

STEM the Flow

Tackling Plastic in the River Clyde



SHAWLANDS SEA SAVIOURS

SHAWLANDS ACADEMY

The team

One of the first things we did we started our project was assign roles suited to our personality and skills. We also discussed what we don't like working in a team and how we would like to be treated by others.

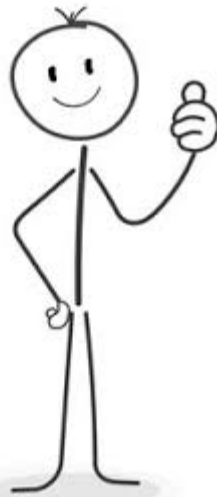
Katie – Creative Director



Laaibah -Researcher



Matthew - engineer



Iman - Project manager



Bayley-Researcher/designer

Research

Before we could start we needed to research things such as

- How deep and wide is the Clyde as this could affect the design
- Where does most of the plastic go. – surface
- The most polluted area of the Clyde
- Which sea life may be affected by our design
- Types of plastic in the Clyde

MEET AND GREET

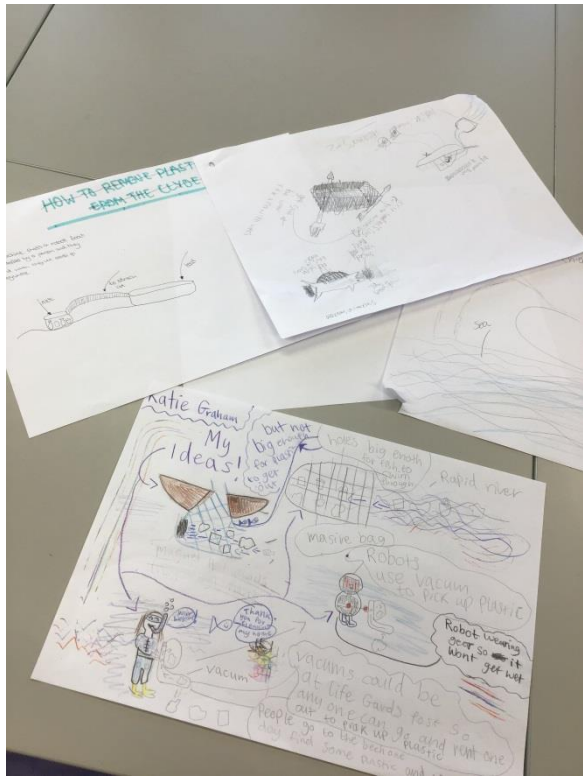
We met our industry mentor Dan and we asked him very important questions such as his favourite crisps – smokey bacon pringles. We also got to learn who were the other teams and the other mentors too.



