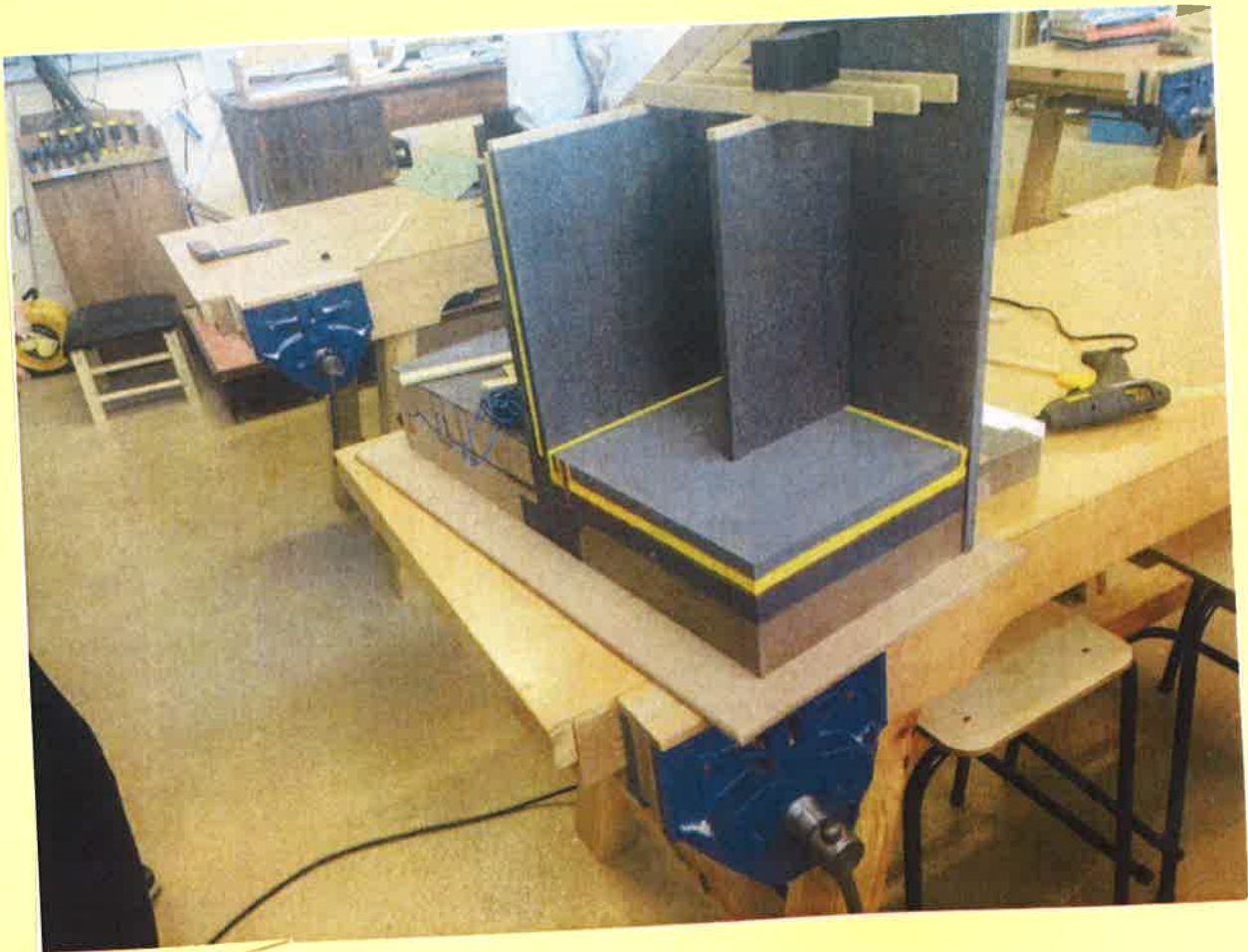


* I then got a long piece and marked out all my sizes I needed for both my joists and rafters. Then with my four rafter I cut out the bird mouth (traditional cut roof)

