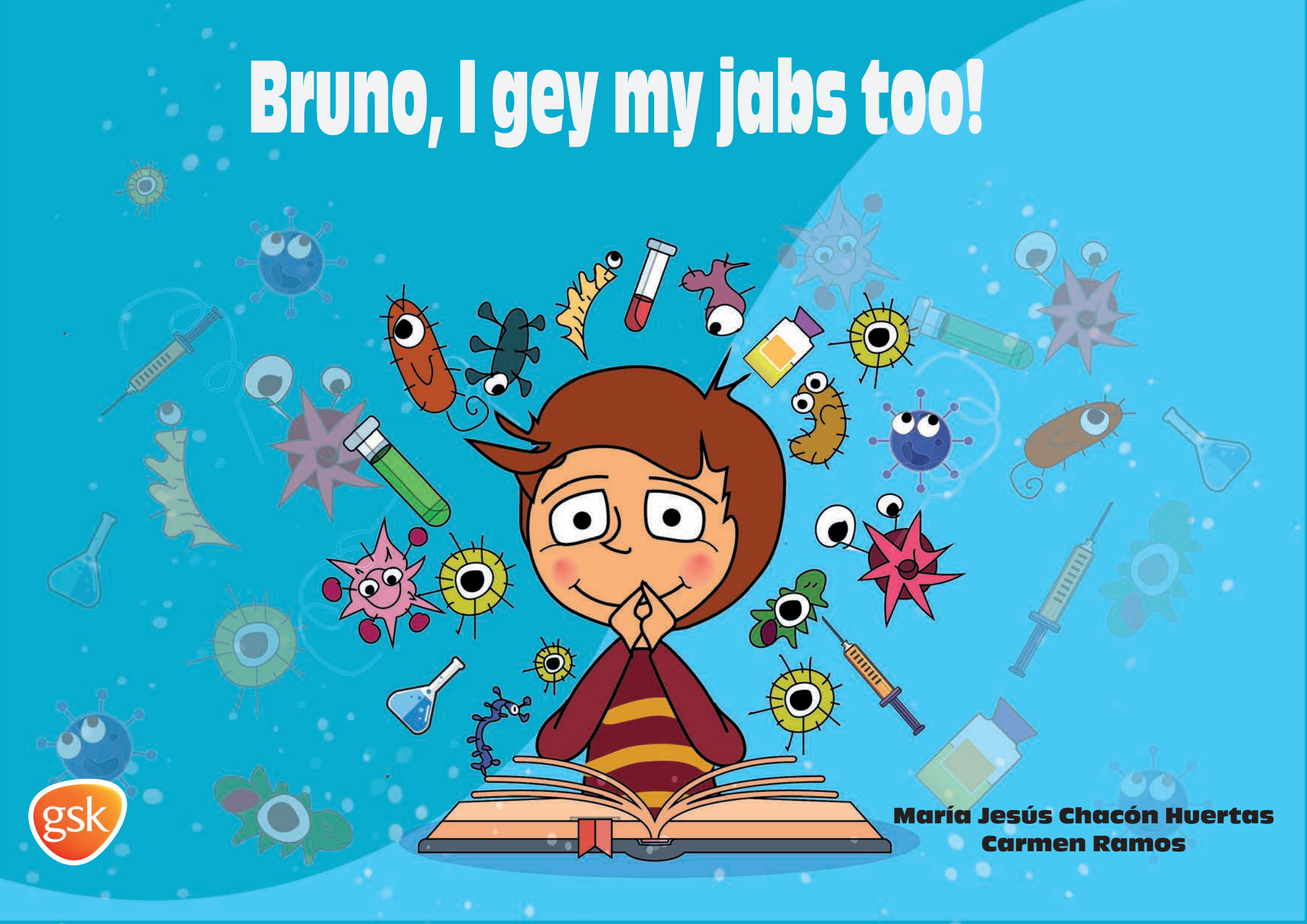
# Bruno, I gey my jabs too!



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Why do we need vaccines? Who should be vaccinated? Do we know the diseases that can be prevented?

Thanks to the effectiveness of the measures that have been introduced in the world of healthcare during the last century, all citizens, principally those from developed countries, have experienced notable improvements in terms of our health and, as such, our quality of life.

Vaccinations provide the most conclusive evidence that, as the saying goes: “prevention is better than cure”.

With the aim of sharing the fascinating world of prevention, we have written this book with great enthusiasm, so as to be able to invite you to discover this amazing journey that will continue throughout our lives.

Patient Relations Department at GSK Spain

**Foreword**

Vaccines are very special medicines: they are administered to healthy people so as to prevent them from becoming ill.

According to UNICEF, it is calculated that every year, at the very least, some two to three million children worldwide do not die thanks to the protective effect of vaccines. A true success story!

The book that you have in your hands is in the format of a story, but it is not just any story. It is a warm-hearted and scientifically accurate story which recounts the conversations between a grandfather and his grandson, occasionally involving the boy's paediatrician, on the subject of vaccines. As the story progresses, different conversations are shared about the importance of vaccines as tools for individual and public health, all of them based on scientific evidence.

When I was asked to write a few words by way of a foreword to the story, having read the initial draft, I discovered that this story, which may initially have been written to enable children to learn about the importance of vaccines in the modern world in a clear and educational way, could also be of interest to anyone keen on finding out more about the exciting world of vaccines, be they children, adolescents or adults such as parents or grandparents… I hope that everyone enjoys reading this delightful story about vaccines.

I must point out that this wonderful story that is so beautifully told by its author, María Jesús Chacón expresses concepts which are sometimes complex using words that are very easy to understand. Furthermore, the story is accompanied by illustrations which further reinforce the text and the words of the story's characters.

If, once you have finished reading the story, you wish to know more about other aspects of vaccines, I suggest that you read the epilogue to the story. Some of the things that are mentioned may also be of interest to you.

Luis Ortigosa.

Paediatrician. President of the Canary Islands Society of Paediatricians in Santa Cruz de Tenerife.
Member of the Government of the Canary Islands Vaccine Technical Group, and In-house Consultant for the CAV-AEP (Spanish Paedatrician's Association Vaccine Advisory Committee).

Since you were tiny, you have always been a very special boy. I know that you're thinking that all grandfathers say the same thing, but this time you're wrong. I feel so lucky to have shared so many conversations and good times with you that now, since you are fourteen years old, the time has come to give you something very special, something that I have been planning for some time. I have to be honest and tell you that I had an excellent helper, without whom it would not have been possible to finish my present on time. Or rather, our present.

Hopefully you will never lose your interest in always wanting to know a little more.

Can you guess what it is, Bruno? I hope that you like it as much as we do. I think it turned out really well! I can't wait to see the surprised look on your face when you see it...

**May 2017**

**Last week you turned six and today, since mum and dad are working, I will take you for your check-up. This time you are due a jab. I remember that you were so happy because you were going to miss school that afternoon that you almost forgot that they were going to give you an injection. I tried to convince you that it was good for you, but you were adamant that you didn't understand why.**

"But granddad, if I'm not ill, why are they going to give me an injection?"
"Let's see, how can I explain it to you? Do you remember when we saw the ice
hockey match last week?"
"Yes, granddad, it was really cool. The players were so covered up that we could
barely see them, could we?"
"Yes, that's right, Bruno. They were so well-protected with helmets, pads and
guards that we could hardly tell them apart."
"It's so they don't hurt themselves if they skate into each other, isn't it?"

“Exactly! Don’t you see? That’s precisely what happens with vaccines. In the same way as a helmet protects the hockey players or it protects you when you ride your bike, by giving injections we teach our body to defend itself. **Vaccines help us to prevent diseases and to protect ourselves and those around us**. That’s why it is so important to follow the guidelines that our doctor gives us and get vaccinated. I don’t know if what I’m saying makes sense...”

“Yes, granddad. You mean that vaccines are just like our helmets and stop us from hurting ourselves.”

“Well done, Bruno, you’re a very smart boy!”

**Just at that moment we arrived at the surgery and we had only just sat down when the nurse came out to call the next patient. We were the last on her list.**

“What’s wrong, little one?”
“Nothing, granddad, I’m fine.”

**But it wasn’t true; I knew that there was something wrong. You hadn’t said a single word since we arrived, and when you went quiet it meant that something wasn’t right. Ten more minutes passed before the door opened again. We jumped up and went in.**

“Bruno! Haven’t you grown? It’s been some time since you last came to see me!”
the paediatrician exclaimed.
“Hello. It’s because I’m never ill,” you answered.

“That’s good! It’s because you are a very strong and healthy boy and you have
very good defences. Today we need to give you a check-up and an injection: we’ll do the check-up first and then you’ll see that you hardly notice the jab, it will be like a quick pinch. What’s more, knowing how well you coped as a baby…”
“Seriously, I didn’t cry?”
“No, not at all. I remember that the last time you were so small that you just
stared at a picture that I had above the treatment couch and boom! We took advantage of the moment to give you the jab. Right, Bruno, start taking off your trainers and step up here so that I can weigh you.”

**It was clear that however much your paediatrician and the nurse tried to make you forget about the injection, your mind could not stop thinking about it. You answered every question that you were asked with a simple ‘yes’ or ‘no’, until you finally dared to say what you had been thinking:**

“What if I don’t have the injection, granddad? She said that I’m strong and that I

**The three of us looked at each other and smiled. I was just about to answer you when your paediatrician, Doctor Joy, stopped me:**

“I’ve got an idea! Since you are the final patient of the morning and we have time,
do you want me to tell you a story?”
“Yes, is that alright, granddad?”
“Of course it is!”
“Now, it’s based on a true story.”
“Does that mean that it really happened?”
“Yes, yes Bruno, it happened to me when I was young.”


*It happened during the summer that I turned sixteen, just after I had finished the first year of university.*

*My friends and I had been planning a trip to India for over a year. We loved reading about the country's culture. We loved drinking tea, we were drawn to its customs, its dances… It was the ideal destination for us, so we organised it with a huge amount of enthusiasm.*

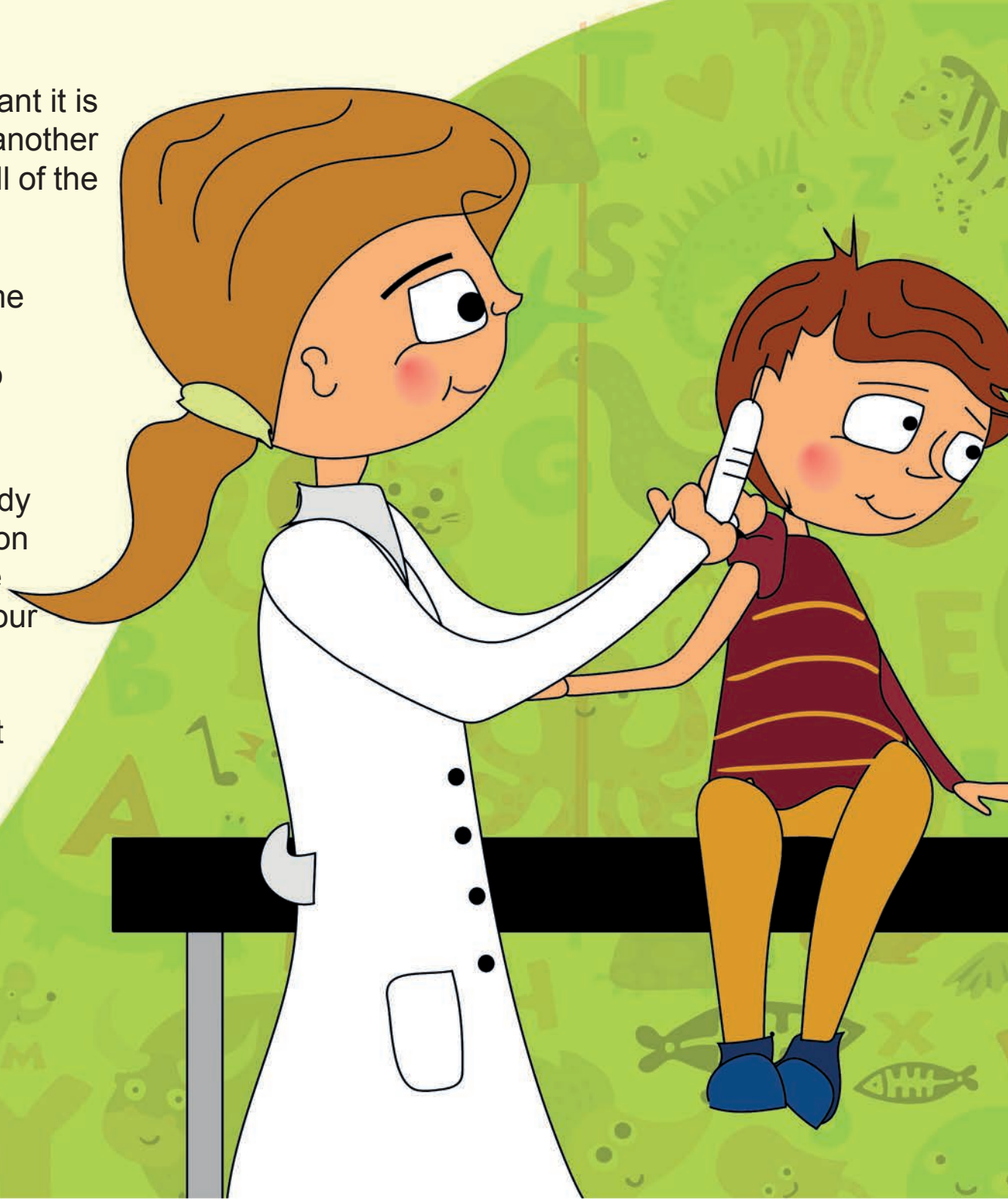
*We all knew that we would have to have injections, but one of my friends was in two minds right up until the last moment. She said that it wasn't that important to have the jabs because people already had vaccines in Spain. I tried to persuade her, telling her what my doctor had explained to me: "Our body isn't used to certain diseases which exist in India, so we have to reinforce it and protect it in order to prevent us from potential diseases."*

*In the end, as you are probably imagining, we weren't able to convince her and we all had the jabs except María. Do you know what happened? Well, we weren't able to enjoy our dream holiday because María fell ill and we had to take her to the hospital. She was sick for almost a week, her entire body ached and she had a fever. Fortunately, she recovered and we could return home safe and sound.*

“So now, can you see, Bruno, just how important it is to have your jabs? Before travelling to another country, we have to check that we have had all of the injections that the doctor recommends.”

