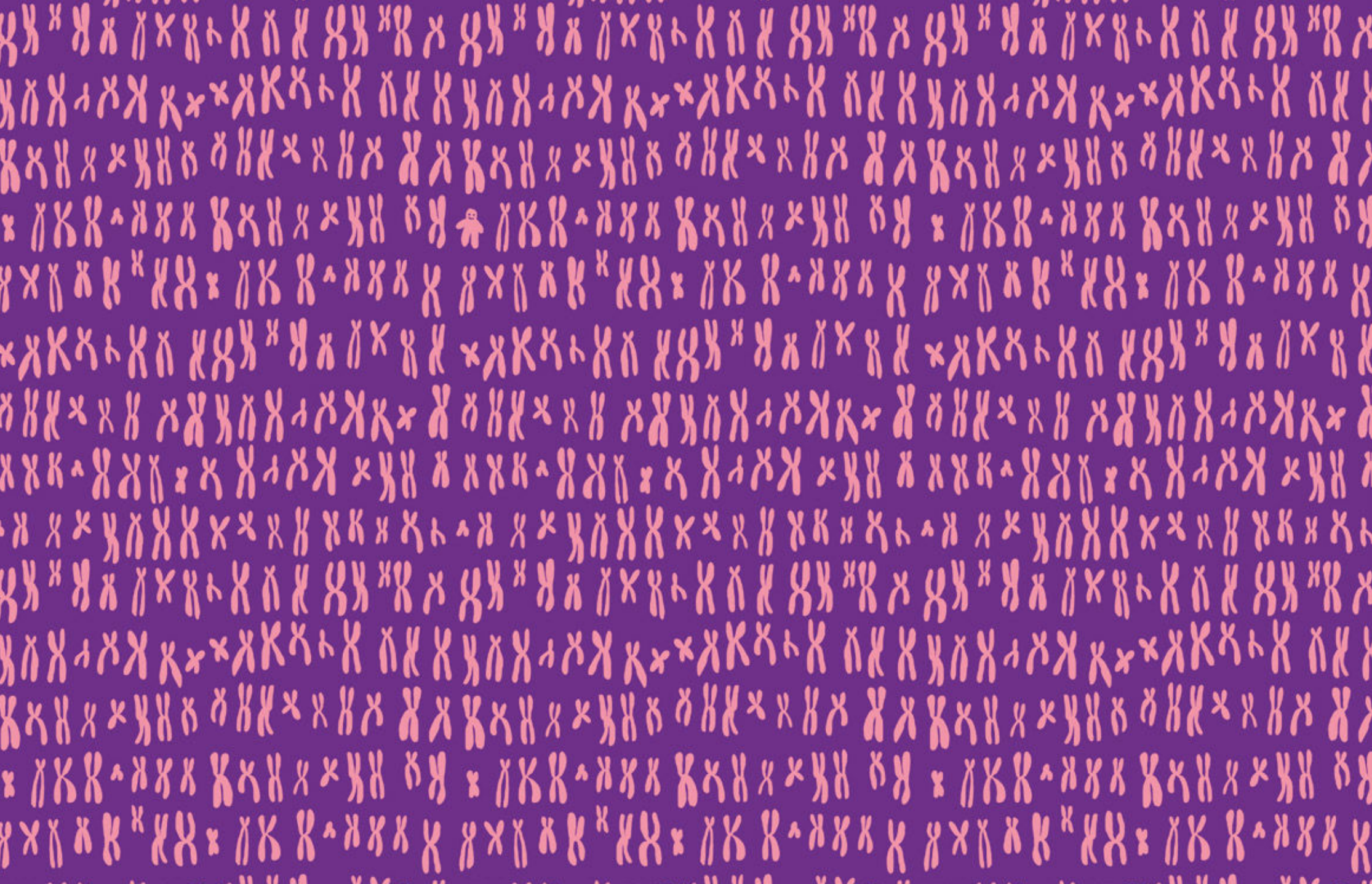




Sanna Kalmari • Ulla Parisaari • Ilona Partanen





The Recipe for a Person.

