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Limited
Edition

Coronavirus loses the battle

A story on fighting COVID-19

LE BUVEUR
D'ENCRE

Esprits
Curieux

institutCurie

Translation to English by Lara Al Zouabi

Dear Reader,

In this story from «Esprits Curieux» collection you will find scientific concepts on the Coronavirus introduced in a simple and engaging way.

Enjoy reading!

Olga Markova

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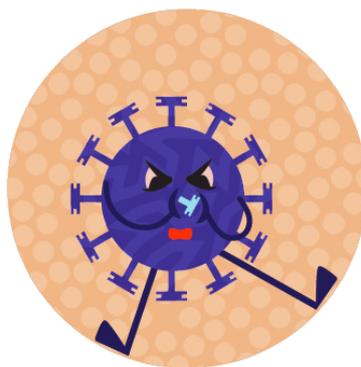
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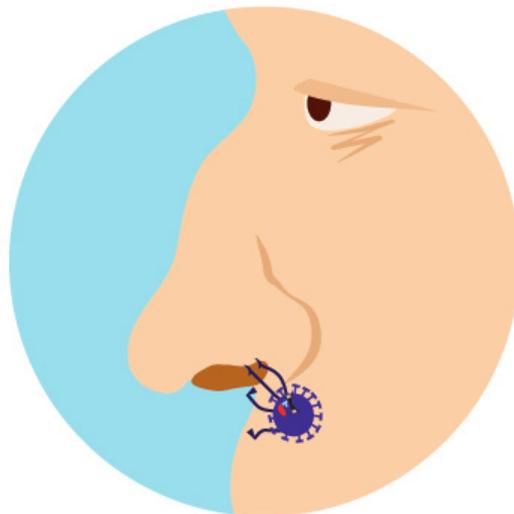
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One day, Lucas's dad touched an object that Coronavirus was sitting on. Coronavirus moved into the folds of his hand. Dad did not notice that and touched his face.

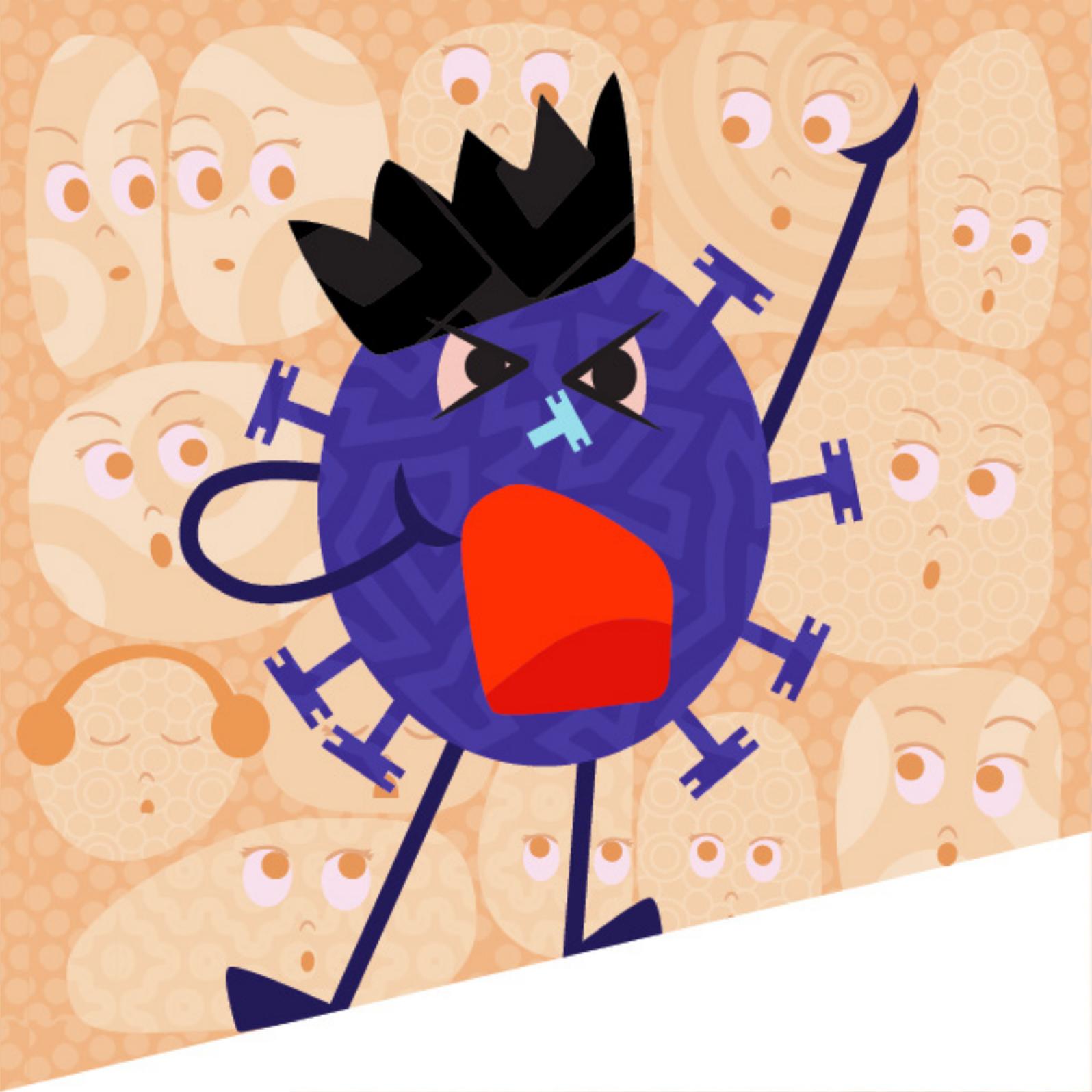
It was at that moment that Coronavirus latched onto Dad's nose and went down into Dad's lungs.

