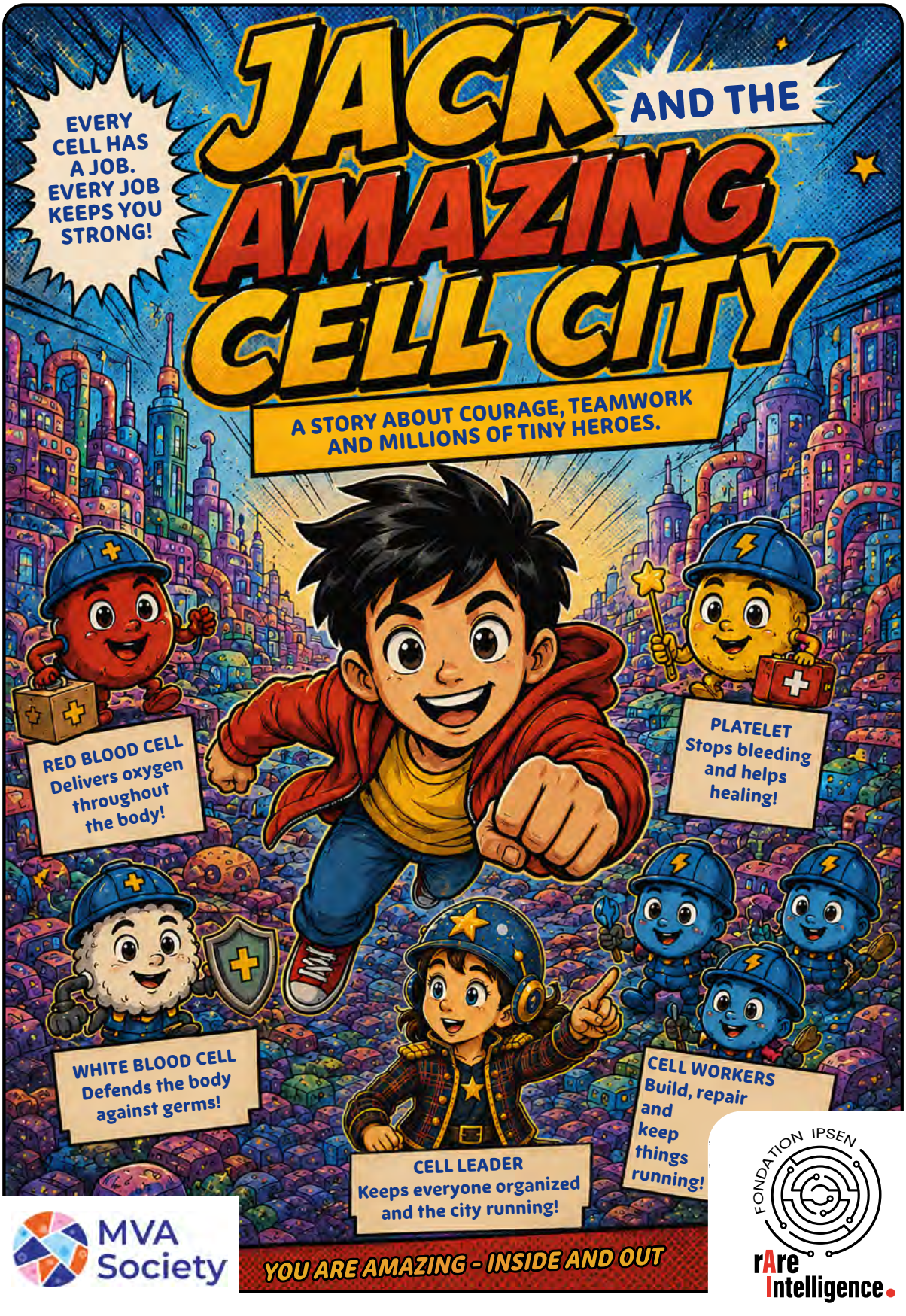


MVA Society

FONDATION IPSEN
rAre Intelligence.

Jack and the Amazing Cell City

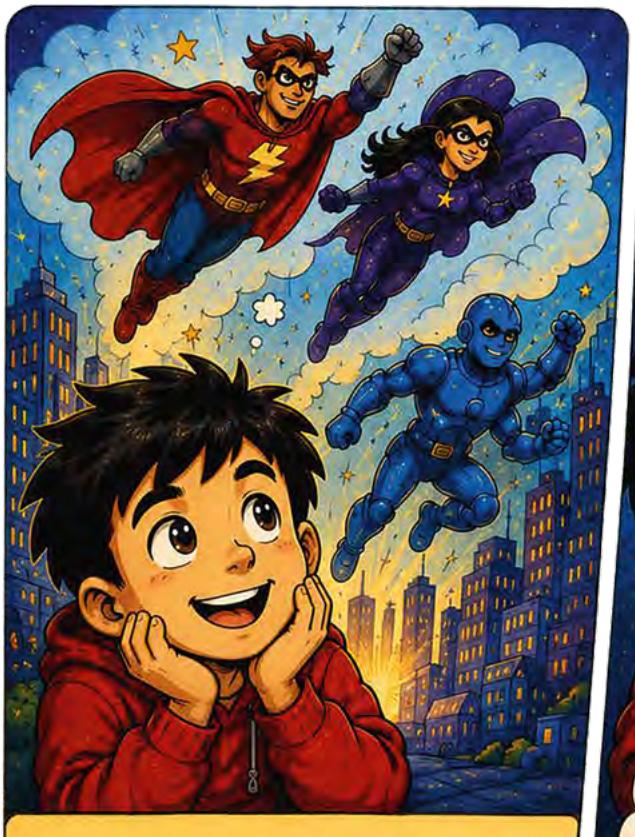
A STORY ABOUT COURAGE, TEAMWORK AND MILLIONS OF TINY HEROES



Jack loved superheroes.



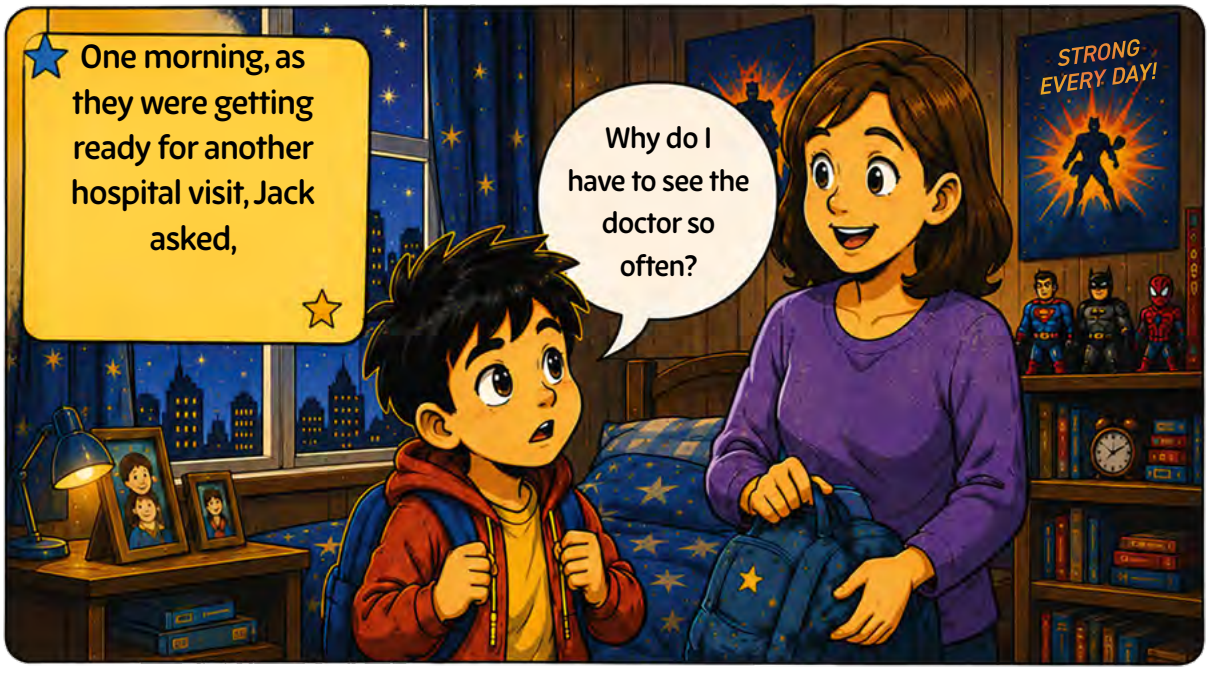
He could spend hours reading comic books and imagining incredible adventures.