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The recipe for a  
**PERSON**





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Emma and Jonah are playing in their room. Manda the Hamster bustles about in her cage.

- I wonder why the hamster has fur but we don't?  
Emma asks.

- Yes, and why you have dark hair and my hair is fair?  
Jonah asks in turn.

- And why you are so much smaller than I am, though you are older, Emma continues excitedly.

Neither one of the children know the answers. Nor does Manda the Hamster, who looks through the bars of her cage in wonder. Emma and Jonah pick Manda up from her cage and go to Dad in the kitchen.










- Dad, why is Jonah's hair a different color than mine? And why is he shorter than I am, even though big brothers are usually taller than their little sisters? Emma asks.

- Well, you sure have good questions!  
I'll try to explain it to you, Dad says.  
He takes a sheet of paper and begins to  
draw.

- Did you know that a person consists  
of cells? Dad asks.

- Really? Both Jonah and Emma shout.  
And surely Manda did not know that,  
either.



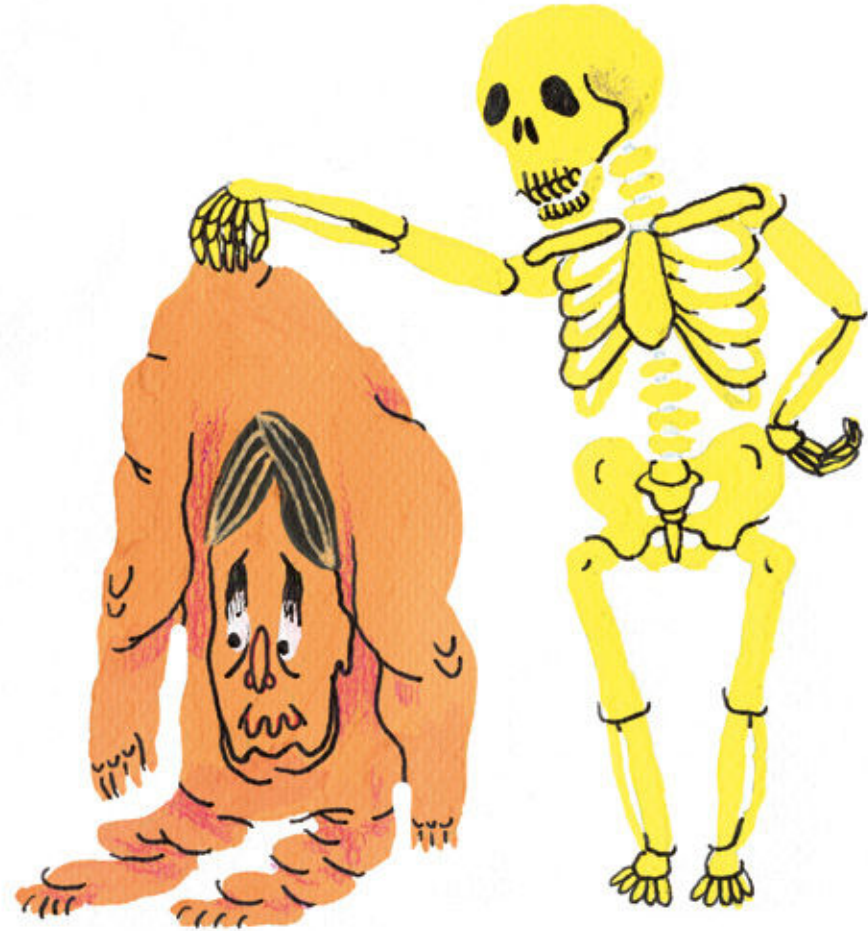


- Each cell has its own function. For example, muscle cells help a person move around. Bone cells, on the other hand, form the bones, which help a person stand up, rather than tumble down in a heap, Dad continues.

