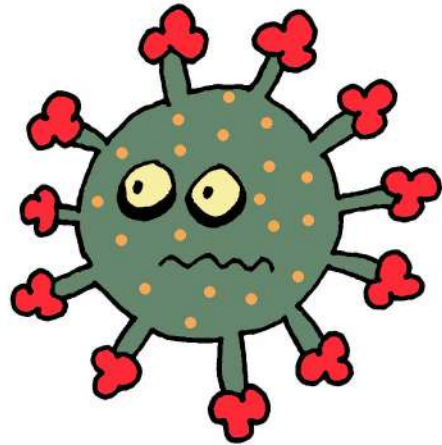
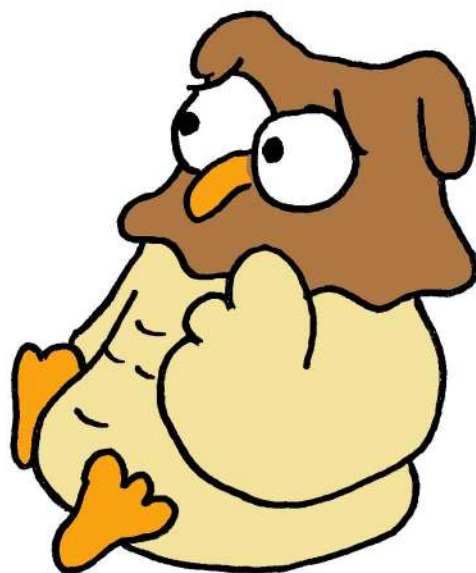
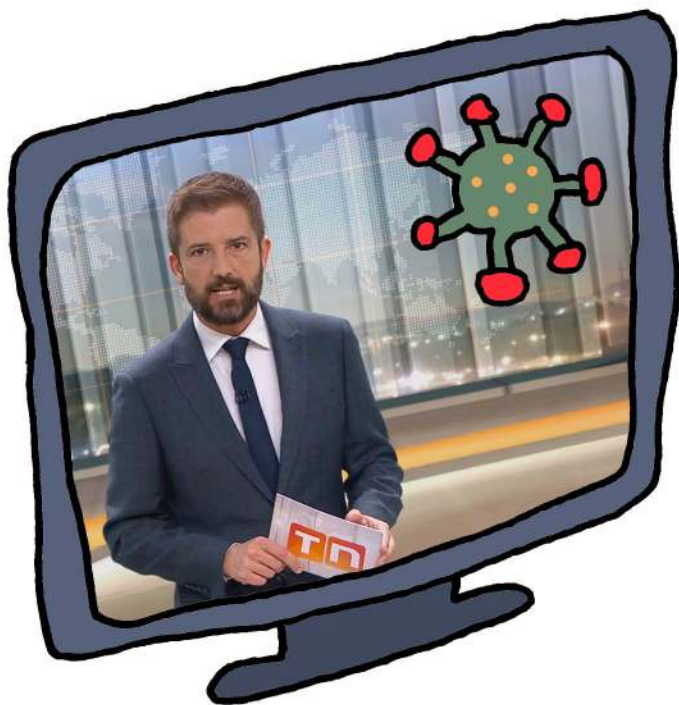