“Yes, doctor, I understand. So, can you give me lots of injections today?”
“No, Bruno, I can’t!” she laughed. “We have to follow the vaccination guidelines, **each one must be given at a certain age,** Bruno. Although you can’t remember, you have already had several. Have you brought your vaccination card? Can you show it to me? Look, you have everything written down here. We gave you your first injection when you were only two months old, following the official recommendations of the Health Authorities. But we’ll talk about that another day. Now, let’s continue with the check-up.

**You were listening to your doctor so intently that, once again, the nurse made the most of the opportunity and gave you your jab. She was right. She did it so well that you just let out a faint “Ow!” and that was that.**



**When the nurse was happy that you were perfectly alright and that you had not had an adverse reaction, she let us go home.**

“Granddad, I’m stronger now, aren’t I?”
“Yes, you are indeed, Bruno. It’s as if you were wearing your helmet all the time now!”

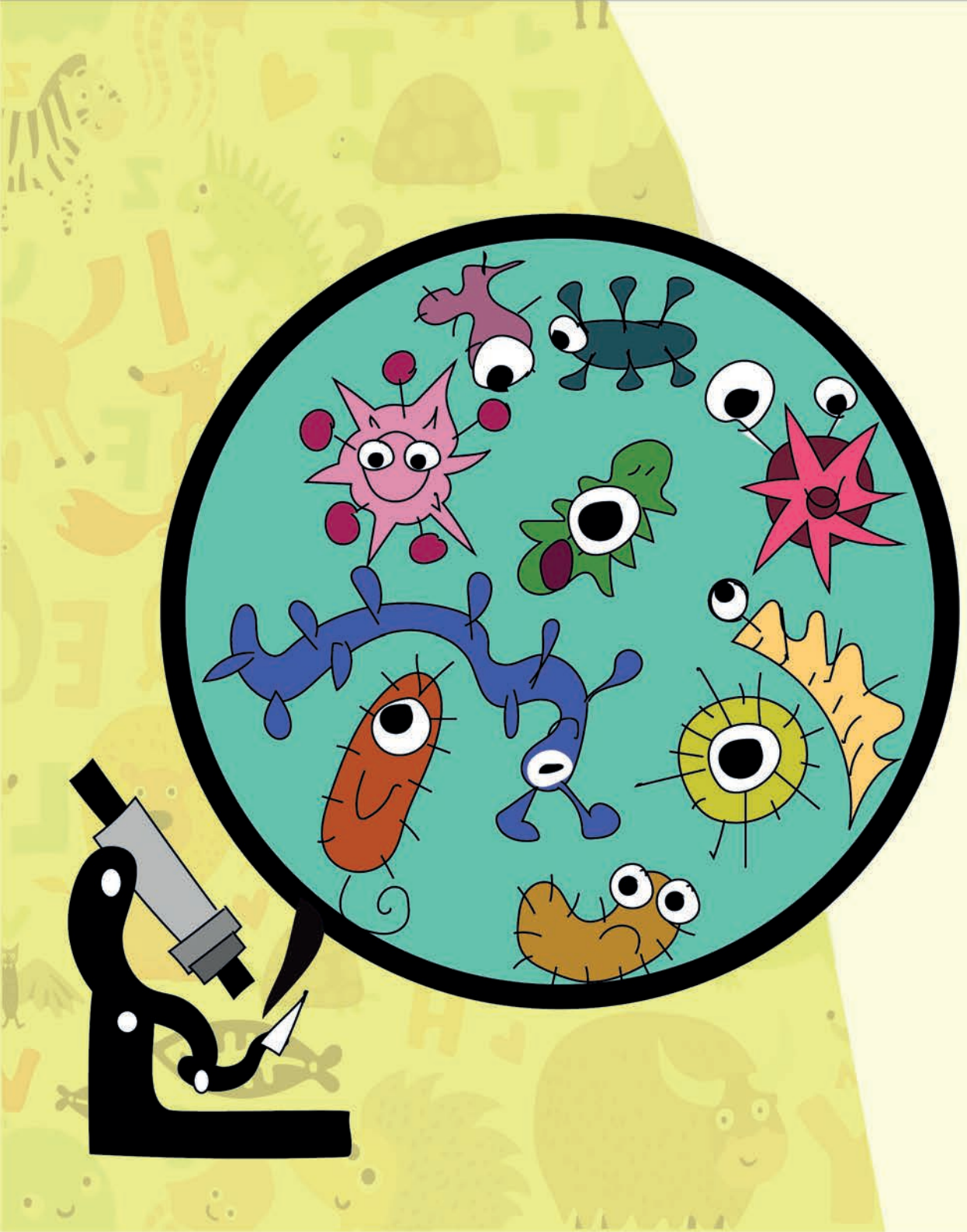
**Since that moment, hardly a day has passed without you asking us something related to vaccines. You were so curious about where they were made, who made them and how, whether all of the children in the world had injections, that your parents and I read up on the subject as much as we could so as to be able to answer your questions. Sometimes, when you asked me something that I didn’t know how to answer, I took the opportunity to tell you about my experience.**

“Do you know what, Bruno? We are very lucky because we were born at a time in which vaccines existed. They are without any doubt **one of man’s greatest inventions.** When I was young, we could only protect ourselves against certain diseases.”

“Only some of them?”

“Yes, that’s right. We can protect ourselves from many more now. Look at my arm, can you see that little mark? It’s from an injection. Your parents also have a similar scar, have you seen them?”

“It’s true! It’s exactly the same!”
“Years ago, they came to school to give us the injections. Imagine the novelty that it was for us. You know that when I was your age, there was no such thing as the internet. We didn’t have as much information then as we do now. I remember that one of the times that they came to school, the nurse tried to calm us down by explaining to us what a vaccine was on the board. She did it so well that I can remember it as if it was yesterday.”



“Wait a moment, do you have a pencil and some paper? I also prefer to draw it.
Let’s see if I can explain myself as well as she did. Well, she told us that vaccines contain the germs, in either an inactive or weakened form, which cause the disease that we are being vaccinated against. So, whilst these germs are dormant, our body studies them and gradually creates a sort of shield to protect us. What happens if these germs become active? Well, the shield would defend us against them. That is why it is so important to have our injections. In the case where we catch a disease, if we have already had the injection to prevent it, we won’t end up going to hospital because our body has already been trained to defend itself.”

“Of course, that is what happened to María, my paediatrician’s friend, wasn’t it?
Because she didn’t want to have the injections, she ended up in hospital.”
“That’s exactly what happened, yes!”
“Do you know what, granddad? I already know what I want to be when I grow
up.”
“But it’s a long time before that happens!”

“You’re right, but I know. When I’m older, I want to be one of the people who
makes vaccines, what are they called? Vacci, vacci…*vacciners*?”

“That word doesn’t exist! People who make vaccines are scientists or biology experts, for example. Don’t be thinking that vaccines are made from one day to the next! Making a vaccine can take many, many months or even years. In a few years’ time, when you go to secondary school, you will study biology. I bet you will love it, Bruno!”

**May 2019**

“Granddad, Doctor Joy asked after you today, since it’s been a while since she last
saw you.”

“It’s true, I can’t remember… when was the last time that I saw her? Next time,
I’ll take you to the surgery, alright?”

“Yes please, granddad! If there were only certain vaccines when you were little,
did your parents ever have any injections?”

“Yes, they had one or two. My father told me that there used to be a lot of contagious diseases which caused thousands and thousands of deaths all over the world. Fortunately, nowadays we have vaccines for those diseases. I remember that he always spoke to me about smallpox. He told me that it had been one of the first epidemics and particularly one of the worst because it had caused millions of child deaths. It’s just as well that the scientists were able to discover the smallpox vaccine, and thanks to that we have managed to stamp it out.”

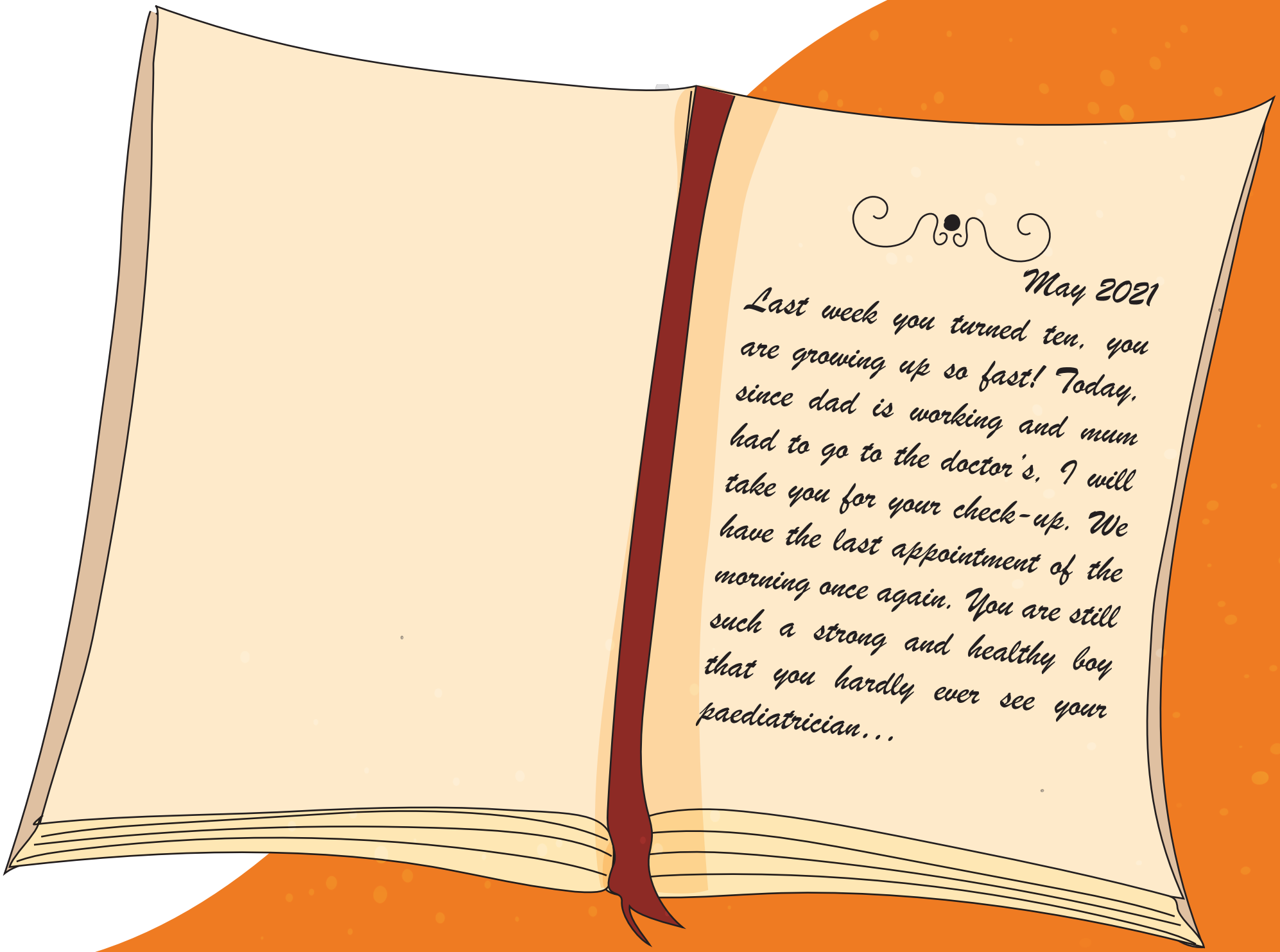
“Does ‘stamping it out’ mean that it has disappeared, granddad?”
“Yes, Bruno, it does. Thanks to vaccines, smallpox no longer exists and neither do many other diseases that were among us.”
“That’s great, granddad! But what would happen if we stopped having injections?”
“Well, outbreaks of the diseases that no longer exist would start to appear again and they would be responsible for thousands of unnecessary deaths again. But there is something worse than an epidemic…

“Even worse?”
“Yes. Imagine that in a few years’ time a new disease appears and that it is highly contagious. Also, that it spreads throughout every country so fast that it is impossible to thwart its transmission. In that case, we would not be talking about an epidemic, but rather a **pandemic**. In Spain, almost a century ago, we experienced a horrible pandemic, the influenza pandemic, in which millions of people died.”
“Oh, granddad! Did your parents live through that pandemic?”
“They did, indeed, Bruno! But to be honest, contagious diseases which are capable of causing a pandemic like that one could appear at any moment. That it hasn’t happened for a long time doesn’t mean that it won’t happen again.”

“Really? Do you think that there could be a pandemic nowadays, granddad?”
“I most certainly do, Bruno! But let’s not tempt fate. Talking of the flu, did you know that elderly people like me have a flu jab every autumn?”
“No, I didn’t know that. But, you’re not old, granddad!
“How I wish that were true!”
“Do they vaccinate children against the flu?”

“Well, some countries recommend it, but not all of them. You’re young and your defences are as young as you are. Can you see my wrinkles, Bruno? My skin is wrinkled because I am getting old and the same is true of my body, it’s also ageing. My immune system, in other words my defences, is gradually getting older and when a virus or bacteria attacks me, my body no longer responds as quickly as when I was younger. As such, they recommend that us old people should have a flu jab in order to remain healthy and strong like you.”