- "Let's go! To attack!", shouted Coronavirus.



Instead of a nose, Coronavirus had a key. He also had many keys all around his body. It was a nasty virus. Coronavirus wanted all the cells to obey him and so, he decided to conquer the whole world. He put a crown on himself and proclaimed himself “Coronavirus: king of all viruses”.





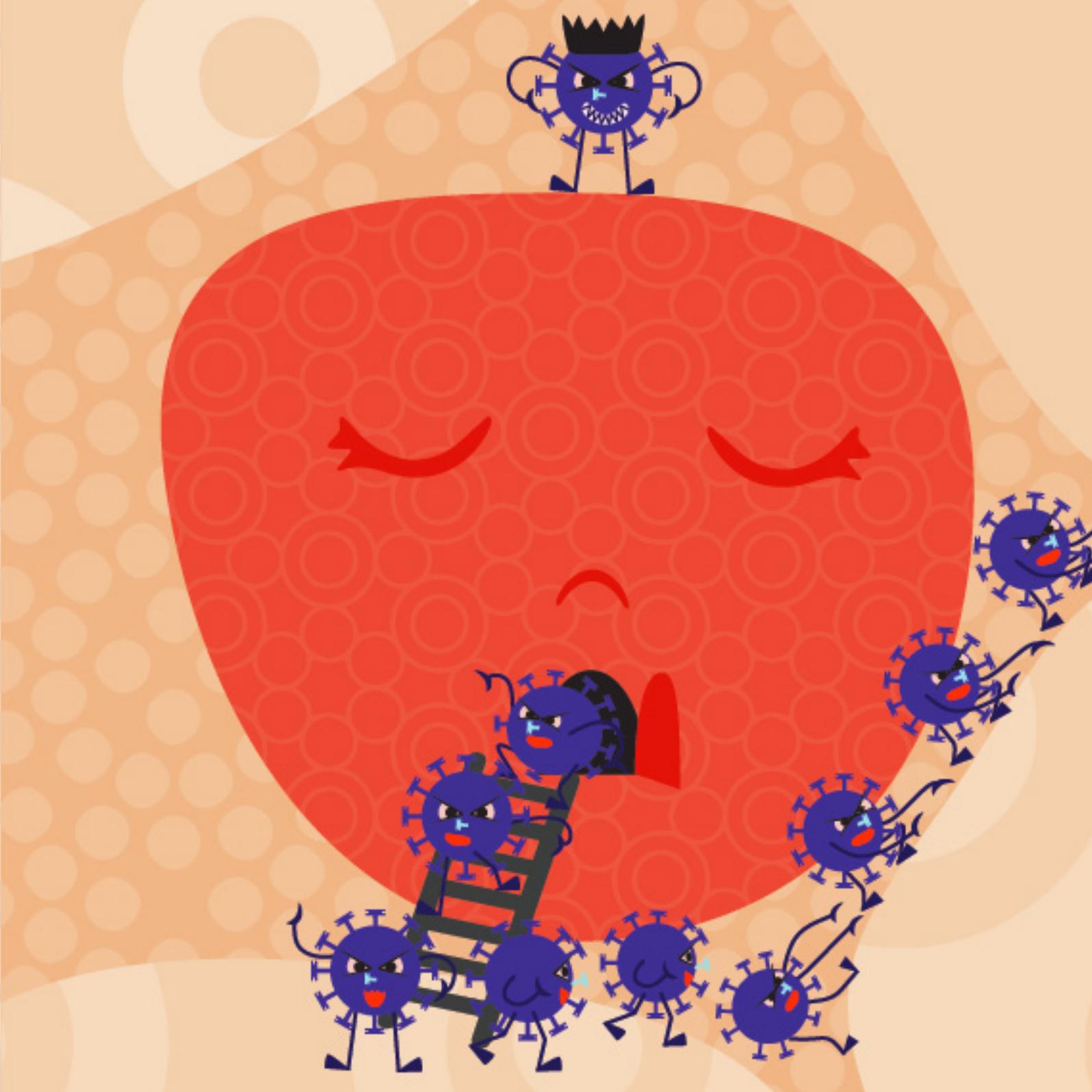


**To enter a cell, Coronavirus got out the key.
He tried a key, but it didn't work. So, he tried
again and again, until finally, a key worked!
Coronavirus was now able to open the door of the
cell and enter it!**



Inside the cell, Coronavirus started his plan: to multiply! He controlled the cell to create more viruses identical to himself! These copies then began to leave the cell.