Sometimes he wondered...



"If I had a superpower, what would it be?"


One morning, as they were getting ready for another hospital visit, Jack asked,
Why do I have to see the doctor so often?
STRONG EVERY DAY!

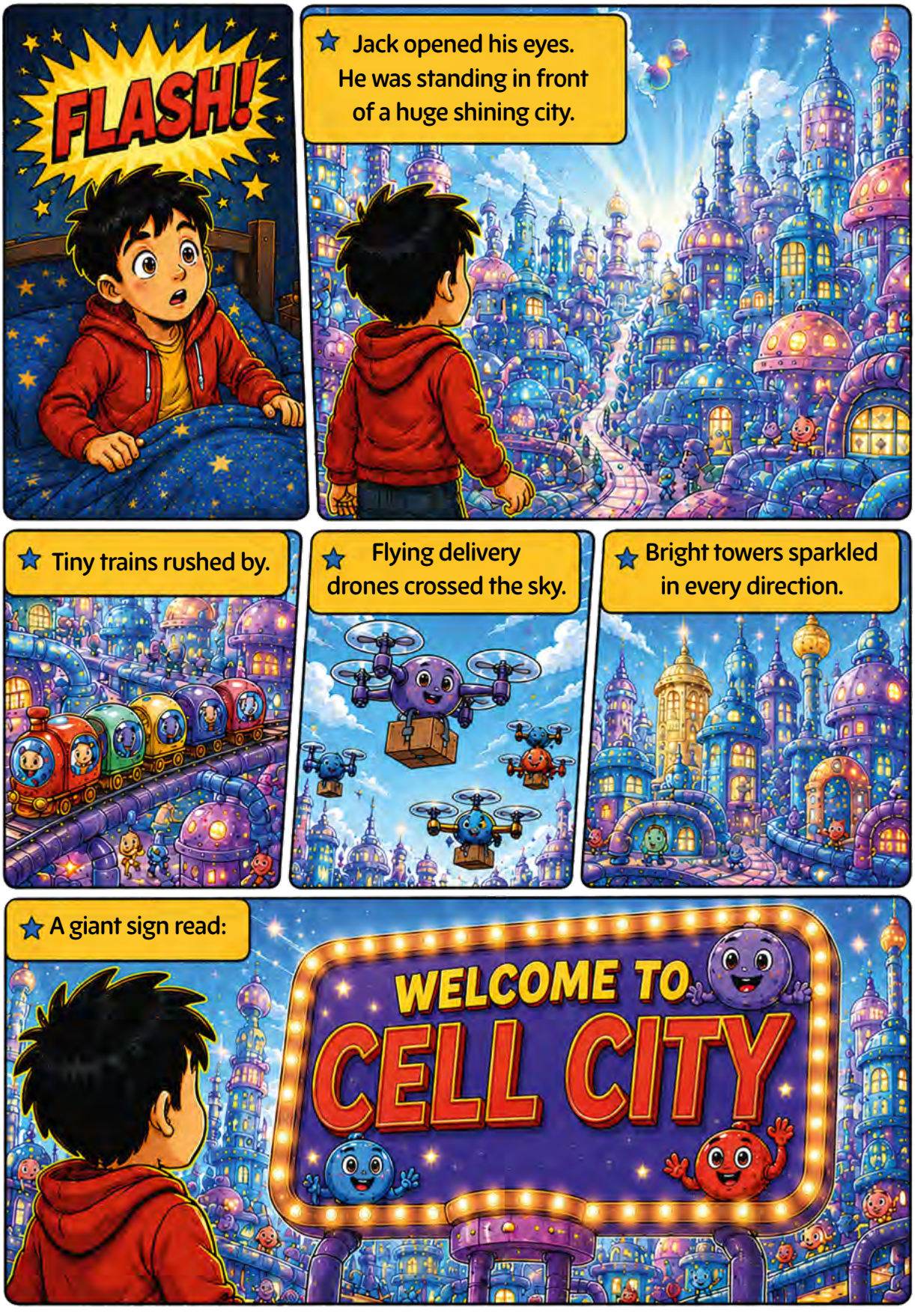

His mum smiled.
Because you have something called Mosaic Variegated Aneuploidy syndrome.


Jack frowned.
That's the longest name ever!


His mum laughed.
Everyone calls it MVA.


MVA means that some of your tiny cells don't always divide the way they should.
STRONG EVERY DAY!
So the doctors keep a close eye on you to help you stay as healthy as possible.
Jack nodded.
STRONG EVERY DAY!
He still had lots of questions.


That evening, Jack fell asleep thinking about his body.
STRONG EVERY DAY!
If it was made of trillions of tiny cells...
What were they doing all day?

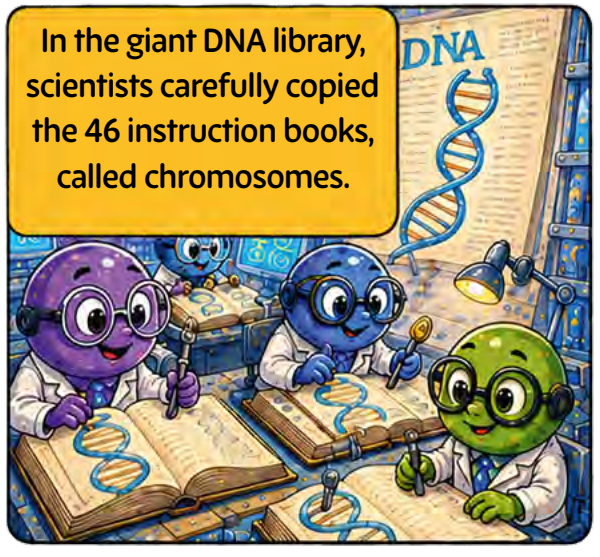

FLASH!
Jack opened his eyes. He was standing in front of a huge shining city.
Tiny trains rushed by.
Flying delivery drones crossed the sky.
Bright towers sparkled in every direction.
A giant sign read:
WELCOME TO
CELL CITY


A little captain wearing a blue helmet hurried toward him.
Captain Jack!
Jack looked around.
Who... me?
Of course! she laughed.
I'm Captain Cora. We've been waiting for you.