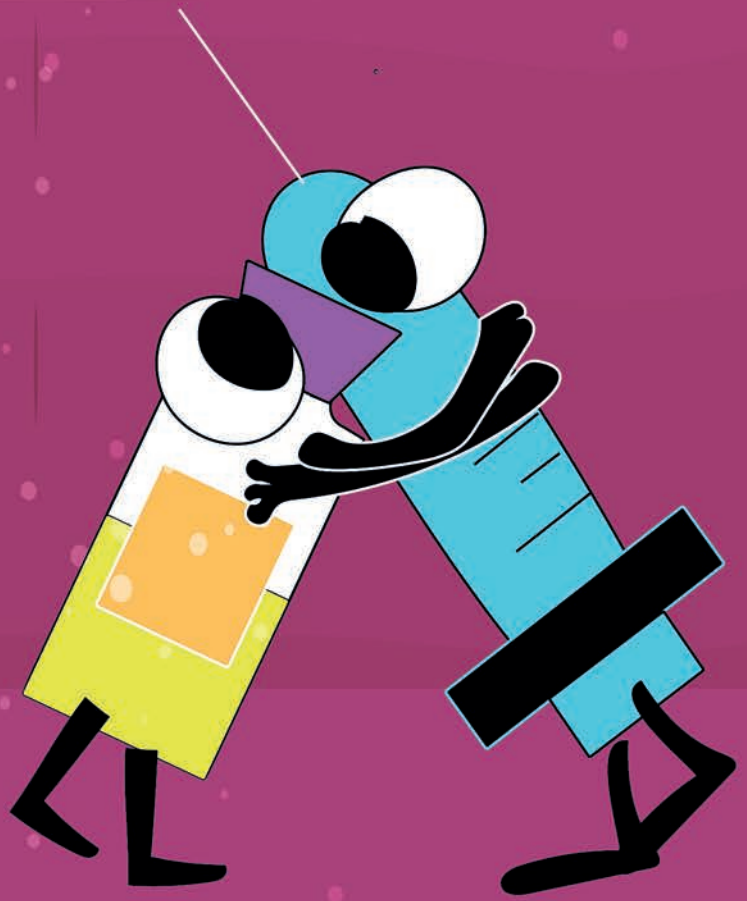
“I don’t want you to be ill, granddad. Have an injection whenever your doctor tells you to, alright?”
“Of course I will, you know that I always do what my doctor tells me to,

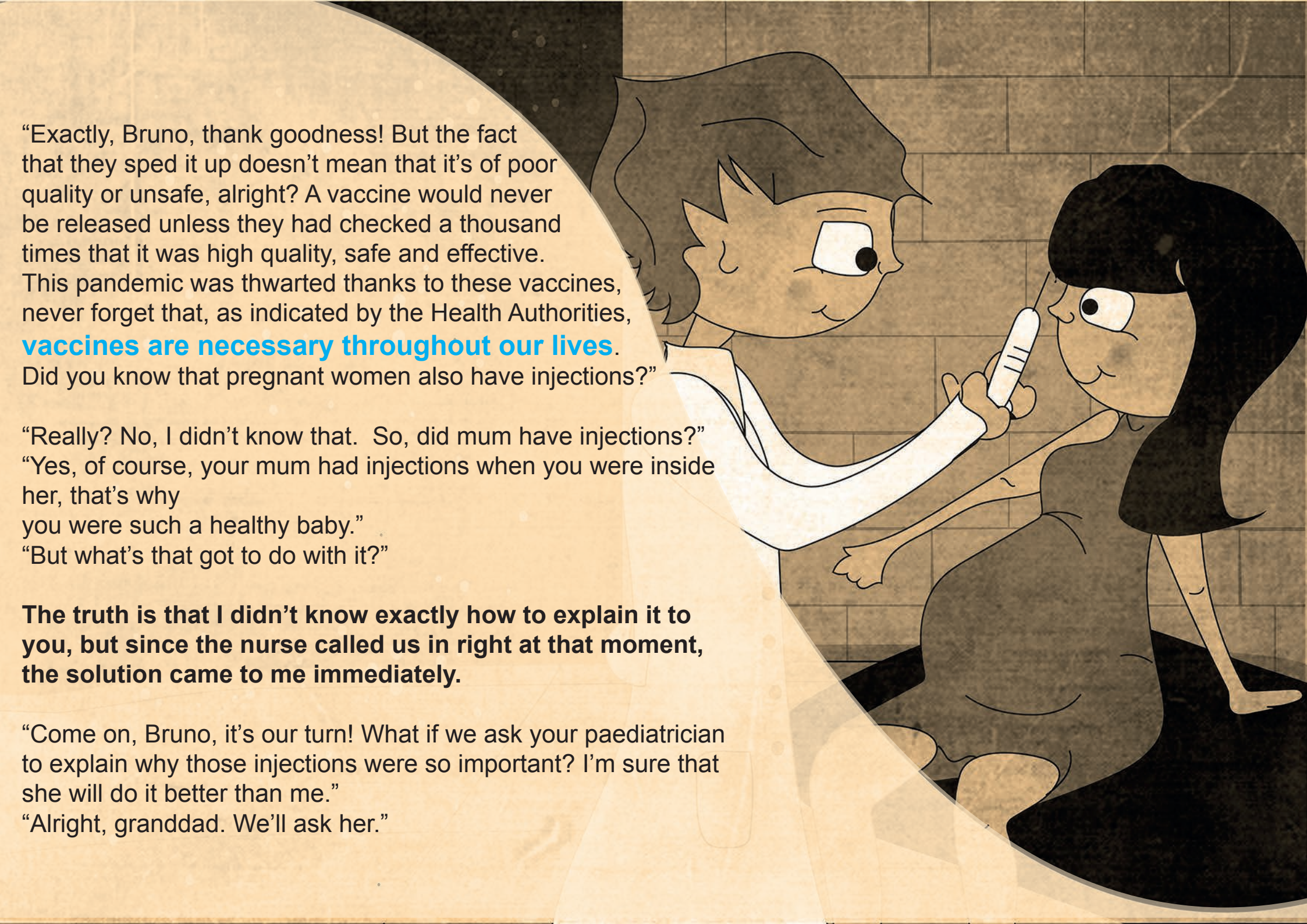

May 2021
Last week you turned ten, you are growing up so fast! Today, since dad is working and mum had to go to the doctor's, I will take you for your check-up. We have the last appointment of the morning once again. You are still such a strong and healthy boy that you hardly ever see your paediatrician...

“You do know that I don’t have any injections today don’t you, granddad?”
“Yes, dad told me last night. It’s just a check-up today. Anyway, I had an injection for you.”
“It’s true! You had the COVID-19 vaccine, granddad. You’re so brave! My friends say that I’m really annoying because I’m always going on about how you were one of the first people to receive the vaccine.”

“It’s not such a big deal, Bruno. I didn’t have the slightest doubt about it. You know that I’m always telling you that vaccines are the safest medicines that exist. If I hadn’t have had the COVID-19 vaccine, my behaviour would be a bit contradictory, wouldn’t it? I have absolute faith in vaccines. It was the best thing to do for me and for everyone else. Do you remember when I told you that we could experience a pandemic?”

“Yes, granddad, I couldn’t believe it. I will tell my grandchildren how we lived through one just like your parents. Thank goodness the scientists all over the world sped up the manufacturing process for the vaccine!”





“Exactly, Bruno, thank goodness! But the fact that they sped it up doesn’t mean that it’s of poor quality or unsafe, alright? A vaccine would never be released unless they had checked a thousand times that it was high quality, safe and effective. This pandemic was thwarted thanks to these vaccines, never forget that, as indicated by the Health Authorities, **vaccines are necessary throughout our lives**. Did you know that pregnant women also have injections?”

“Really? No, I didn’t know that.  So, did mum have injections?”
“Yes, of course, your mum had injections when you were inside her, that’s why
you were such a healthy baby.”
“But what’s that got to do with it?”

**The truth is that I didn’t know exactly how to explain it to you, but since the nurse called us in right at that moment, the solution came to me immediately.**

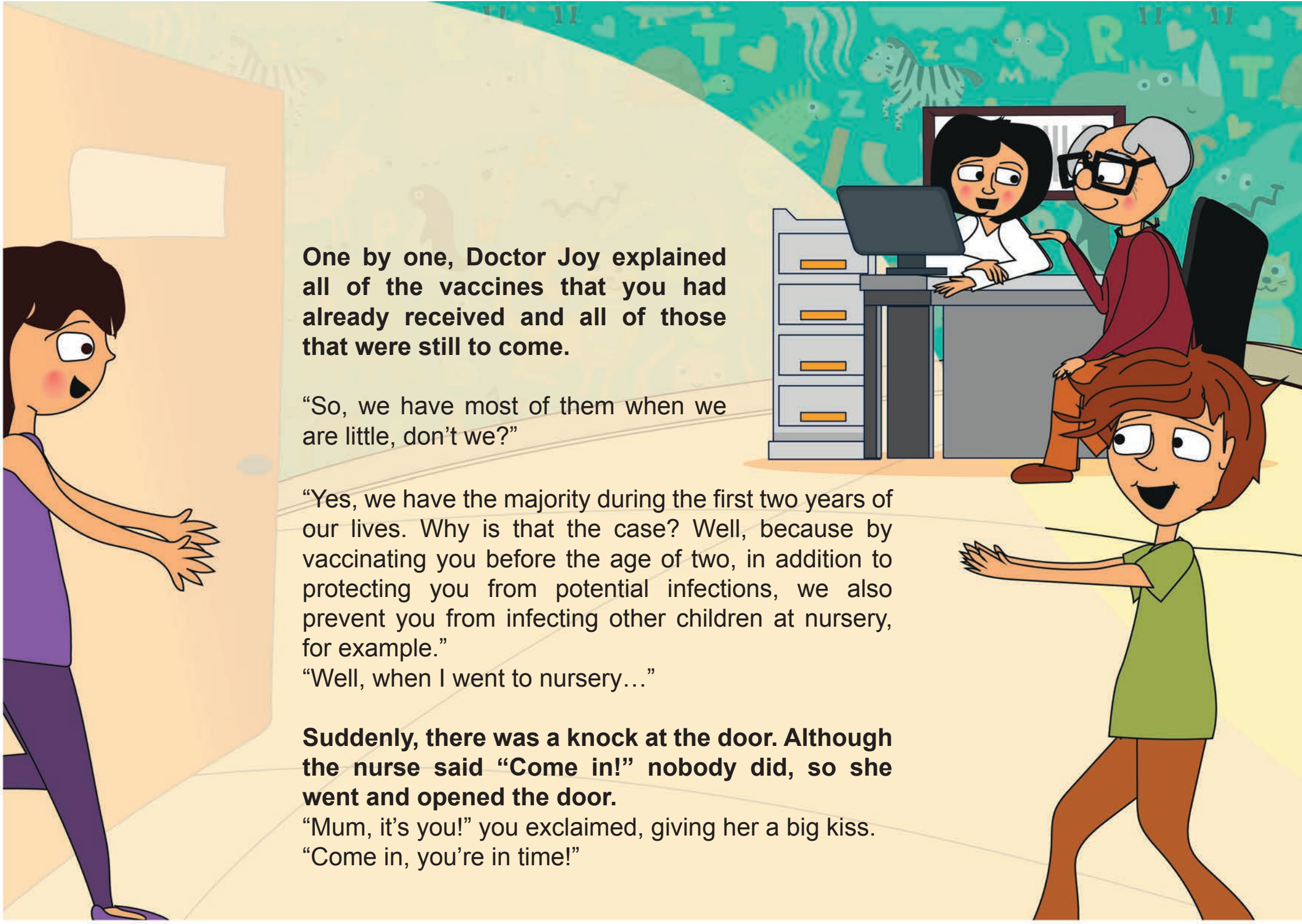
“Come on, Bruno, it’s our turn! What if we ask your paediatrician to explain why those injections were so important? I’m sure that she will do it better than me.”
“Alright, granddad. We’ll ask her.”

**Doctor Joy came to greet us, ruffling your hair affectionately. You can tell that she loves her job!**

“Bruno, how tall and handsome you are!”
“Hello doctor, and thank you!” you answered her, blushing a little. “I know that I don’t have to have any injections today, but can I ask you a question? Well, two actually.”
“Of course you can, Bruno. You can ask me as many questions as you want. You are the last patient I’m seeing this morning, so I am all yours.”
“It’s just that my granddad says that I am as strong as I am because my mum had an injection during her pregnancy, and I don’t understand why.”
“I’ll explain it to you right now, Bruno. When we give pregnant women vaccines during pregnancy, we manage to boost the defences in their blood. Do you know what we also call those defences?”

“Yes, they are called antibodies. Our science teacher explained it to us the other day.”
“Very good, Bruno! When we vaccinated your mum when she was pregnant, we transferred some of her defences to you. And those defences are what protected you from potentially serious infections during those initial months.”
“So, do I still have the defences that mum transferred to me?”

“Good question, Bruno. No, you don’t. Those antibodies disappeared when you were between six and twelve months old. You know that the first injection we gave you was when you were two months old. Let’s take a look at your vaccination card! Do you have it with you?”



**One by one, Doctor Joy explained all of the vaccines that you had already received and all of those that were still to come.**

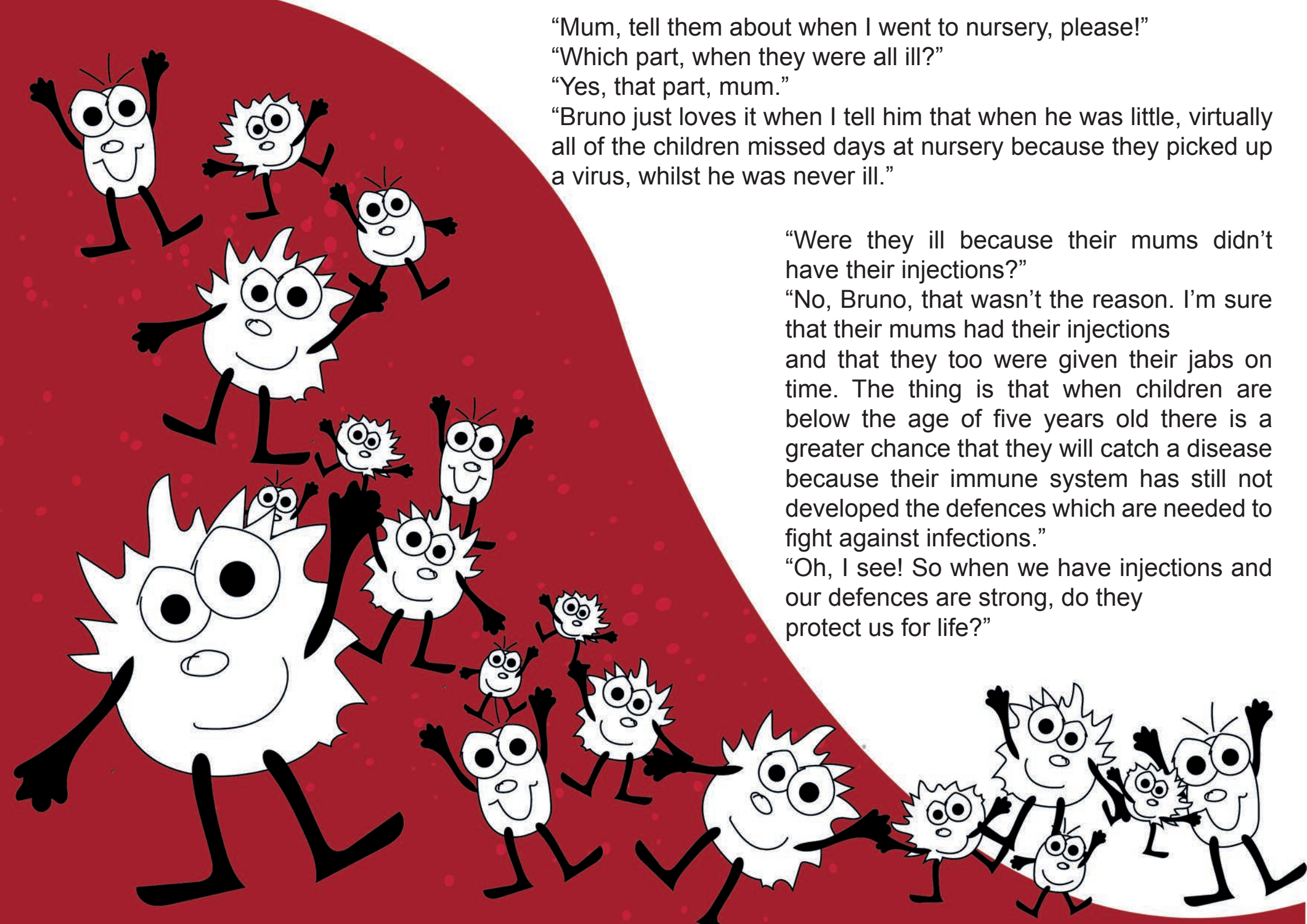
“So, we have most of them when we are little, don’t we?”