DESIGN PROCESS

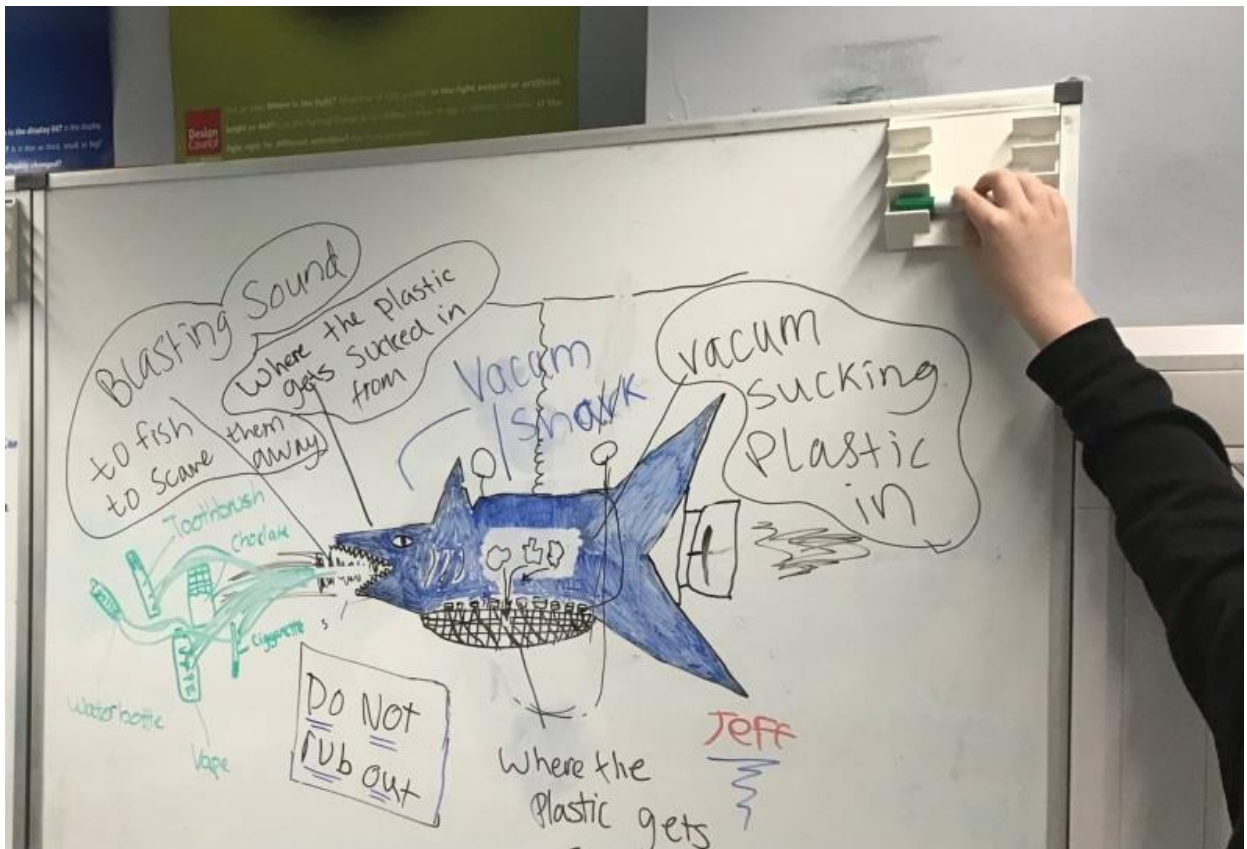
Initial idea

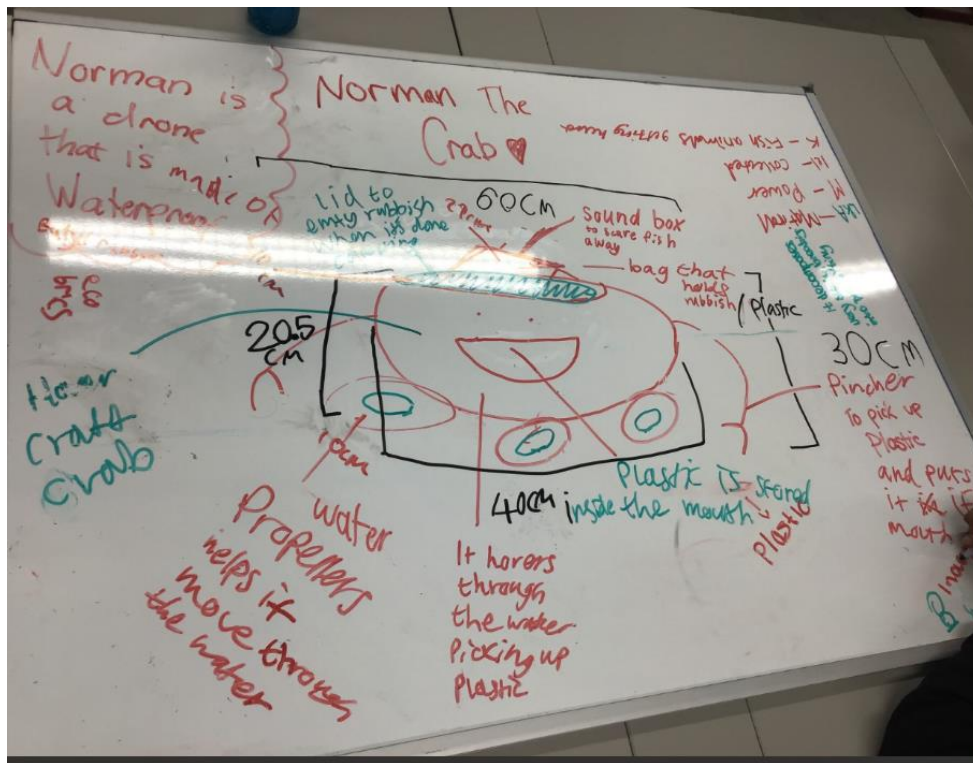
We first all worked individually to come up with ideas then we put out ideas together. We choose the best parts from each design to include. We did this because it meant we could all have our own say on the design.



The design was a shark (Jeff) that blasted sound so scare sea life away so it did not accidentally eat them. The plastic was to be “eaten” by the shark which then was distributed into his belly which is a net to collect the plastic. There was a vacuum which allowed plastic to be sucked into to its belly.