As Jack walked through the city, he couldn't believe his eyes.
CELL CITY

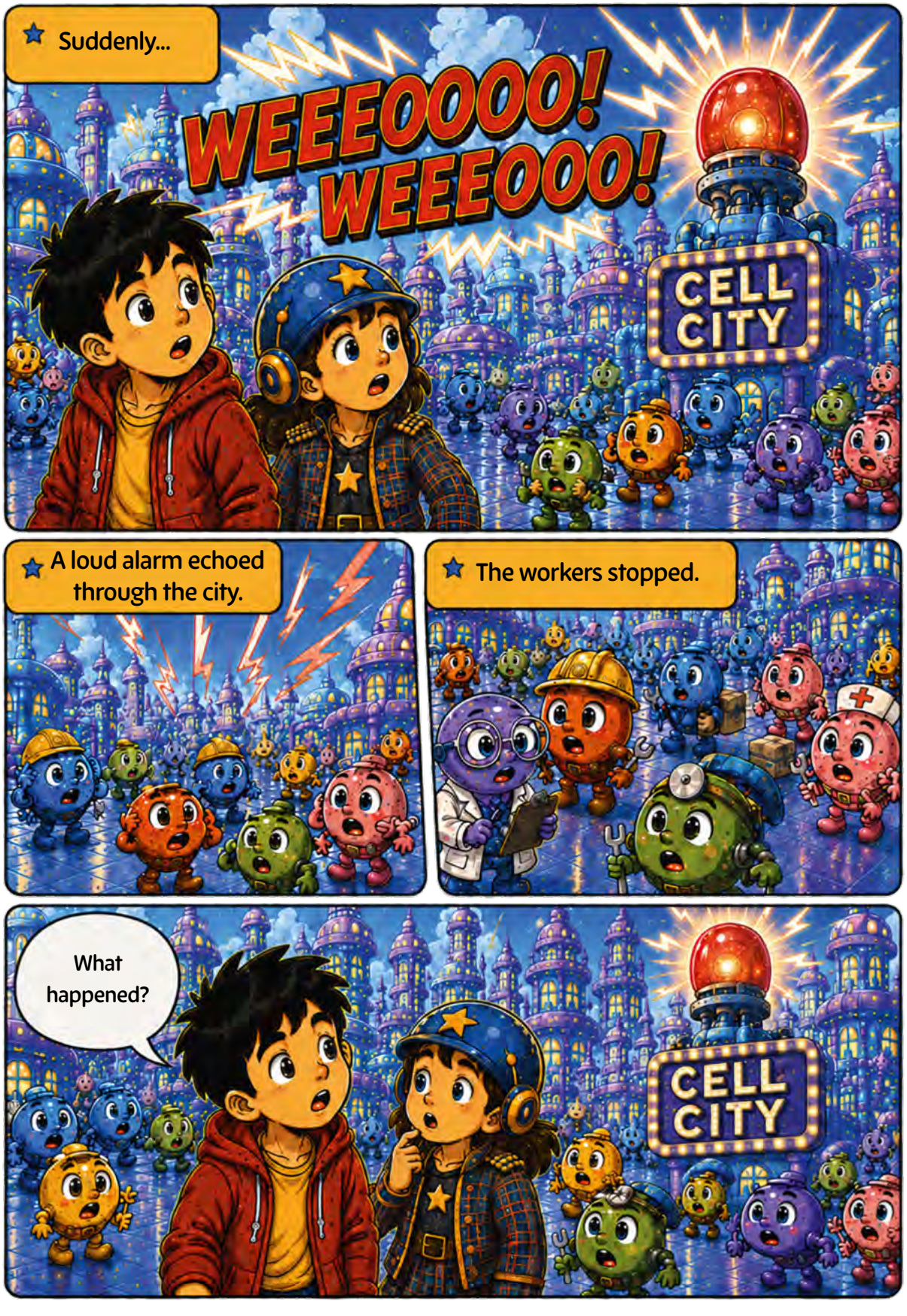

Builders were repairing tiny bridges.

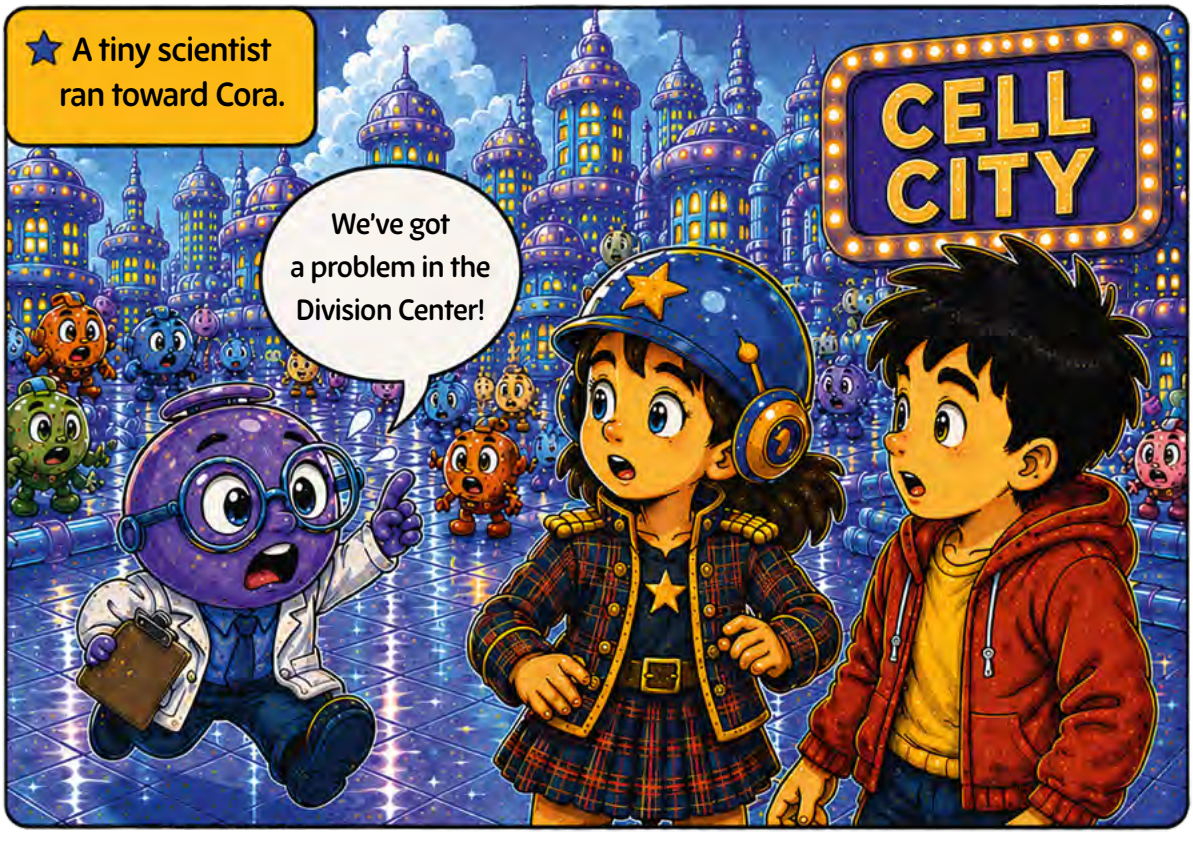

Messengers delivered important packages.

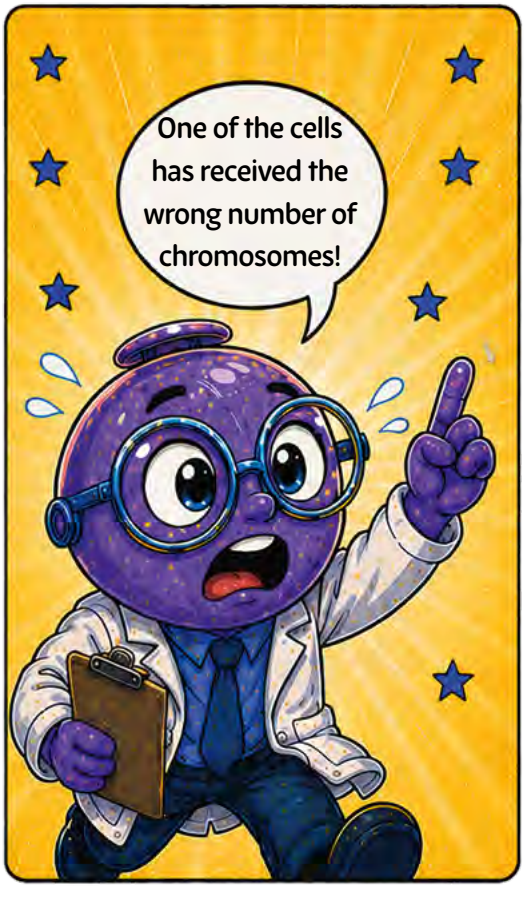

In the giant DNA library, scientists carefully copied the 46 instruction books, called chromosomes.
DNA

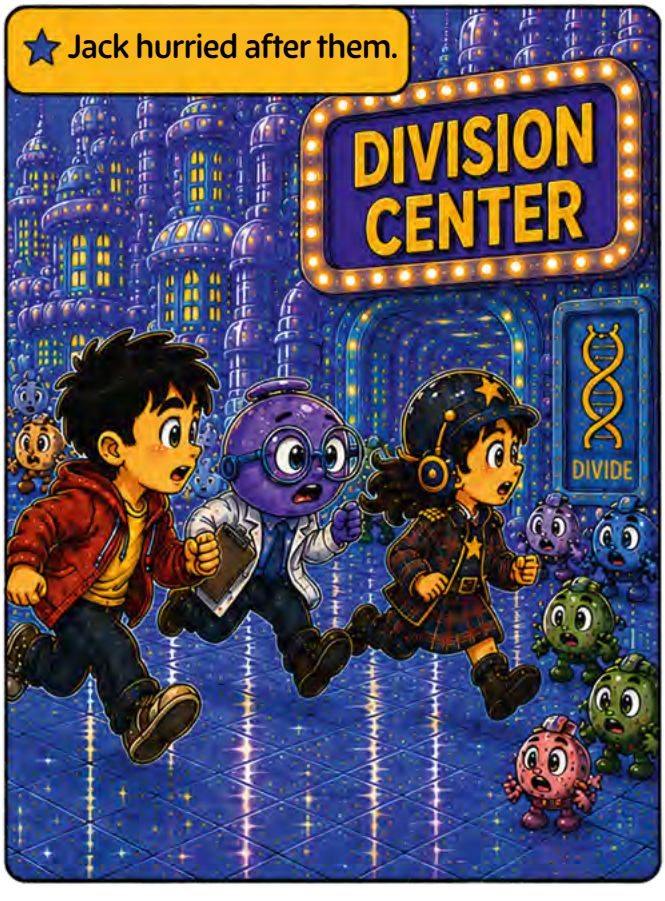

Everyone had a job.