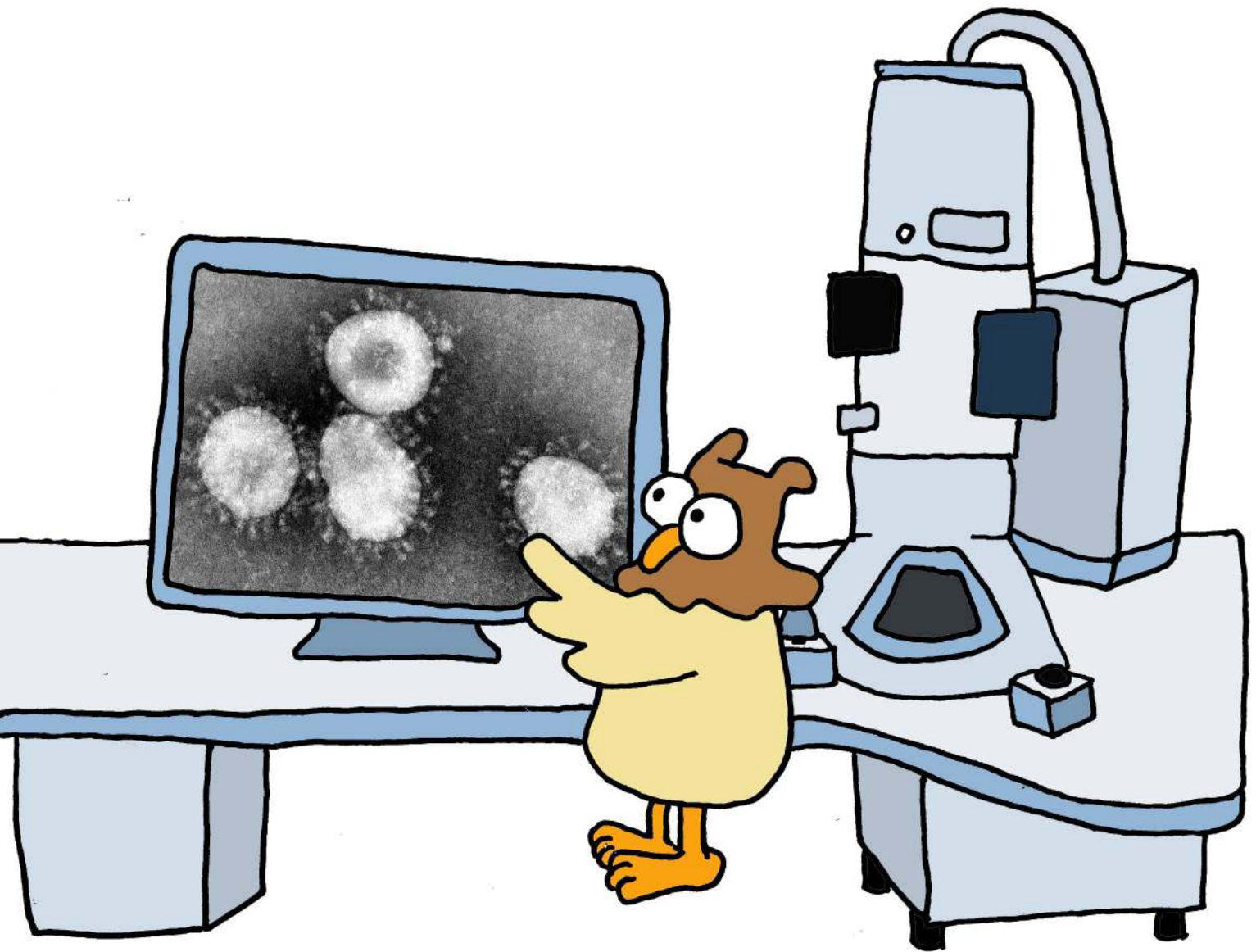
MUSSOL

AND THE CORONAVIRUS



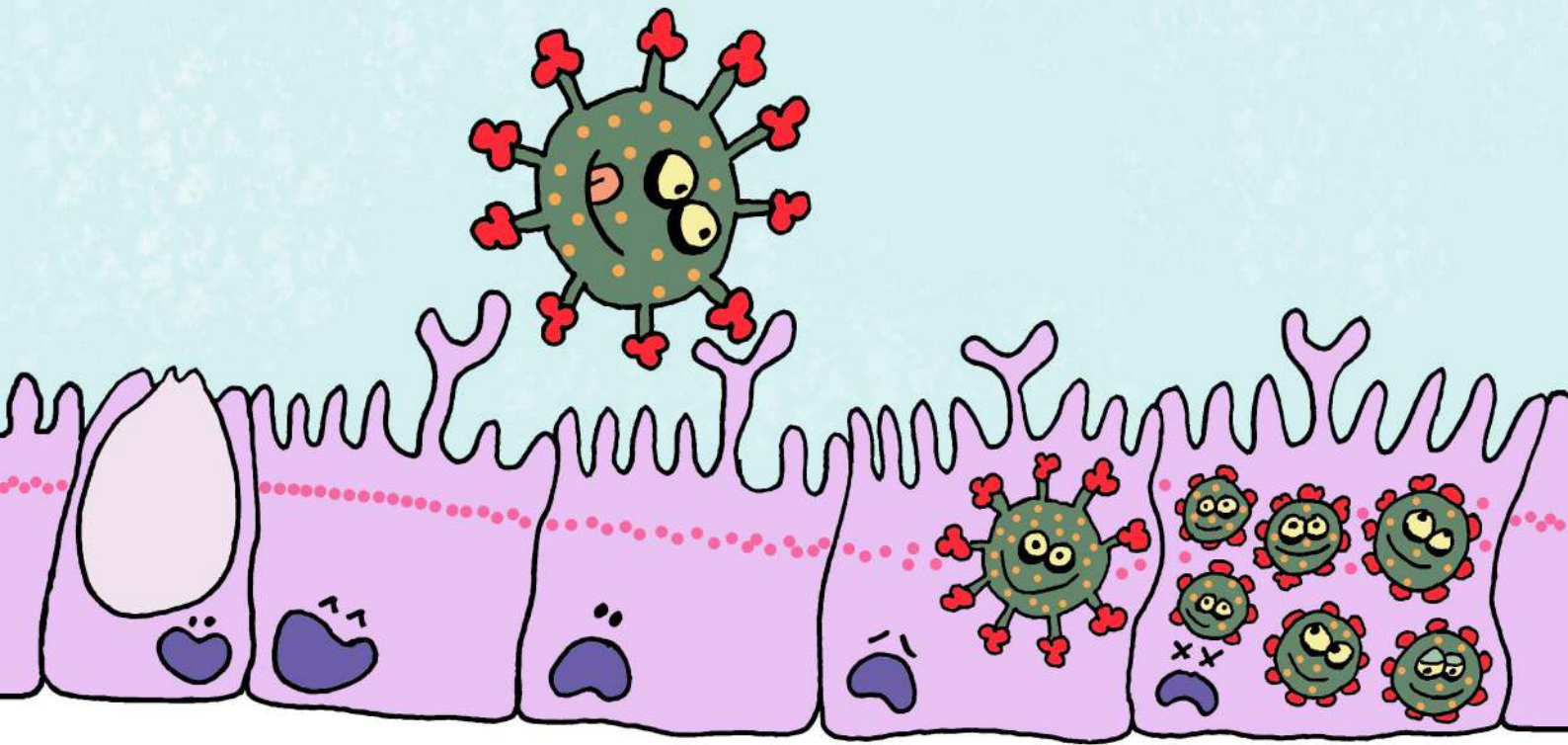


**Mussol has only been hearing about the coronavirus
for the last few days.
He is a little bit scared and has a lot of questions in his mind.**



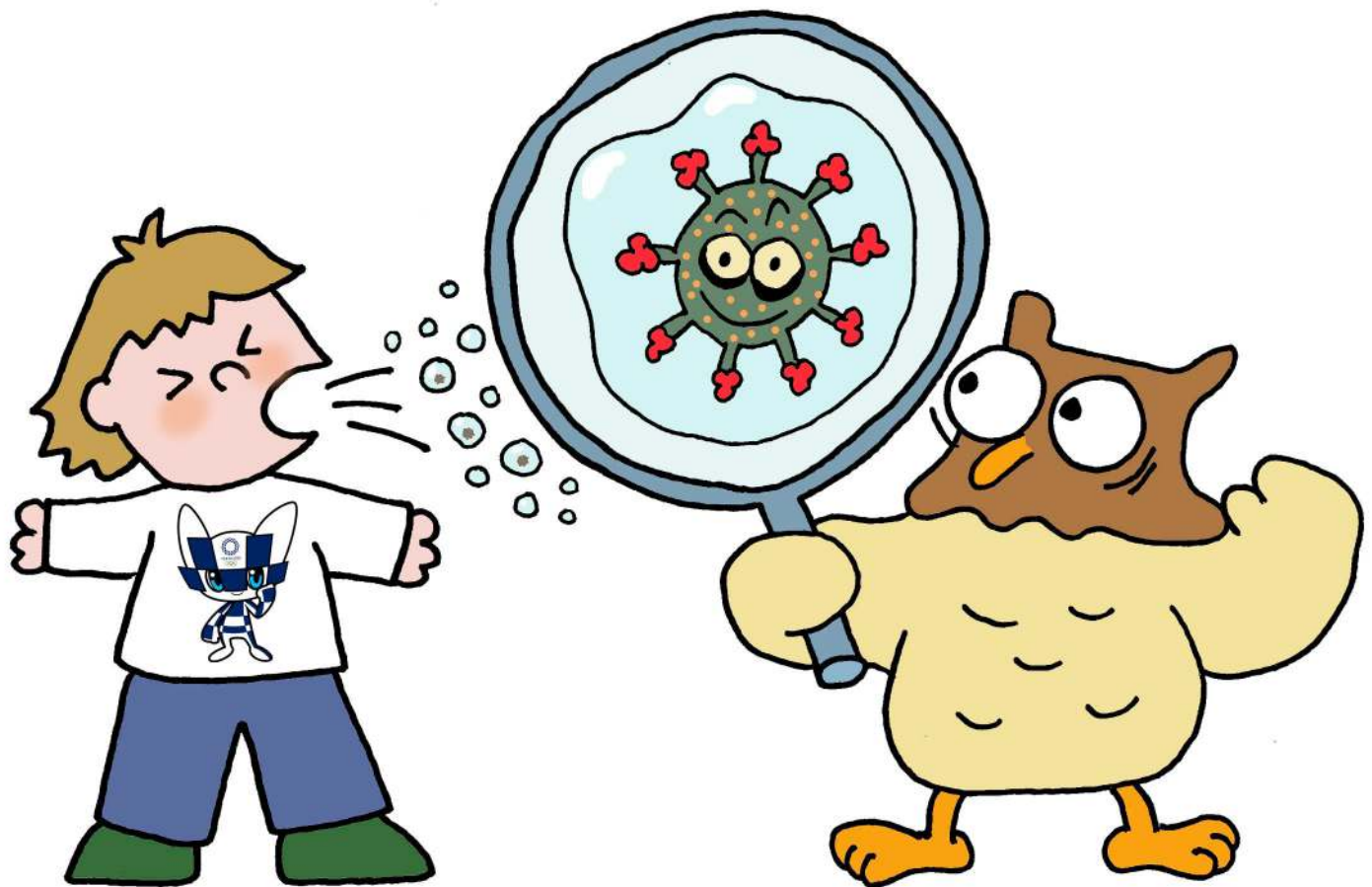
The first question is: What is a virus?

**A virus is a type of microbe, it is not even a living thing.
It is a microorganism which needs to infect human
or animal cells to be able to multiply itself.**



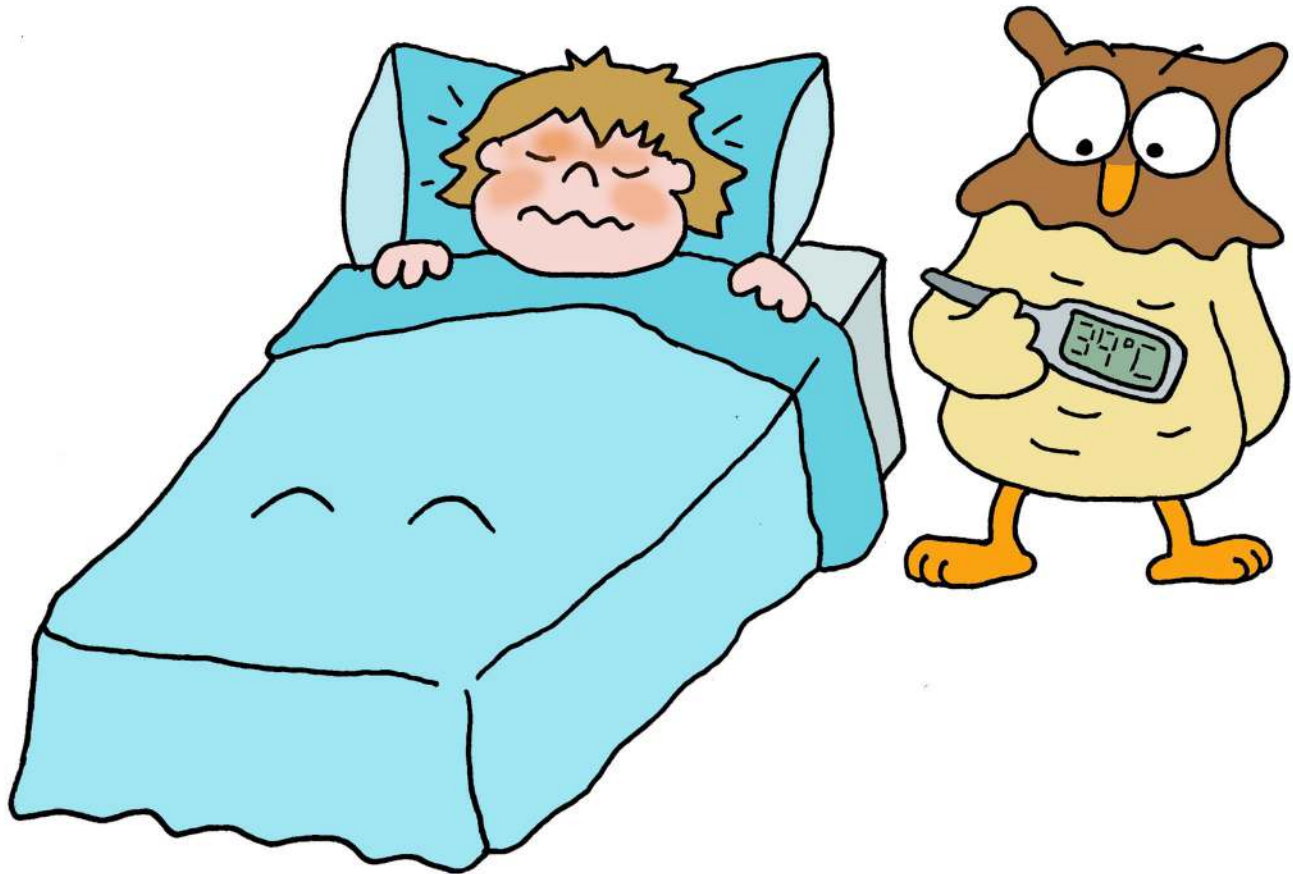
And which cells are infected by the coronavirus?