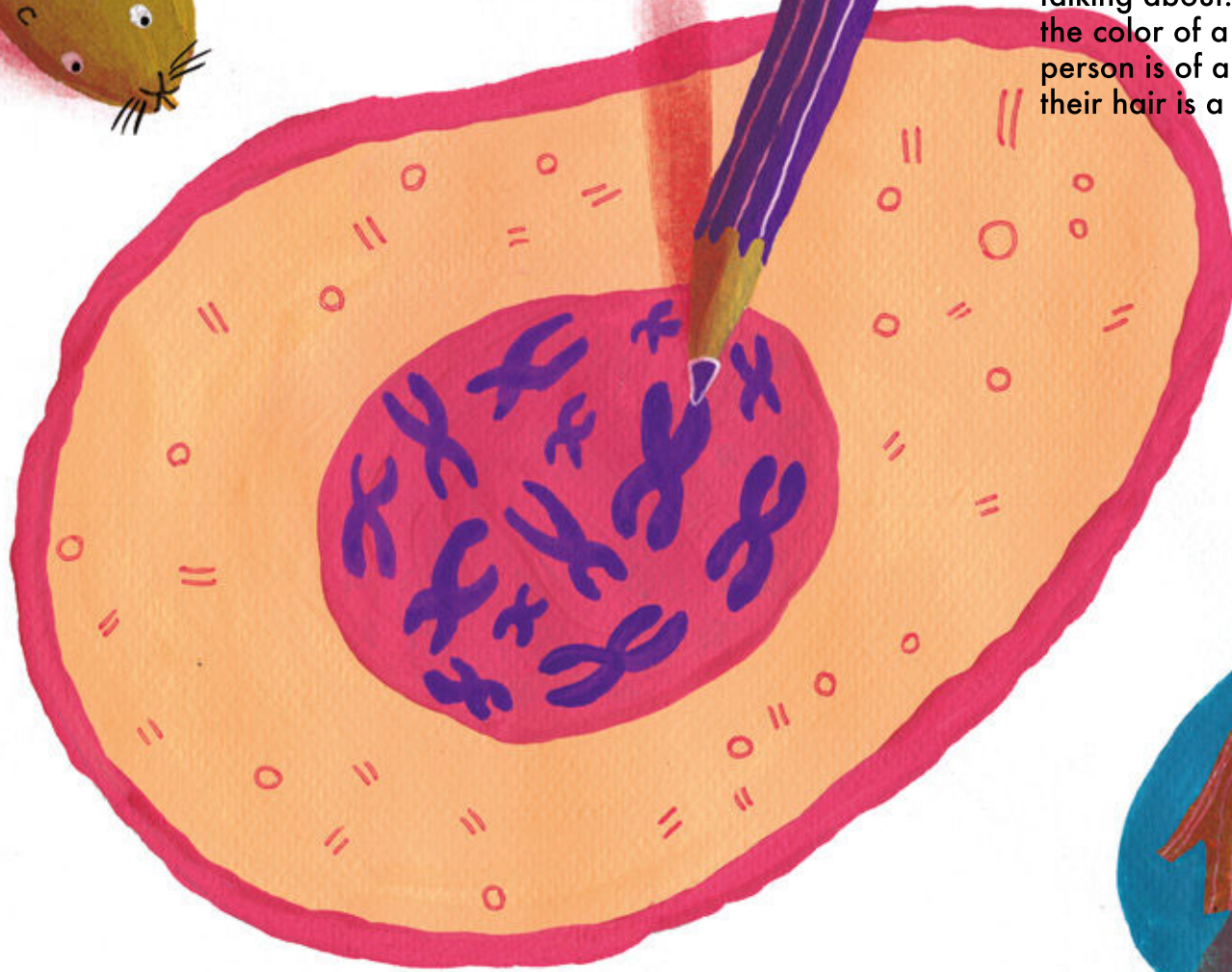
Emma and Jonah laugh at the idea of a person as flat as a pancake.