* I then started to glue down my roof using a glue gun, gluing both the rafter and joists

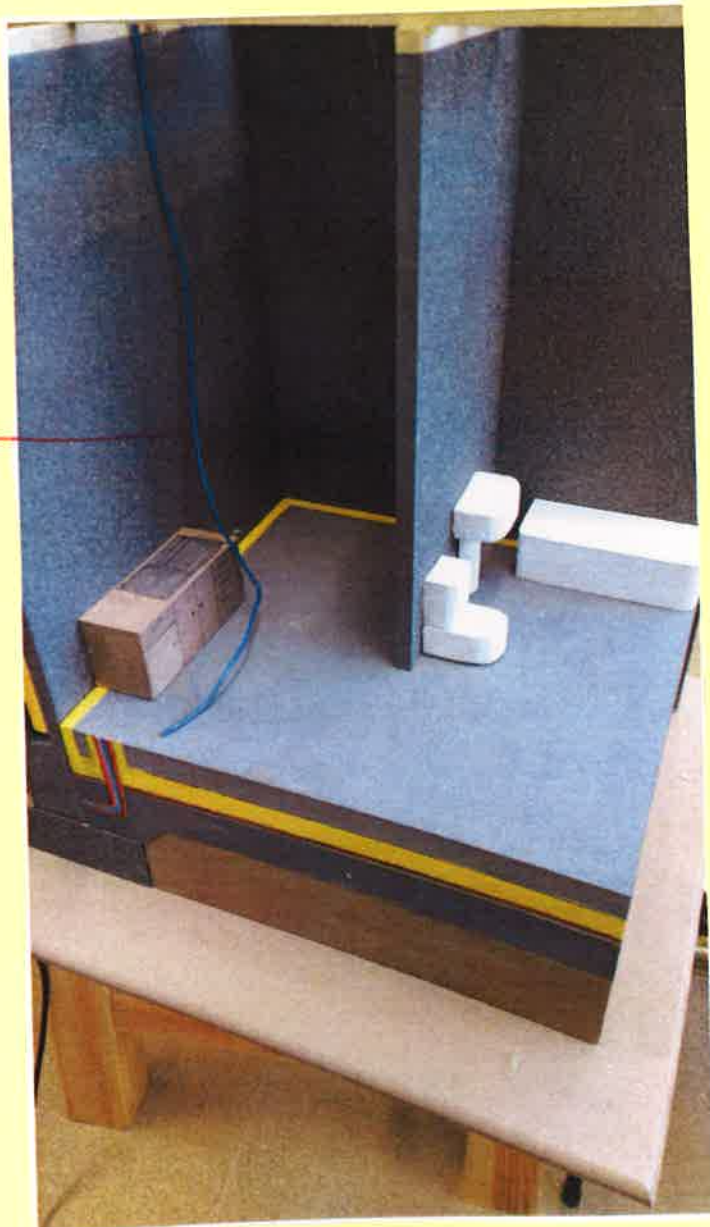


* This didn't work out the first time because they didn't have the right angle and looked wrong. So I had to redo it again which left me with less time. To get the right angle I used the first rafter as a template and marked each distance apart and to make it look even.