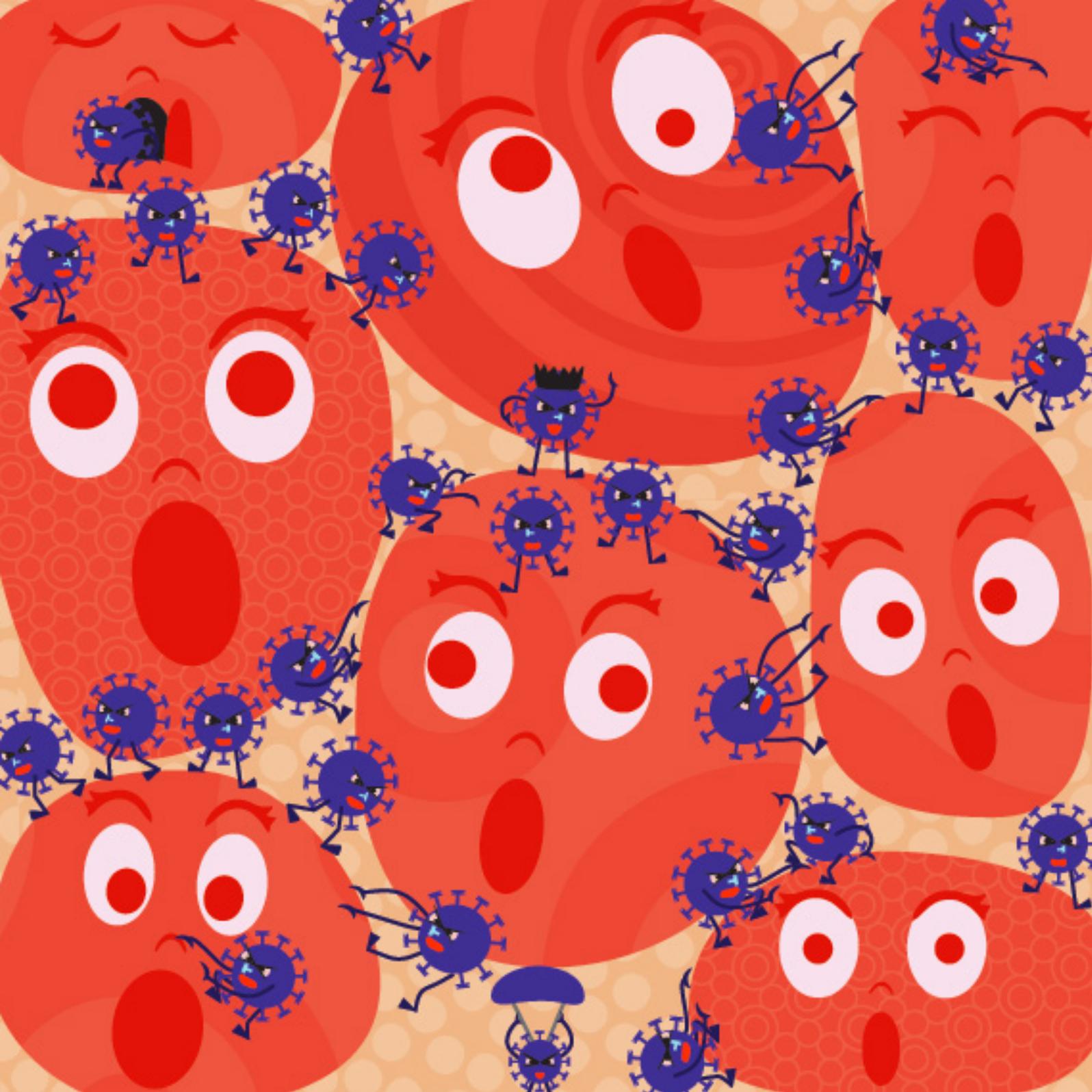
...and new Coronaviruses entered other cells and made cells infected. The infected cells made more copies of Coronaviruses that also infected other cells! This went on and on...