Dad continues:- Each cell contains all the information of just what this person is going to be like. This information is known as heredity. The information that heredity consists of is packed into small parcels. These parcels are called chromosomes.

Jonah and Emma give Dad quizzical looks. He shows them the drawing he has made.



- These are the chromosomes I was talking about. They decide, for example, the color of a person's eyes, or that the person is of a certain height, or that their hair is a certain color.





- Heredity is like a recipe for sweet rolls, Dad continues. - The rolls take different ingredients, and so does a person. We can think of each person having their own recipe.
- A sweet roll recipe makes sweet rolls, a cookie recipe makes cookies and a person recipe makes people, Emma realises.

- Listen, this makes me want to have something sweet. Let's bake some sweet rolls, suggests Dad.

- Yay! Jonah and Emma shout. They take Manda back to her cage and rush to wash their hands.



Jonah and Emma study the sweet roll recipe and start to measure out the ingredients.

- This recipe sure contains lots of ingredients, says Jonah.

- That's right, but the recipe for a person contains even more of them, Dad tells him.







He shows the children another picture.

- These ingredients in the recipe for a person are called genes. Just now I told you about chromosomes. When you stretch the chromosome, it becomes a DNA double helix. Genes are always a part of DNA.



Jonah listens to Dad intently and pours some sugar at the same time. Oh no! The top of the sugar shaker comes off and too much sugar pours out. Fortunately some of it can be taken off the top of the dough.



Soon the dough is ready and it has risen. The actual baking can begin.  
- This is not the way you make a person, though, Emma giggles.  
- But we could make the rolls in the shape of a person, Dad suggests.






They place the rolls in the oven and Jonah, Emma and Dad sit down on the floor to watch them bake.

- A person is made in the mother's belly, says Emma knowingly.

- All those rolls are slightly different, just like all people are different, Jonah realises.

- Every person has their own cells, genes and chromosomes. That is just like their own recipe. And some people are quite short, like Jonah. And some have brown hair like you, Emma.

Emma nods and goes on:- And for some, the recipe is such that they cannot walk, or maybe do not see or understand things as well as others.



The rolls come out of the oven. They are great! The bakers try them. They are so sweet!


- Oh no, there is too much sugar. Jonah feels sorry.

- That is all right, they are still good. Just a little different, Dad reassures Jonah.





