



Acoustic Engineering

STEM WEEK

Hawks Class

05.02.24



STEM WE CAN!

We have had so much fun this week, exploring the roles and importance of engineers and feeling inspired to become one ourselves.

We have been learning about sound in our Science lessons, and were excited to put our knowledge to the test by taking part in an acoustic engineering project.

First, we talked about what an engineer was...

An engineer is a person
who designs, builds and
fixes things to help make
the world a better place.

I think that an engineer is
someone who can build and
fix things.

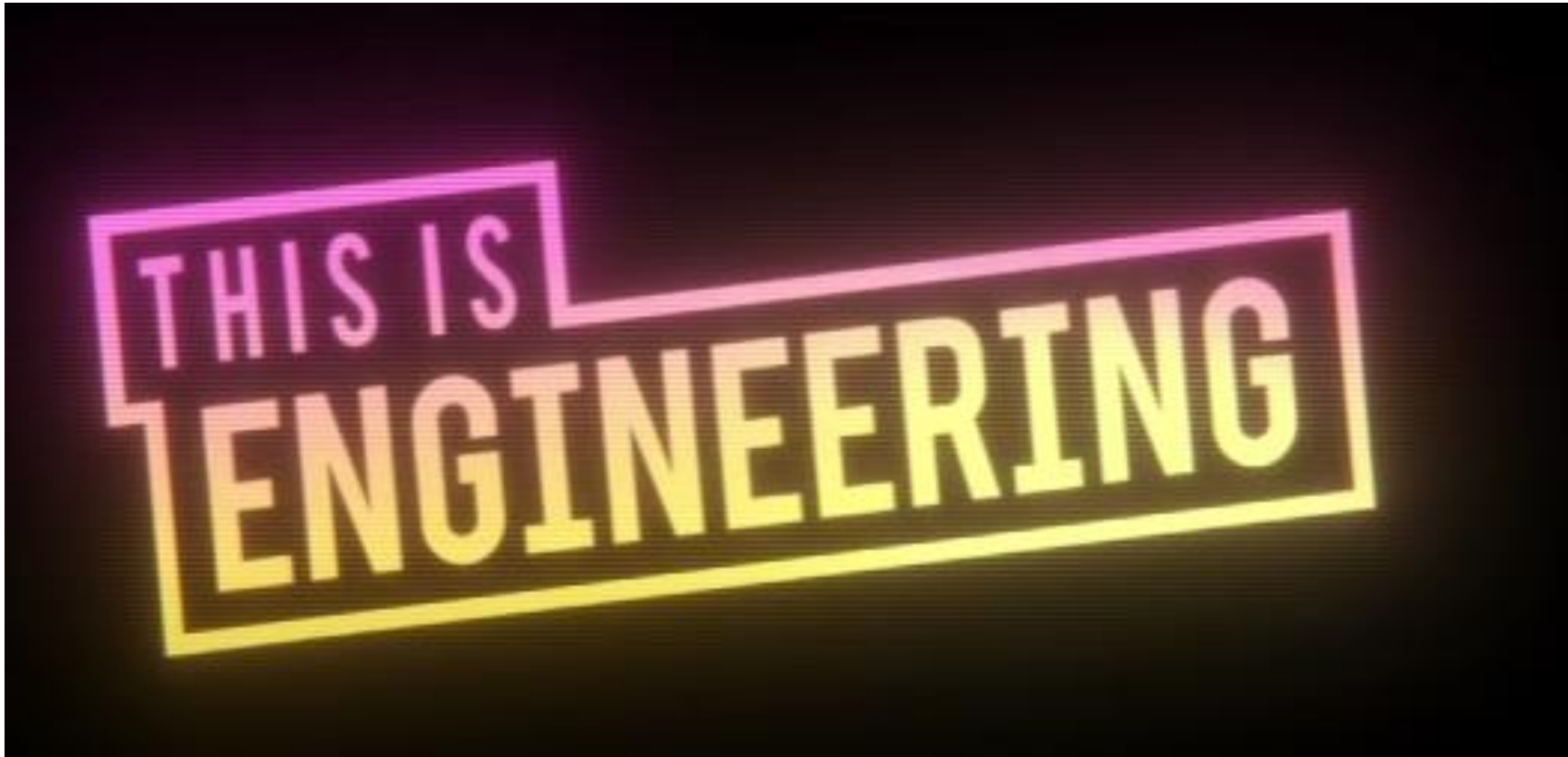


We watched a video about the different types of engineering...