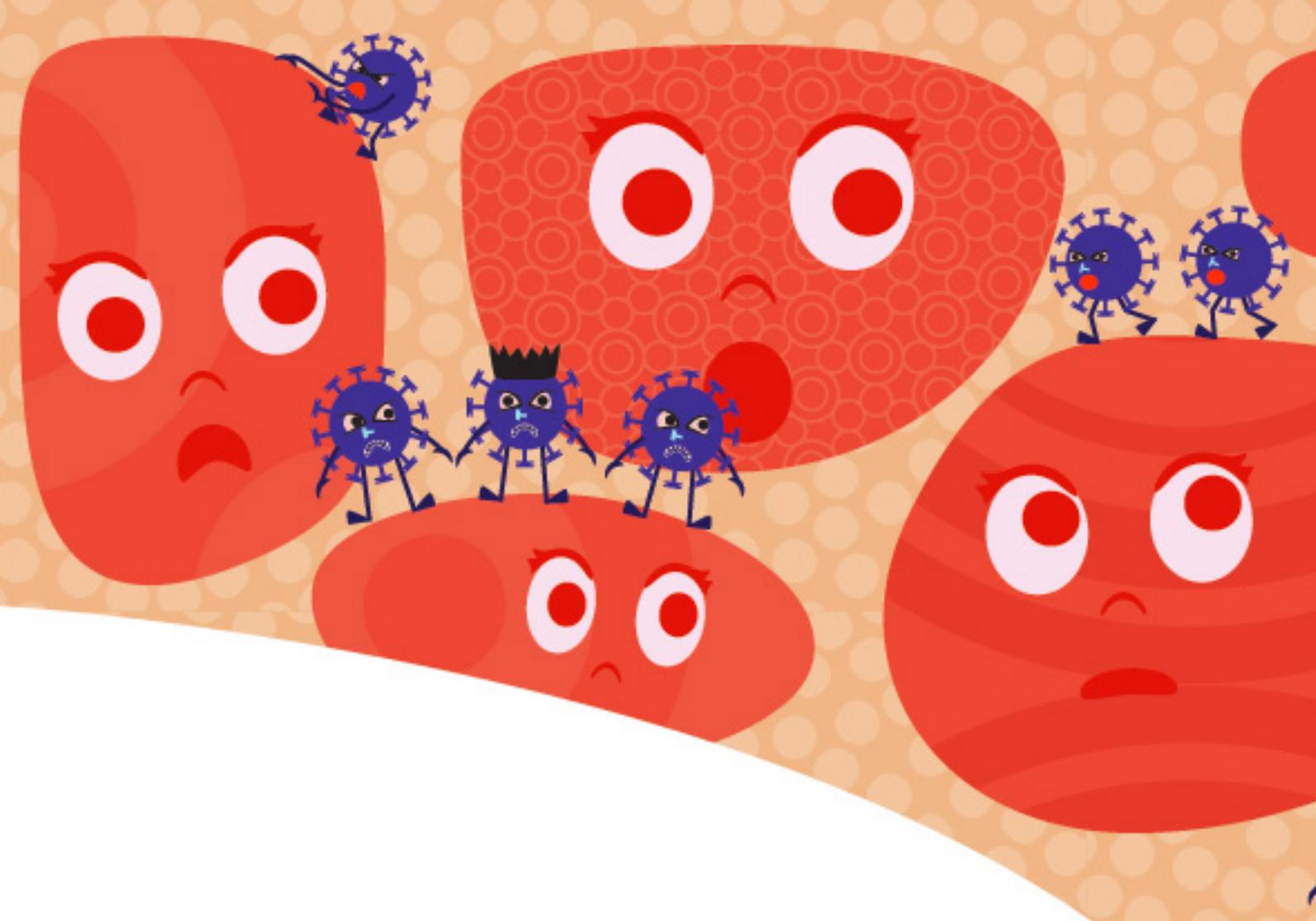


The infected cells produced many many Coronavirus copies. This made them exhausted! They were no longer able to keep Dad's lungs healthy. Dad coughed and coughed and needed a rest.

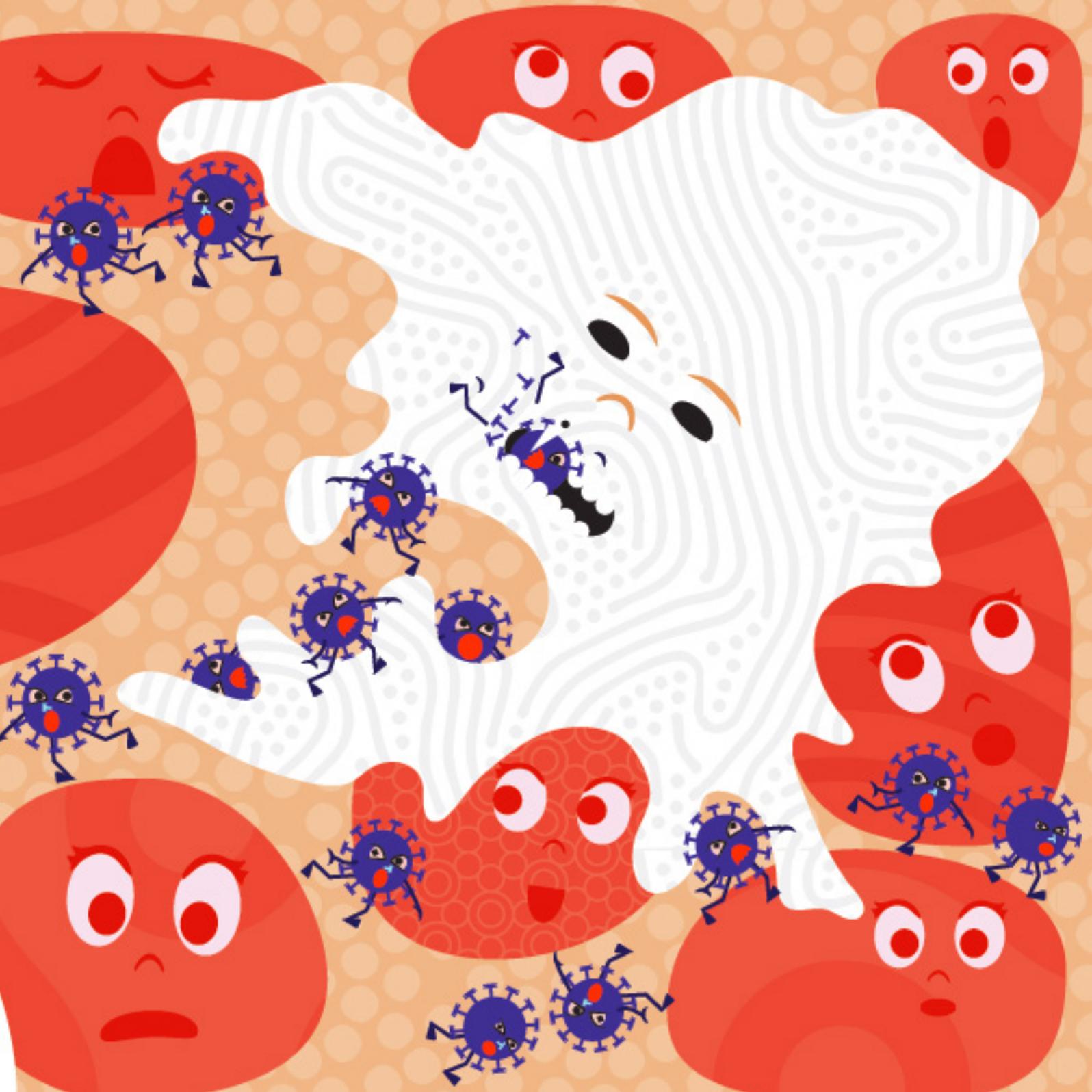
How awful! "Coronaviruses are everywhere!", screamed the cells in Dad's lungs. "Help, help!"