“Yes, we have the majority during the first two years of our lives. Why is that the case? Well, because by vaccinating you before the age of two, in addition to protecting you from potential infections, we also prevent you from infecting other children at nursery, for example.”
“Well, when I went to nursery…”

**Suddenly, there was a knock at the door. Although the nurse said “Come in!” nobody did, so she went and opened the door.**
“Mum, it’s you!” you exclaimed, giving her a big kiss.
“Come in, you’re in time!”

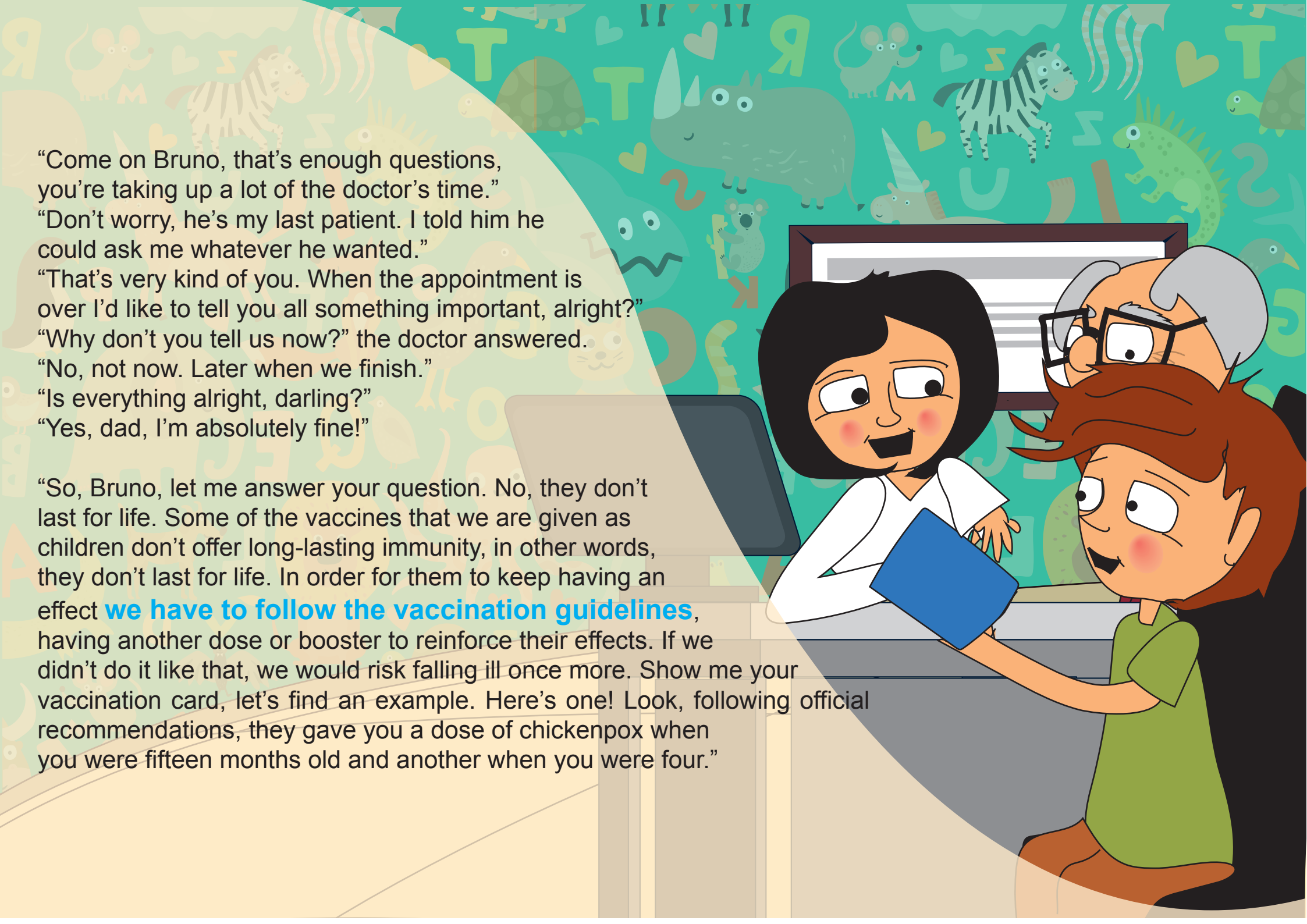
“I’m sorry to interrupt like this but my appointment was over earlier than I expected and I decided to come here. Have you already finished?”
“No, we haven’t even started the check-up yet. Actually, we were only just talking about you.”
"About me? Why’s that?”
“Well, you know how enthusiastic your son is about vaccines.”
“Oh Bruno, there’s no need to trouble the doctor. When he was little, he never stopped telling us that he wanted to be a ‘vacciner’ when he was older, do you remember, dad?”

**Your paediatrician and the nurse burst out laughing on hearing about this new profession. To begin with, you were a little embarrassed by mum’s comment, but then you ended up laughing along with us.**
“That was a long time ago!” I said in your defence, winking in your direction.
“I know, dad! The truth is that you know how my son is, Doctor Joy. He is so curious about everything that in the end he will be whatever he wants to.”



“Mum, tell them about when I went to nursery, please!”
“Which part, when they were all ill?”
“Yes, that part, mum.”
“Bruno just loves it when I tell him that when he was little, virtually all of the children missed days at nursery because they picked up a virus, whilst he was never ill.”

“Were they ill because their mums didn’t have their injections?”
“No, Bruno, that wasn’t the reason. I’m sure that their mums had their injections and that they too were given their jabs on time. The thing is that when children are below the age of five years old there is a greater chance that they will catch a disease because their immune system has still not developed the defences which are needed to fight against infections.”
“Oh, I see! So when we have injections and our defences are strong, do they protect us for life?”



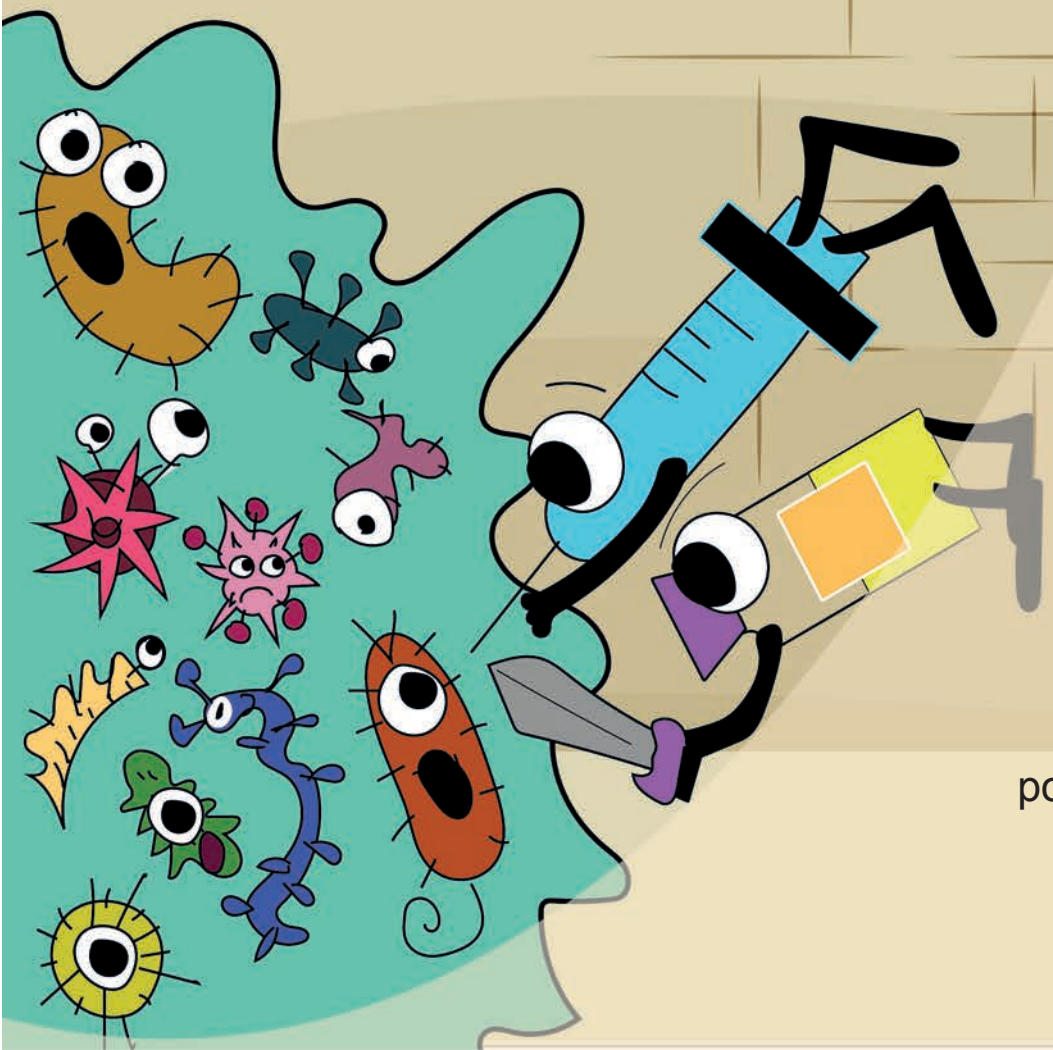
“Come on Bruno, that’s enough questions, you’re taking up a lot of the doctor’s time.”
“Don’t worry, he’s my last patient. I told him he could ask me whatever he wanted.”
“That’s very kind of you. When the appointment is over I’d like to tell you all something important, alright?”
“Why don’t you tell us now?” the doctor answered.
“No, not now. Later when we finish.”
“Is everything alright, darling?”
“Yes, dad, I’m absolutely fine!”

“So, Bruno, let me answer your question. No, they don’t last for life. Some of the vaccines that we are given as children don’t offer long-lasting immunity, in other words, they don’t last for life. In order for them to keep having an effect **we have to follow the vaccination guidelines**, having another dose or booster to reinforce their effects. If we didn’t do it like that, we would risk falling ill once more. Show me your vaccination card, let’s find an example. Here’s one! Look, following official recommendations, they gave you a dose of chickenpox when you were fifteen months old and another when you were four.”

“And what if I leave it too long before having an injection, would something
happen to me?”

“No, nothing would happen to you. Although, as I always say to you, each vaccine
has its scheduled time. That said, the majority of vaccines can be given at any age and, if we forget to have a dose we don’t have to start again because they will still have an effect, even though more time has passed than is recommended. We would administer it and there would be no problem.”
“It’s just that the other day, I was looking on the internet and I read that we can’t
have a vaccine if we didn’t follow the vaccination calendar.”

“Ah, so you asked Dr. Google? In a minute I’ll write down two pages that you can
use to answer all of the questions that you have about vaccines, alright? You have to know that Dr. Google can be dangerous; if you didn’t ask me that question, you would have believed what you had read. Just because Dr. Google has an answer for everything, it doesn’t mean that he always tells the truth. You have to know where to look for the information, never forget that.”



**Whilst Doctor Joy was writing down the two websites on a piece of paper to give you, your mother was giving me signs, gesticulating impatiently that I should end the conversation. So I did:**

"Well, Bruno, we'll continue talking another day, alright? You told the doctor that you had a couple of questions and you've asked quite a few more!"
"You're right, I'm sorry!"

"Don't worry, Bruno, I also like talking about vaccines, but yes, time is moving on. Let's do the check-up! Just one more thing: never question the safety of vaccines. Even when the circumstances force the pharmaceutical companies to speed up the manufacturing process, as they did with COVID-19, countries don't administer them to the population until they are sure that they are safe. Of course, as with all vaccines, the vaccines for COVID-19 also caused some minor adverse reactions, such as a slight fever or soreness in the area of the jab."

“Mum! Have I ever had a fever?”
“No, Bruno! You’ve never had an adverse reaction.”
“That’s usually the case, Bruno! Right, onto the check-up! Take off your trainers
and step up here so that I can weigh you.”

**The appointment had been so intense that it was just at that moment when I decided that all of these conversations should never disappear. I didn’t want to forget them and I was excited at the thought of you also enjoying remembering them forever. So I decided to do it, although I knew that I would need the help of an expert. Of course, I immediately knew who, that expert had to be your paediatrician. I would talk to her at the end of the appointment.**

“Well, Bruno, you are in great shape! Stay that way and don’t wait so long before coming to see me again. We can continue our chat about vaccines whenever you want.”
“Are you a scientist, doctor?”
“No, Bruno, I’m not. The thing is, that I, like you, like this topic a lot. But you are going to become a great scientist if you maintain your interest.”
“I hope so, I would love that!” you said proudly.
“Thank you for everything, doctor! And well, now that we have finished, I will give you the good news.”
“Go on! Why did you go and see the doctor, mum?”
“Can’t you tell by my face? Will you be in charge of ensuring that your little brother or sister isn’t scared of injections, Bruno?”
“Oh, darling! What fantastic news! Another grandson or granddaughter!”
“Seriously, mum? A baby brother or sister!”
“Congratulations!” exclaimed the nurse and your paediatrician.
“We will give the baby all of the vaccines it needs to be just as strong and healthy as you are, Bruno,” the nurse said to you.
“Of course! And mum, remember that you also have to have injections so as to pass your defences to the baby, alright? Can I go with you?”
“No, you’ll be at school.”