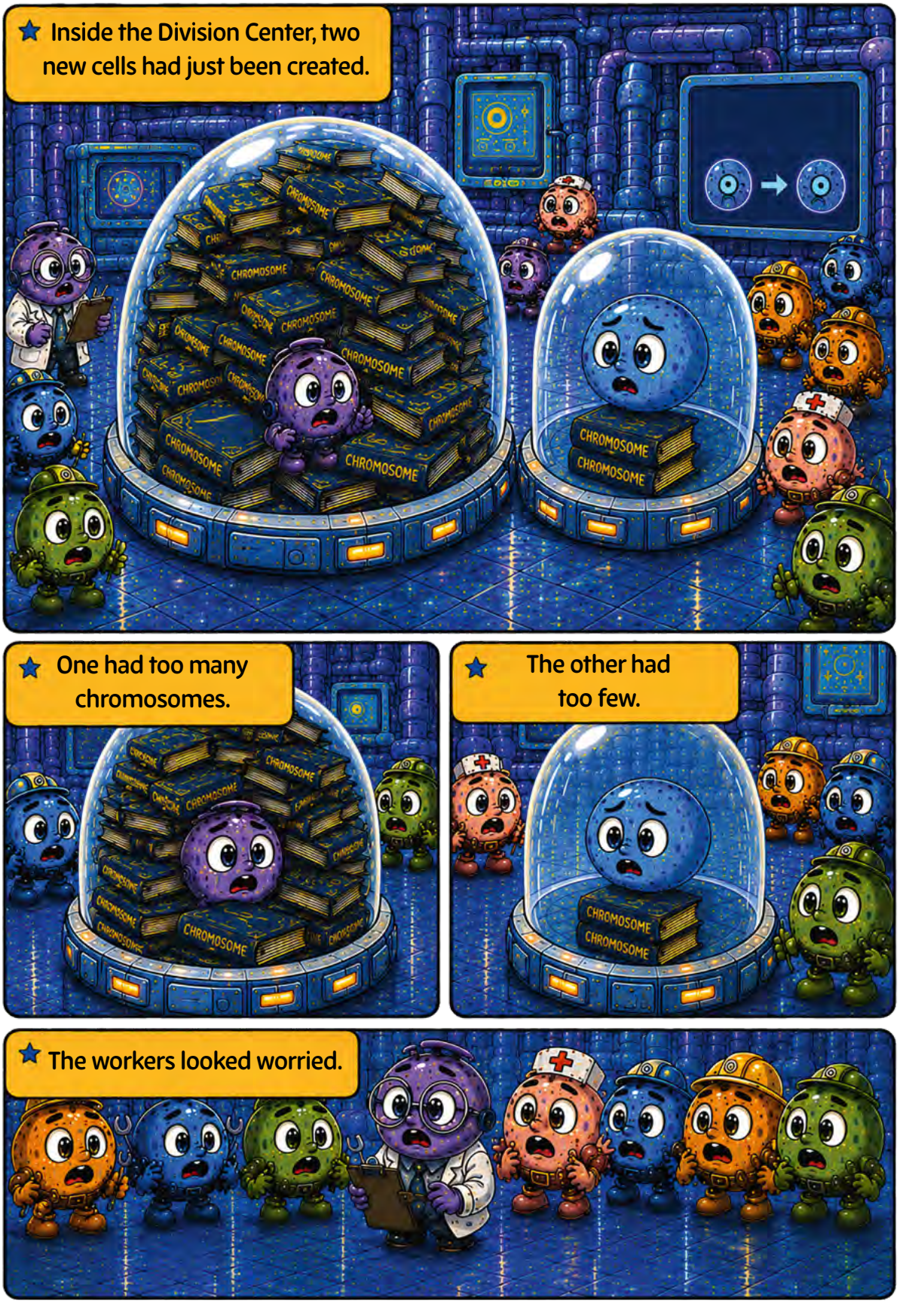

Every second, millions of cells are working together to help you grow, heal and stay healthy.
This city never sleeps.
CELL CITY
Jack smiled.
So they're my superhero team?
The biggest superhero team in the world.

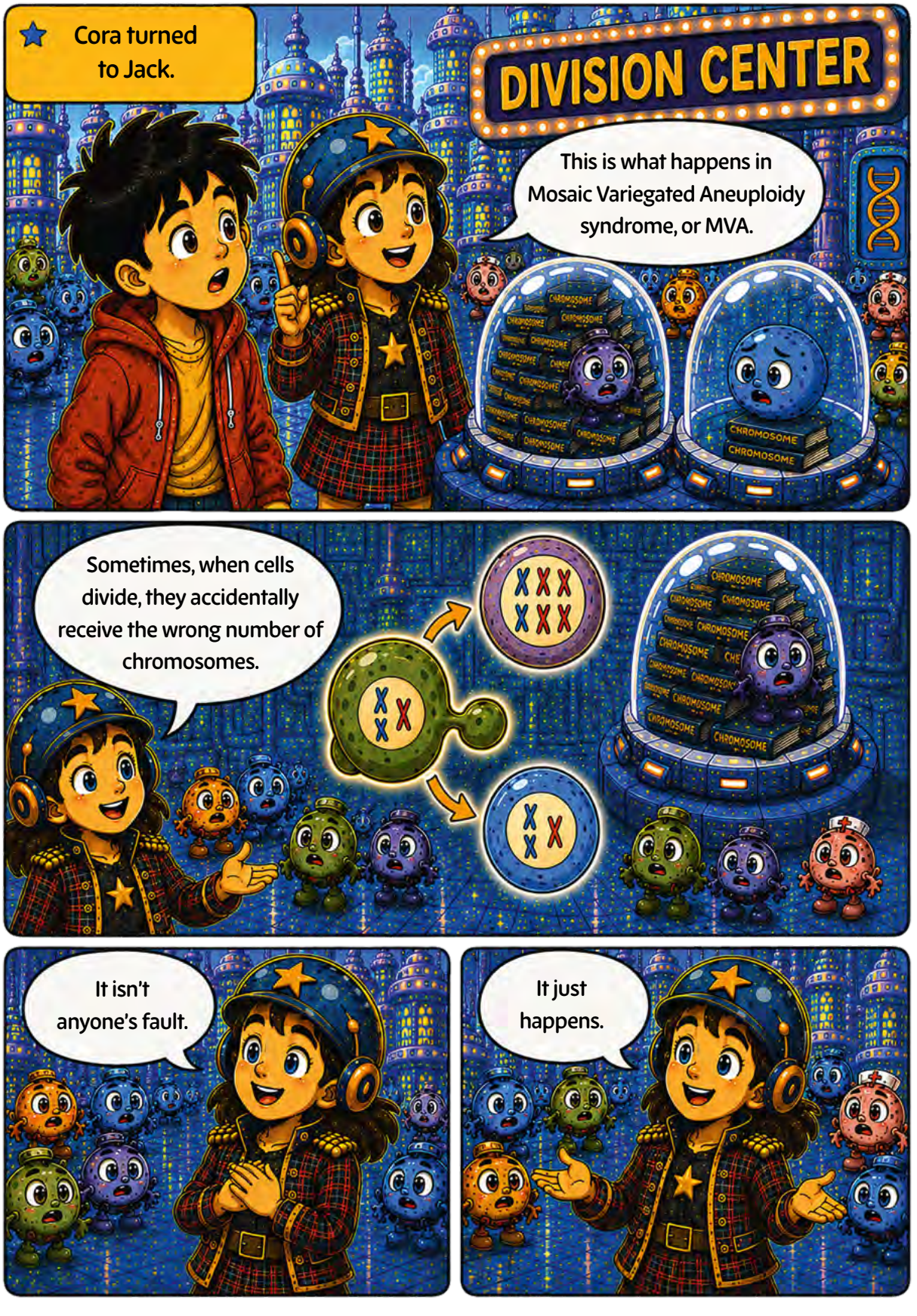

Suddenly...
WEEEOOOO!
WEEEOOO!
CELL CITY
A loud alarm echoed through the city.
The workers stopped.
What happened?
CELL CITY


A tiny scientist ran toward Cora.
CELL CITY
We've got a problem in the Division Center!