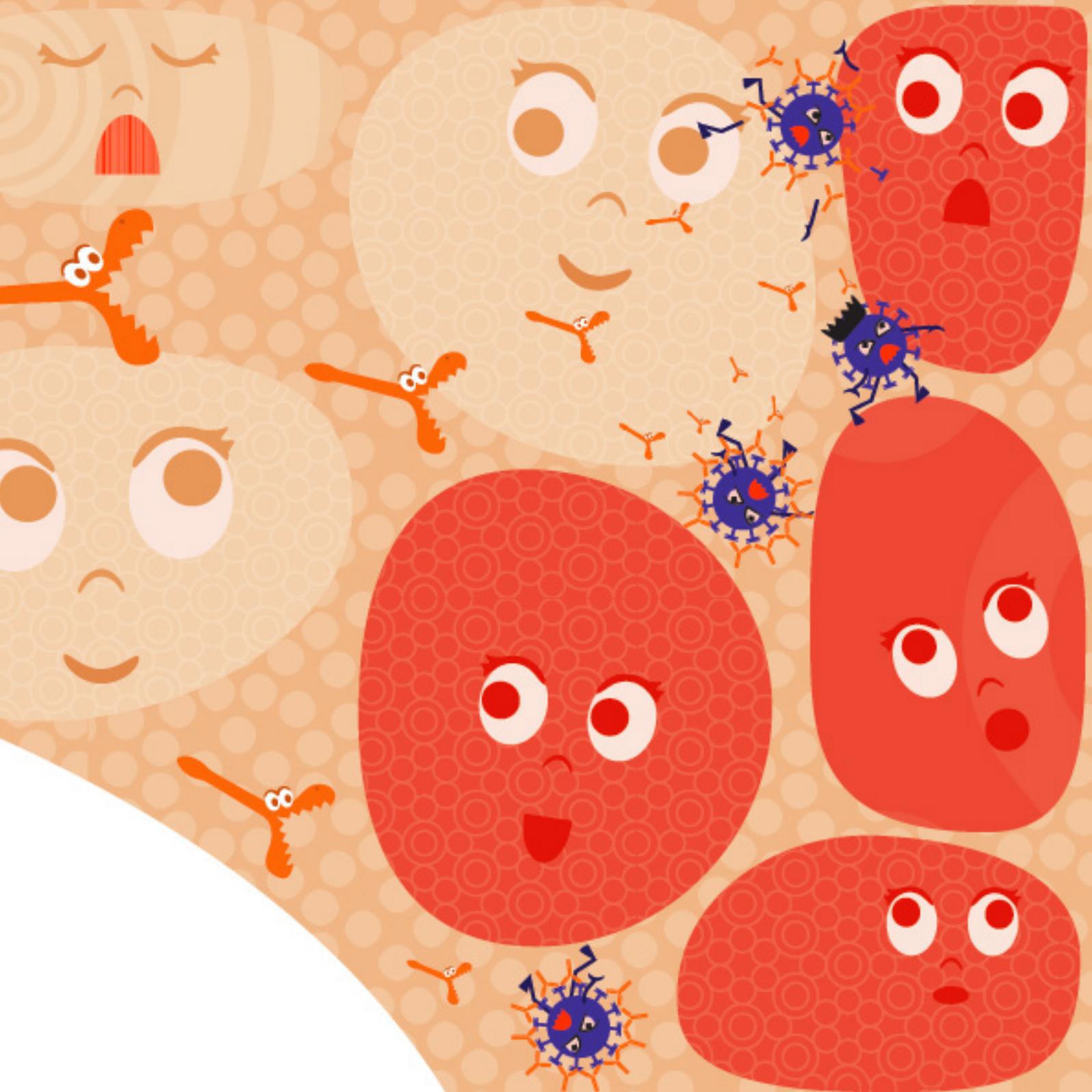


Phagocyte, the protective cell of the human body, came to the rescue immediately and caught Coronaviruses. But Coronaviruses were too many!





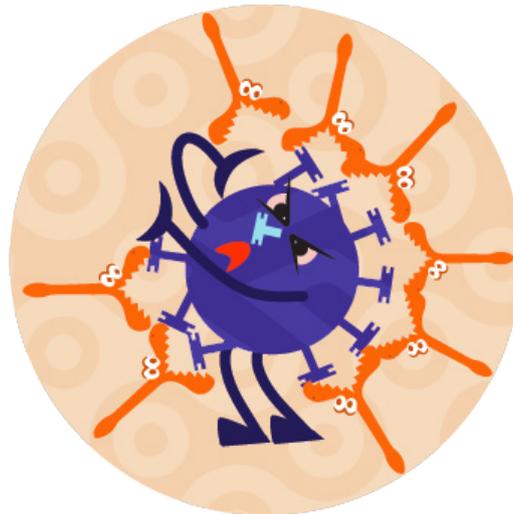
**A few days later, Lymphocyte arrived to help.
He needed time to prepare the antibody arrows.
They were ready now. He carefully aimed his
antibody arrows at the Coronaviruses.
Dad was healing.**