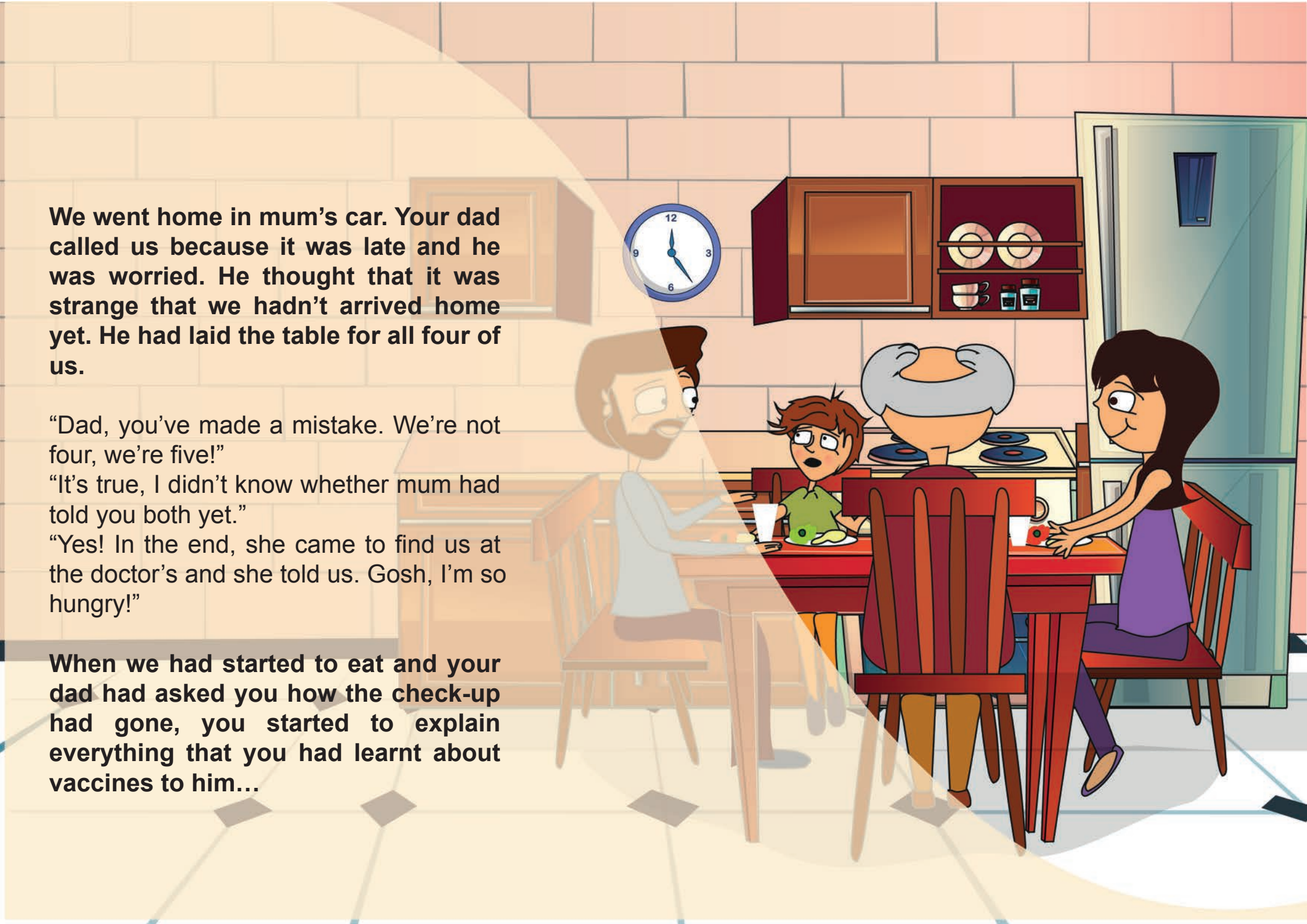
**You and your mum left the surgery absolutely over the moon. I told you both to wait for me outside because I had to speak to Doctor Joy about a personal matter. When I told her my plan, she immediately offered to help me.**

“It’s an excellent idea, what a surprise! Bruno will love it!”
“I think it’s a good way of making sure that our conversations don’t disappear
into thin air. Bruno will have a beautiful reminder, don’t you think?”
“Definitely!”
“So, I will start writing everything down on paper and then you can review it and
transfer it to the computer. Technology is not my strong point. Shall we leave it like that?”
“Perfect, I’m here for whatever you need! Here’s my card, my telephone number
is at the bottom. As you already know, late on Friday mornings is a good time to talk, but ring me beforehand, just in case.”
“I will! Thank you for your help, doctor. Talk soon!”

**We went home in mum's car. Your dad called us because it was late and he was worried. He thought that it was strange that we hadn't arrived home yet. He had laid the table for all four of us.**

"Dad, you've made a mistake. We're not four, we're five!"
"It's true, I didn't know whether mum had told you both yet."
"Yes! In the end, she came to find us at the doctor's and she told us. Gosh, I'm so hungry!"

**When we had started to eat and your dad had asked you how the check-up had gone, you started to explain everything that you had learnt about vaccines to him…**




May 2025
Last week, you turned fourteen. I remember how our conversations about vaccines started when you were just six years old. Who would have thought, Bruno, that we were about to experience a new pandemic. Naturally, after COVID-19, your interest in the world of vaccines grew even more. You never tire of reading and researching by yourself. You always want to know more. You're coming to the end of your second year at secondary school, and you are already quite an expert in vaccines.
Your science teacher is delighted with you and constantly tells your mum that you are going to go far, that you will be a renowned scientist. Meanwhile, your paediatrician and I are continuing with our plan. The other day, we decided that we would give you our present on the day that you had the injection that children receive when they are fourteen. It was the ideal moment! Whilst you, as always, continued as usual: whenever you could, you found a moment to tell me...

“Granddad, come and see what it says here!” you said to me, pointing at the computer screen. “Do you remember that story that you told me when I was little?”
“Which story, Bruno? I told you a lot of stories.”
“The one that they told you at school: that vaccines contain a tiny part of the germ that causes the disease, or an inactive or weakened version of it which does not turn into the disease when it enters our body, but rather the opposite.”
“Oh, the one that the nurse told us?”

“Yes, that one! Can you see? It’s the same as what it says here: when a virus or bacteria enters our body, it multiplies and attacks the cells, producing an infection. When the body recognises that it is a foreign element, our immune system activates its defence mechanisms so that the antibodies identify it and destroy the infected cells. The bad germs were the virus or bacteria.”

“That’s right! When I told you the story you were about six or seven years old. If I hadn’t explained it to you like that, using germs, you wouldn’t have understood anything. You were too little to understand it. Is that page safe, Bruno: is it the one recommended by Dr. Google or by Dr. Joy?”

“Very funny, granddad! I only search the pages that my paediatrician told me to. And, do you know the thing about the memory?”

“What’s the thing about the memory, Bruno? I don’t remember!”

“The fact that the immune system has a memory.”

“Well, it rings a bell…”

“Shall I explain it to you? Basically, we know that when a virus attacks us for the first time, our immune response is slow. The good thing is that since our body remembers its enemies, in the case where the same virus or bacteria attacks us again, our immune system acts much faster and the body will fight off the enemy before the disease takes hold. That’s why vaccines are so important. Was that too complicated?”

“No, not at all, quite the opposite. What you want to say is that vaccines simulate an infection in order to train the immune system, right?”

“That’s right, granddad. Vaccines make use of the immune system’s memory. The thing is that the antibodies sometimes lose their strength over time. That’s when we need a booster, like the one that I am due now, aged fourteen.”

“And when is your appointment?”

“Mum told me that I’m having it next week. It will be the last appointment as always, granddad. Will you come with me? Mum has to go and collect Nicholas.”

“Of course I’ll go! What’s more, I have to finish off a few things with your paediatrician.”

“What things?”

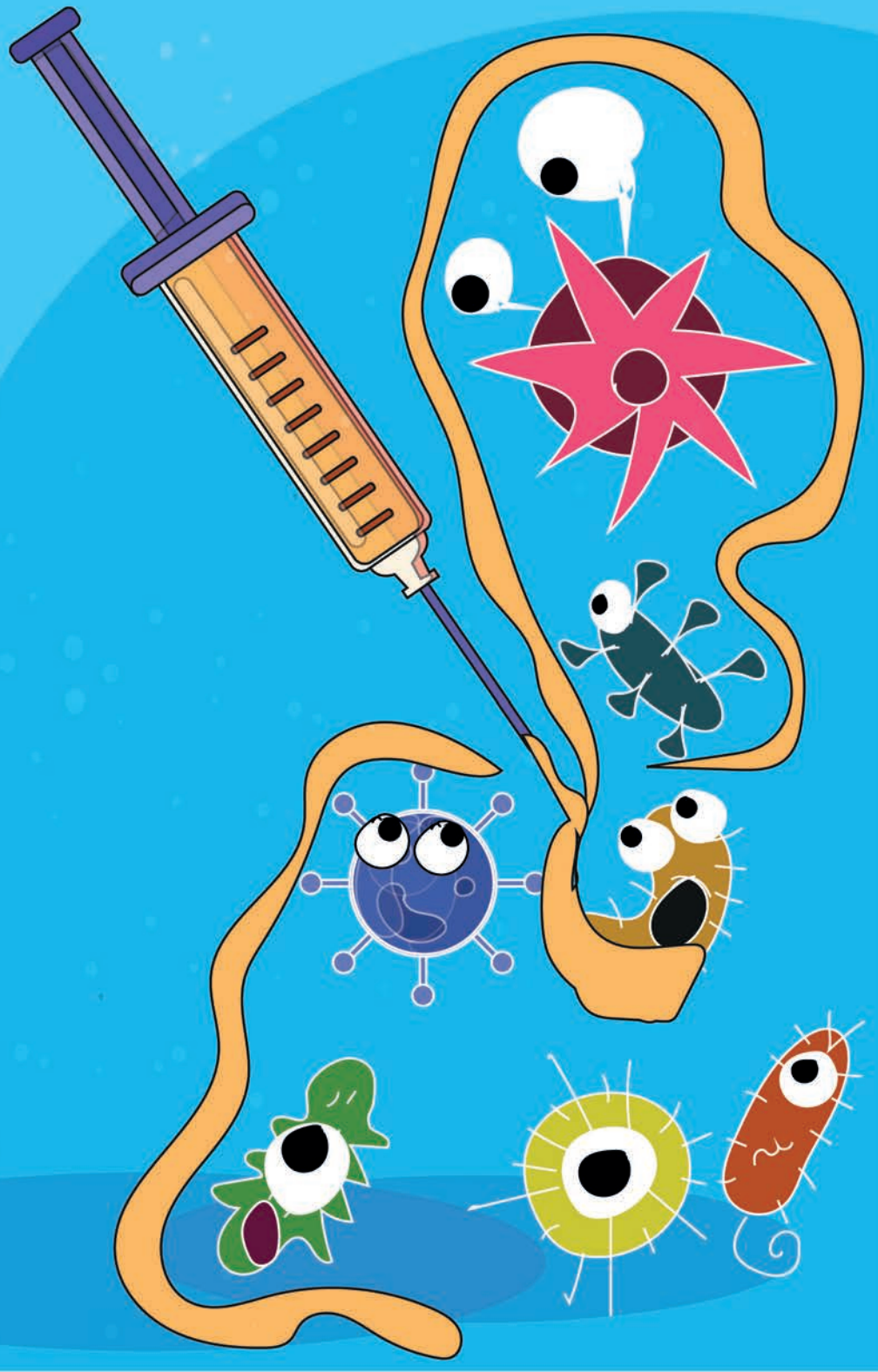
“Nothing, grown up things.”

“Alright, granddad! By the way, did I tell you that Doctor Joy is helping me with a project?”

**Of course I knew, but I pretended otherwise as best as I could. I feigned indifference so as not to raise any suspicion.**

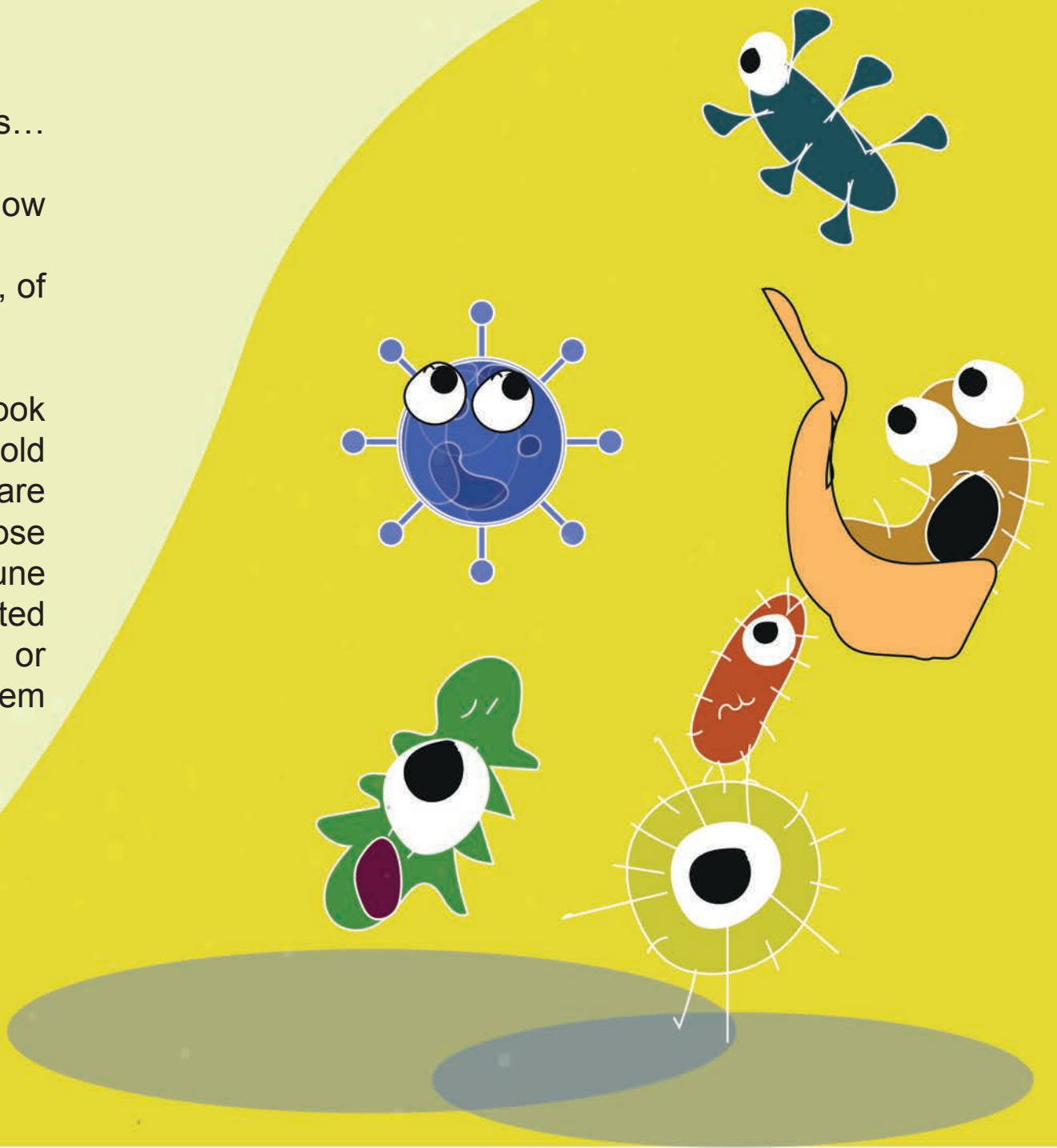
“No, you didn’t tell me. How did that come about?”
“Well, in our science class, we have to do a group project about “the greatest inventions” and I managed to convince my friends to do it on vaccines.”
“A good choice! You know that I think that vaccines are one of man’s greatest
inventions. In fact, I would say that they are **the best preventive medicine that exists.”**

