



## APPLICANT 10 – CAN CRUSHER (GCSE Project)

What does/did your project aim to achieve? **Please write up to a maximum of 300 characters**

At home, my family would always struggle with fitting rubbish into the bins outside, I looked at what was causing the bin to overflow and I realised that the majority of the bin space was not being used, this was due to cans, rubbish etc. was not compact thus it leaved big gaps where other rubbish could of gone. For my GCSE DT design project, I am making a manual 'can crusher', and in order to make the product environmentally friendly, it will be made out of sustainable products.

Please describe and explain your project making clear and direct reference to your supporting documentation. **Please write up to a maximum of 1000 characters**

I had to research how I could make my product ergonomical, this including a series of anthropometric tests, to make the product more comfortable to use, this showed me I had to make the product bigger and heavier. At the start of the project, I also elected to use environmentally friendly products, I did this in order to not add to climate change, this made it more appealing to whom I was building the product for, my family who are very concerned about the effects of climate change.

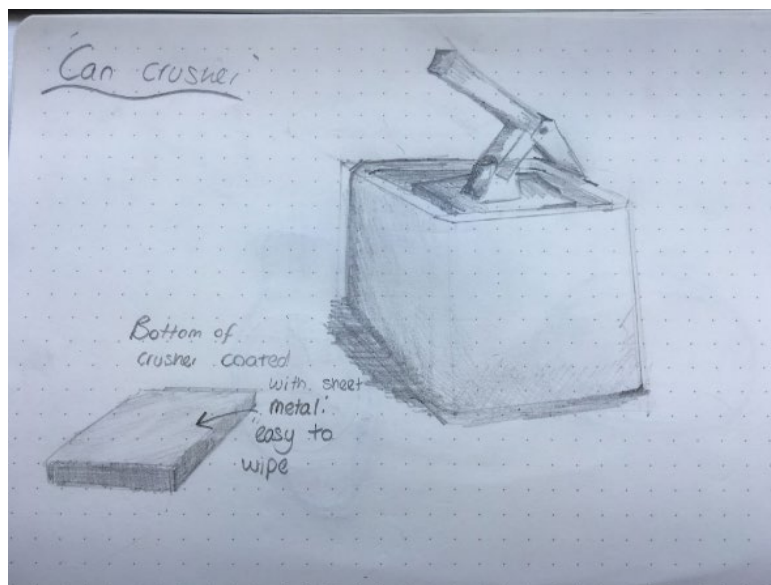
What have been the successes and failures of you project so far? **Please write up to a maximum of 500 characters**

Later on in the project, when thinking about how the crusher would be operated, I was considering a crank to turn a rack and pinion device which would lower the 'crusher' and crush the product, however after some feedback, I realised that a crank would be too time consuming for me to use so instead I have elected to use a lever. Also, I realised that I would need to change the size of the crusher block itself in order for it not to induce friction on the sides of the crusher.

What lessons of an engineering nature have you learnt from working on this project? **Please write up to a maximum of 500 characters**

Even though I have not finished my design, it was the first one I have been allowed to independently design and create, that is why I think it is suitable to put on this application, being able to do this has showed me how to develop my ideas and realise when to not get too carried away with one design. It has also taught me how to research a client in order to improve my design. Throughout the project, I have also learnt several different techniques I can use to strengthen my product.

## VISUAL EVIDENCE

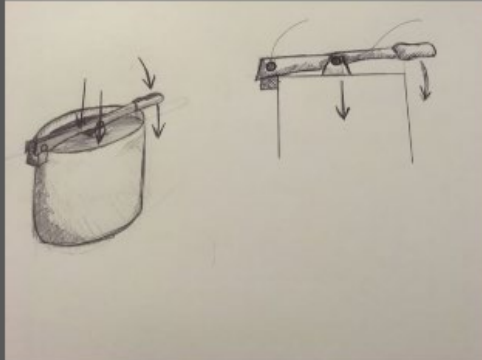




Although it is very easy and simple to make, I feel there could be more research put into how to make a greater output from a smaller input, as I do not believe the lever will push the crusher all the way down. I will create more of an output force by adding more rotating arms as that will help push the crusher down.

To get a better understanding of my lever design, I will look at the  and see how that functions to create a large output force from a relatively small input force.

Also, I think, as the majority of things this crusher will crush, will be cans and bottles, the crusher does not have to go to the edge of the surrounding cover, to give it a sturdier look I also think the surrounding edge should be a square as that gives the product a sturdier look.



These pages help me reflect on and improve my designs as I am looking for and at my flaws in each of my designs.

I have improved the lever so now the crusher can go all the way down, however I think I could improve my design further, areas in which I could improve my lever design are: I could make a longer handle, this will create a greater moment as the force is happening further away from the pivot, I could also look at improving and simplifying the arm, as that would make it easier to produce and having less parts means it will last longer as there are less parts interacting with each other.

From my previous page, I decided to make my design into a square shape as I believe it gives my design a sturdier and more reliable aesthetic, I also curved the edges off to create a sleeker look, this helps make my design look modern without having to sacrifice the sturdy reliable look.



## MARKER'S COMMENTS

This applicant's responses again demonstrate that if you are using a GCSE or a National 5s/Standard Grade project, you may well need to adapt your text to reflect Arkwright criteria: we are looking for possible future leaders in engineering, so please remember to focus on the engineering aspects of your project.

The 'successes and failures' section is the most effective here; different engineering principles are considered and reasons for selection or dismissal of these principals is well justified by the applicant.

Unfortunately, this applicant's text does not refer to the uploaded images at all.