

# ***ENDIA***



***ENVIRONMENTAL DETERMINANTS OF ISLET AUTOIMMUNITY***



***JUNIOR RESEARCHER BOOKLET***

# ***LET'S FIND THE CAUSE!***



This book was made possible with thanks to University of South Australia and was illustrated by 2019 Illustration and Animation Graduates;

**Madelaine Comley**

**madaleinecomley@gmail.com**

**Sam Cowley**

**www.liladventurers.com.au**

**Kate Verner.**

**vernkate11@gmail.com**

"Thank you for being part of the **ENDIA** Study! Although you have been in the study since you were a very little baby, you might have a few questions about ENDIA and about type 1 diabetes. This book might help answer some of those questions. Because you have been such an amazing ENDIA participant, we want to make you a **Junior ENDIA Researcher!** Please find your certificate inside.

Every ENDIA visit you come to, will give us another clue about what causes type 1 diabetes AND you get a sticker too. With your help, we hope to find the causes of type 1 diabetes so that we can prevent children from getting type 1 diabetes in the future". You might want to read this with an adult, to help you with any tricky words or ideas in this book."

"Together, let's turn type 1 into type none!"



Draw yourself:

Name:

Age:

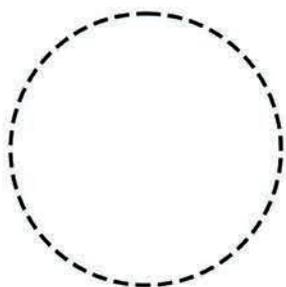
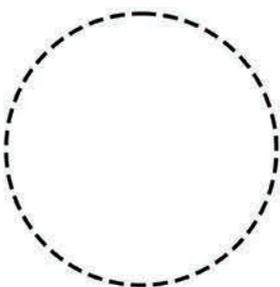
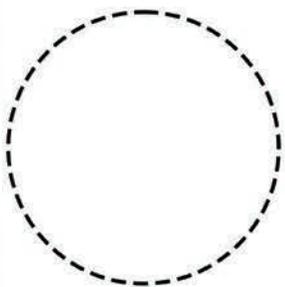
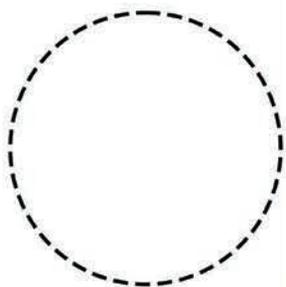
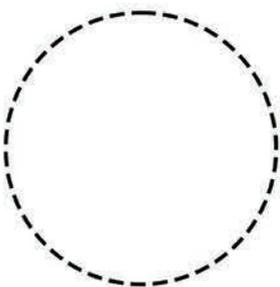
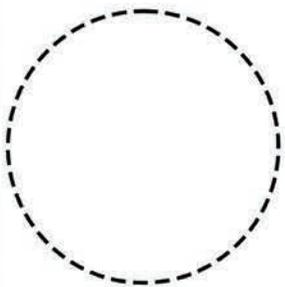
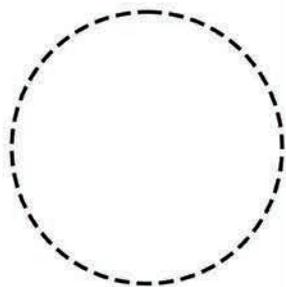
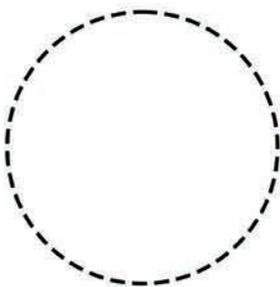
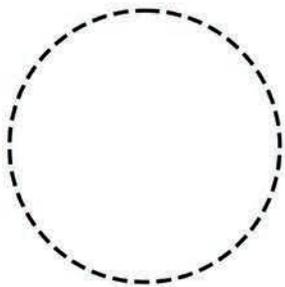
Draw your research pet:

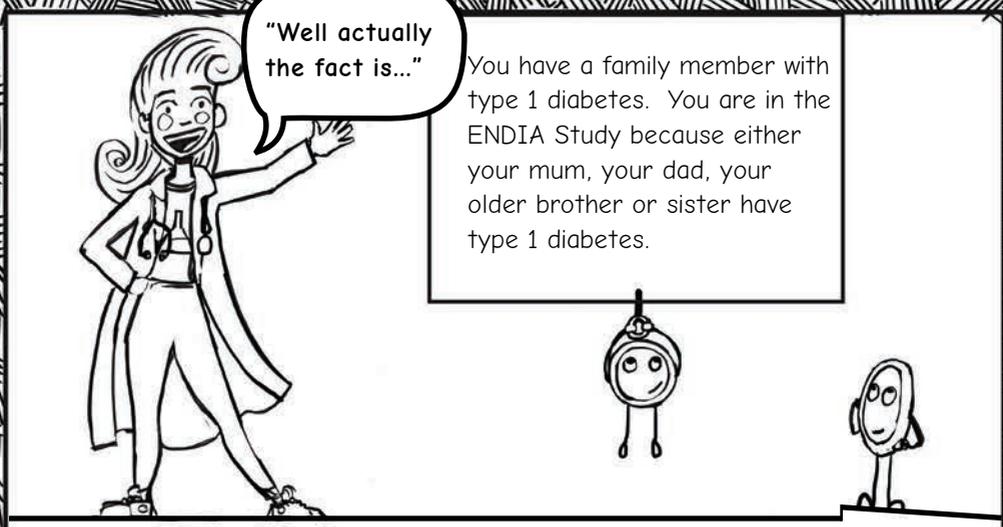
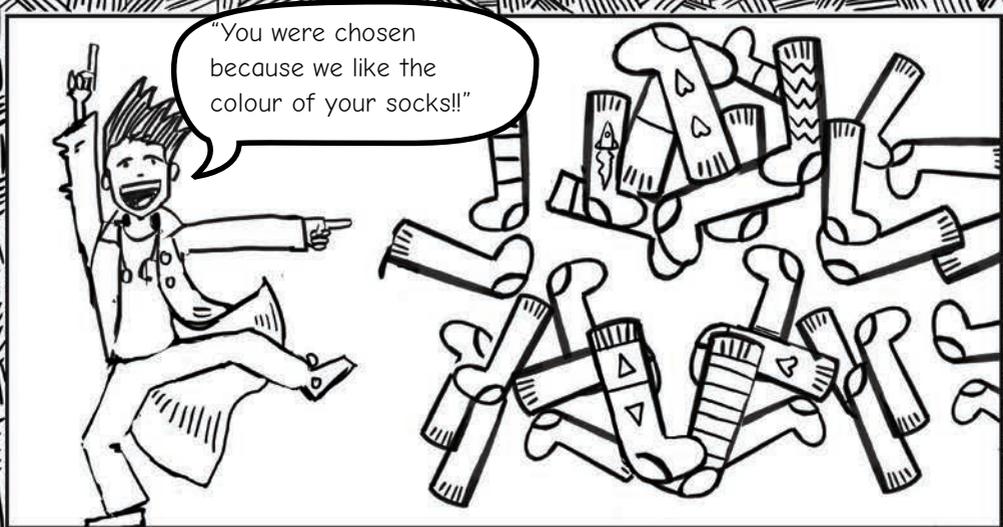
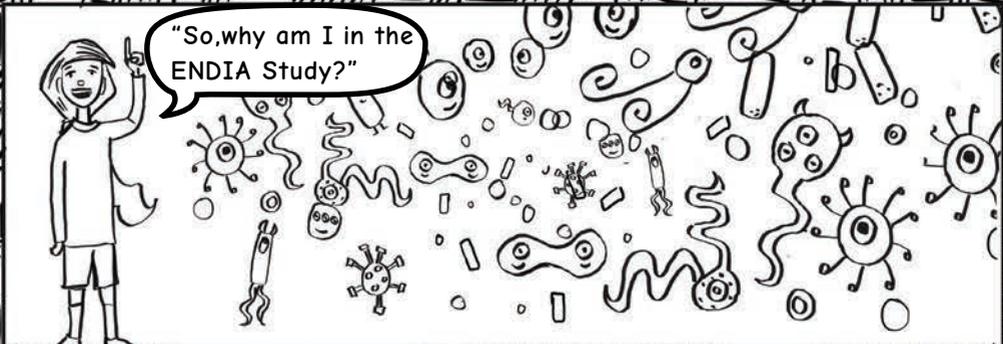