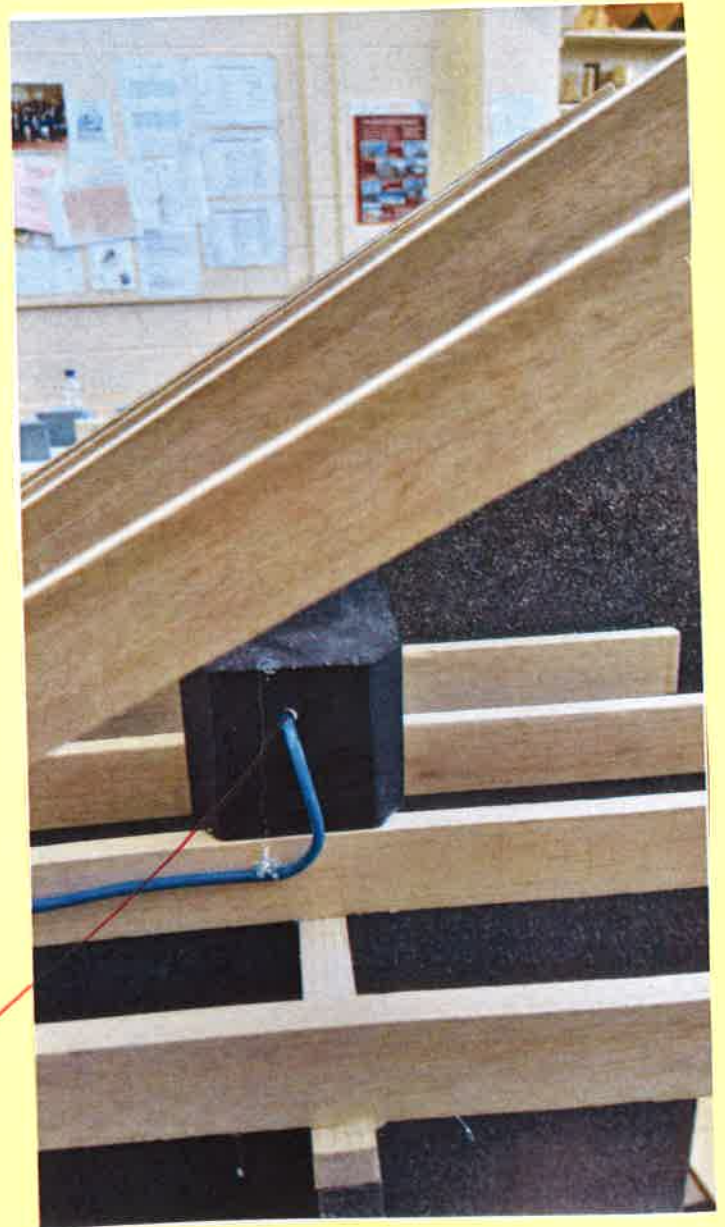


* I then started to wire up my project with blue wire which represented the cold water. But first I glued down all my models. I started gluing the wire at the sink as it is the first place the water goes

Rising
main



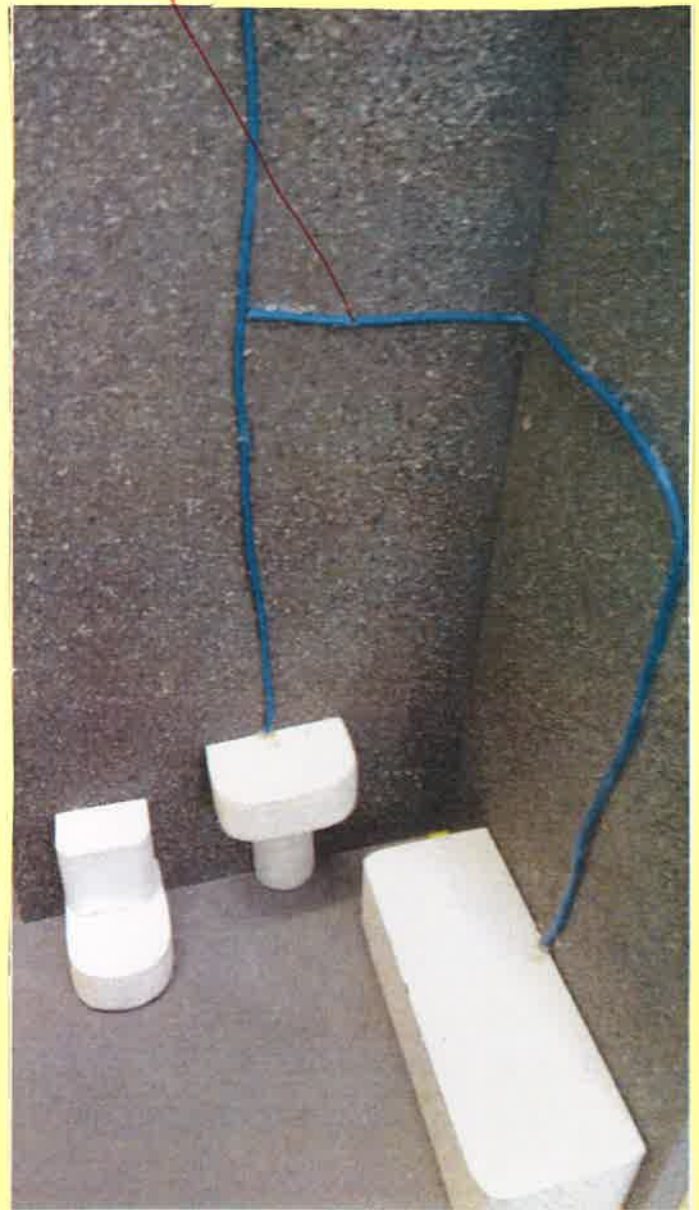
* The next place I look the blue wire/
water is the attic as that is where
it is stored in the cistern / Storage tank