This virus likes getting into the respiratory epithelium cells, that is, the cells lining the airways. These airways are the tubes that carry air from the mouth and nose to the lungs.



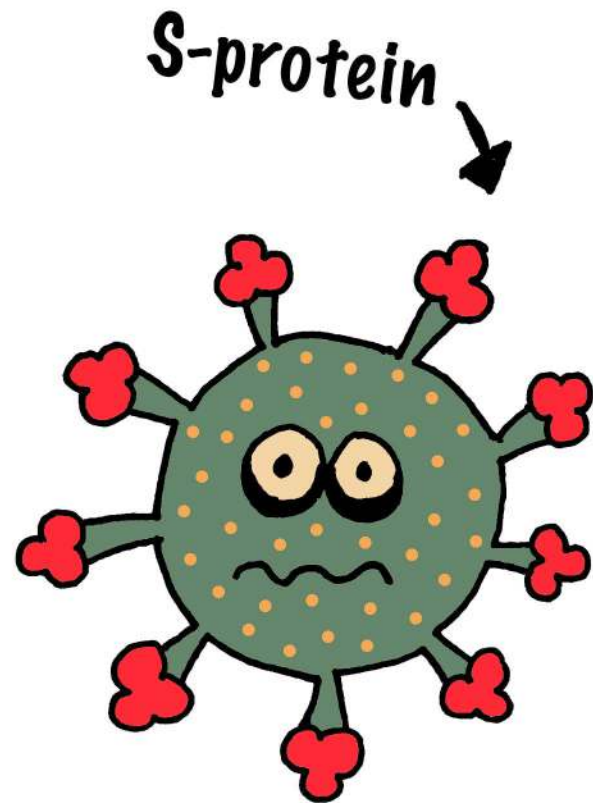
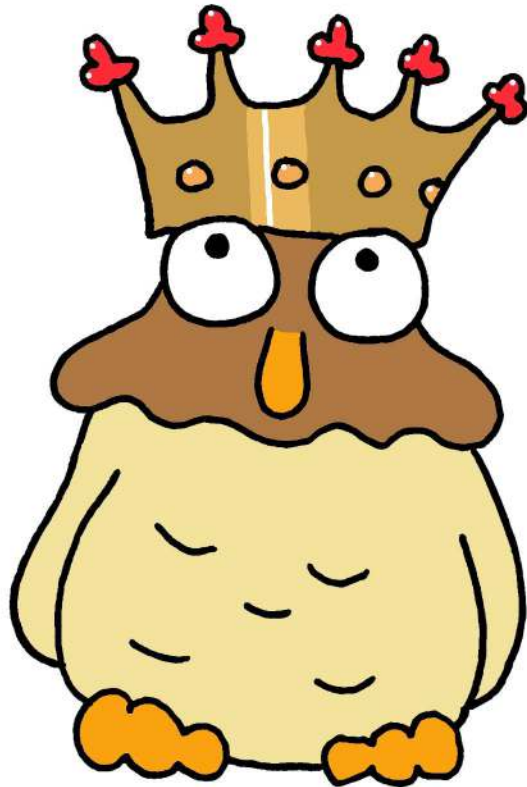
Is that why we cough, then?

Exactly! By multiplying itself, the virus makes the airways sore, making the person cough. When a person coughs tiny droplets with the virus inside escape the body, thus being able to infect other people who inhale the droplets.

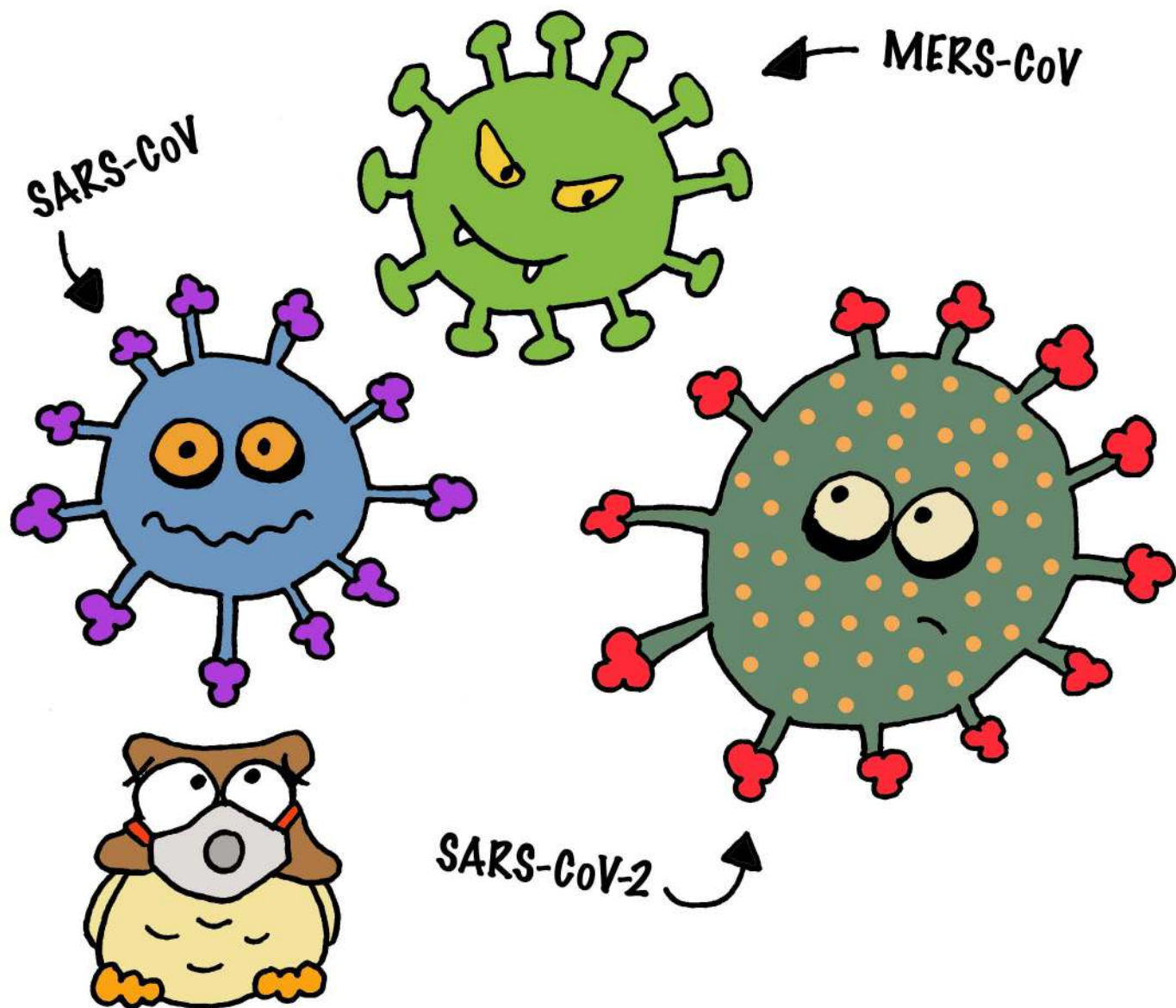


And why do people have a temperature?

Viruses are responsive to heat. When aware of having a virus, human body cells send cytokines to the brain. Cytokines are molecules which tell the body to raise its temperature to try to kill the virus.