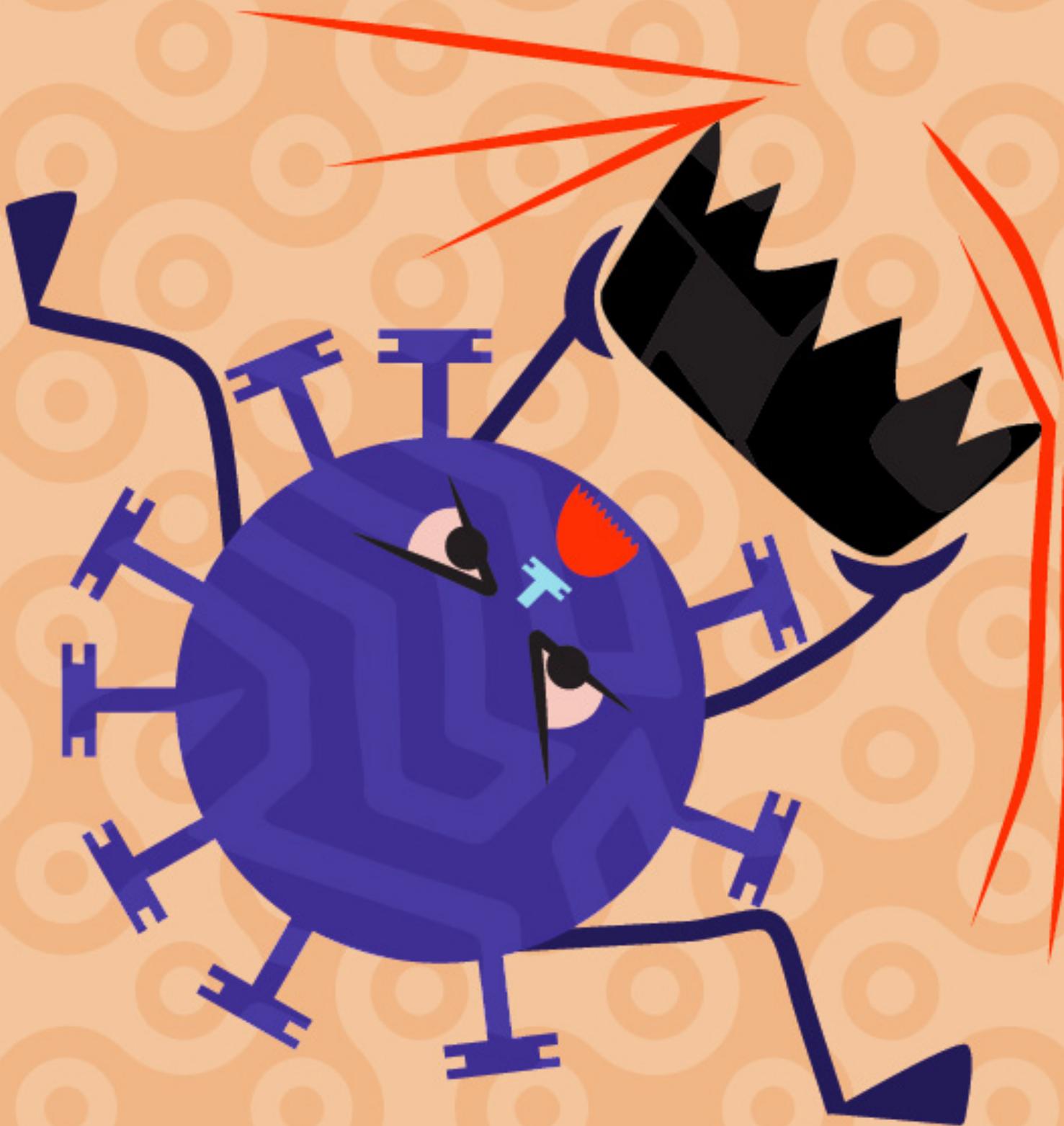


Coronavirus noticed that he is losing the battle against Leukocyte and Phagocyte and this made him very angry!

- “You will not stop me like that! I’m the king!”

But at this point, Coronavirus’s army was getting smaller and smaller. Dad was finally starting to feel better.









Dad coughed a little more.

**Coronavirus flew out through Dad's mouth
with a cough and landed on the dresser.**

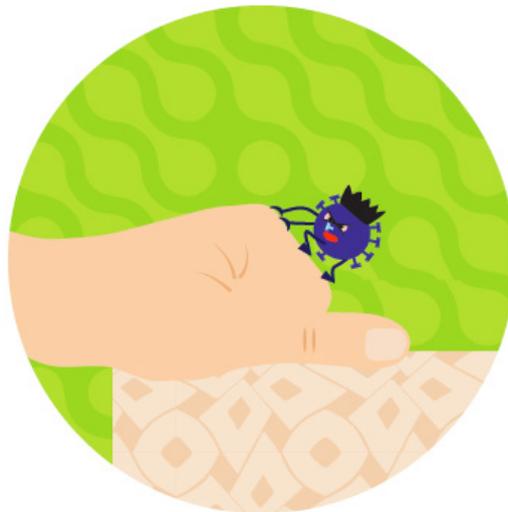


When Lucas got home, he placed his hand exactly where Coronavirus was hiding on the dresser.

Oops!

Coronavirus saw yet another opportunity and clinged onto Lucas's finger.