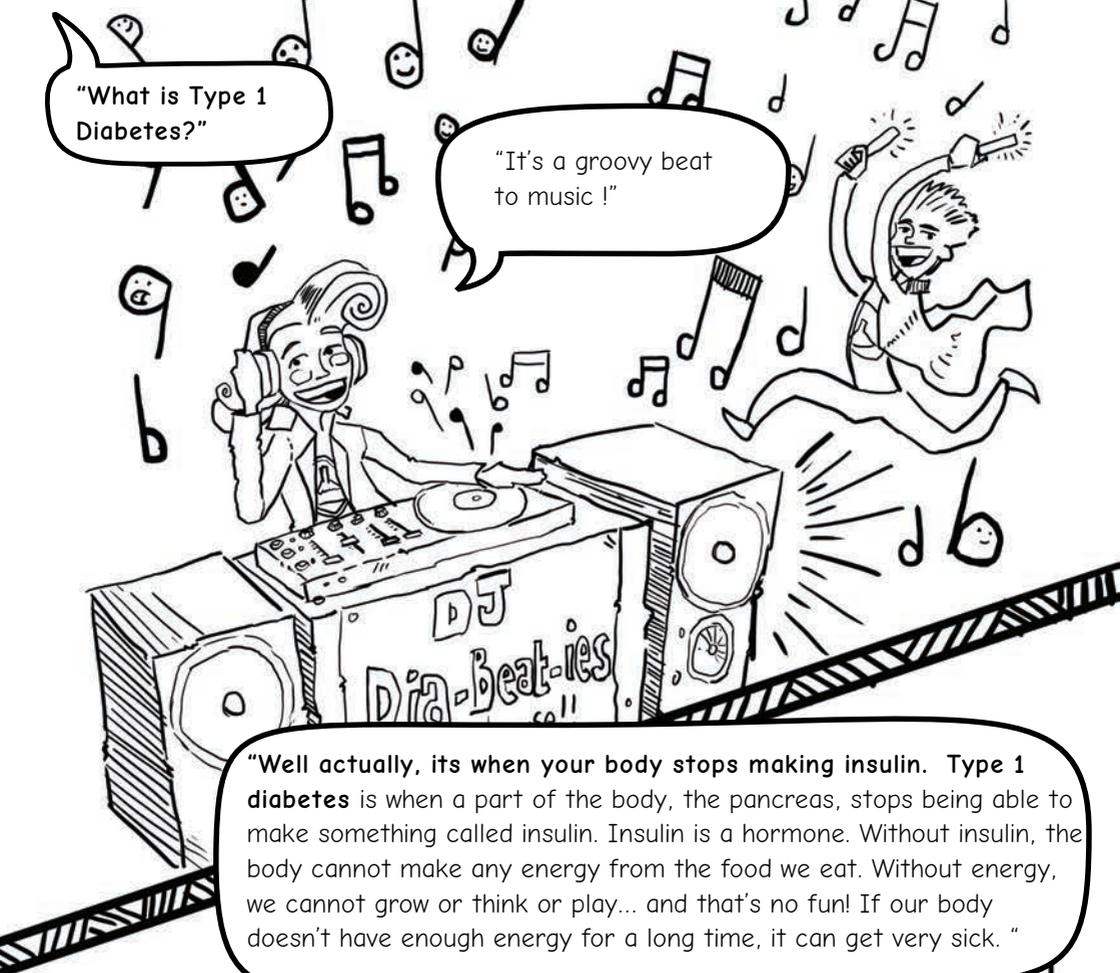
Draw your family:



Stickers:



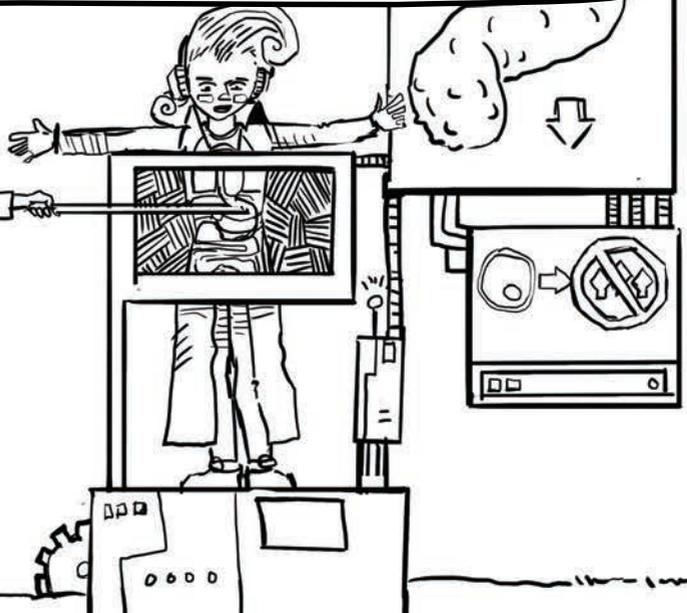




"What is Type 1 Diabetes?"

"It's a groovy beat to music!"

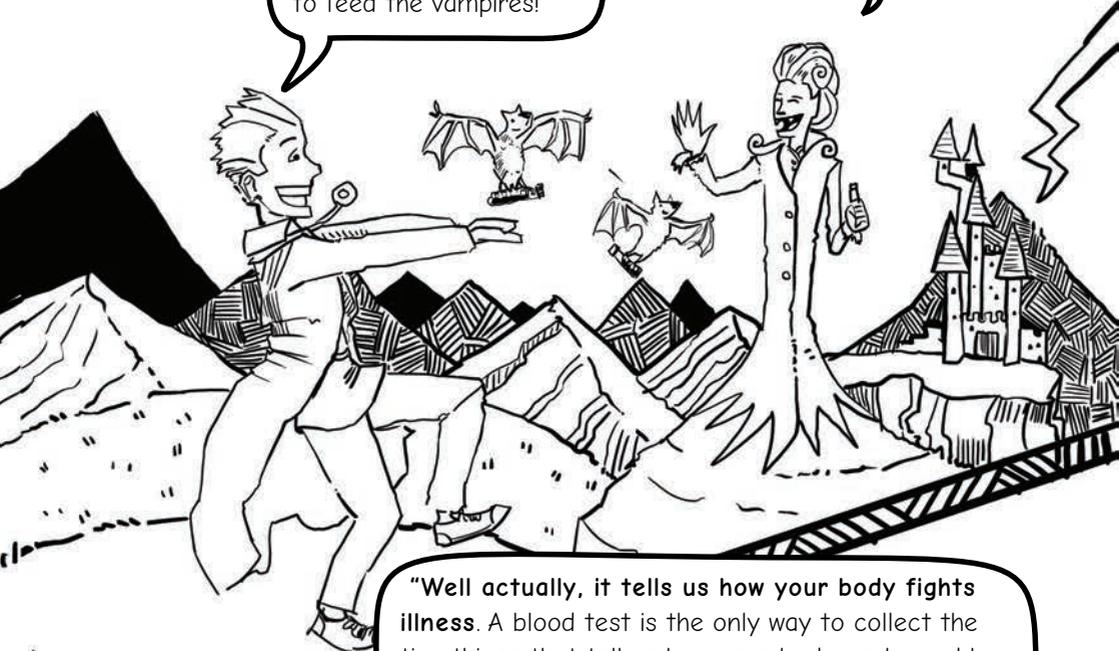
"Well actually, its when your body stops making insulin. Type 1 **diabetes** is when a part of the body, the pancreas, stops being able to make something called insulin. Insulin is a hormone. Without insulin, the body cannot make any energy from the food we eat. Without energy, we cannot grow or think or play... and that's no fun! If our body doesn't have enough energy for a long time, it can get very sick. "