“I know, granddad, you’ve told me that many times before. We have split the work between us and I have almost finished my part. Although, since I know more about it than they do, I got the hardest part.”
“Difficult for you? I don’t believe it, if it’s about vaccines, nothing about it is difficult for you.”
“Well, it’s a good job that I have Doctor Joy’s support!”
“She is an excellent paediatrician, Bruno. If only everyone could rely on their paediatrician as much as we have.”
“You’re right, granddad. Shall I tell you what I have to do?”
“Yes, of course, I’m all ears.”
“Well, I have to talk about carriers, strains, the process for developing a new vaccine, clinical trials… And also about adjuvants. Have you ever heard of such a strange word?”



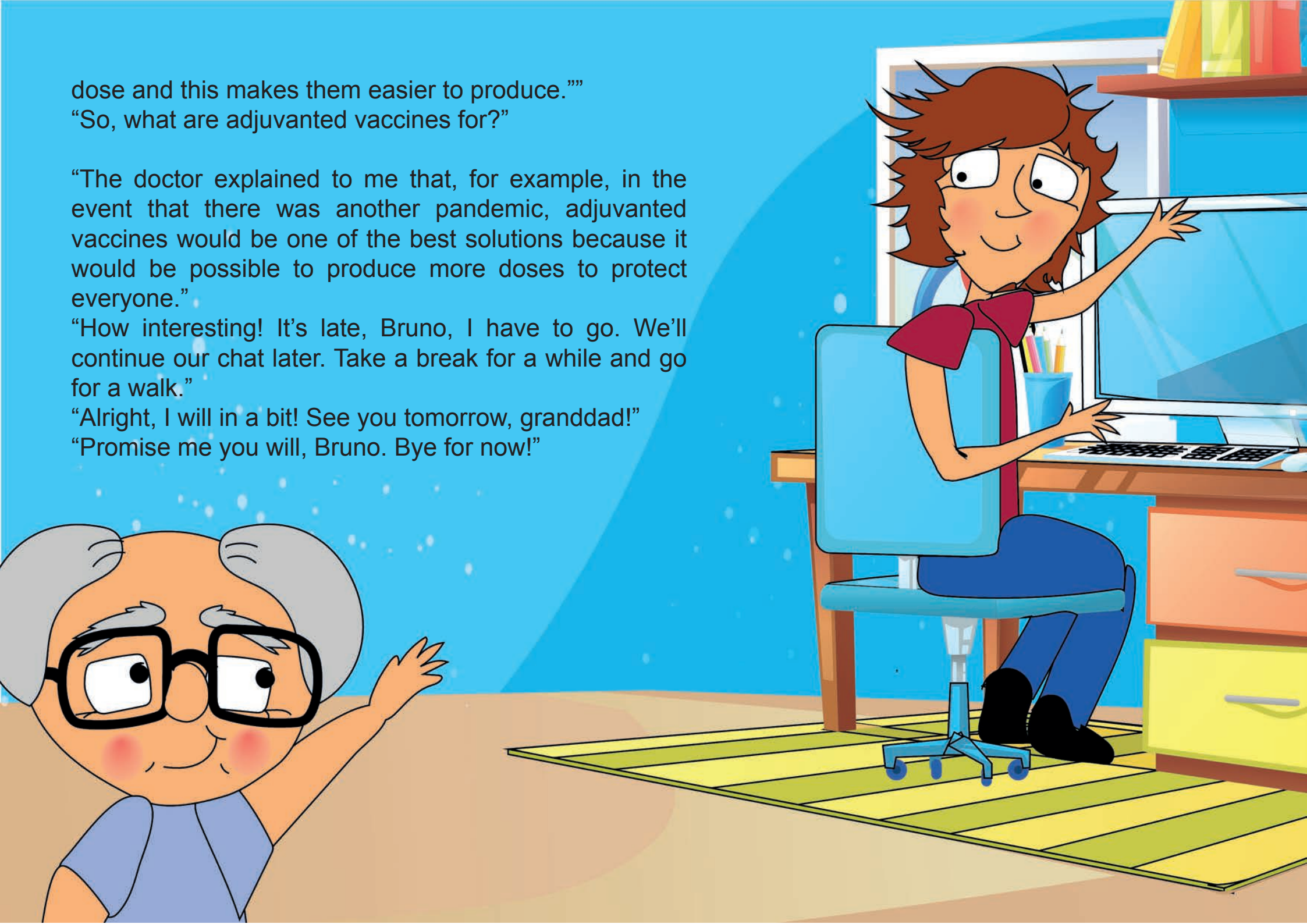
“Well, now that I come to think of it, yes… vacciners!”
“Grandad! Seriously, do you want to know what an adjuvant is or not?”
“An ‘adju’…what? I have never heard of it, of course I want to know about it!”

“Come and sit down next to me, we can look for it on one of the pages that the doctor told me about. Look, here it is! “Adjuvants are molecules which we put in vaccines whose main objective is to boost the body’s immune response. This means that adjuvanted vaccines reduce the amount of virus or bacteria in each dose and this makes them easier to produce.””



dose and this makes them easier to produce.”””
“So, what are adjuvanted vaccines for?”

“The doctor explained to me that, for example, in the event that there was another pandemic, adjuvanted vaccines would be one of the best solutions because it would be possible to produce more doses to protect everyone.”
“How interesting! It’s late, Bruno, I have to go. We’ll continue our chat later. Take a break for a while and go for a walk.”
“Alright, I will in a bit! See you tomorrow, granddad!”
“Promise me you will, Bruno. Bye for now!”



**The following day, I went to see Doctor Joy, at the end of morning surgery as always. We were coming to the end of our project and she wanted to show me her latest comments.**

“What a lovely grandson you have!” she said to me as she opened up her computer. We’ve almost finished his school project. You’ll see how good it is.”
“It’s true, my Bruno is a very special boy. Yesterday he was explaining to me what adjuvants are. Frankly, I had no idea and he explained it to me very well.”
“He grasps everything immediately! Changing the subject, I wanted to tell you that I have a friend who is an illustrator who could do the illustrations for us. What do you think?”
“An illustrator? It’s a wonderful idea, it would be great! But, do you know what would be really great, doctor?”

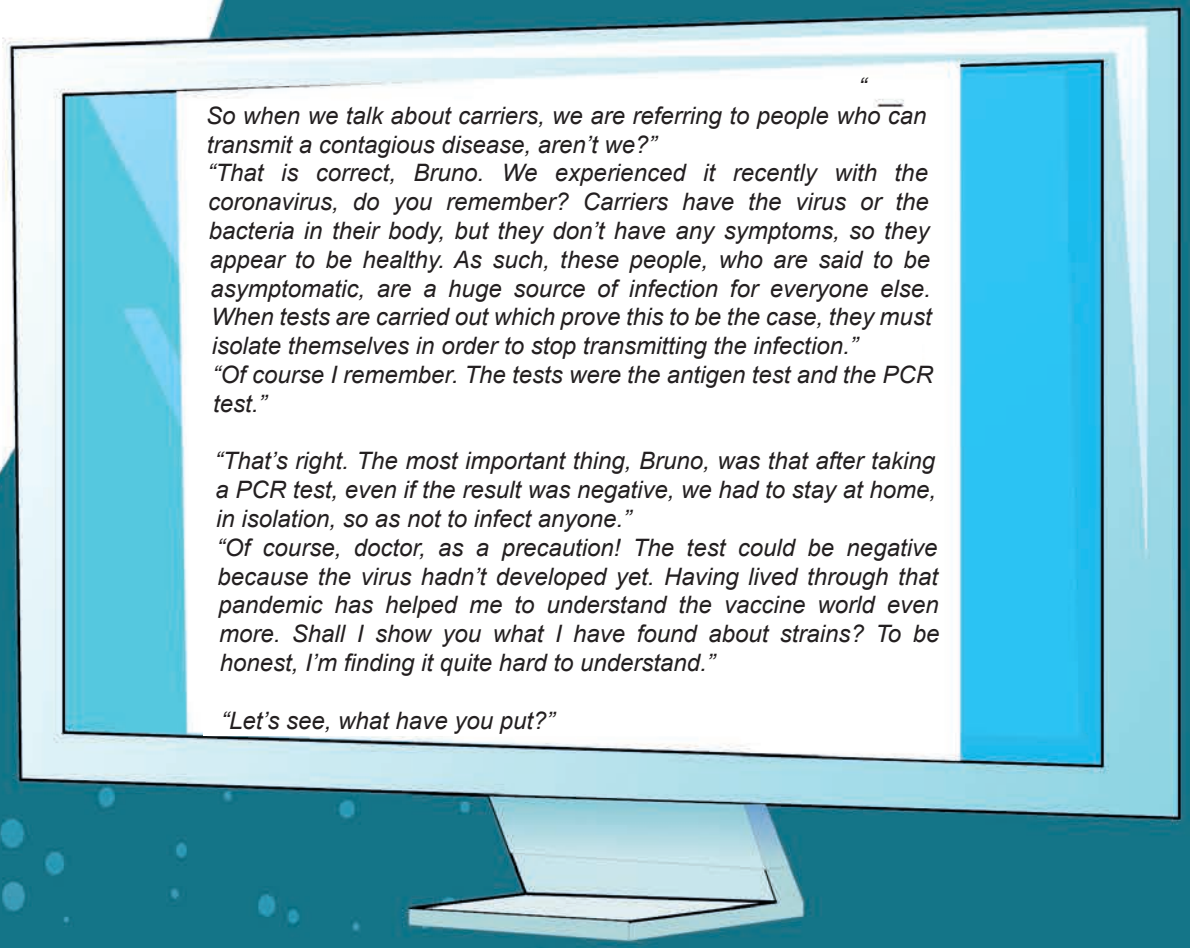
“Honestly, no, I don’t. Tell me.”
“I would love it if people all over the world could read it and, especially, that
parents who have doubts about whether to have their children vaccinated or not, have no doubts at all after reading our story.”
“Yes, that would be marvellous! And I would add one more thing: in the event that they continue to have doubts, that they trust us and are not frightened to ask us questions, that they do it naturally just as Bruno does.”
“You’re right, doctor! That trust between doctor and patient is very, very important.”

“At last, the document is open! Where did we get to? Up to this point, right? I’ve just written a short summary. We talk about so many things that I hope I haven’t forgotten anything. Above all, we must keep to the concepts that Bruno had to include in his project: carriers, strains, the process for developing a new vaccine and clinical trials. Shall we start?”

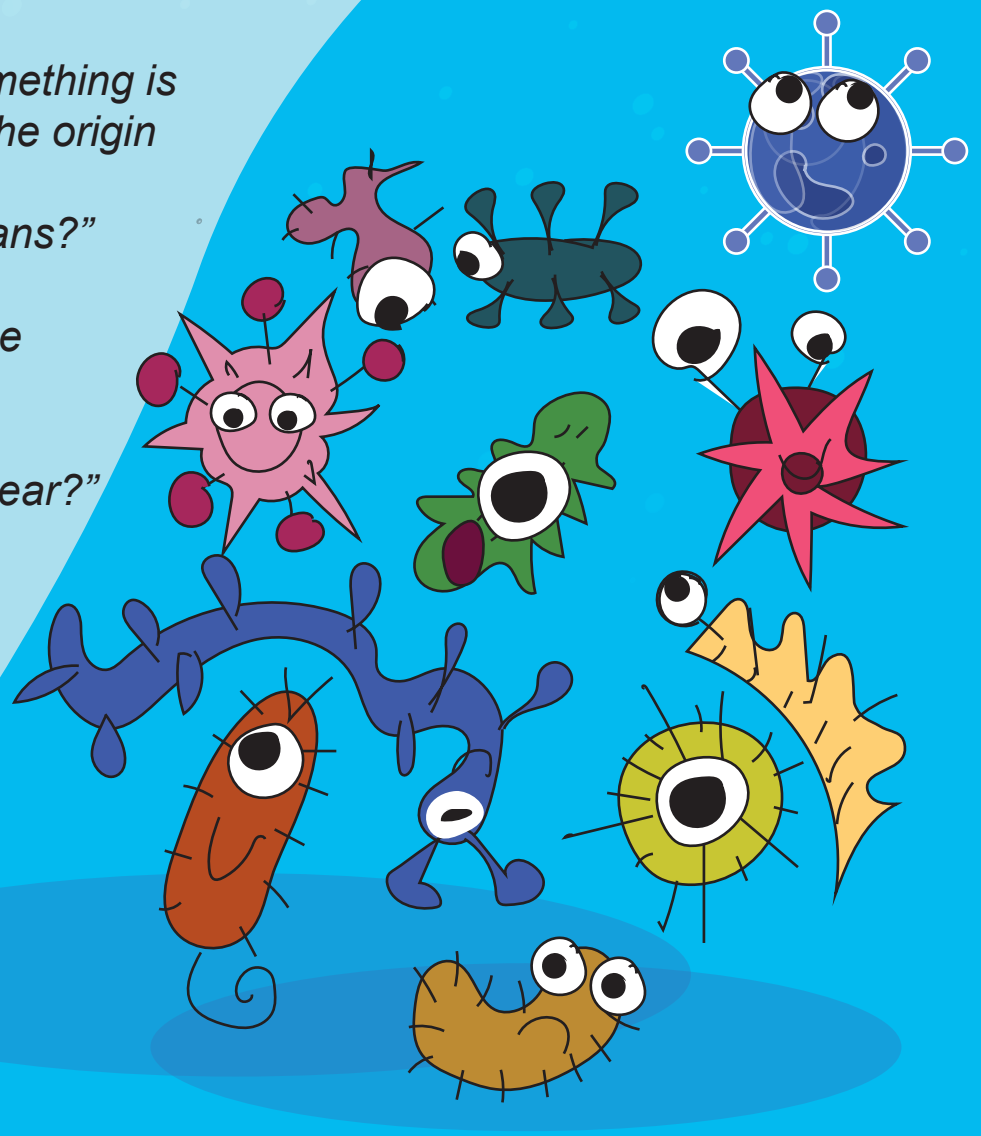
“I’m ready! If you agree, I’ll read what my grandson says and you read what you say.”