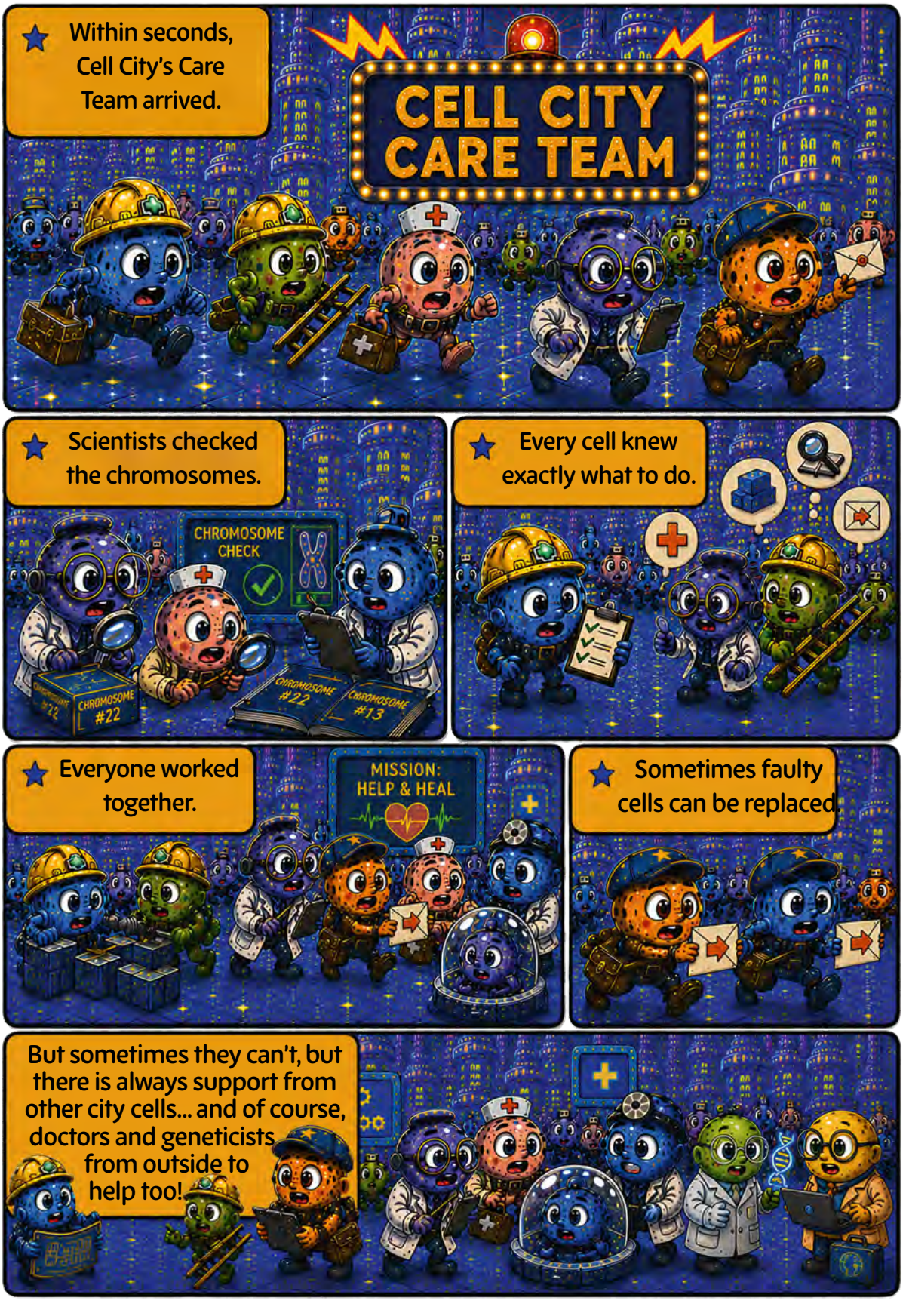

One of the cells has received the wrong number of chromosomes!

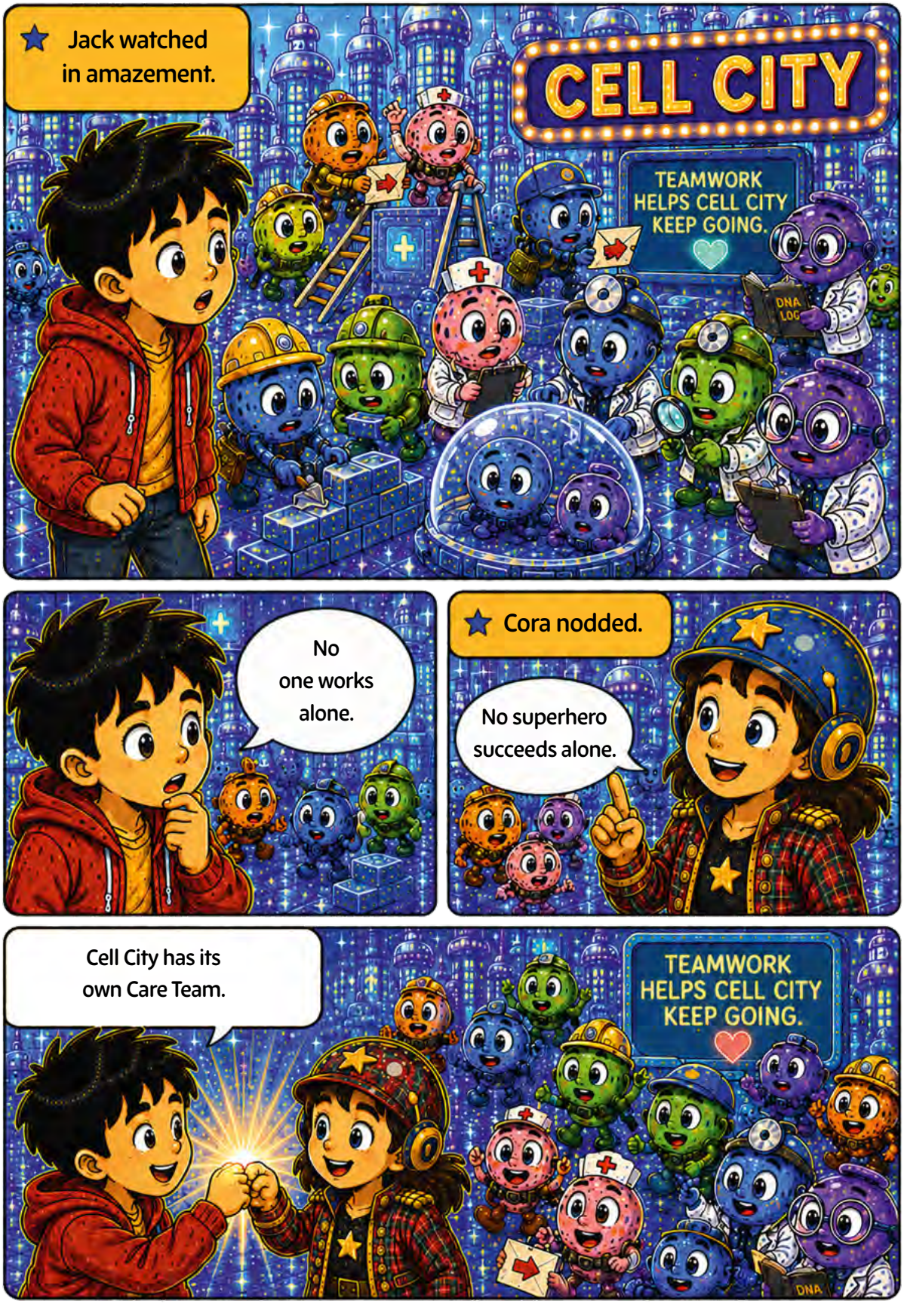

Jack hurried after them.
DIVISION CENTER
DIVIDE


Inside the Division Center, two new cells had just been created.
CHROMOSOME
One had too many chromosomes.
The other had too few.
The workers looked worried.