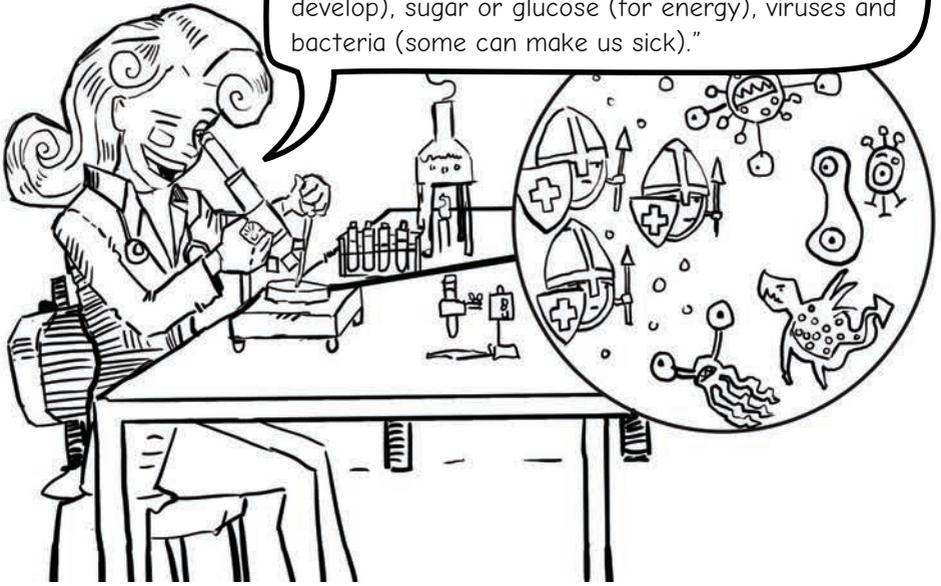
"Why do I need a blood test?"

"Because someone has to feed the vampires!"

"Thanks!"



"Well actually, it tells us how your body fights illness. A blood test is the only way to collect the tiny things that tell us how your body works and how it fights illness. In the blood we can find things that are so small, we can't see them with the human eye. The blood carries things like antibodies (that fight diseases), vitamins (that help our bodies grow and develop), sugar or glucose (for energy), viruses and bacteria (some can make us sick)."

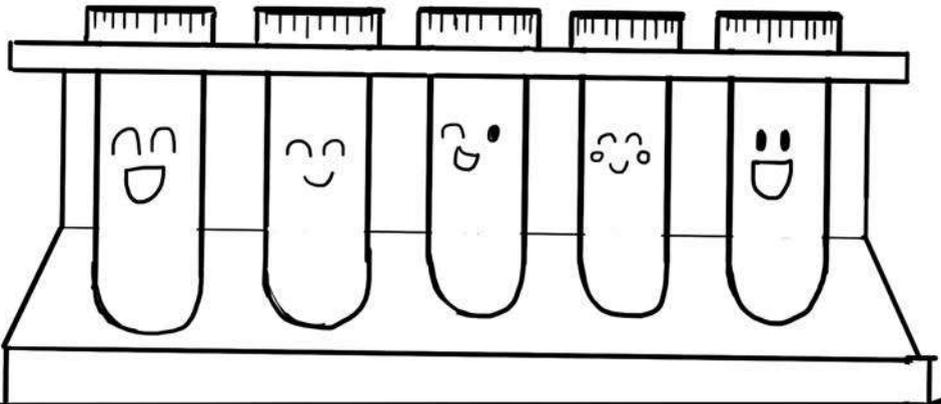


"Why are the (blood) tubes different colours?"