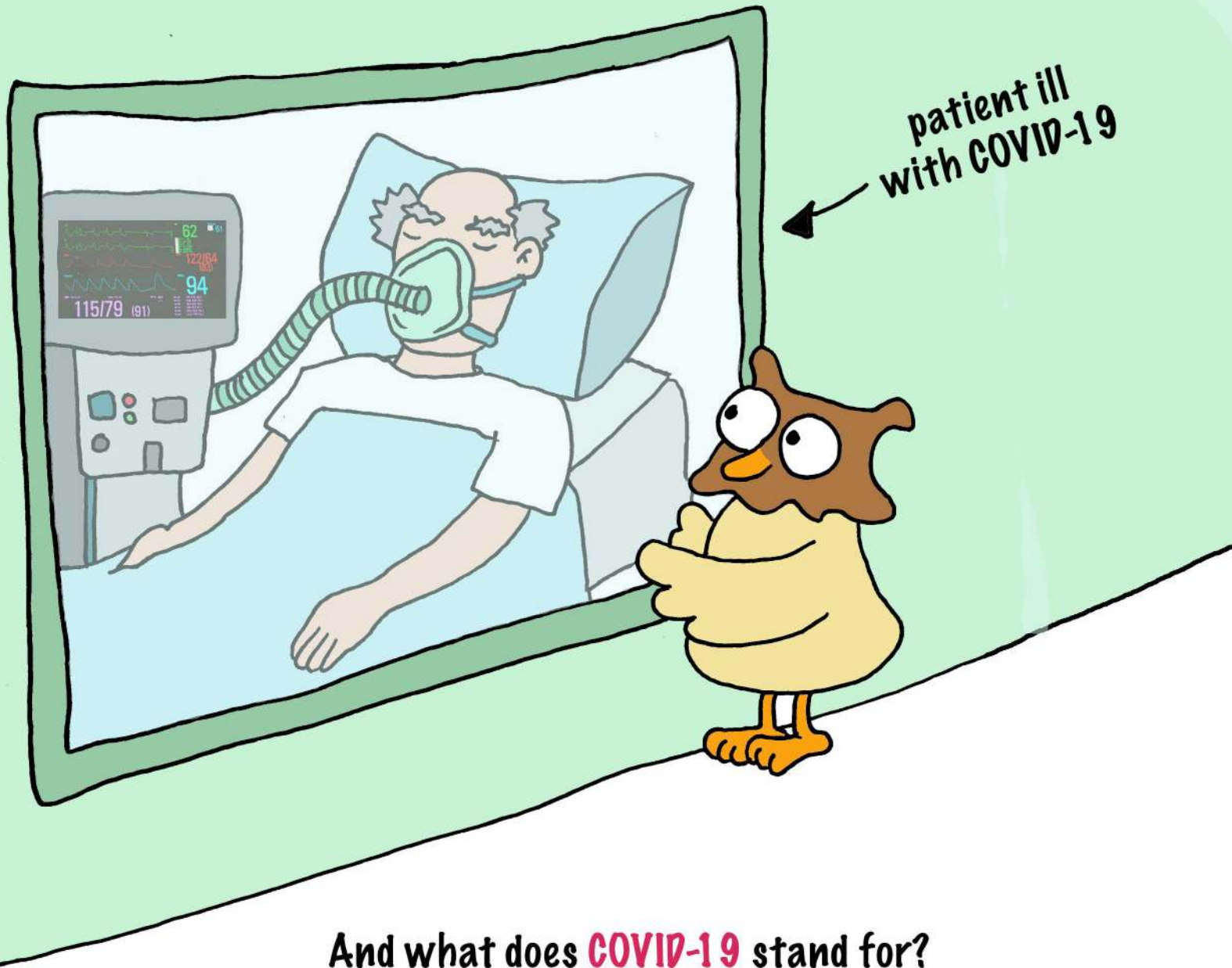


What a curious name, coronavirus! Where does it come from? When we study it under an electron microscope, its shape reminds us of a crown, *corona* in Latin. And it is precisely the spike shaped S-Protein that gives the virus its' appearance. This S-Protein is the key that opens the door to our cells for the coronavirus.



I am all messed up with so many names: coronavirus,
SARS-CoV-2, COVID-19!

Coronavirus is the name for a family of viruses which share similar features. Coronaviruses, such as MERS-CoV or SARS-CoV, have caused outbreaks many years ago.



And what does **COVID-19** stand for?

This is the name that doctors gave to the illness caused by this new coronavirus.

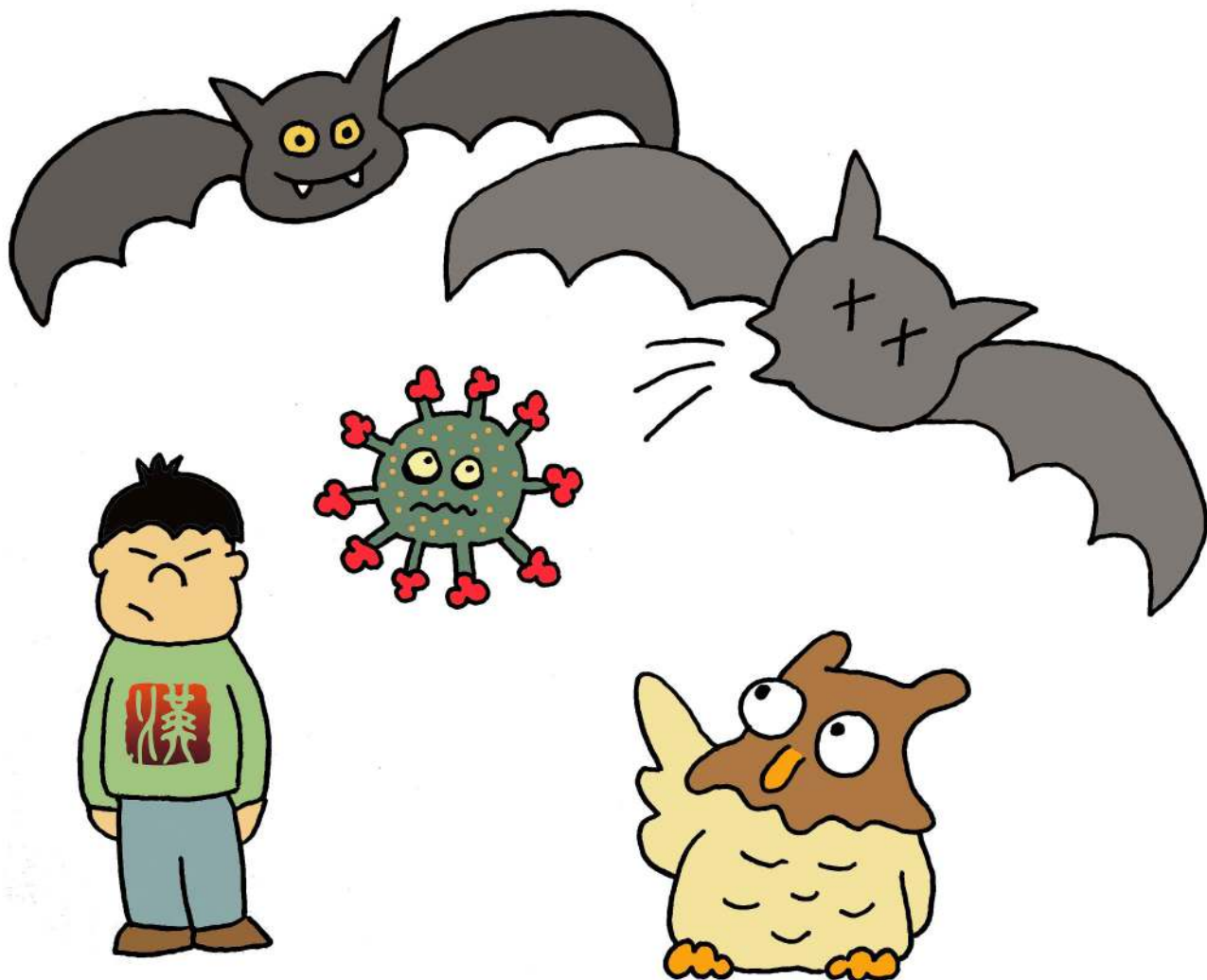
It is an acronym for "**CO**rona**V**irus **I**nfectious **D**isease **2019**", since the effects of this virus were first discovered during 2019.



So, what is **SARS-CoV-2**, then?

This is the precise virus' name, the contraction for
"**S**evere **A**cute **R**espiratory **S**yndrome".

CoV is the abbreviation of **C**orona **V**irus and number **2** is because
a similar coronavirus was already described (SARS-CoV)
by the end of 2002.