We realised our initial idea was very similar to the last event so we felt like we had to change it to make it more individual to us. The project manager had a big job to keep us all positive and ready to take on the challenge.





The design of Norman

After being disheartened by the design not working out we progressed as a team to come up with something bigger and better than Jeff the shark. So, we worked together and came up with Norman.

Appearance | Norman was based of a crab with an oval body and claw like pincer's with lifeless black eyes. Normans around 30cm tall and 40cm wide and propeller's for flying.

Details | Norman comes with people who have to recharge and empty them to continue collecting plastic in the area it was set. We chose a rechargeable underwater drone battery because it means we don't need to throw the battery after it loses it and so it technically is eco-friendly plus eco-friendly materials

Materials | Norman is made of butyl rubber because it was elastic, waterproof and durable also made with bits of plastic for the hinges for the lid and a metal rechargeable underwater drone battery.

Functions | Norman has a life span around 25 minutes long flying over water picking up plastic with its claw like pincers and putting it in the hole in the face disguised as a mouth storing it. When getting too big it will expand using the elastic plastic it's made of. It will play predator sounds to scare fish away from it to not pick them up. When it's around a half or quarter of power it will fly back to the people at the stand to be recharged and emptied with the lid at the top of its head. The propellers help him glide down the Clyde.

Below we were looking at the size of Norman and working out how much plastic litter he could hold.

- The design can run for 25 minutes
- Hold 19 pieces of litter
- Norman expands to 60 diameter big and this makes him float to the top to be collected
- Plastic is collected and turned into plastic eco bricks and they are sent to be used for building houses in other countries.



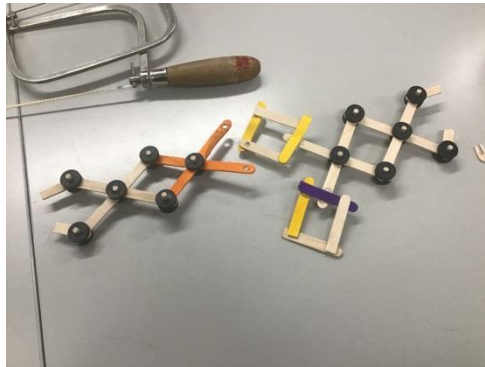
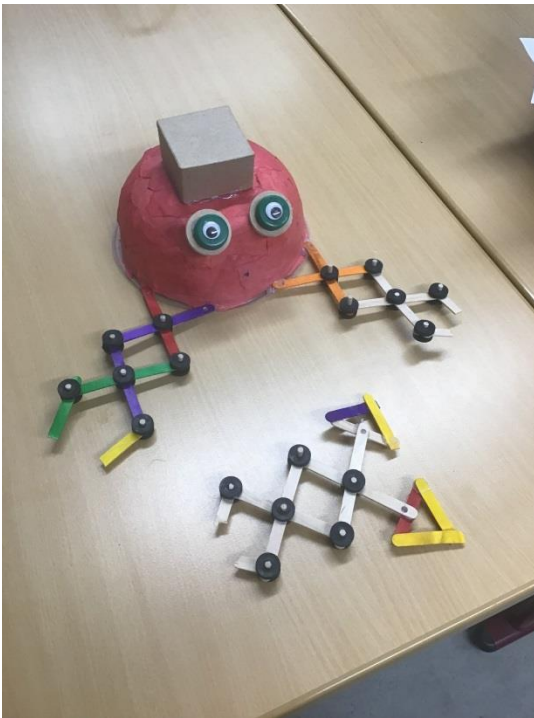
Mentor visit

Dan from Jacobs came to visit and helped us with our idea and asked us questions about it and we made changes based on this.
(see pictures over the page)