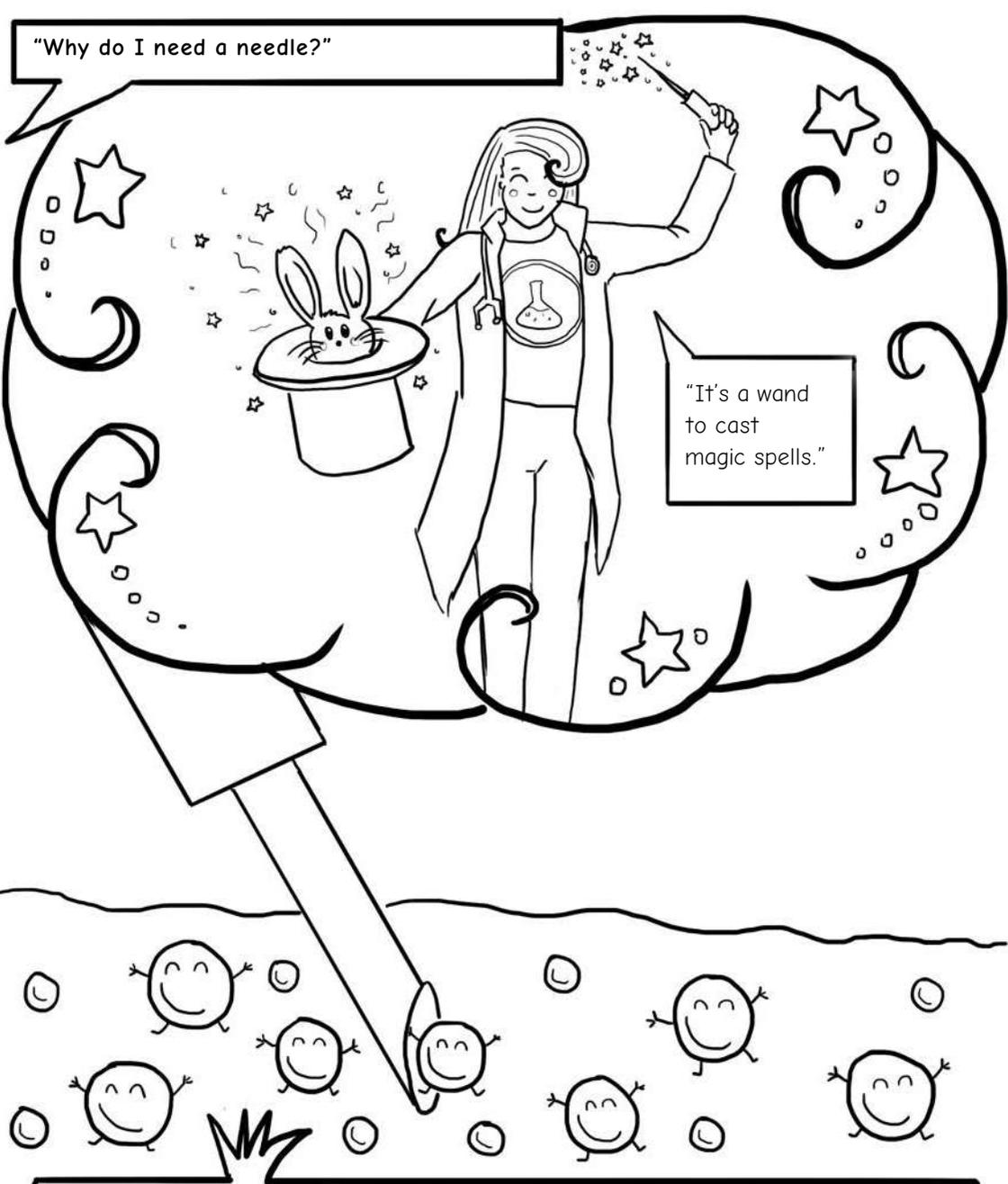
"So the Martians can tell them apart on the moon."

"Well actually, the tubes are different colours to test for different things."



"The tubes we collect the blood into are for different tests. The red one is to check for any early signs of type 1 diabetes developing and for Vitamin D in the blood. Vitamin D is very important for our bodies to be able to fight off illness as well as help grow strong bones and teeth. Most of the vitamin D in our bodies comes from being in the sunlight and the rest comes from the food we eat like eggs, fish, mushrooms and milk. The purple and green ones will test the blood for how well your body fights illness (immune function). We also check your blood sugar levels."

"Why do I need a needle?"



"It's a wand to cast magic spells."

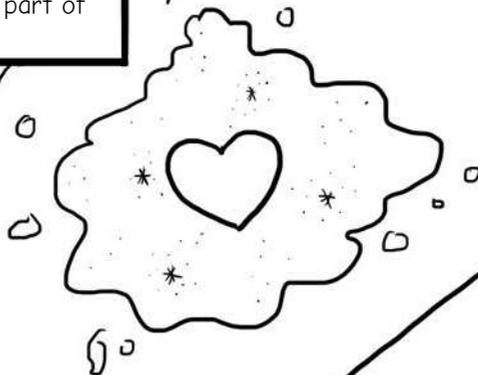
"Well actually, to be able to enter your blood stream. Our blood is transported around by a series of little road-like structures in the body called veins and arteries. A needle helps us enter the vein and collect a small amount of blood. The body is amazing! When the needle leaves the vein, cells in the blood rush to that spot and stop any more blood coming out, and help the little hole we made heal up in seconds!"