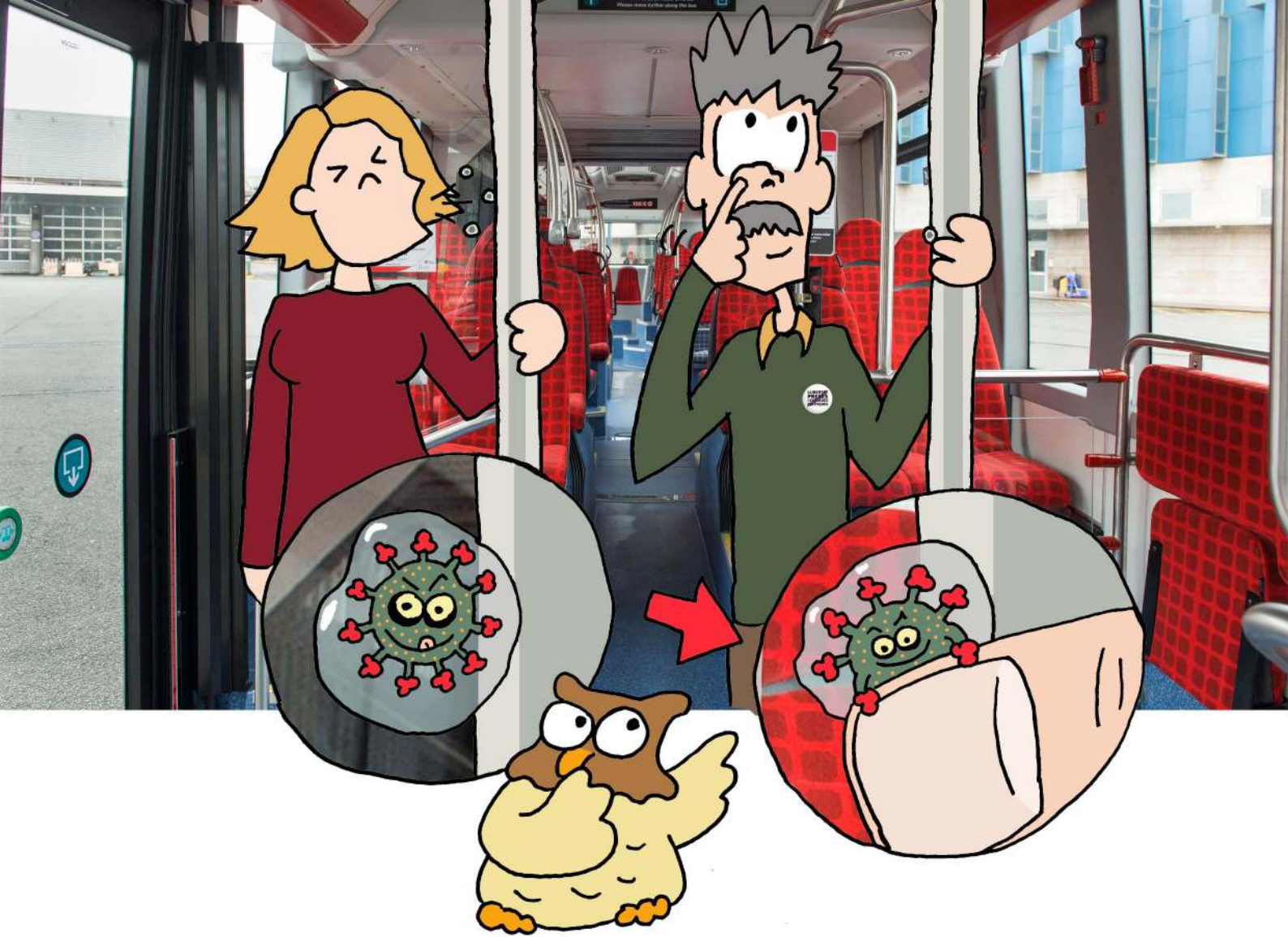
And where does it come from, now?

Scientists have studied the virus and discovered it is very similar to bat coronaviruses. They are trying to understand how humans got it, probably through another animal that got infected from bats. Apparently, all this happened in a city called Wuhan, in China.



And how does the virus spread?

When you get really close to someone who is already infected and he or she coughs, letting out droplets with the virus inside, and you inhale them. You may get infected through fomites as well. That is why it is important to practice respiratory etiquette by coughing while covering your mouth with a kleenex or into a flexed elbow. Never cough on your hands because you will help the virus spread!

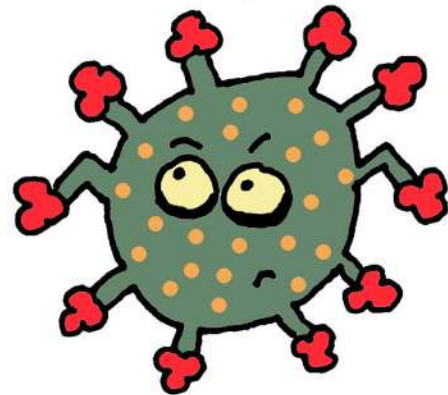


Fomites? What are fomites?

Fomites are the objects where infected droplets fall onto and where the virus is still viable and infectious. By touching the fomites, your hands can pick up the virus and then transfer it to your mouth, eyes or nose (yes, even when you pick your nose!). The virus can then enter your body and infect you.



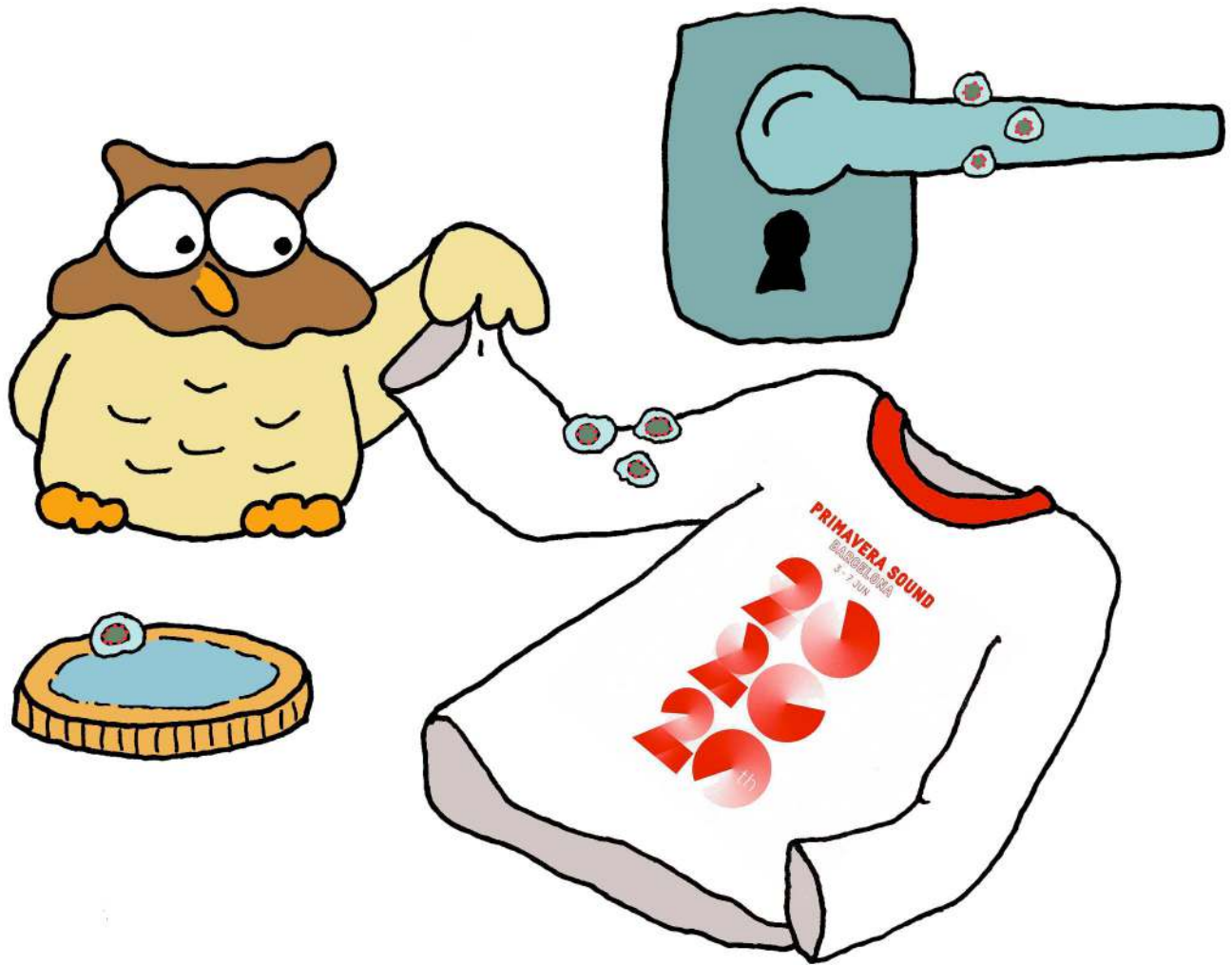
Where is everybody?!



Is there a way to protect ourselves?