“Good idea, let’s do it!”

And that was how we started to read the dialogue that Doctor Joy and you had exchanged during your previous visit to the surgery…



*“Strains are a group of viruses or bacteria which share at least one characteristic or genetic variant. Thanks to them, scientists can identify diseases, study them and then look for possible treatments.”*
*“You have explained the definition of strain well, even though you don’t understand it. I am going to give you two examples to help you. Have you ever heard the expression ‘born and bred’?”*
*“Yes, I have. Granddad says it all the time.”*
*“Well, that expression comes from this. When we say that something is ‘born and bred’ we are referring to the fact that it is the core, the origin or the essence of something.”*
*“Do you think granddad would know what ‘born and bred’ means?”*
*“I’m sure he does, Bruno. If not, you can tell him, he would be happy to know. Talking about your granddad, you know that he has a flu jab every year, don’t you?”*
*“Yes, he’s been having it for a few years now.”*
*“Haven’t you ever asked him why he has the injection every year?”*
*“Actually, I’ve never thought about it!”*
*“Well, he has it every year because the strains of the flu virus change and each year the scientists modify the vaccine, depending on the strain.”*
*“Now I understand, doctor! I’m going to write it down in my notebook, alright?”*
*“Take all of the time that you need.”*
*“I’ve finished. Can I ask you a question that has nothing to do with my project?”*



*“Of course you can, Bruno. Just one? I can’t believe it!”*

*“It’s just that, sometimes I wonder if there is a way of predicting a pandemic. In the same way as the weatherman can predict whether it’s going t o rain or be sunny the following day.”*

*“Good observation! But I’m afraid that it is not that easy to predict. Unfortunately, the only thing that we know is that pandemics existed in the past, we have just had one and there will probably be others in the future. We are lucky to have the resources which are required to create vaccines, so what is really important, , is that we fight together against them so as to beat them as soon as possible.”*

*“That year we all went to school wearing masks. And we wore them in the street. I remember that in order to curb the rate of infection there were times during which we couldn’t go out… Well, maybe we should speak about the coronavirus another day, shall we continue?”*

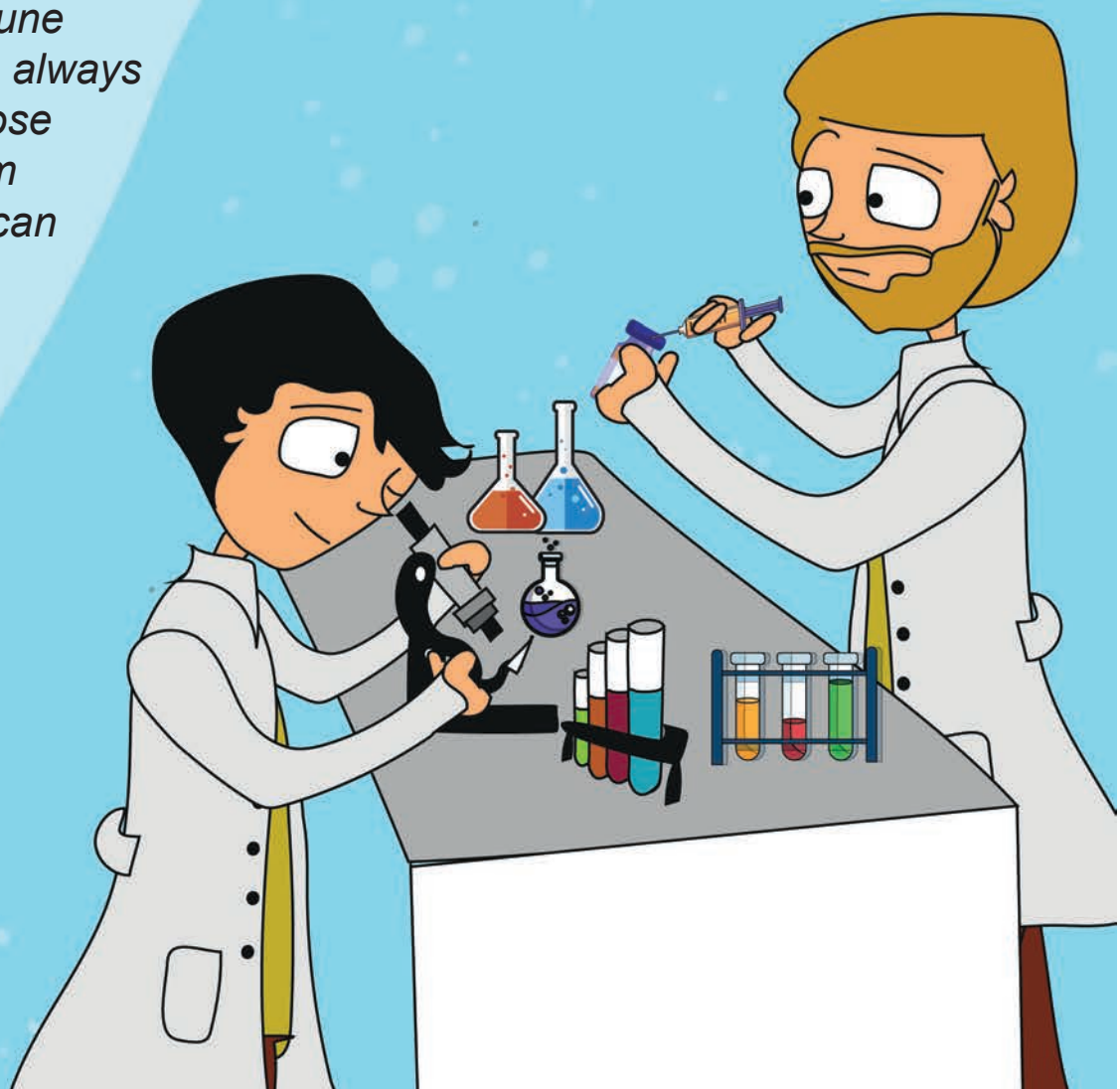
*“Alright, we’ll talk about COVID-19 another day. We’d better focus on your project now.”*

*“I just need to do the parts about the process for developing a new vaccine and clinical trials. I’m sure that it’s pretty easy. Shall I read what I’ve written?”*

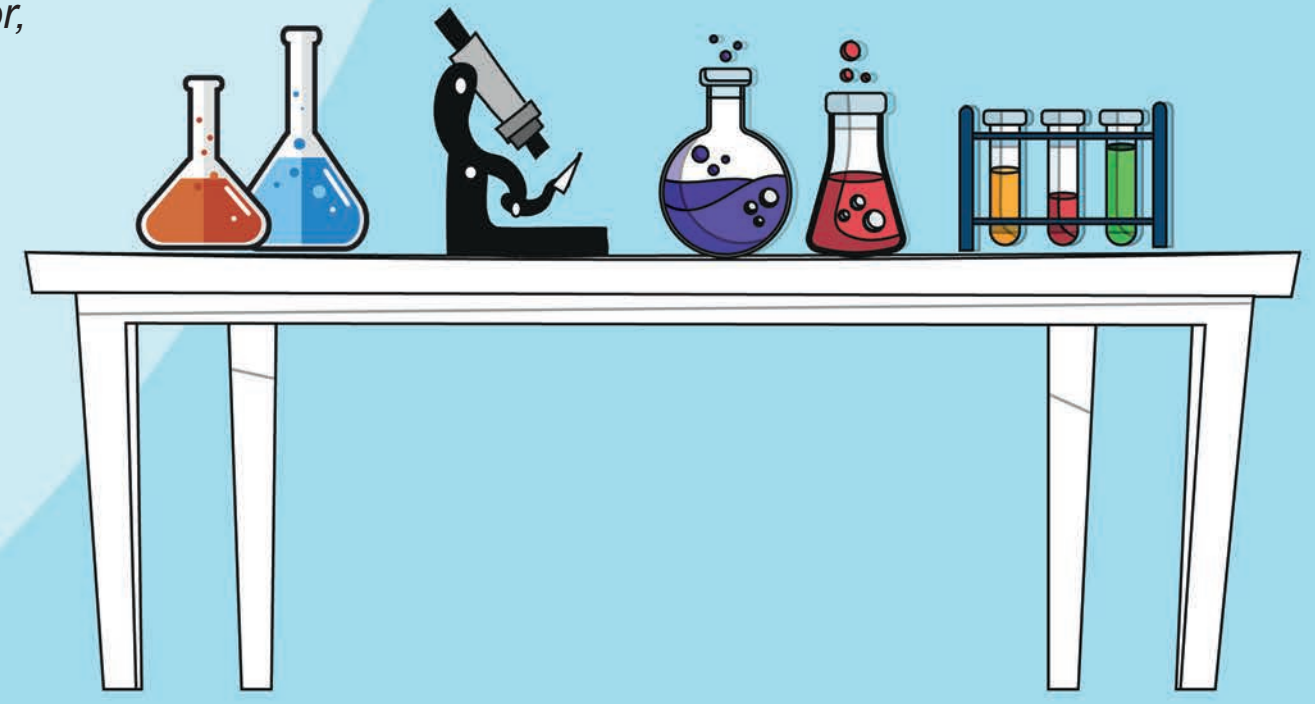
*“Of course, I’m looking forward to hearing you.”*

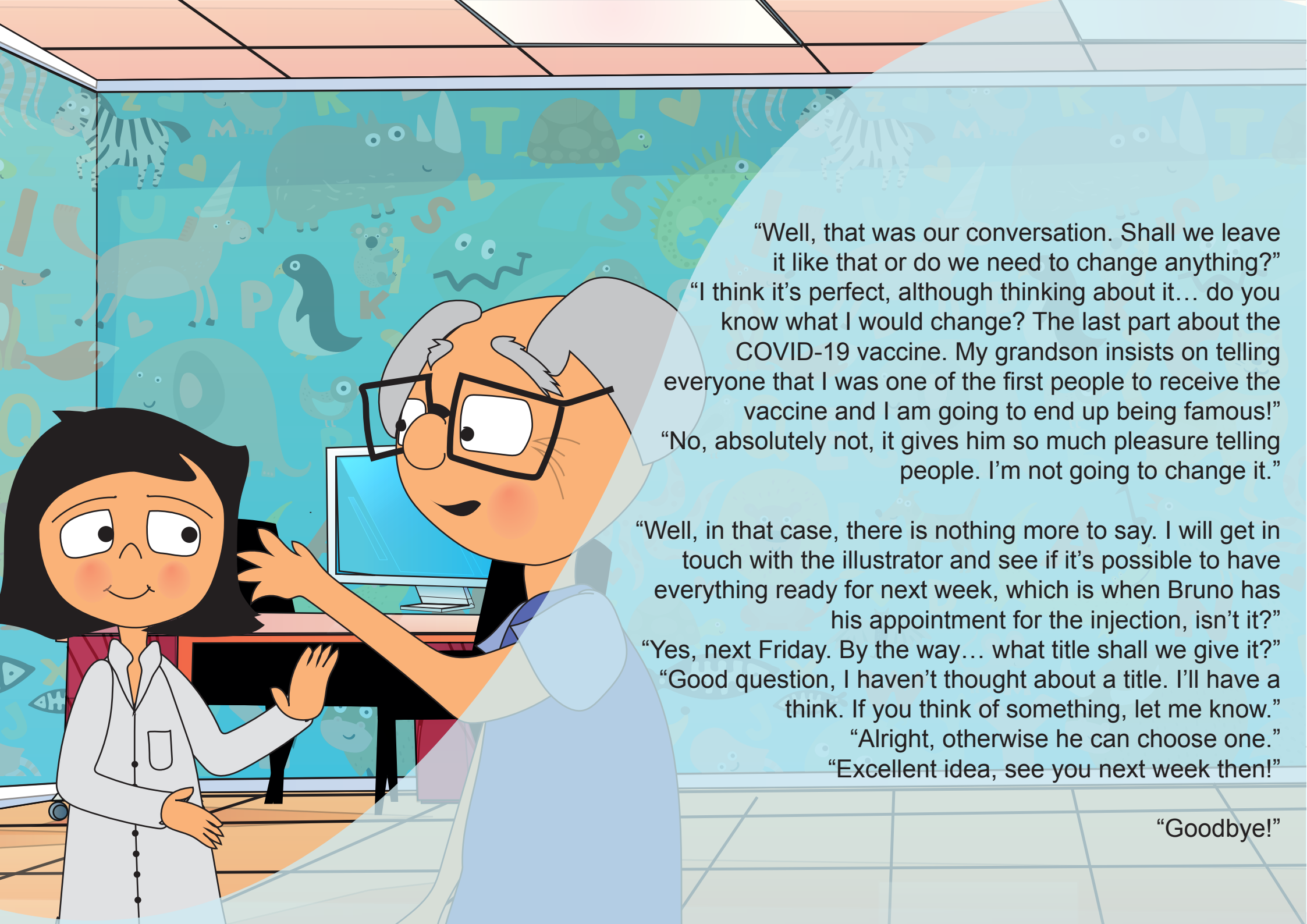
*“The process for developing a new vaccine is so complex that it can take years. The majority of the time is invested in performing quality controls. Before it is tested on human beings, research is carried out in l aboratories and then it is tested on animals. That way, scientists can check that as well as being safe, it generates the necessary immune response. Then clinical trials are carried out on human beings, initially with just a few volunteers participating. Only when it is seen to be safe, obtaining the necessary immune response, can a larger number of people be vaccinated, always considering whether it is necessary to administer one dose or several. The scientists’ principal objective is to confirm the safety of the new vaccine. That is why clinical trials can last for a long period of time.”*

*“Very well explained, Bruno! Just one small comment. What about if you break the paragraph down a bit? It would be much clearer if you detailed the development process.”*



*“I agree. I’ll change it!”*
*“I would add one more small detail: that in cases of health emergency, in other words, in the case of a pandemic, such as that which we have just lived through, the vaccine research, development and manufacturing process would be accelerated, but always prioritising its safety, quality and effectiveness.”*
*“Perfect, I’ve added that! Have I already told you that my granddad was one of the first people to receive the COVID-19 vaccine?”*
*“No, I didn’t know that, Bruno, but knowing your granddad, it doesn’t surprise me in the slightest.”*
*“I won’t keep you any longer today, doctor, thanks for your help.”*
*“Fantastic! Show it to me when it’s completely finished, won’t you?”*
*“Yes, of course I’ll show it to you.”*





"Well, that was our conversation. Shall we leave it like that or do we need to change anything?"
"I think it's perfect, although thinking about it… do you know what I would change? The last part about the COVID-19 vaccine. My grandson insists on telling everyone that I was one of the first people to receive the vaccine and I am going to end up being famous!"
"No, absolutely not, it gives him so much pleasure telling people. I'm not going to change it."