I drilled a hole
using a hand drill
with the smallest
bit

* I then wired up the rest of my appliances using the glue gun: the bath, sink and toilet

Secondary Feed



* I then added in the fiber glass insulation in the roof using the hot glue gun to hold it in place.



* Then I had completed my project all I had to do was add in my tables



Evaluation

Evaluation

Quality:

I think my project is of good quality. At the start I found it hard to have even painting as we had to mix colour I thought the quality would be lessen so I added the concrete spray to my walls to add to the appearance and to have each piece the same colour. I included all the features of the indirect water system at a 1:10 scale which I thought worked well in the project as it left me with easy measurement and a nice visual element as the detail was not too small.

Function:

When thinking of doing the project I want to do a system that was most common to every house. The main purpose of my project was to show how the water got from the mains to all the appliances and I think I clearly showed this in my project making it suit its purpose. I think the scale suited the project as it clearly showed the different element of the piece. If I was doing it again I probably would add the hot water system into it as it would show fully how the water full flows around the house completely. I also think I would use staples to hold the wire down instead of using the hot glue gun as I felt that it made the piece look messy.

Finish:

At the start I found it hard to get a good finish on my pieces as time went on I felt I got better at it. When I outlined my pieces with black pen I felt like it left it with a really good finish to the front two plates. I also felt when I sprayed all my walls to give a concrete affect that it left a really good finish that paint wouldn't have gave especial as I felt that all the walls ended up nearly being a different grey colour. I felt that the hot glue gave a messy appearance to my piece when I was wiring up my piece I would instead use staples to make it stay down as it would give it a better appearance. I think that my finish product had a good finish as it looked neat even with the mixture of paint and wire I think the paint was a better finish

Conclusion

Skills I learnt

- I learnt how to paint using masking tape which gives a straight and tidy finish to the pieces. as I said earlier that I found it hard to get a good finish. I would say I have learnt a new and valuable skill that I will defiantly use in the future.
- I learnt how to manage my time when making my project, I felt that doing out my plan and procedure helped me to know where to go next and what step to take after I got a certain procedure done.
- I also learnt the importance of organisation as we organised a timetable for when each person could use the machinery especially when cutting timber. This helped us get all are projects done in time and to the best standard as everyone got the best opportunity to get it done.

New knowledge

- I have learnt far more about all the types of water system how there installed and how the work then I ever knew before. This will come as a great advantage for me as if a question comes up about

the water system in the exam or even it will be an advantage for me in later life when constructing my own house that I will know all the different system available and which ones better and more economical.

- I also found out that the piping coming into the house must be at least 750mm under the ground to prevent it freezing during cold weather as when water freezes it expands and can cause the pipe to burst.
- I also learnt about all the different water system available. There is so many new types of system available like solar power system that heats the water by the sun is a very interesting system as it is easy to install and is more economical on the long run as it cost less to hit the water the heating it using the boiler. I also learnt about the rainwater harvesting system which I also found interesting as it is a very sustainable way to use the rain water that we gather in our gutters it stead of it just going to waste. It is also another economical system.
- I also learnt how to use the hand drill as I never knew how to probably use it as there was always someone there to do it for me. I found myself learning a lot and becoming more independent

then before I think this will be great help to me as I go on to college as college you have to do everything yourself instead of being constantly told what to do.