"What is the patch or cream for/what will it do?"

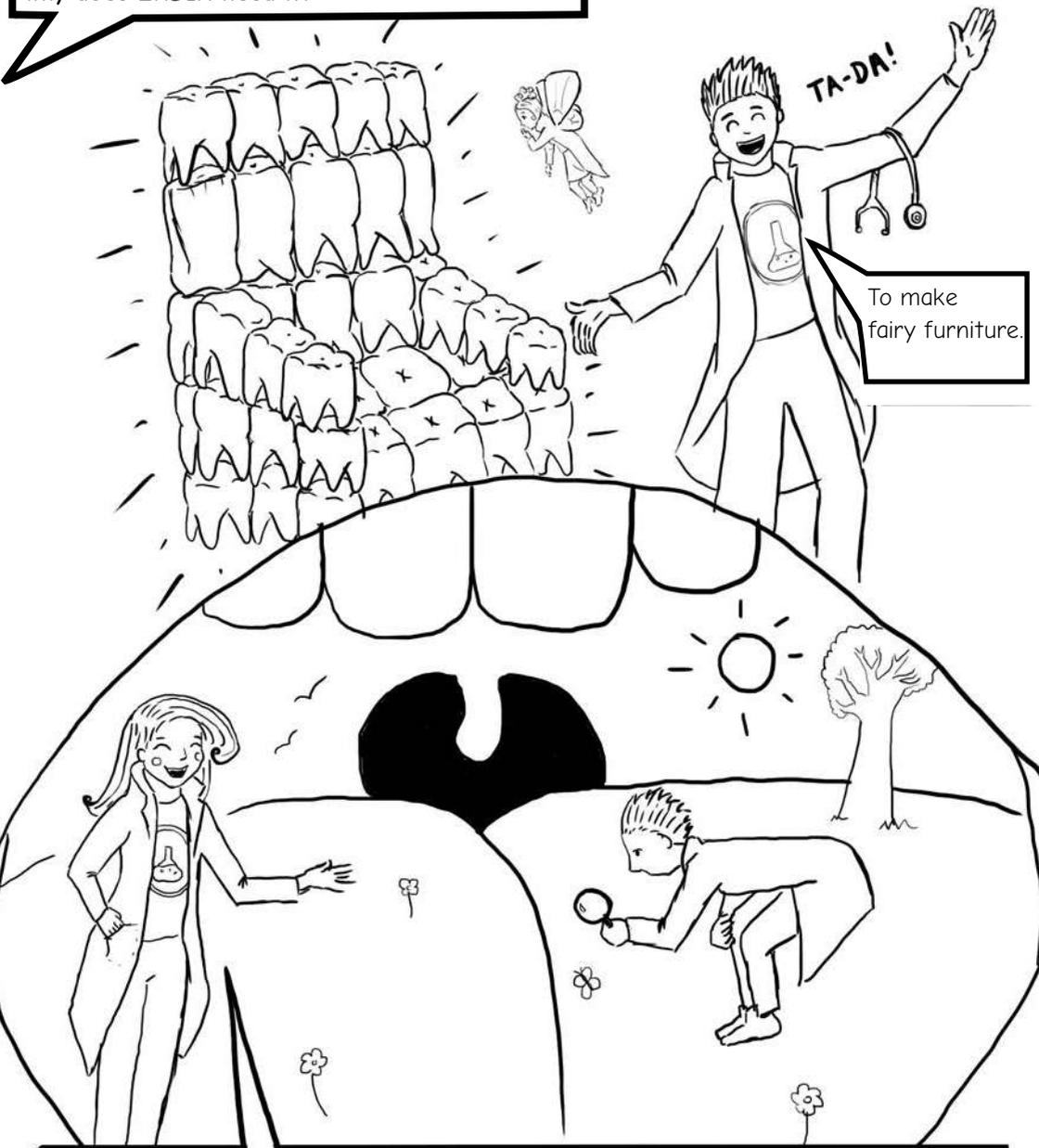


"It's magic cream that makes you disappear!"

"Well actually, it is to **stop the needle from hurting**. You might be offered a patch or cream to put on your arms. This special cream helps make that area of your skin feel numb; so you can't really feel anything on that bit of your skin. This should stop the needle for the blood test from hurting. You might still feel a little bit of a push or a tingling feeling. Don't worry, this only lasts for a little while and normal feeling will come back to that part of your arm."



"I want to give my tooth to the tooth fairy; why does ENDIA need it?"