"Well, in that case, there is nothing more to say. I will get in touch with the illustrator and see if it's possible to have everything ready for next week, which is when Bruno has his appointment for the injection, isn't it?"
"Yes, next Friday. By the way… what title shall we give it?"
"Good question, I haven't thought about a title. I'll have a think. If you think of something, let me know."
"Alright, otherwise he can choose one."
"Excellent idea, see you next week then!"

"Goodbye!"

**Two days before having your injection, the doctor sent me the story complete with illustrations. It was really beautiful! Only one small detail was missing. We couldn't agree on a title. In the end, we decided that it would be best to let you choose one.**

"Granddad, do you know what? I'm feeling a bit sad. This is the last injection that I will have with Doctor Joy. From now on, I will see the same doctor as mum and dad."
"I know, that's the thing about having birthdays, you get older. Don't worry though, I'm sure that you will never forget Doctor Joy. What's more, you'll probably continue to meet up now and again."

"She has helped me so much! Look, I've brought my project to show her."
"I think that she has something to show you too."
"Something to show me?"
"You'll soon see, it's a surprise!"

**When we arrived at the surgery there was nobody in the waiting room, so I knocked and we went in.**

“Come in, I was waiting for you both!” she said excitedly.
“Hello doctor. I’ve brought my project.”
“Fantastic, Bruno! But before you show me, your granddad and I would like to
give you something that we have put together with a lot of love.”
“Both of you? You’ve made something for me?”
“Yes, it’s a special gift,” she said as she took it out of her drawer. Here it is, we
hope that you like it.”

**To begin with, an enormous smile spread across your face as you leafed through the pages of the book. Then, a few little tears of happiness ran down your face.**

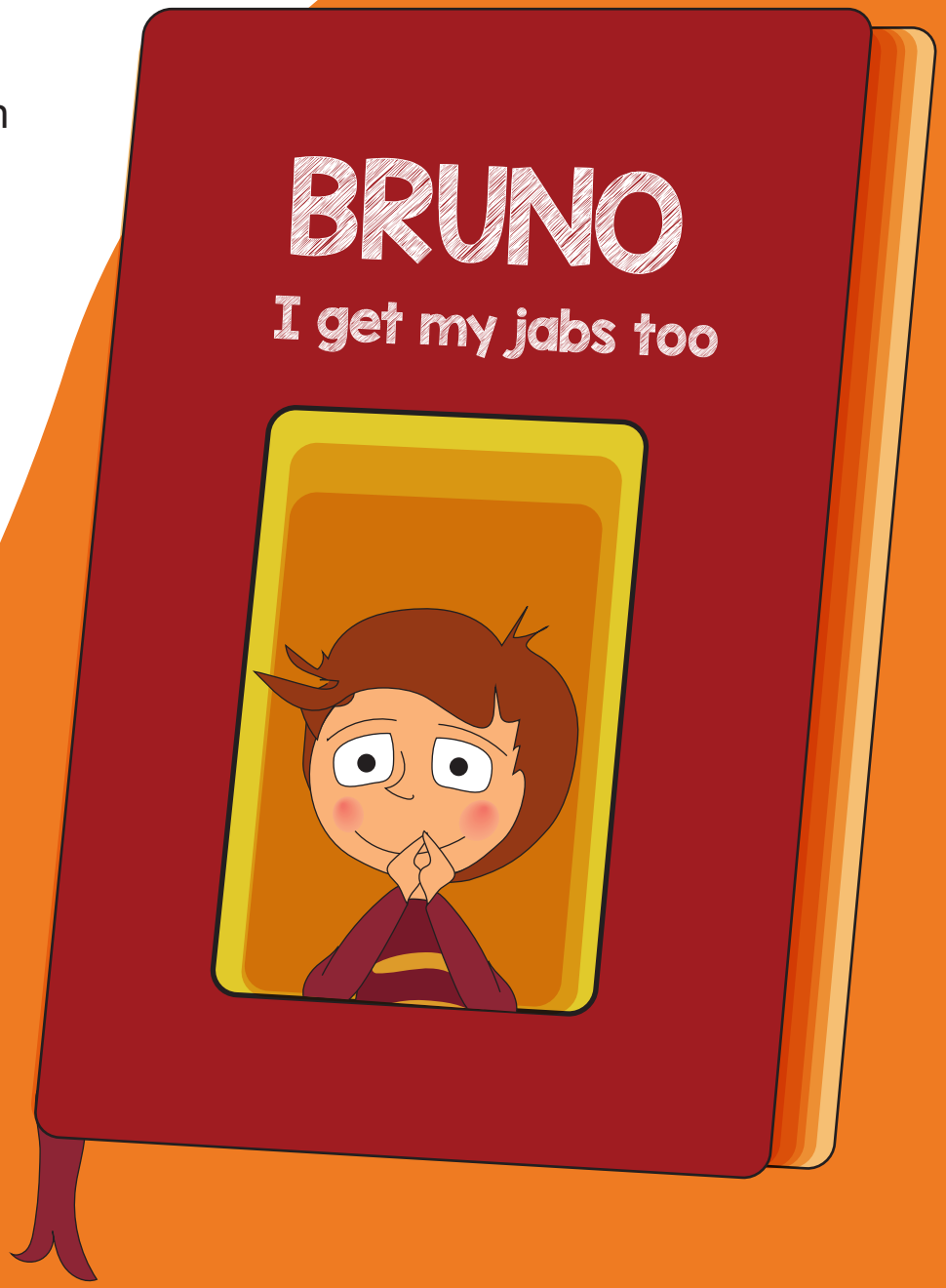
“But Bruno, don’t cry, you’re going to get it wet!”
“It’s a story, what beautiful pictures! I’m the main character! Granddad, you’re in
it too, and the doctor!”
“Of course, it’s your story, Bruno!”
“I love it, it’s beautiful, thank you! I will show it to my friends. And I will read it to Nicholas so that he isn’t scared of injections.”

“There’s just one little problem.”
“What problem?”
“It doesn’t have a title!”
“Oh, I see, it doesn’t matter! When I read it at home with Nicholas, I’ll think of one.”
“Fantastic!”

**We went home, you having received both the vaccine and the book, which was now in your rucksack. As soon as we arrived, you asked mum if you could read the story to your brother before lunchtime. Mum said that you could and you both went to your bedroom. Nicholas listened to your story without even moving and when you had finished reading it to him the first thing he said was:**

**BRUNO, I GET MY JABS TOO!**

**You looked at him for a moment with a surprised expression on your face because, without even realising it, he had just given you the title of your beautiful book.**



**Epilogue.**

As you have seen, both Bruno and Nicholas, along with their mother and grandfather were given injections throughout the pages of the book. This is an extremely clear message at the current time: vaccines are not only for children. Vaccines are administered at all ages, from pregnancy through to old age. At every stage, there is a time for having an injection.

In the foreword, I said that the book that you are holding is in the format of a story, but that it is not just any story, it is not even a “tall story”.

Because “tall stories” are fables, they can even be myths or beliefs, and sometimes in our culture, when we refer to a “tall story” we are talking about a hoax or a lie. However, in the book that you have in your hands there is not one single lie, it is a warm-hearted story which reflects the close bond between a grandfather, his grandson and a paediatrician, and which, during the course of its twenty-eight pages tells us, page by page, what a vaccine is, why we have injections, how vaccines work, why it is important to have injections: the same questions that thousands of parents ask themselves on a daily basis when they have to start taking their healthy children for vaccinations, often with fears and doubts, because they have heard that vaccines might not be safe, or might have side effects.

Unfortunately, there are many parents with reservations or doubts about having their children vaccinated, because in recent years various fake news items have been doing the rounds on the internet (via the well-known “Dr. Google”) or on social networks, complete with data, myths and beliefs, which lead less well-informed parents to decide not to have their children vaccinated, thereby endangering their health. These hoaxes and beliefs concerning vaccines are distributed by what are known as anti-vaccine movements, which take advantage of the anonymity of the internet and social networks.

A good piece of advice is if you wish to resolve your doubts concerning vaccines, you should speak directly to a health professional, to your paediatrician, your doctor, your nurse, your chemist. If you want to look for answers to your questions using the internet, you should only access safe pages which base their information on scientific evidence.

Parents who have doubts about vaccines, once they resolve them, follow the advice of their paediatricians, health authorities and scientific societies, and adhere to the vaccinations calendar that applies in Spain, unlike anti-vaccine movements, which believe, as if it were a faith dogma, that vaccination is harmful, and stop having their children vaccinated, despite the scientific evidence concerning the safety and effectiveness of vaccines.

Anti-vaccine movements are as old as vaccines themselves: they appeared more or less at the same time as the first vaccine, the smallpox vaccine. I think that it is worth recounting briefly how vaccines came into existence: in 1796, Edward Jenner, a country doctor from England, considered to be the father of modern vaccinology, observed that milkmaids were in contact with cowpox, a disease that was harmless to them, and they subsequently did not come down with the human disease, smallpox, a much more serious disease, which at the time was causing hundreds of thousands of deaths around the world. Dr. Jenner, on observing this phenomenon, proved that variolating a child using the wounds on milkmaids' hands would ensure that the child was protected against smallpox. Dr. Jenner researched and published that the boy James Phipps, this being the name of the boy in question, did not develop the disease when in contact with smallpox weeks after variolation: that was when the modern vaccination era began.

Only six years later, the first publications by a so-called Anti-vaccine Society emerged in the United Kingdom, trying to ridicule and destroy the initial scientific arguments that existed in favour of vaccines at the time. Even some of Dr. Jenner's doctor colleagues questioned the effectiveness of his discovery.

Some years later, in 1803, a ship called María Pita set sail from the port of A Coruña, on course for the territories which Spain possessed in America and the Philippines, with the aim of variolating as much of the population as possible, and thereby controlling the havoc that smallpox was wreaking in those overseas territories. The ship was known as the vaccine ship, and the scientific expedition which travelled on board, the Royal Philanthropic Vaccine Expedition, was considered to be the first great health expedition in history. The expedition was made up of twenty-two orphaned children aged between three and nine years old, accompanied by the orphanage principal, Isabel Zendal, who acted as the nurse, and several doctors (Francisco Javier Balmis, expedition director, and José Salvani, among others), who were excited about going to America with the vaccine fluid that would immunise thousands of people exposed to smallpox against this serious disease. I do not wish to go on unnecessarily, but believe that it was worth mentioning how the early vaccination days came about.

The story is long but it has a happy ending. The anti-vaccine movements continued and still remain, continuing to cast doubts about the effectiveness and safety of vaccines, but science has also continued to progress, and two centuries after Dr. Jenner's discovery, following extensive international vaccination campaigns, smallpox was stamped out worldwide. In 1979, the World Health Organisation (WHO), declared smallpox to have been eradicated, saving the lives of hundreds of thousands of people, but most importantly, proving that vaccines work, save lives, and make it possible to control, eliminate and eradicate diseases which cause death and suffering. This is the objective of vaccines.

Until a few year ago, vaccines were only for children. However, infectious diseases do not understand age, and nowadays we talk about vaccines for all stages of life, protecting pregnant women, adults and elderly people against different diseases which may result in serious complications for those suffering from them.

As I write the epilogue for our beloved story, the planet is experiencing the SARSCoV-2 pandemic, which has turned the world upside down and created the need to urgently research and develop new vaccines against a virus that was previously unknown to mankind.

We must not forget that epidemics and pandemics and other health crises have coexisted with mankind for centuries, and it seemed appropriate to make these comments in the epilogue to the story so that we are all very aware that it is everybody's responsibility to look after ourselves, to look after those around us, and also to look after our planet.

At the time of writing these notes, at the end of December 2020, and since the previous March, more than two-hundred projects have been started to develop potential vaccines against COVID19, and of them, ten are in the final phases of clinical trials, in Phase 3, the safety, immunogenicity and effectiveness testing. In fact, on 8 December vaccination began in the United Kingdom, and next week vaccination is set to begin in the United States, Canada, Mexico and several other countries, and if the road map is maintained, during the first half of 2021, widespread vaccination that will bring about the beginning of the end to this pandemic will commence.

Vaccines protect us against vaccine-preventable diseases, and as such the population must maintain its confidence in their safety and effectiveness. Vaccines continue to be necessary in the twenty-first century, and we must be more aware than ever that vaccines alone do not save lives, immunisation does.

Santa Cruz de Tenerife, 12 December 2020.

Luis Ortigosa.
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Member of the Government of the Canary Islands Vaccine Technical Group, and In-house Consultant for the CAV-AEP (Spanish Paediatrician's Association Vaccine Advisory Committee).

## To learn more about vaccines…

https://www.mscbs.gob.es/profesionales/saludPublica/prevPromocion/vacunaciones/calendario-y-coberturas/home.htm

https://www.mscbs.gob.es/profesionales/saludPublica/prevPromocion/vacunaciones/calendario-y-coberturas/calendario/Calendario_CCAA.htm