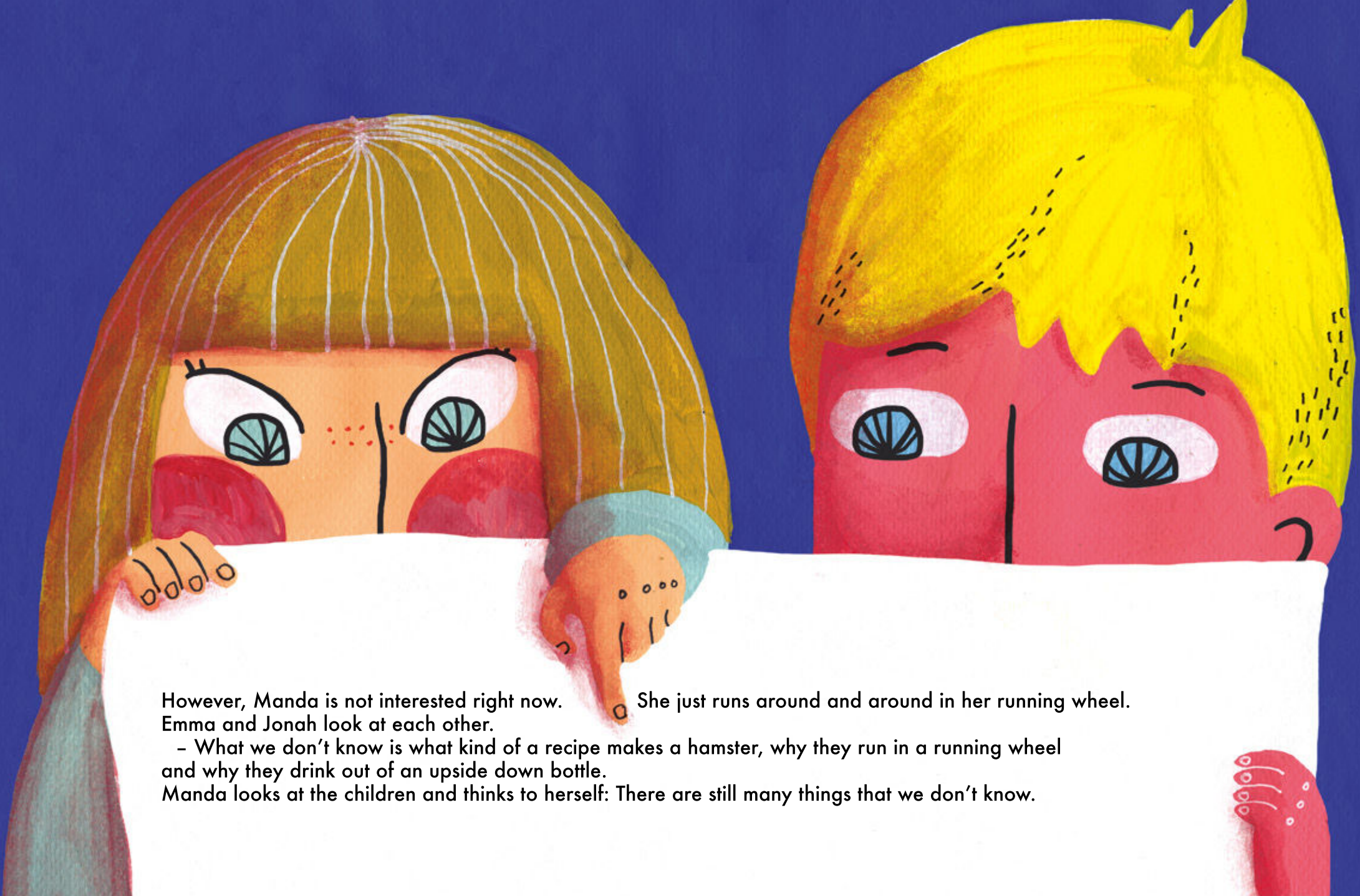




Emma and Jonah decide to go on a picnic in their own room. They pack the rolls in a basket and bring along Dad's pictures and a roll of tape. They fix the pictures above Manda's cage.

- Look, Manda, this is a person. A person is a group of cells. And the cells contain chromosomes and the chromosomes contain genes. And in there, there is the information of what we are going to become, Emma says.

- And no-one can decide for themselves what they are going to be like. And we all become different, Jonah goes on.



However, Manda is not interested right now. She just runs around and around in her running wheel.  
Emma and Jonah look at each other.

- What we don't know is what kind of a recipe makes a hamster, why they run in a running wheel and why they drink out of an upside down bottle.