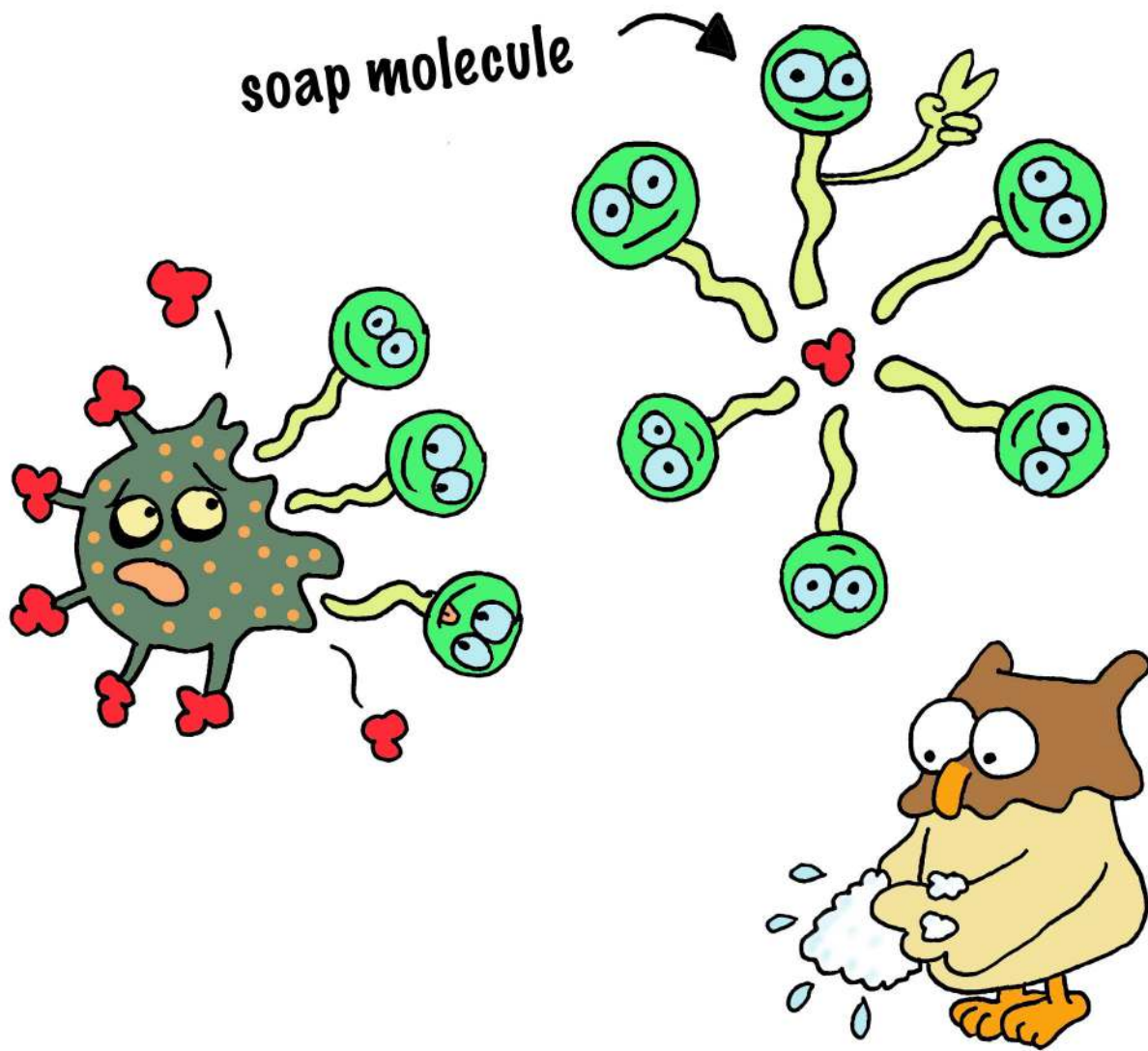
The most effective measure is self-isolation. That is: staying at home! Easy, isn't it? If we do not go out, we will not meet with any infected person and we will not be able to touch virus contaminated fomites.

This way we will not be infected and, most importantly, we will not infect other people if we already have the virus.



But, which objects can be fomites?

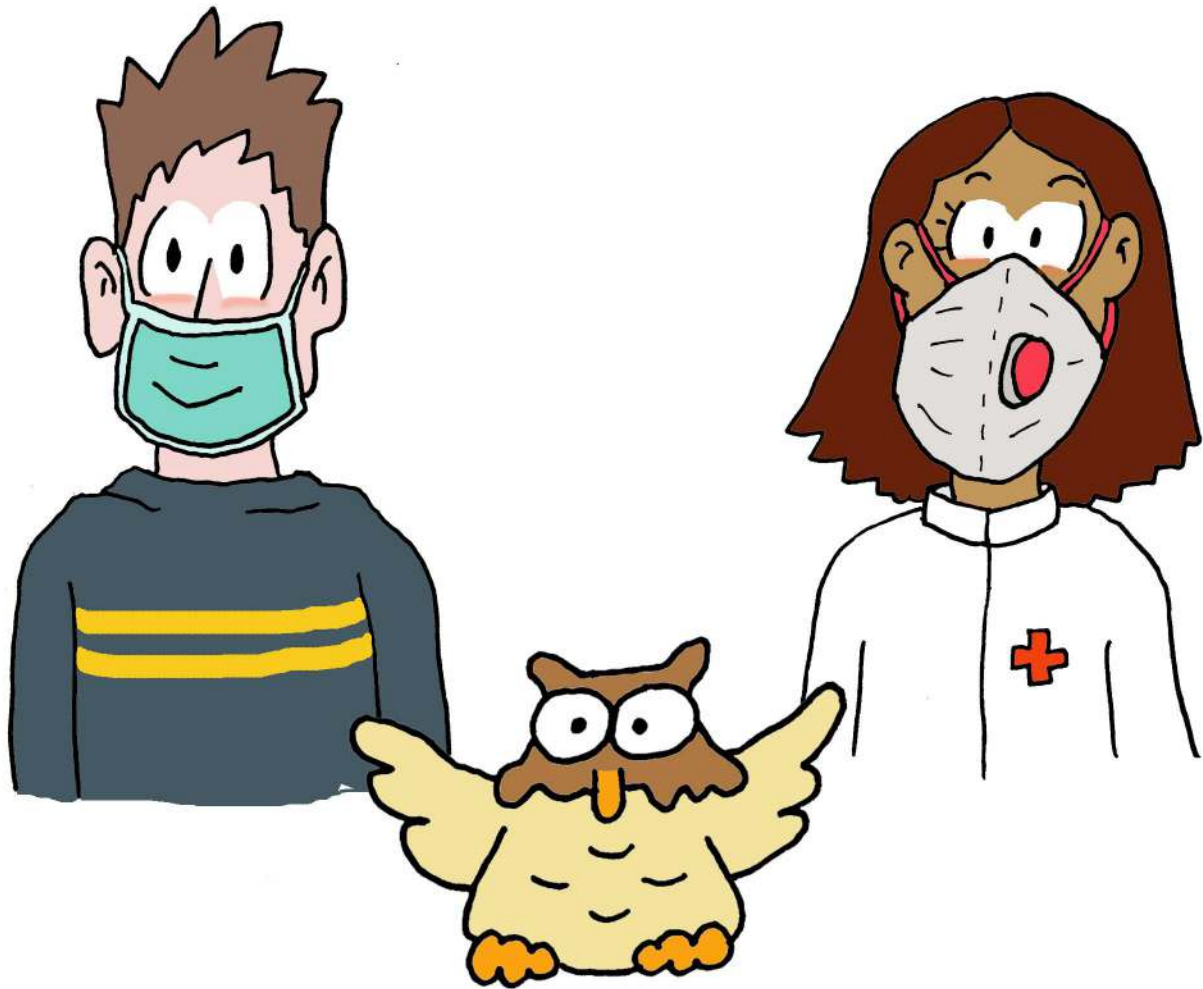
**Well, things that are touched by a lot of people:
coins, handrails, doorknobs, public transport handles or even clothes.**



And why are we told to wash our hands?

**If you have touched an infected object,
you may have the virus on your hands.**

**Soap kills the virus, since the soap's molecules break the virus wall.
So, if you touch your face accidentally, you will not infect yourself.**



Are facemasks useful?

