mm	£9.59
Pine Deck Board	2400mm x 95mm x 20mm	£3.50
Steel tube diameter 48mm	1000mm	£17.26
Plastic Slide		£70.00

Cost of materials needed to construct the climbing frame =

### PROGRESSION OPPORTUNITIES

Below we have listed four careers linked to Engineering course. You are tasked to research the four careers, choose one that most appeals to you and write a 200-word essay as to why you feel this career would be most suited to you.

**Energy Generation Industry**

**Civil Engineering**

**Chemical Engineering**

**Marine Engineering**

Kind regards

David Hastings

**Faculty Head for Digital, Engineering and Sport**

If you have any queries regarding your Summer Bridging Work, please contact me via email [djh@wilberforce.ac.uk](mailto:djh@wilberforce.ac.uk) I will aim to respond before your enrolment appointment.