Acoustic
engineering

Software
engineering

Aeronautical
engineering



Electrical
engineers

Medical
engineering

Structural
engineering

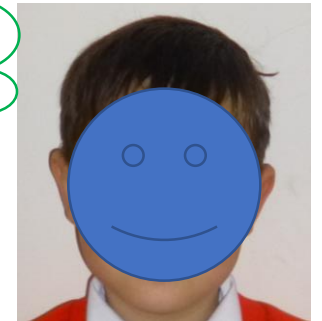
Environmental
engineers

We really enjoyed watching Emma's video...

I think it was really inspiring to watch because it was amazing to see that someone from Stepgates could be in that position.



It was really cool to see someone that used to be in Stepgates achieving their goals. It was also nice to hear about the different types of engineering.



We received an important letter...

Dear Hawks Class.

There are a number of children who would like to use the reading shed during break and lunchtimes, but it is just too noisy!

The noise of the other children on the playground, as well as the sounds from nearby people and traffic mean that children cannot concentrate on their reading. We would also like to be able to use this room for music lessons, which means we want the sound to remain inside of the shed, and not travel outside too much.

As you are learning all about sound in Science, I believe that you would be the perfect people to solve this problem. Can you help us to design a room that is soundproof?

What materials can we use to help reduce the noise that is coming in and out of the reading shed?

Kind regards,

Mrs Ford

First, we tested different materials...

We tested different materials to see how effective they were at reducing sound. We used two paper cups, which acted as noise reducing headphones, and lined the cups with different materials.



We provided each material with a rating to describe how effective we believed they were. A 5 rating was given to the most effective and a 1 was given to the least effective.

Design

We thought about the design process that an engineer would follow.