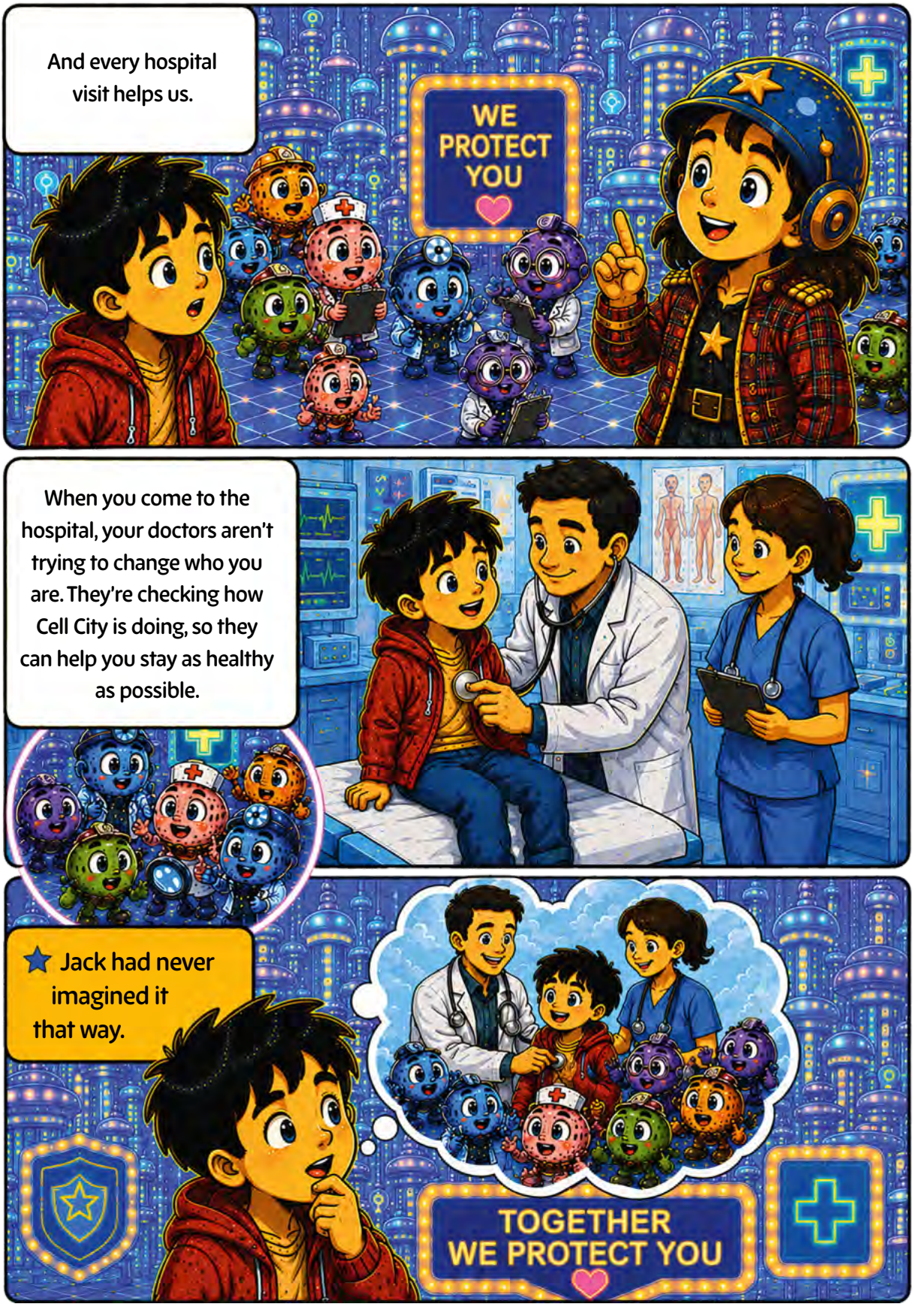

Cora turned to Jack.
DIVISION CENTER
This is what happens in Mosaic Variegated Aneuploidy syndrome, or MVA.
CHROMOSOME
Sometimes, when cells divide, they accidentally receive the wrong number of chromosomes.
It isn't anyone's fault.
It just happens.


Jack looked at the little cells.
DIVISION CENTER
DIVISION IN PROGRESS
Are they okay?
CHROMOSOME BOOK
CHROMOSOME
They're doing their very best.
Some of them just work a little differently.


Within seconds, Cell City's Care Team arrived.
CELL CITY CARE TEAM
Scientists checked the chromosomes.
CHROMOSOME CHECK
CHROMOSOME #22
CHROMOSOME #22
CHROMOSOME #13
Every cell knew exactly what to do.
Everyone worked together.
MISSION: HELP & HEAL
Sometimes faulty cells can be replaced
But sometimes they can't, but there is always support from other city cells... and of course, doctors and geneticists from outside to help too!


Jack watched in amazement.
CELL CITY
TEAMWORK HELPS CELL CITY KEEP GOING.
DNA LOG
No one works alone.
Cora nodded.
No superhero succeeds alone.
Cell City has its own Care Team.
TEAMWORK HELPS CELL CITY KEEP GOING.
DNA


And you have yours.
Jack suddenly thought about home.
My mum helps me.
My dad helps me.
My teachers help me.
My doctors help me.
My nurses help me.
My friends help me too.
They're part of your superhero team.


And every hospital visit helps us.
WE PROTECT YOU
When you come to the hospital, your doctors aren't trying to change who you are. They're checking how Cell City is doing, so they can help you stay as healthy as possible.
Jack had never imagined it that way.
TOGETHER WE PROTECT YOU

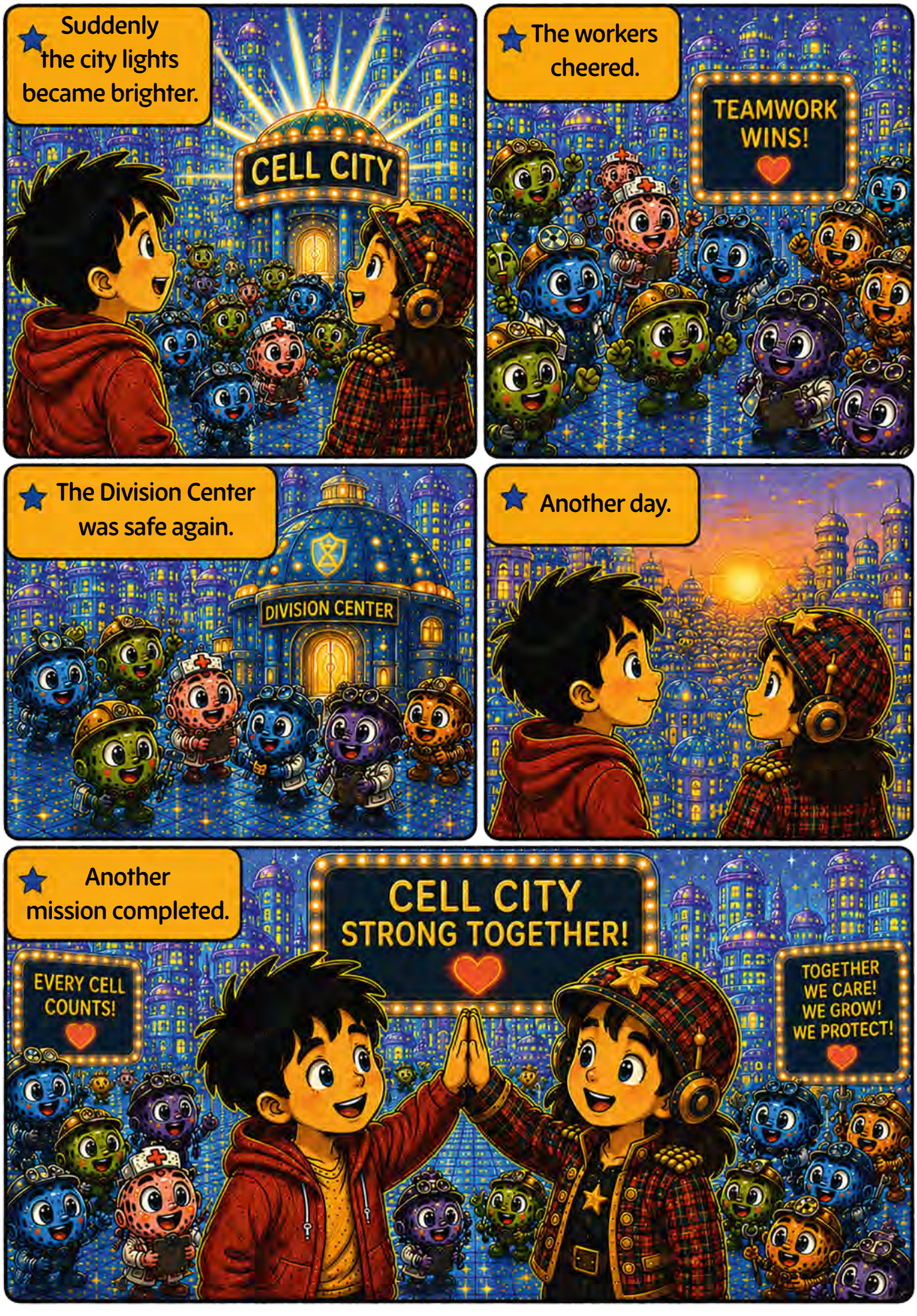

Some days, the city worked a little bit more slowly.
SLOWER DAYS
PLEASE BE PATIENT
Some jobs take longer.
WORK IN PROGRESS
Some workers needed extra support.
WE HELP EACH OTHER
But they never give up!
WE KEEP GOING!
Never!