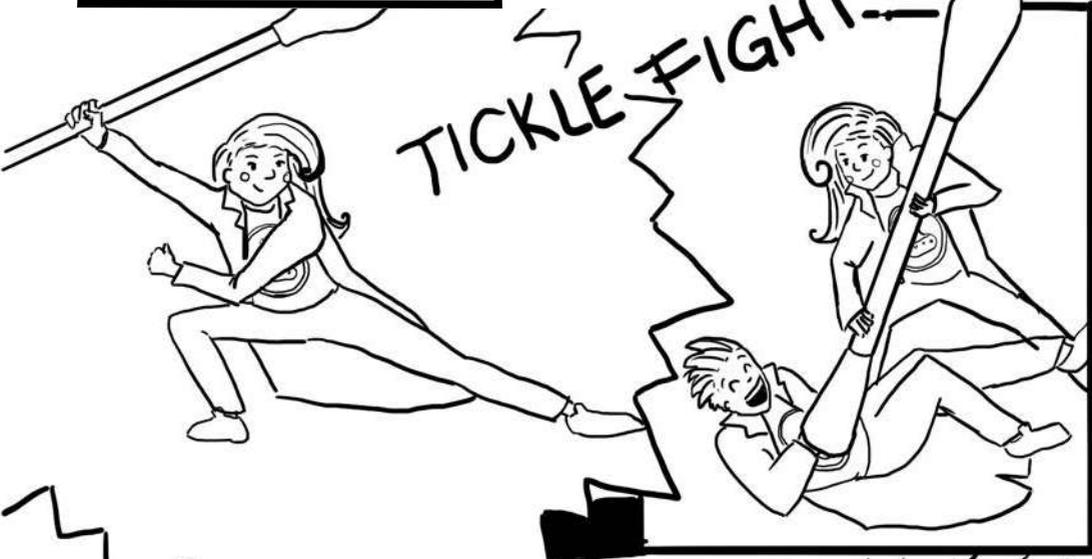


To make fairy furniture.

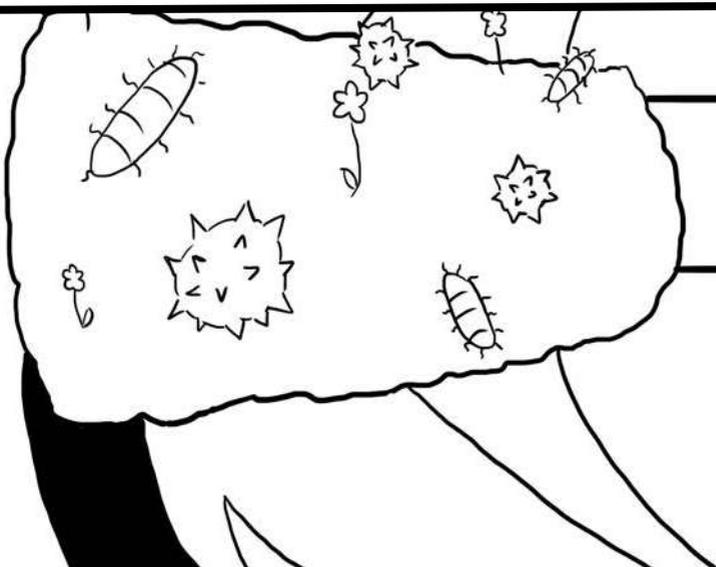
**"Well actually, to see what environmental exposures you had as a baby.** Did you know your teeth started to grow whilst you were a developing baby in your mummy's belly? Teeth form a new layer each day they grow! So when your tooth falls out, ENDIA can read the layers of your teeth like a story book to see if anything interesting happened whilst you were growing from a little baby to the person you are now. But dont worry, you can give all your other teeth to the tooth fairy. We're sure they can spare one to help ENDIA."

"What are the swabs for?"

TICKLE FIGHT!



"Well actually, bacteria and viruses live in and on our skin and other body parts too. Did you know that all humans have bacteria and viruses that normally live in and on our bodies? ENDIA is very interested to learn if there are things in our environment that keep us well or make us sick. We collect swabs of your skin and mouth so that we can find more about the environment you live in and the kinds of teeny tiny things that live on and in your body."





"Why are you taking my poo and wee? "

"We're travelling back in time to see if too much poo and wee made the dinosaurs extinct!"

"Well actually, poo and wee has microscopic things in it called viruses and bacteria."

The things we eat and drink help our bodies grow and give us energy to move around. When we put it in our mouths, food gets chewed up with saliva, swallowed into our tummy, and what we don't need comes out of our body as poo and wee! Amazingly, there are lots of tiny little things we can't see that live in and on our bodies. Some come out in our poo and wee! Some of these are called bacteria. Some are called viruses. Some can cause sickness. But some are very normal and cause no harm at all. Is it possible that a particular kind of teeny tiny bacteria or virus has something to do with type 1 diabetes?