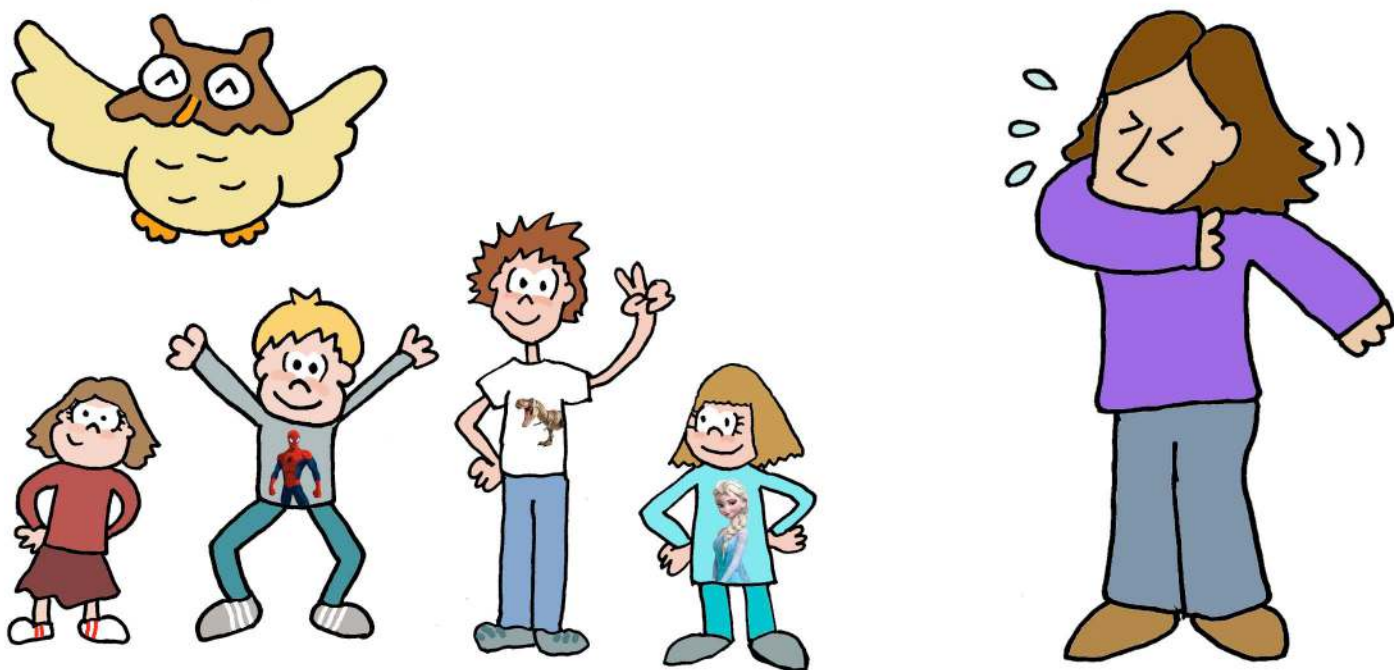
Paper facemasks (surgical) can prevent the virus spread. It is recommended to wear disposable masks if we have the COVID-19 symptoms. Medical staff have to wear protective masks (with particle filters) when taking care of infected patients to avoid the contagion. If we do not have the symptoms, it is better not to waste masks!



And what can we do when we are required to stay at home?

We must get creative: you can read books, watch films or series, draw, do crafts or play a lot with your parents since they cannot go to work. But we must not go visit our grandparents, because we could infect them.

What about a daily video conference?



So, is COVID-19 a very severe illness?

No need to panic! The disease caused by this virus is not very serious.

Most people only get a fever and a cough.

**You can even be infected and have no symptoms at all,
especially children.**

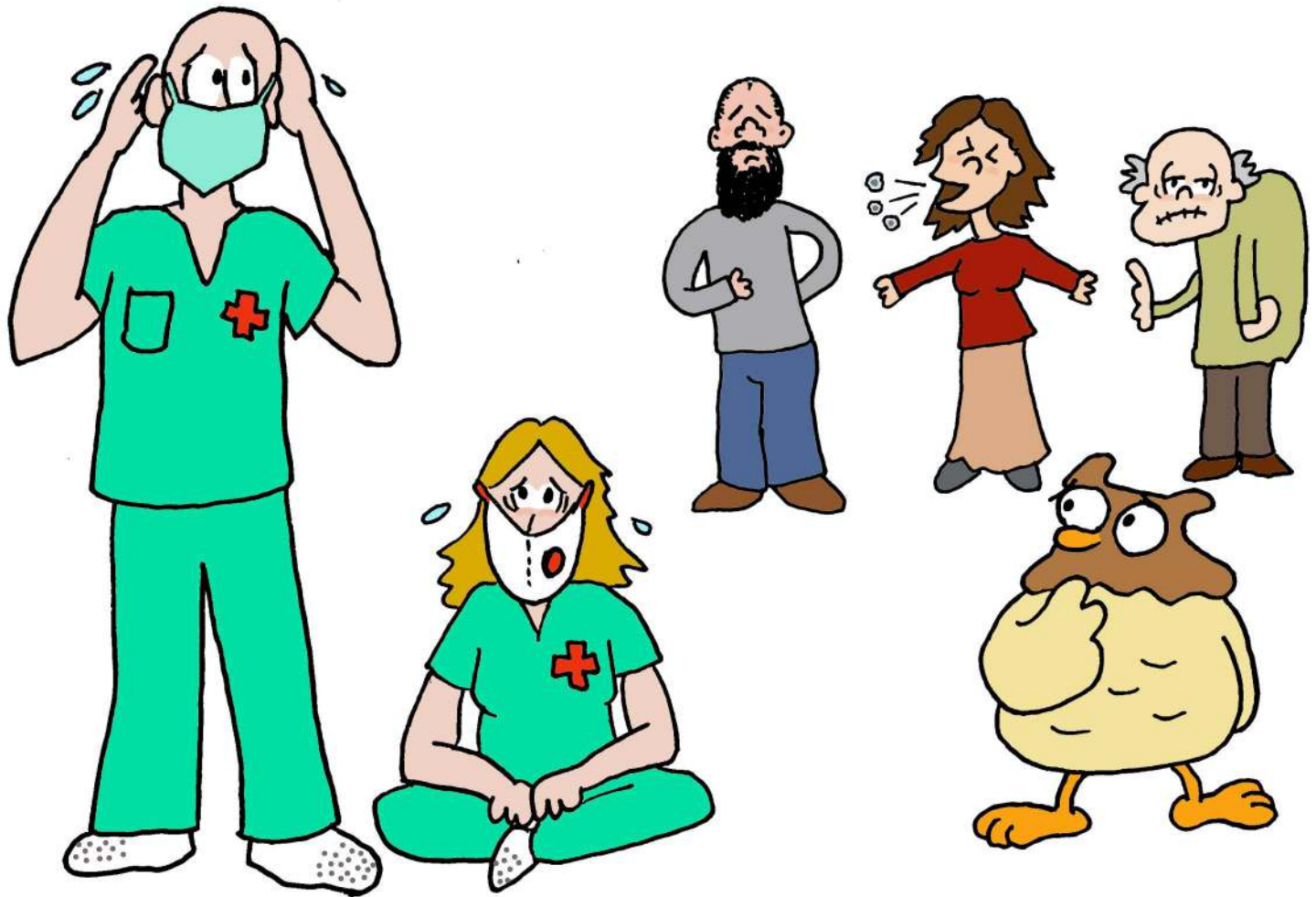


Then why is everybody panicking?

The problem here is that some people can get really sick or even die.

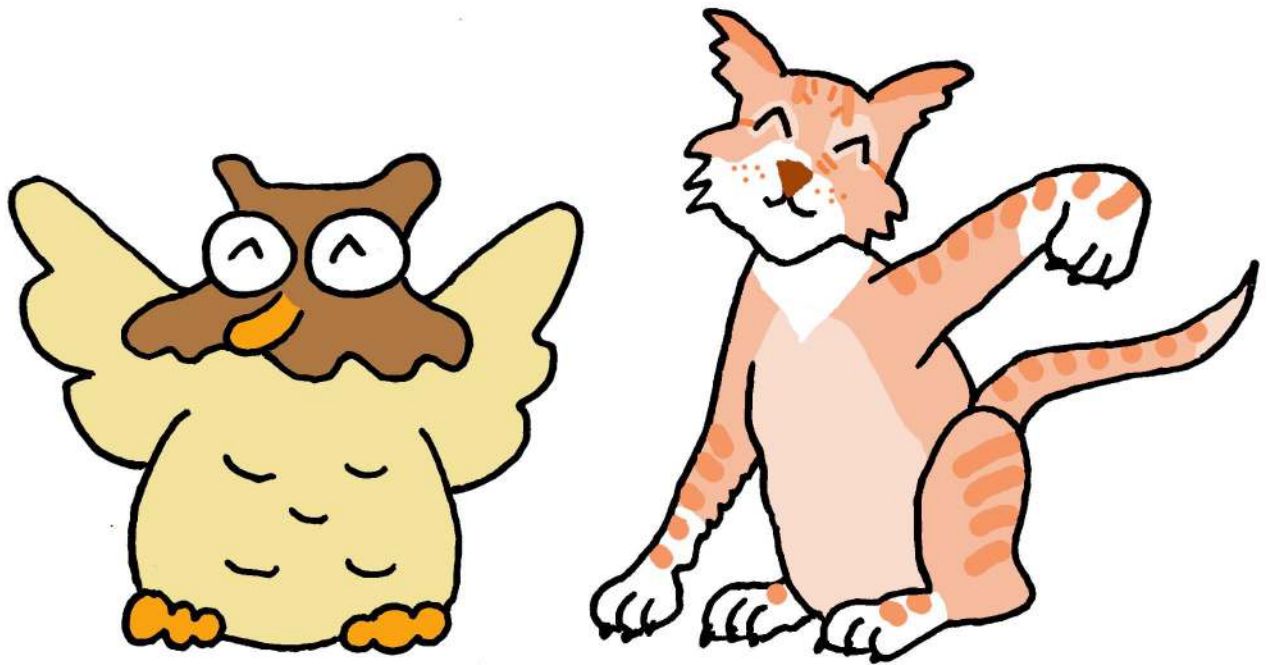
**This is also the case for other viruses such as the flu,
but with the coronavirus it happens more often.**