Jack looked around.
Millions of tiny heroes.
CELL CITY
TOGETHER WE CARE!
REPAIR TEAM
Every one different.
DNA GUIDE
Every one important.
YOU MATTER!
SMALL CELLS BIG IMPACT


CELL CITY
TEAMWORK KEEPS CELL CITY STRONG
EVERY CELL COUNTS!
What can I do to help?
Cora smiled.
YOU'RE PART OF THE TEAM
You already do.
THANK YOU JACK!
TOGETHER WE CARE!


When you rest...
REST = STRONGER CELLS
When you eat healthy food...
GOOD FOOD = STRONG CELLS!
When you tell someone you don't feel well...
EARLY HELP = BETTER CARE
When you come to your check-ups...
CHECK-UPS = PROTECTION!
You're helping your whole city.
TOGETHER WE STAY STRONG!


Jack stood a little taller.
CELL CITY
TEAMWORK MAKES US STRONG
TOGETHER WE PROTECT CELL CITY
So... I'm part of the team too?
YOU BELONG HERE
The Captain.
EVERY CAPTAIN MATTERS

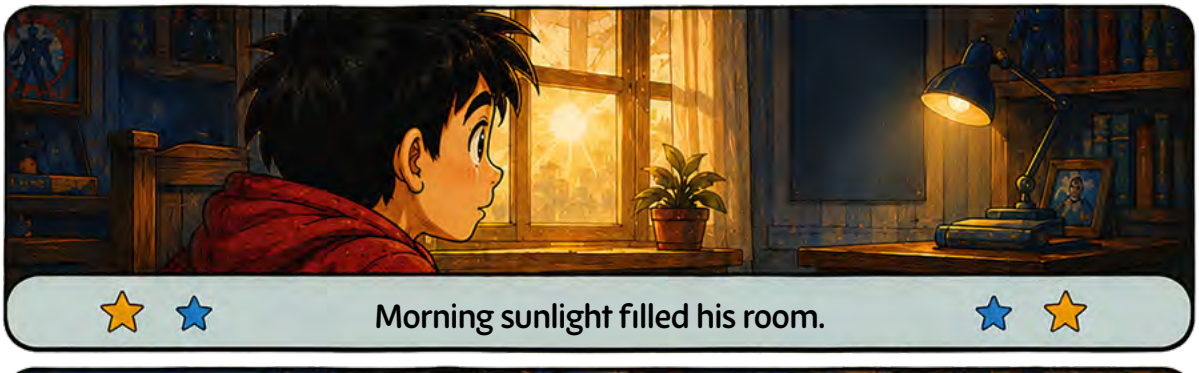

Suddenly the city lights became brighter.
CELL CITY
The workers cheered.
TEAMWORK WINS!
The Division Center was safe again.
DIVISION CENTER
Another day.
Another mission completed.
CELL CITY STRONG TOGETHER!
EVERY CELL COUNTS!
TOGETHER WE CARE! WE GROW! WE PROTECT!


It's time for you to go home.
CELL CITY
THANK YOU, JACK!
Jack looked disappointed.
WE'LL MISS YOU!
Will I ever see Cell City again?


Cora winked.
CELL CITY
YOU'RE NEVER ALONE!
You don't have to.
WE'VE GOT THIS!
We're always here.
ALWAYS HERE FOR YOU
Working.
Growing.
NEW CELLS, NEW LIFE.
Helping.
Looking after you.
WE CARE ABOUT YOU


The city slowly faded away.


Jack opened his eyes.

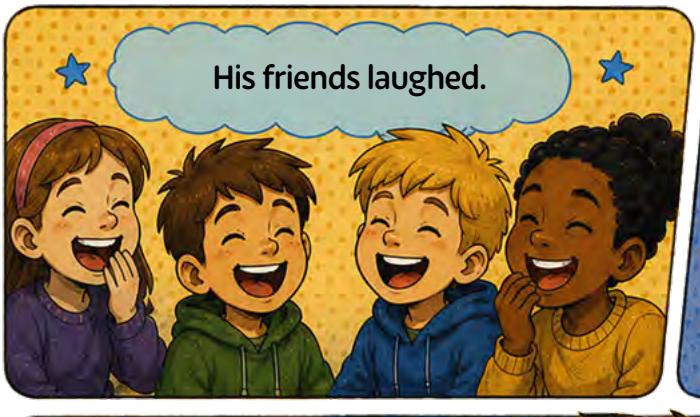

Morning sunlight filled his room.


Had it all been
a dream?

At school,
Jack proudly
told his friends,

"My body has
millions of tiny
superheroes
inside it."







Jack
smiled.



A few days later, it was time for another hospital visit.

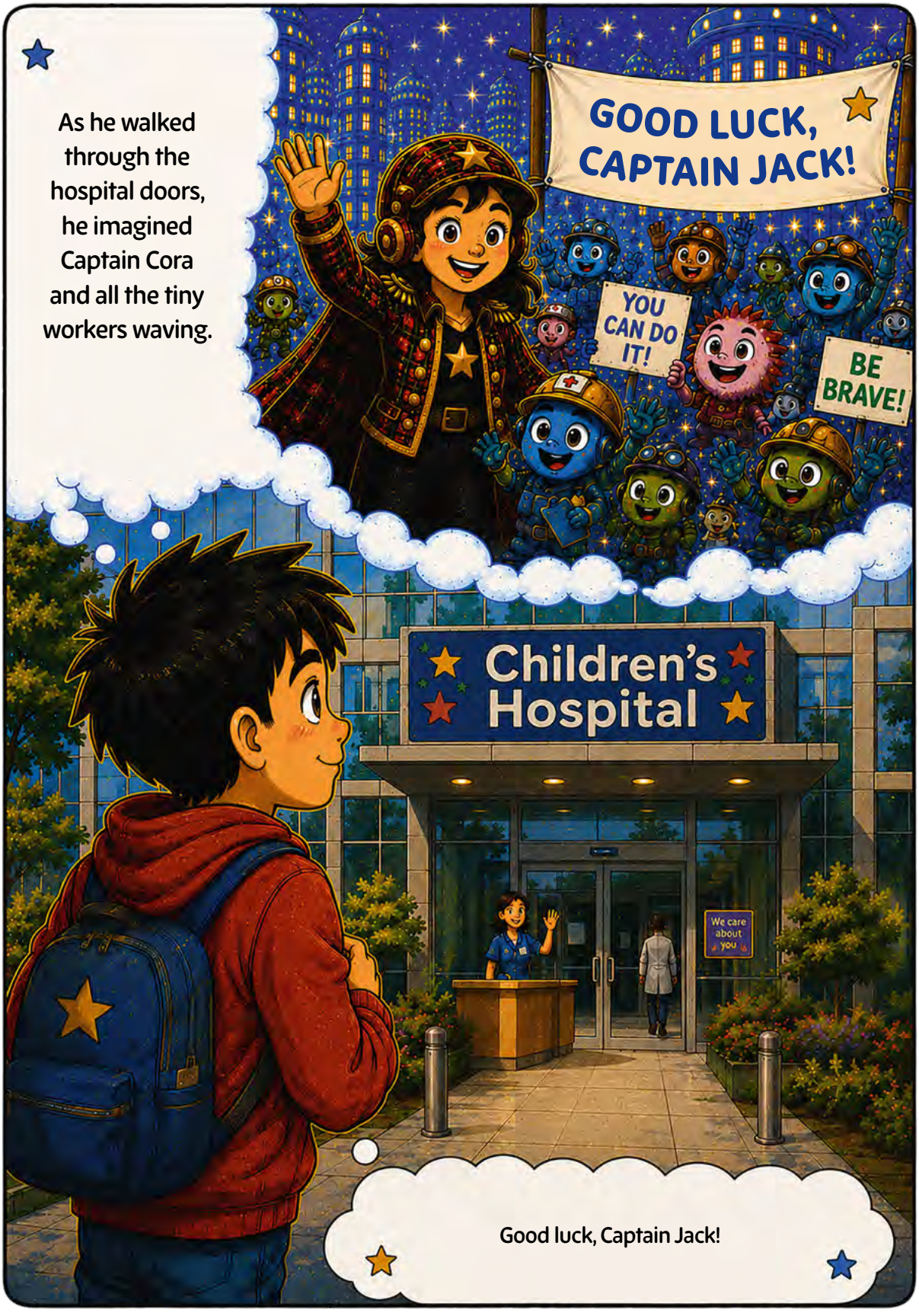


For the first time...