- The only change that I would make to my project is the way the glue gun has made a messy appearance I think I would use stipples or trench in the wires. Although I think my end product fits its purpose as u can clearly see the route the water takes right from the mains.

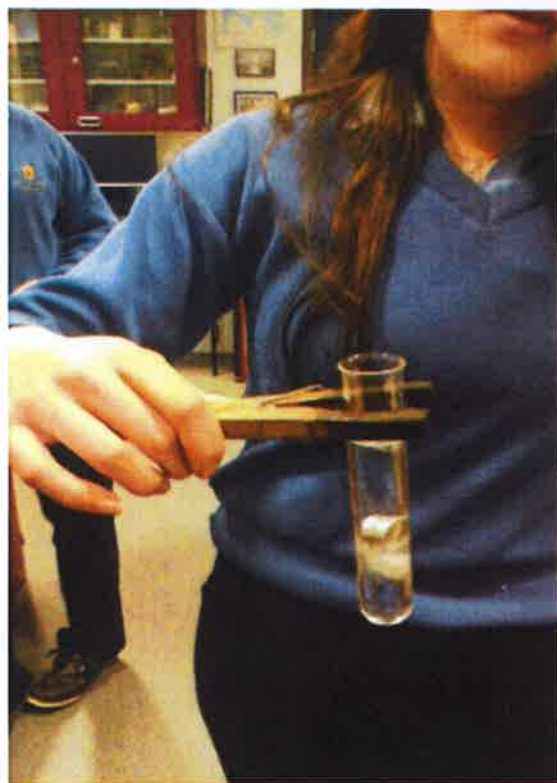
Thoughts on the process

- I really enjoyed making my project as I felt I learnt a lot about the topic and even learnt lots about myself.
- I learnt how to manage my time efficiently which is a very important life skill, which I will always use.
- My organisation skills improved greatly as my project developed through the process of completing my practical project and the writing up of my folder.

3 Experiments

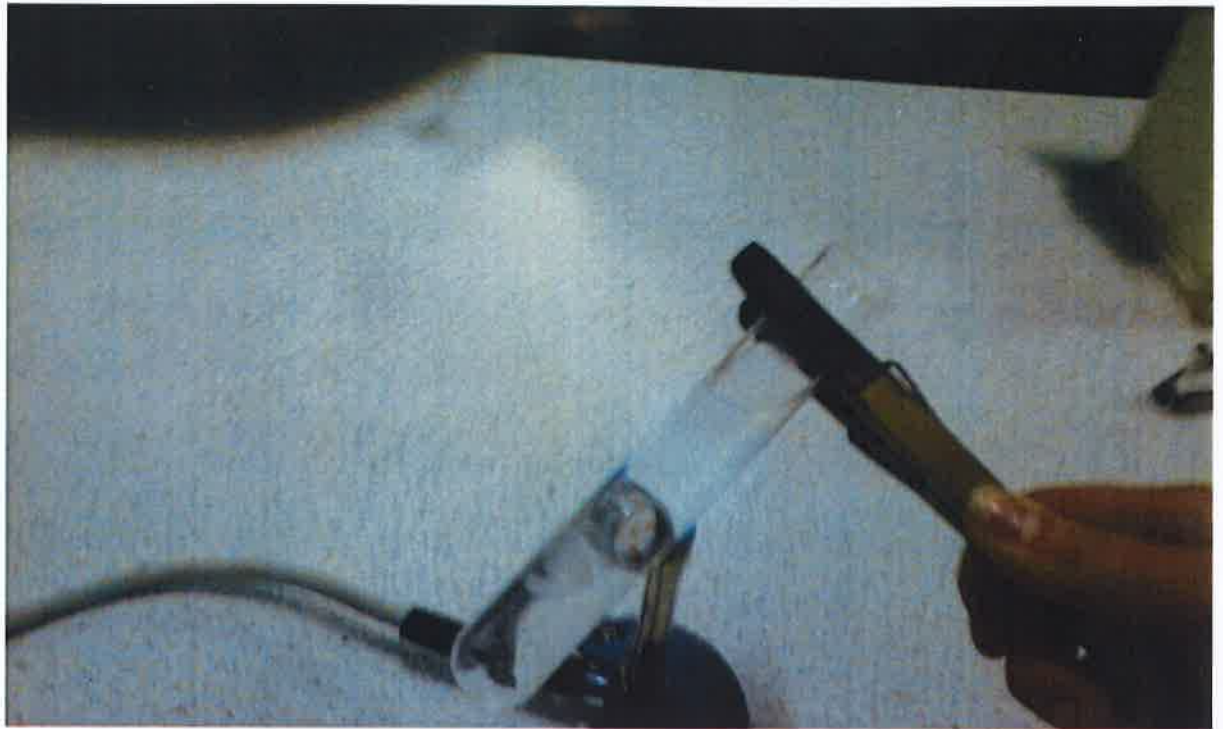
Experiment: To Investigate The Transfer of Heat in Water by Conduction.