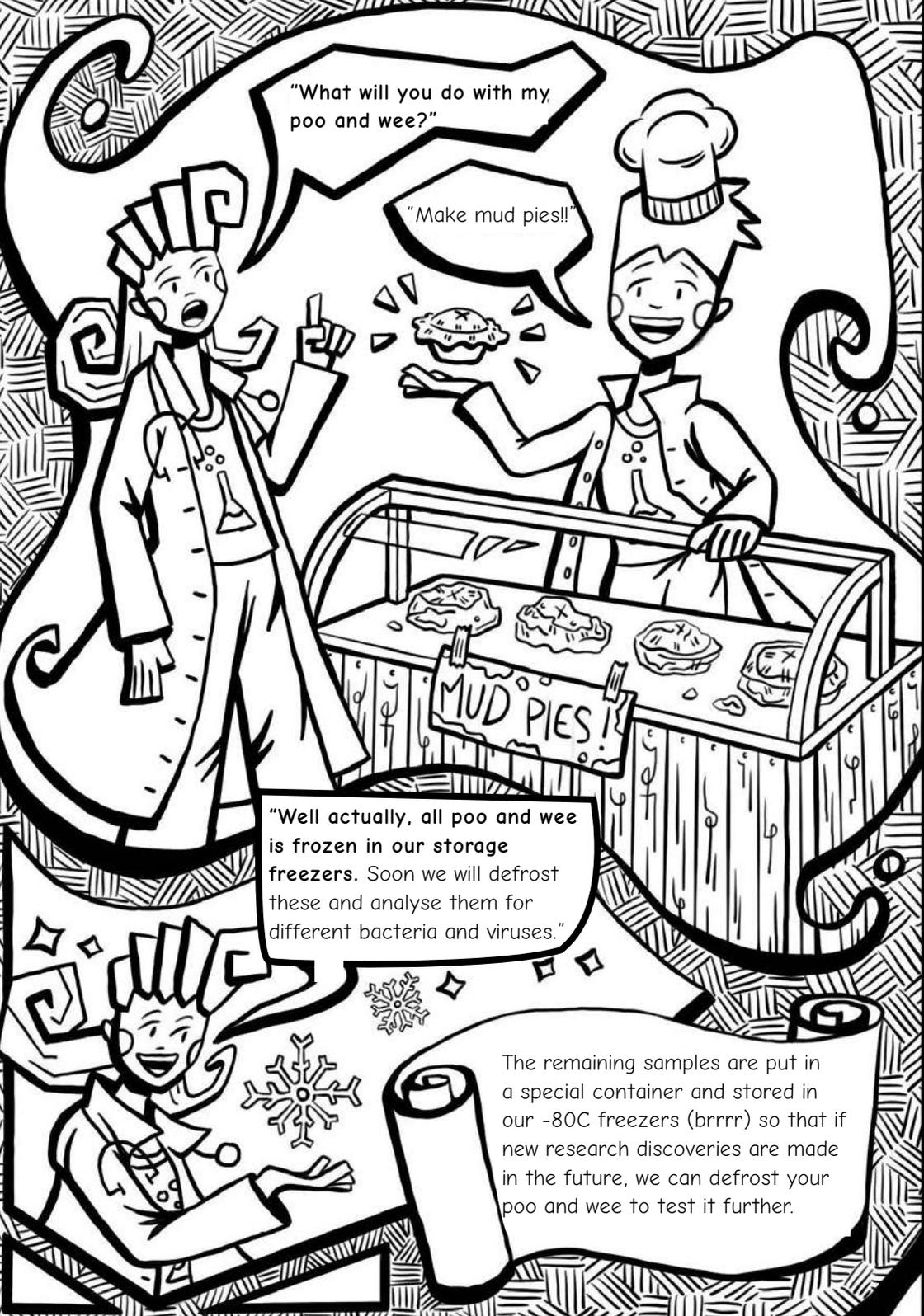


"Where are you taking my poo and wee?"

"We drill a hole to the centre of the earth and plug up any holes".

"Well actually, to the ENDIA lab for analysis"

We collect poo and wee from ENDIA mums, dads, brothers and sisters and you! We take it with all our other samples from your body to our ENDIA laboratories (labs). Your poo and wee needs to be looked after by special lab staff who have been trained to test for different things.



"What will you do with my poo and wee?"

"Make mud pies!"

"Well actually, all poo and wee is frozen in our storage freezers. Soon we will defrost these and analyse them for different bacteria and viruses."

The remaining samples are put in a special container and stored in our -80C freezers (brrrr) so that if new research discoveries are made in the future, we can defrost your poo and wee to test it further.



"How am I helping other people with diabetes?"

"By being, a **Junior ENDIA Researcher**, you are giving us important information about what in our bodies and what in the environment makes people develop type 1 diabetes. At the moment there is no cure for type 1 diabetes, because we don't know what causes it. With the information you and your family have provided to ENDIA, we hope to be able to find the causes so that we can then find ways to prevent it and cure it in the future. You are an awesome type 1 diabetes researcher! Thank you for your help to find the cause of type 1 diabetes."

# ***ENDIA***



## **Environmental Determinants of Islet Autoimmunity**

**Q:** "What is Islet Autoimmunity?"

**A:** "Type 1 diabetes is an autoimmune condition. This means that, for some unknown reason, the body starts to fight itself on the inside. The first stage of type 1 diabetes is when autoantibodies (things that attack healthy cells in the body) are released in the blood. Islet autoantibodies attack the cells in the pancreas which stop it from making insulin. We need insulin to turn food we eat into energy so we can learn, play and have fun! "