

Our trip to the Science Centre : Workshop on Genetic Diseases

At the Science centre, we learnt about genetic diseases in a workshop. We learnt that a genetic disease is a disease passed down from either your parents. It is a disease that cannot be caught. This occurs when there are abnormalities in genes or chromosomes,



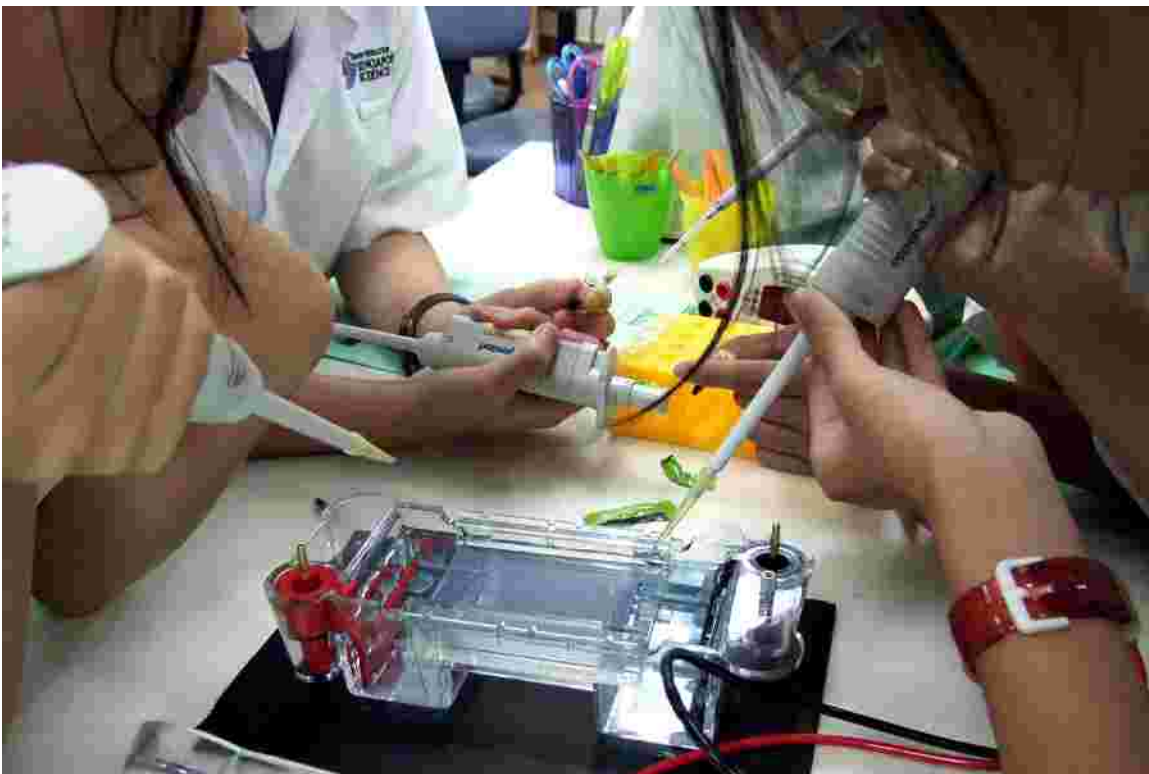
Here, we learnt about sickle cell anaemia. We watched a video of a girl, Katreece, a patient suffering from sickle cell anaemia. From the video, we learnt that:

- * Sickle-cell anaemia is caused by a mutation in the genes.
- * Sickle – shaped cells block up her blood vessels and deprive some parts of her body from the oxygen they need. This then causes her severe pain.
- * The pain she experience refrains her from doing normal activities like other children.

What we did:

We were assigned a task. We posed as genetic counsellors and had to find out if the unborn child of Tommy and Rachael Smith might have sickle cell anaemia. To do this, we had to learn about inheritance and DNA. We did an experiment to analyze the genes of the Smiths.

- * We used micro pipettes to extract some DNA.
- * Using gel electrophoresis, we were able to find out the DNA profile of Tommy and Rachael Smith.
- * Gel electrophoresis uses electricity to separate DNA fragments according to size on a gel. Negatively charged DNA fragments migrate to the positive charged electro code.
- * It was a new experience because we were able to handle expensive equipment.
- * My group found the experiment fun because we were able to learn new things, and we would never be able to do experiments like this in school. We liked handling the equipment and having a science practical based on the new skills and facts we learnt.



Once we did the gene analysis, it was quite an easy job. Though we did not have any idea of the Smiths' gene types, all we had to do was construct 2 genetic diagrams to explore the possible scenarios.

- " The first scenario: - Tommy had a dominant and recessive allele and Rachael had two dominant alleles. This resulted in a 50% chance that the child would be a carrier and showed that the child would probably not suffer from sickle cell anaemia.
- " The second scenario: -Tommy and Rachael both had a dominant and recessive allele. The result was a 25% chance of the child suffering from sickle cell anaemia and a 50% chance that the child would be a carrier of the disease.

Done by Caitlin Foo and Gwendolyn Seah
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ReflectionsU

"The workshop opened my mind to the genetic diseases and their harmful properties. It was also a recap of the structure of DNA and its importance in telling the body how to live and grow."
-Annabel Tan

"The workshop was interesting and I was introduced to the different genetic diseases and their harmful properties. I also learnt new things about DNA which were very interesting and fun."
– Amelia Lim

"The workshop was really useful and also fun as we got to do hands-on activities to learn about genetic diseases and DNA. I would definitely go for another workshop like this."
– Danielle Ng

"The workshop taught me more about genetic diseases. I liked the hands-on activities as you get to actually experience and see what happens. It was very fun!"
– Kaela Lim

"The workshop enhanced my knowledge on genetic diseases. It was really fun as we got to do experiments to help us get the first hand experience to see it in action. I would really love to attend such a workshop again!"
– Rachel Yee

"The workshop helped me to understand more about genetics and DNA. I learnt new skills and facts through the experiment. The experience was different and I hope to be able to attend more workshops like this because I get to learn new things." - Caitlin Foo

"The hands on activities were fun, the explanations were clear and the workshop was informative" – Sheryl Leong