Introduction: This experiment is to show if water will absorb heat easily by conduction. This relates to my project as it shows how geothermal heating works in heating water in heat exchange.



Method

1. I Place a cube of ice at the bottom of a test tube and pour water in with it.
2. Next I place a weight along with the ice cube to keep it in place.
3. Then I heat the top of the test tube using a Bunsen burner and long pegs to hold the tube up to the Bunsen burner
4. I then record the results I seen when doing this experiment



Results:

The water was boiling at the top of the test tube but there was no sign of there being any heat transfer from the top as the bottom of the test tube was still cold and the ice cube showed no sign of melting

Conclusion

Geothermal heating unit would not absorb enough heat from the ground to heat the water as water is a very poor conductor of heat (shown as the heat did not move from the top of the test tube around the test tube)

To Investigate Convection Currents in Water

I choose this experiment as it shows why the heating element in the hot water cylinder is placed at the bottom.



Method

1. I placed a crystal of potassium permanganate in the corner of a beaker containing water
2. Heat the water and observe the way the potassium permanganate routes around the beaker.

Results:

- The potassium permanganate will dissolve and form as a dye in the beaker
- This shows clearly how the heated water at the bottom rises and hits the cold at the top and cools falling as it cools.
- This will continue to route like this. Showing that if the heat would rise through the whole hot water cylinder heating all the water

Conclusion:

If the water is heated at the bottom of the hot water cylinder the hot water at the bottom will spread by convection currents to heat all the water



Experiment: To investigate the variation of water pressure with depth

I choose this experiment because it gives a good indicator of where would be the best place to put your water tank. I have always wonder why the water tank is placed at the top of the house this experiment proves why the water tank is placed at the very top of the house.



→ Each hole is 100mm apart (10cm)

→ The highest hole has the strongest flow and come out very fast.

→ There's a noticeable decrease in the flow in the middle hole

→ The last hole has practical no water coming out and at a very slow speed

Equipment: a long cylinder with holes that were 10cm apart

Method: fill the bottle up to the brim and watch how it flows out. To see whether more water comes out with depth or

Observation: I saw that as the water flowed out of the cylinder with depth the further the water would spray out.

Conclusion: the water pressure increased with depth this shows that water near the bottom of the bottle has a force of gravity and weight so it goes further and water in the higher depth. Therefore the higher up the water in the bottle, the lower the force pushing water through the hole and so it doesn't spray as far as the water coming from the lower down hole.

This now proves why water tank should be placed as high as possible to give the best pressure to the taps, as if the tank was lower down in the house the water wouldn't be fit to push the water up the house so that is why it is best to put the water tank at the top.