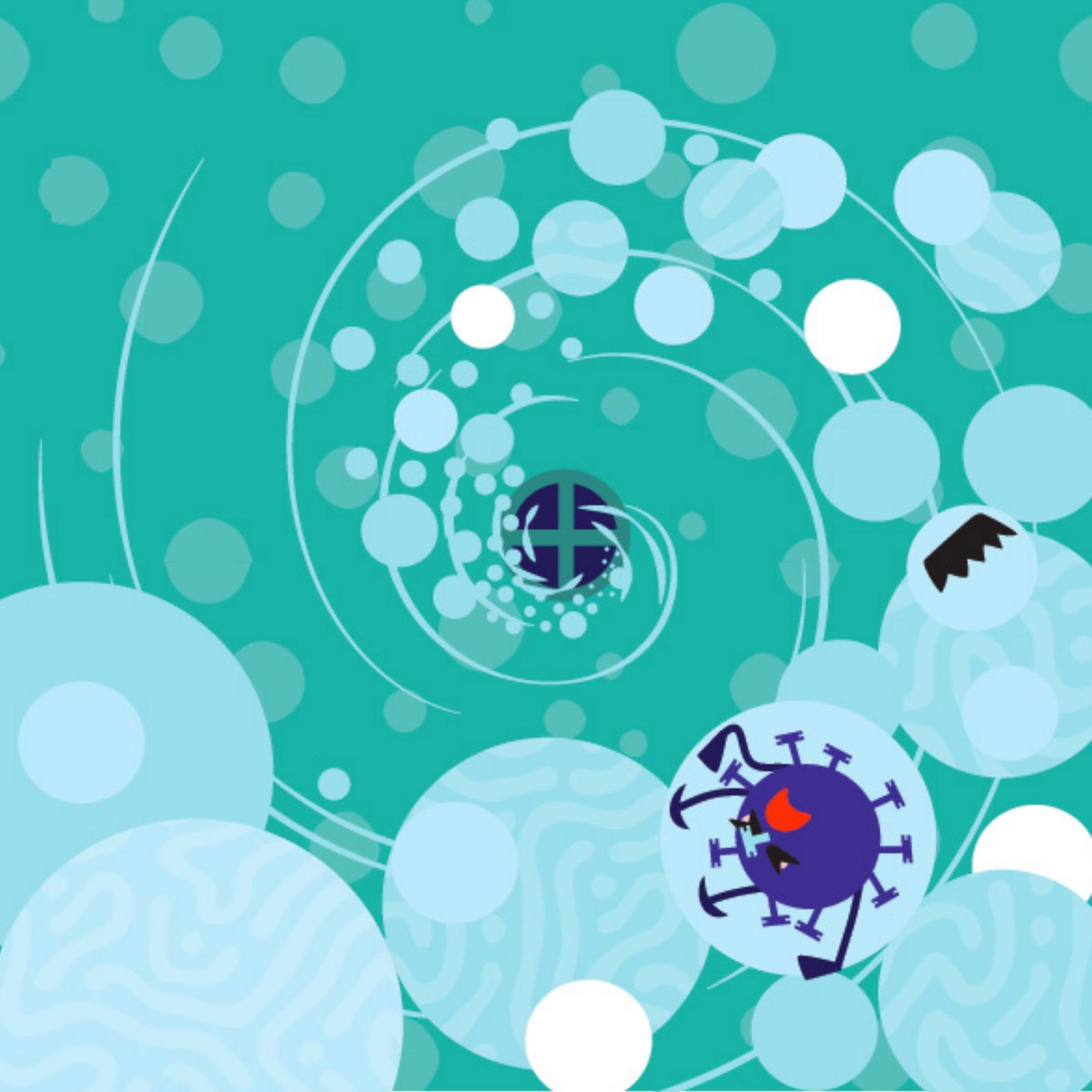
- "Aha-ha", laughed Coronavirus. "This child will now put his finger in his mouth and I will enter his body to reproduce my army!"





Lucas always washes his hands. So Lucas ran to wash his hands with soap and water, he washed them well. One of the soap bubbles captured Coronavirus. - “Help!”, yelled Coronavirus, “I’m stuck in the bubble!”





Very quickly, Coronavirus disappeared in the sink drain.

Adieu Coronavirus! Coronavirus will never be king!



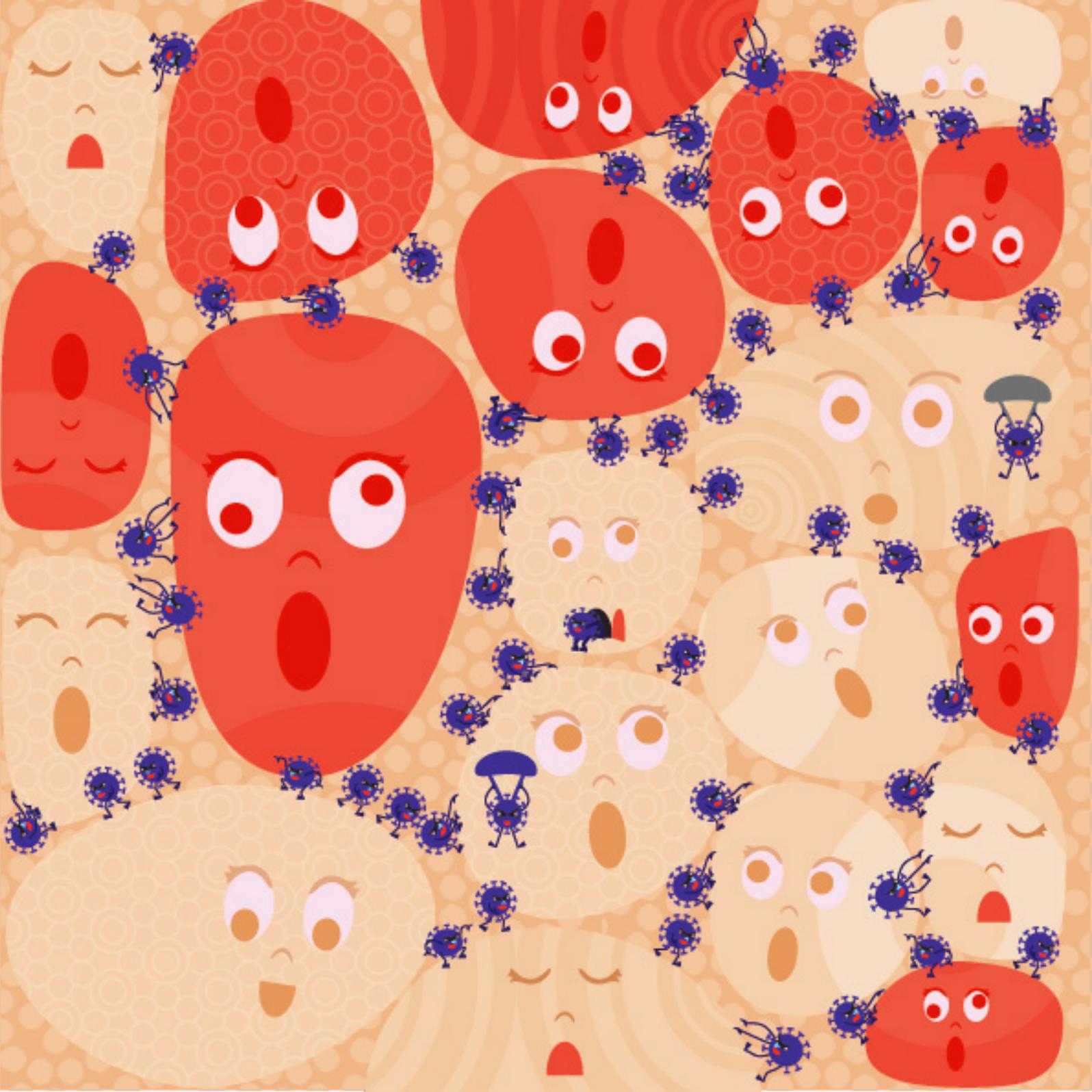
Game

Help Phagocyte and Lymphocyte cure Dad.