Model

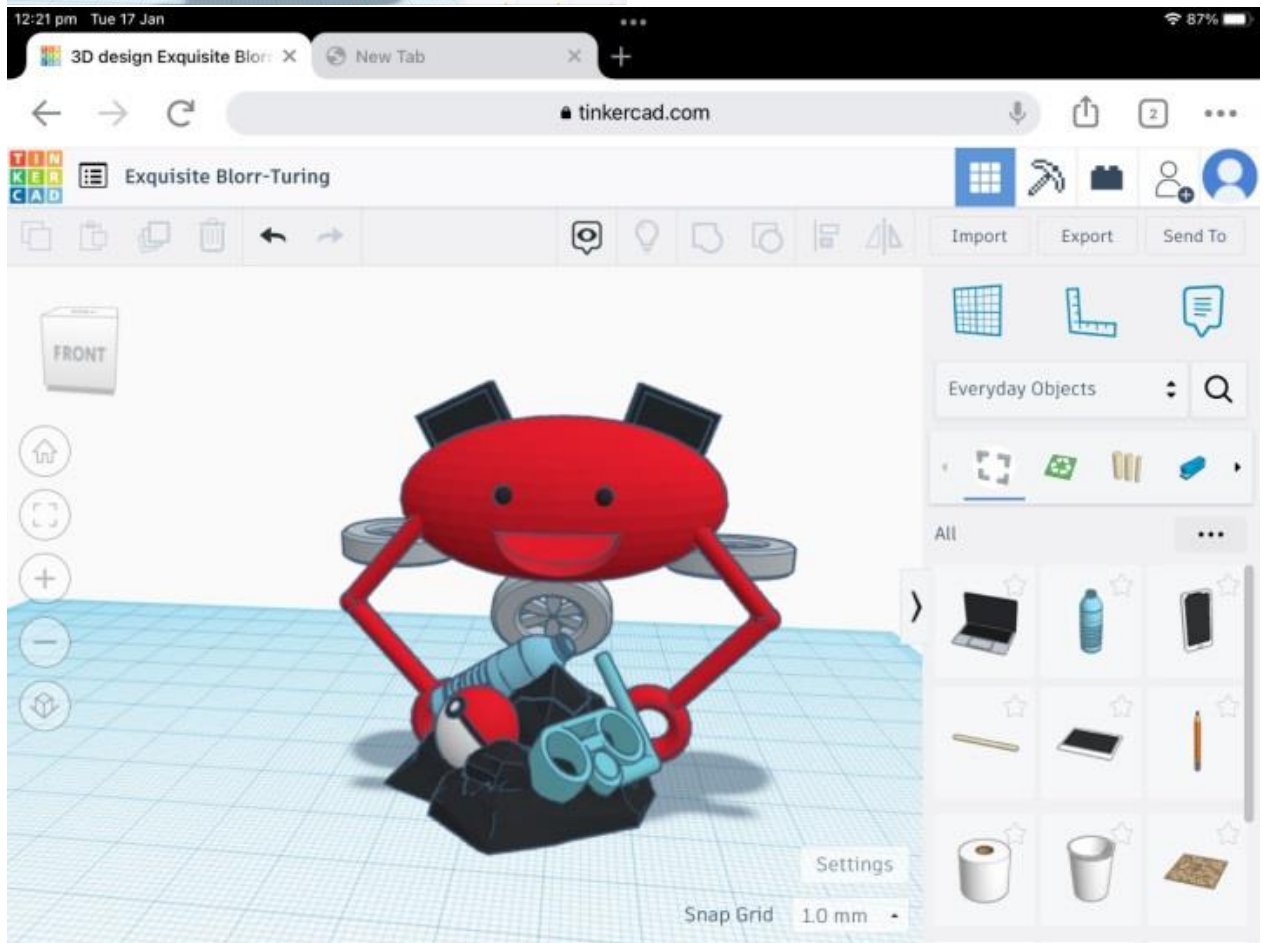
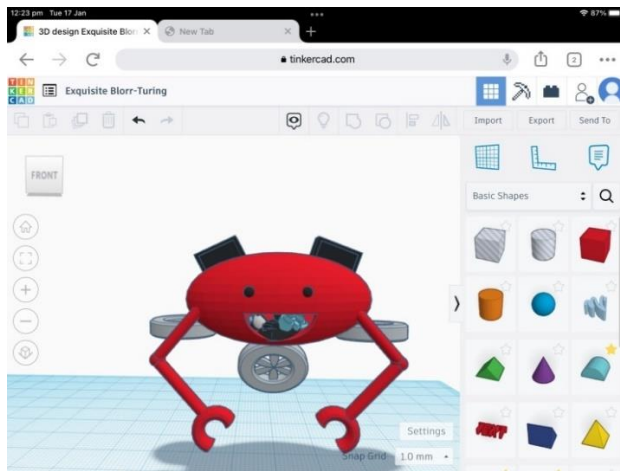
We then made a physical model so people could see how our design worked. We used engineering principles we learned in STEM class to build grabbers which is how the plastic would be collected. The grabbers extend to collect items further away and get smaller so that it can be put into the mouth area.



TinkerCAD model

The engineer in the group Matthew was very keen to use his 3D modelling skills by using TinkerCAD to make a model. Matthew know engineers use 3D modelling so thought this would be a great way to show an interactive model.

(see pictures over the page)



Conclusion

Working as a team has its difficulties. But we learned that as long as you are resilient you can overcome any issue. It is hard working with people you aren't usually in a friendship group but it is important to look past this as everyone has their own strengths.