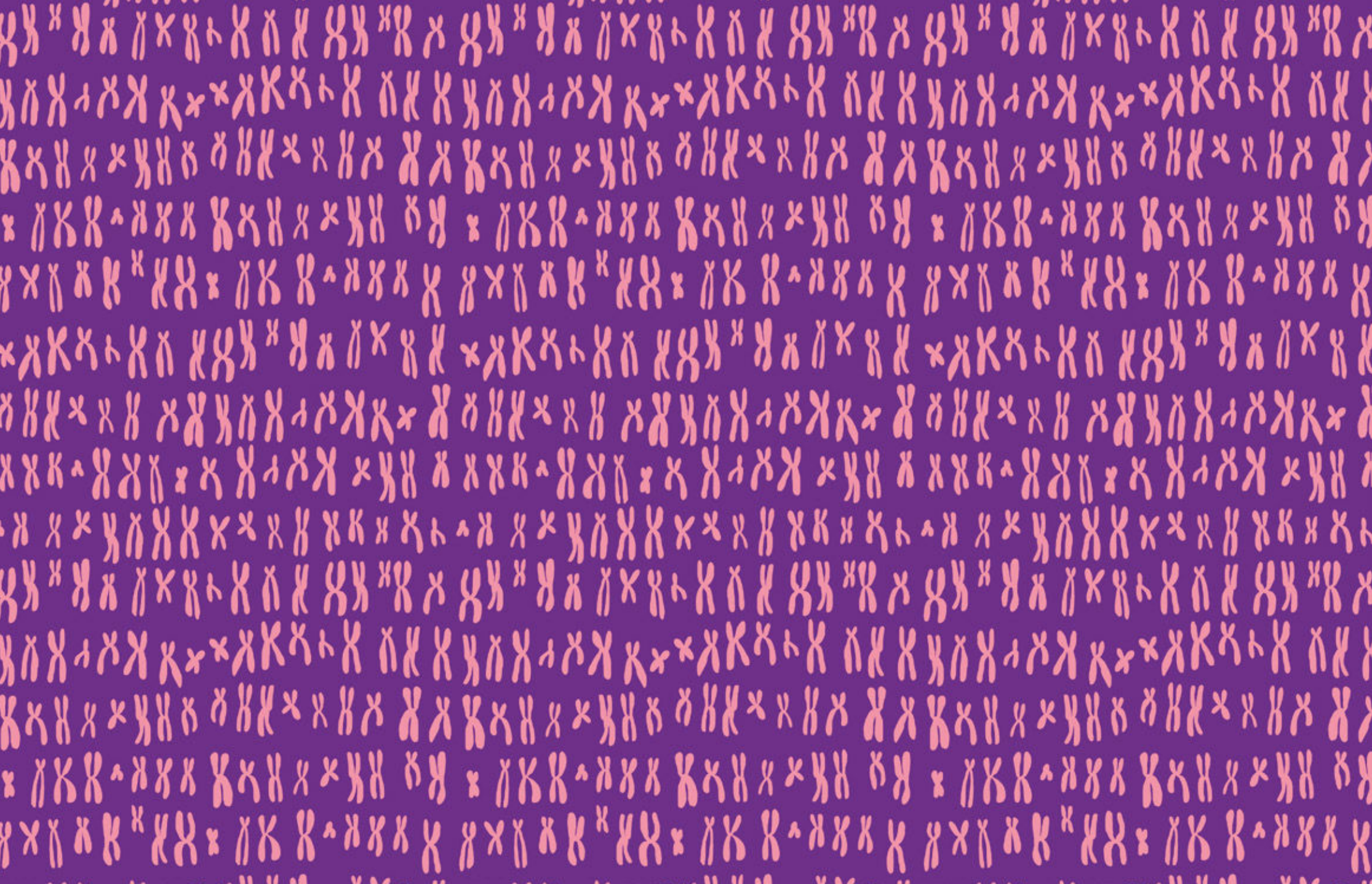
Manda looks at the children and thinks to herself: There are still many things that we don't know.







This book is published with the support of RAY.







The Recipe for a Person gives children a working knowledge of human heredity, via a story that is both fun and easy to follow.  
The book is intended to be read together with an adult. Reading it can help an adult explain to children, for example, why all people are different.  
The book is suitable for children of all ages. It is also possible, based on the adult's discretion, to read only some parts of it.

The book has been produced by a panel of specialists at Norio Centre, a part of Rinnekoti Foundation, which specialises in rare diseases.



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