- 1) How many Coronaviruses are copied?
- 2) How many cells are infected?



Answer :
1) 57
2) 9



Suggestions to defeat the virus and its army:

- 1) If you got ill, stay at home! This way, the virus cannot travel with you!**
- 2) Wash your hands. Rub the entire surface of your hands well, making lots of soap bubbles, and rinse your hands well before wiping them so that the water removes all the bubbles that contain the viruses!**
- 3) If you need to cough, cough into your elbow. That way, if the virus comes out of your mouth, it gets stuck in the sleeve of your sweater. After coughing, wash your hands!**
- 4) Avoid touching your face. Viruses often enter through the mouth, nose or eyes. If you don't touch your face, the virus can not come in!**
- 5) Don't talk too closely to people, and don't give too many kisses while we all try to win battle against the virus.**



Glossary

• The target cell

The target cell is the cell infected with the virus. Each virus infects different cells. The COVID-19 coronavirus attacks cells in the lungs, making it difficult to breathe and causes coughing.

• Coronavirus

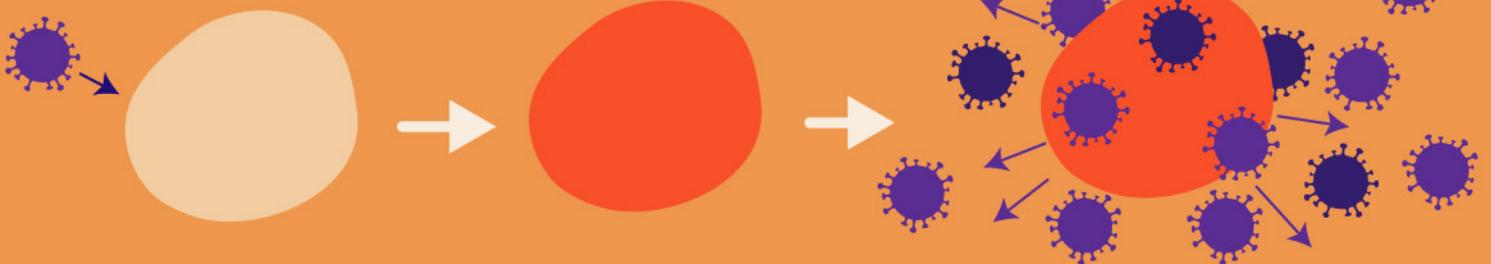
A coronavirus is a tiny virus. You can only see it with a microscope. Under the microscope, you can see that it has a crown and that is why it has the name Coronavirus.

• How does the virus get into cells?

To enter cells, the virus needs proteins adapted to the surface of the target cell. In this story, they are portrayed as keys and door locks.

• How does a coronavirus multiply?

A coronavirus is not alive and cannot reproduce on its own. To multiply, the virus infects a cell. The infected cell makes other viruses.





• Phagocyte

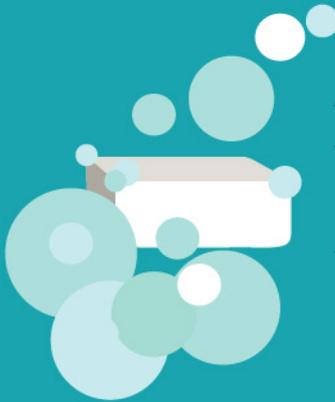
Phagocytes are the first cells in the immune system to respond to an attack. The phagocytes eat everything they find in their path and which could present danger such as viruses, bacteria, waste from other cells.

• Lymphocyte B

B lymphocytes are the cells of the immune system. B lymphocytes cells make molecules called antibodies. Antibodies attach to and cover proteins on the surface of the virus. When this happens, the virus can no longer enter and infect cells.

• Vaccine

Vaccinating means training B lymphocytes to produce antibodies. That way, if the virus enters the body, the antibodies are already ready to fight the viruses. When enough people are vaccinated, the virus can no longer reproduce and it disappears!



• Soap

To prevent the virus from making us sick, the best thing is to prevent it from entering the body! Washing your hands with soap will kill viruses and other germs forever.



• Currently in science

Researchers in the past have found vaccines to control multiple serious diseases such as tuberculosis, smallpox, polio, etc. Today scientists are looking for a vaccine against the coronavirus.

The creators of the “Esprits Curieux” collection thank:

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- the members of the Institut Curie and the Labex DEEP for their expert advice;
- all the people faithfully associated with the evolution of this project.

**Esprits
Curieux**

The collection «Esprits Curieux» invites the reader to discover current scientific knowledge.

Each album in the collection is written by a specialist.

The illustrations are inspired by the scientific data.

**Coronavirus wants to conquer the world.
Fortunately, Phagocyte and Lymphocyte are
there to defend the human body.**

Olga Markova

PhD in Neuroscience and illustrator. Her illustrations are inspired by her scientific research done at CNRS and Institut Curie.

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PhD in Immunology and researcher at INSERM, she study the migration of immune cells at the Institut Curie.



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