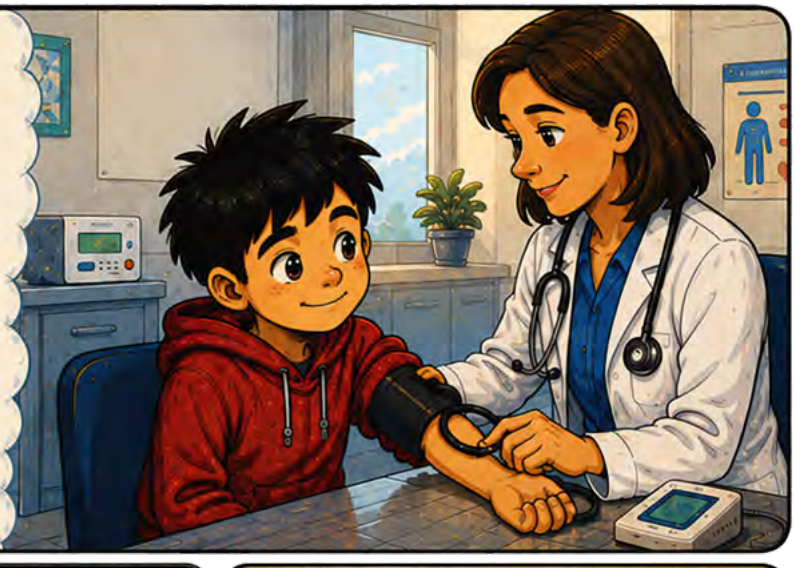
Jack wasn't nervous.




As he walked through the hospital doors, he imagined Captain Cora and all the tiny workers waving.
GOOD LUCK, CAPTAIN JACK!
YOU CAN DO IT!
BE BRAVE!
Children's Hospital
We care about you
Good luck, Captain Jack!

Jack still had MVA.

He would still need check-ups.



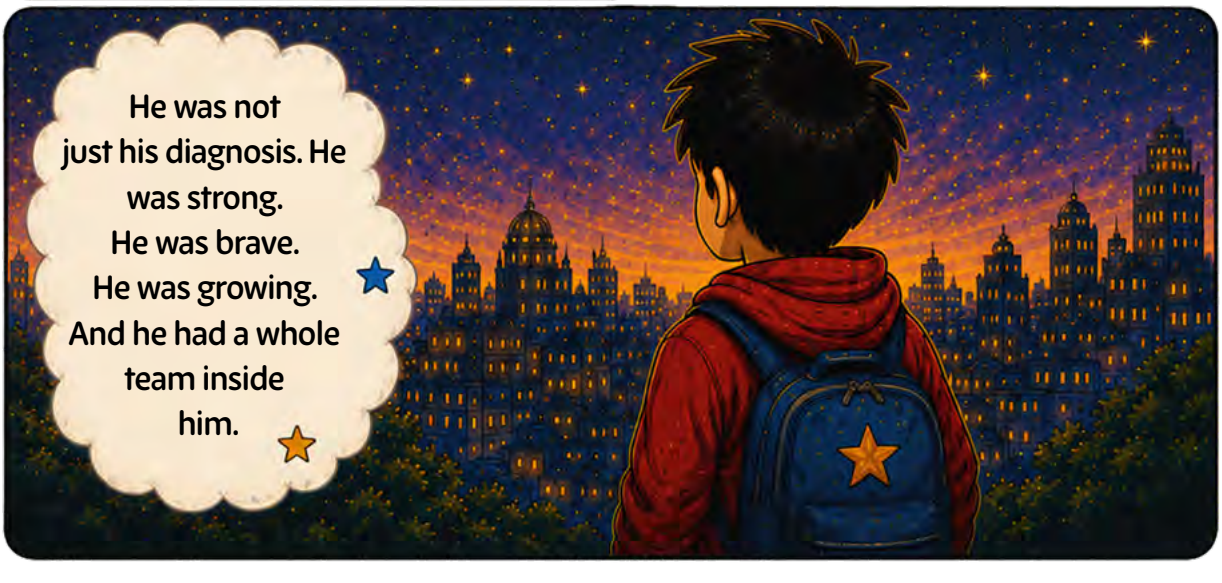
He would still have difficult days sometimes.



But now he understood something important.



He was not just his diagnosis. He was strong.
He was brave.
He was growing.
And he had a whole team inside him.



Every superhero has a team.

Jack's team was made of his family... his doctors... his friends...

... and trillions of tiny cells working together every single day.



Jack smiled. Being different wasn't his weakness. It was part of his amazing story.

About Mosaic Variegated Aneuploidy (MVA)

Mosaic Variegated Aneuploidy (MVA), also known as PCS/MVA syndrome, is an ultra-rare genetic disorder caused by biallelic mutations most commonly in the BUB1B gene, though other genes such as CEP57 and TRIP13 can also be responsible. These genes are involved in the mitotic checkpoint that ensures chromosomes separate correctly during cell division; when this checkpoint fails, cells end up with the wrong number of chromosomes in a mosaic pattern across the body. Clinically, MVA is characterized by microcephaly (small head), developmental delay, epileptic seizures, generalised hypotonia, increased risk of respiratory infections, and both prenatal and postnatal growth restriction, alongside a significantly increased risk of childhood cancers such as rhabdomyosarcoma, Wilms tumour, and leukaemia. It is inherited in an autosomal recessive pattern, meaning both parents are typically unaffected carriers, with each sibling of an affected child facing a 25% recurrence risk. Because so few cases have been documented worldwide, awareness, research, and family support remain critical priorities.

About the MVA Society

The MVA Society was formed in November 2024. The Society is the first, and currently only organisation focused on MVA – an ultra-rare genetic disorder. It was formed by Jonathan Bracey after his son George was diagnosed with this condition in 2023. The Society has one clear aim – to find a treatment for this condition. To find a treatment, two things must happen – we have to conduct targeted research, which needs to be funded. And we have to build out our 'ecosystem' (or footprint) to increase our global reach to patients, families, doctors, scientists, industry and publications that are involved with or touch on this condition. We need to make MVA known across the globe so families and patients have a place to gather, and physicians and geneticists have a place to point them to. It also will act as a global centre of excellence for all things related to MVA.

Website: mvasociety.org

About Fondation Ipsen Rare Intelligence

Fondation Ipsen Rare Intelligence program develops and distributes free educational resources on rare diseases. The program uses artificial intelligence to transform validated scientific data into accessible content tailored to different audiences.

Developed in collaboration with patient organizations and experts in the relevant fields, these resources undergo human post-editing, review, and validation prior to publication. The ambition is to provide patients, families, healthcare professionals, teachers, and associations with reliable, inclusive, and accessible resources for every rare disease, including the rarest.

Website: www.fondation-ipsen.org

Download our pedagogical kit on MVA here



Book # 21.4

Have your say!

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Jack loves superheroes. But when he learns that he has Mosaic Variegated Aneuploidy syndrome, or MVA, he has a lot of questions about what is happening inside his body.

One night, Jack discovers Cell City, an extraordinary world where millions of tiny cells work together to keep everything running.

There, he begins to understand why some of his cells work differently, why regular check-ups are important, and, above all, why no superhero ever works alone.

Jack and the Amazing Cell City is a story about MVA, but also about courage, teamwork and discovering that being different is just one part of what makes each of us who we are.

Because every cell has a job. Every job matters.
And every child has a team.

With the kind collaboration of the

MVA Society



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