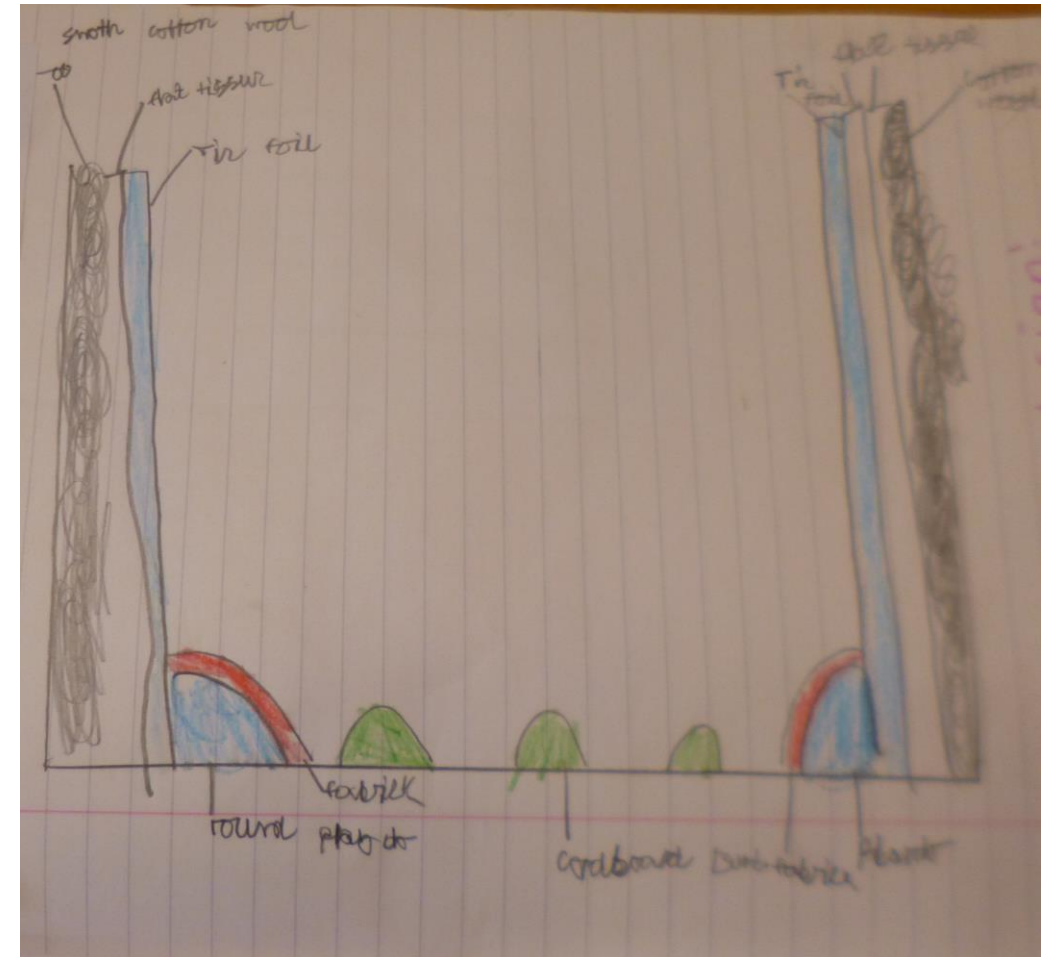
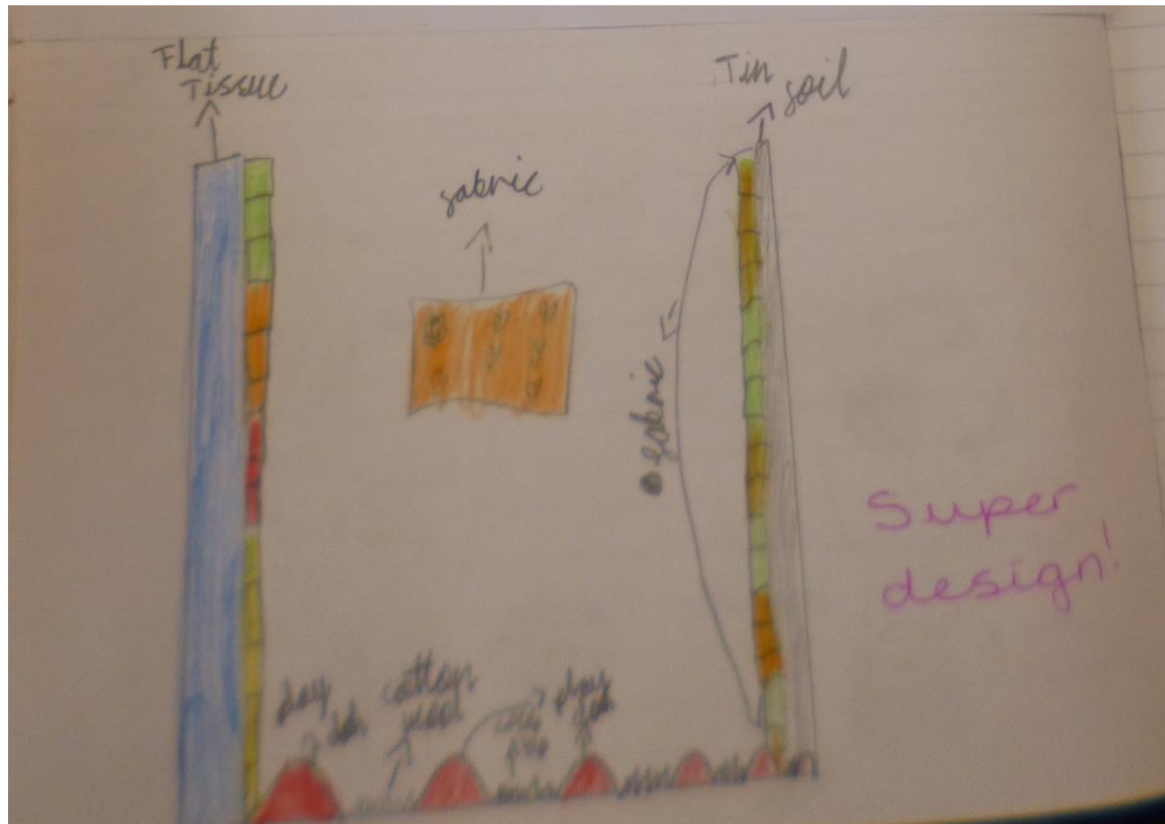
Design

In our teams, we worked together to communicate, share our ideas and design a soundproof room, using the materials available to us.

We used:

- Tin foil
- Paper and card (including paper cups and straws)
- Tissue
- Material
- Play Doh

Here are our designs...



Making...

Next, we worked as a team of engineers to bring our designs to life.



Testing...

Once we finished making our prototypes, it was time to test our soundproof rooms.

We put a speaker into each room and played some music.

We used a datalogger to measure how loud the sound was.

We measure sound in decibels.



Evaluating...

Finally, we thought carefully about what we thought went well and what we could do to improve our designs next time.

Something that went well was that we worked effectively as a team to create our soundproof room.

To improve, I would make sure that our design did not have any gaps which could let sound escape.



I think what really went well, is that we were able to reduce the noise coming from the speaker.

Next time, I would improve our design by adding more layers of material.