**Older people, or those with underlying medical problems,
can have trouble breathing and must go to hospital or they could die.**



**So, only older people and those with medical problems
should stay at home, right?**

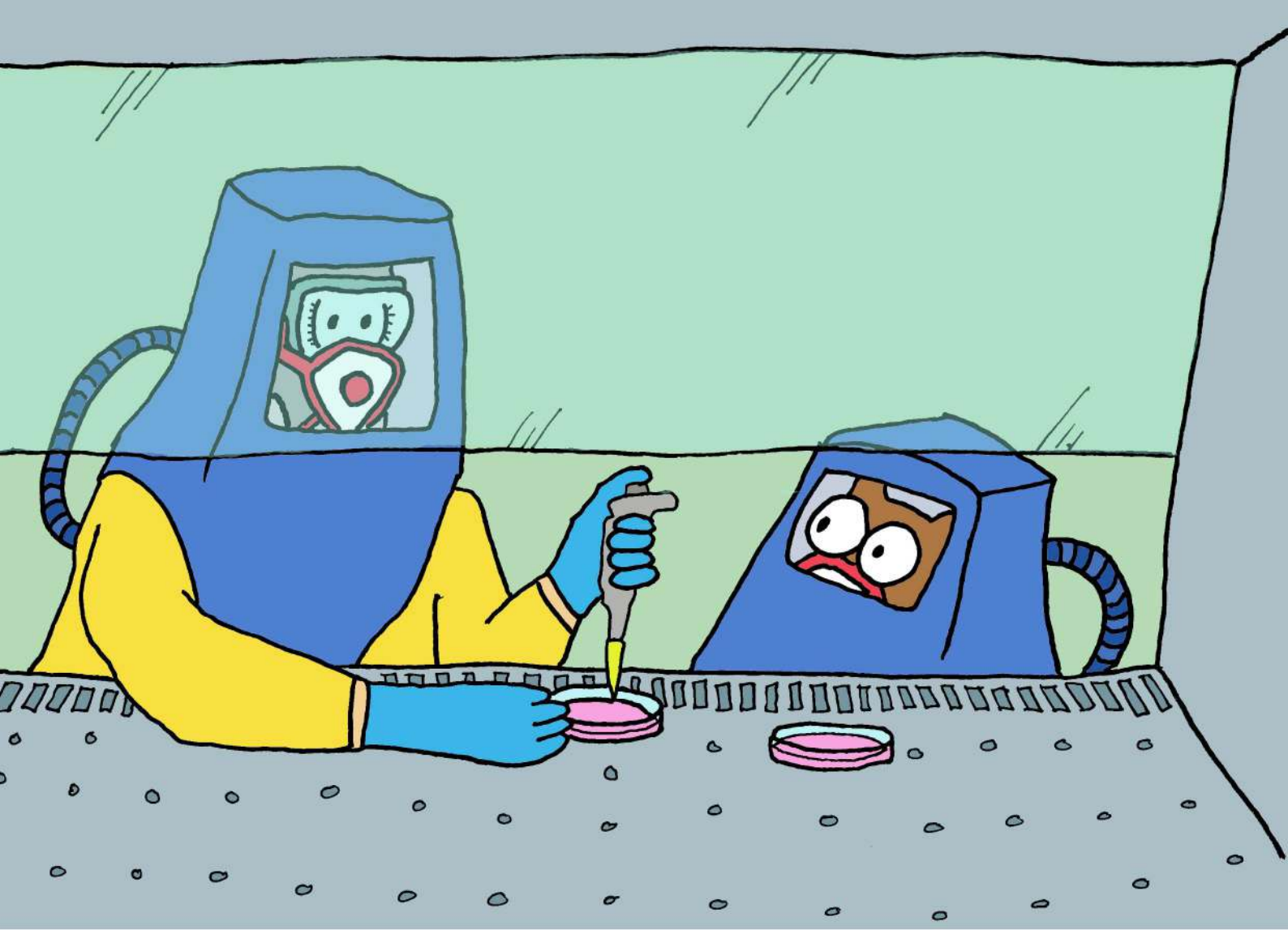
**No, we must all stay in because there is not enough room in our
hospitals to treat everybody. So, the more people that stay at home,
the less people will be infected and, thanks to that,
there will be more room in hospitals for those people
who really need to be there.**



Can our pets get the virus?

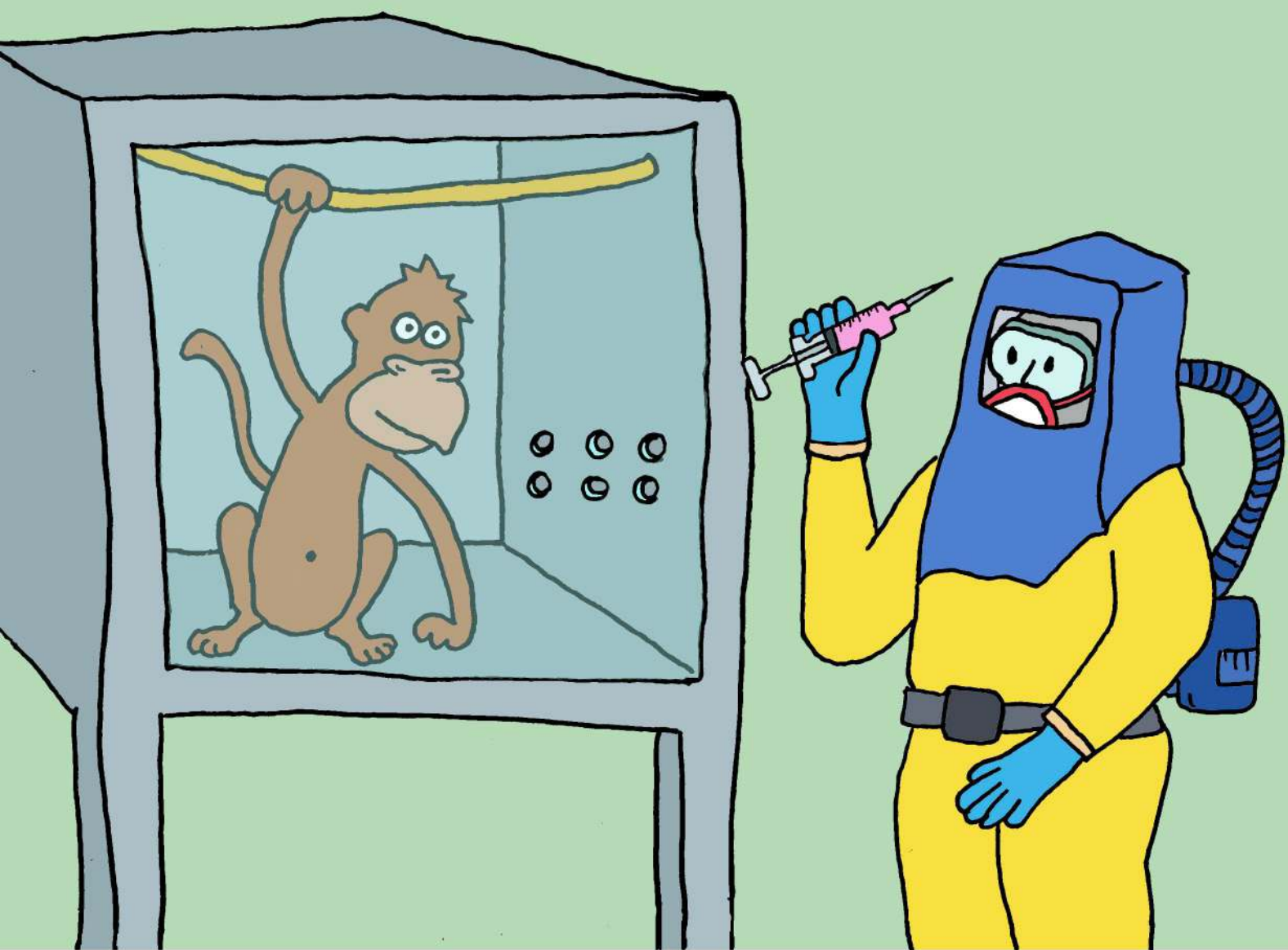
At present, there is no evidence that companion animals can be infected or transmit the virus, so we can relax!

And Mussol as well, since it does not seem to affect birds. However, they can act as fomites if an infected person touches their fur or coughs on them.



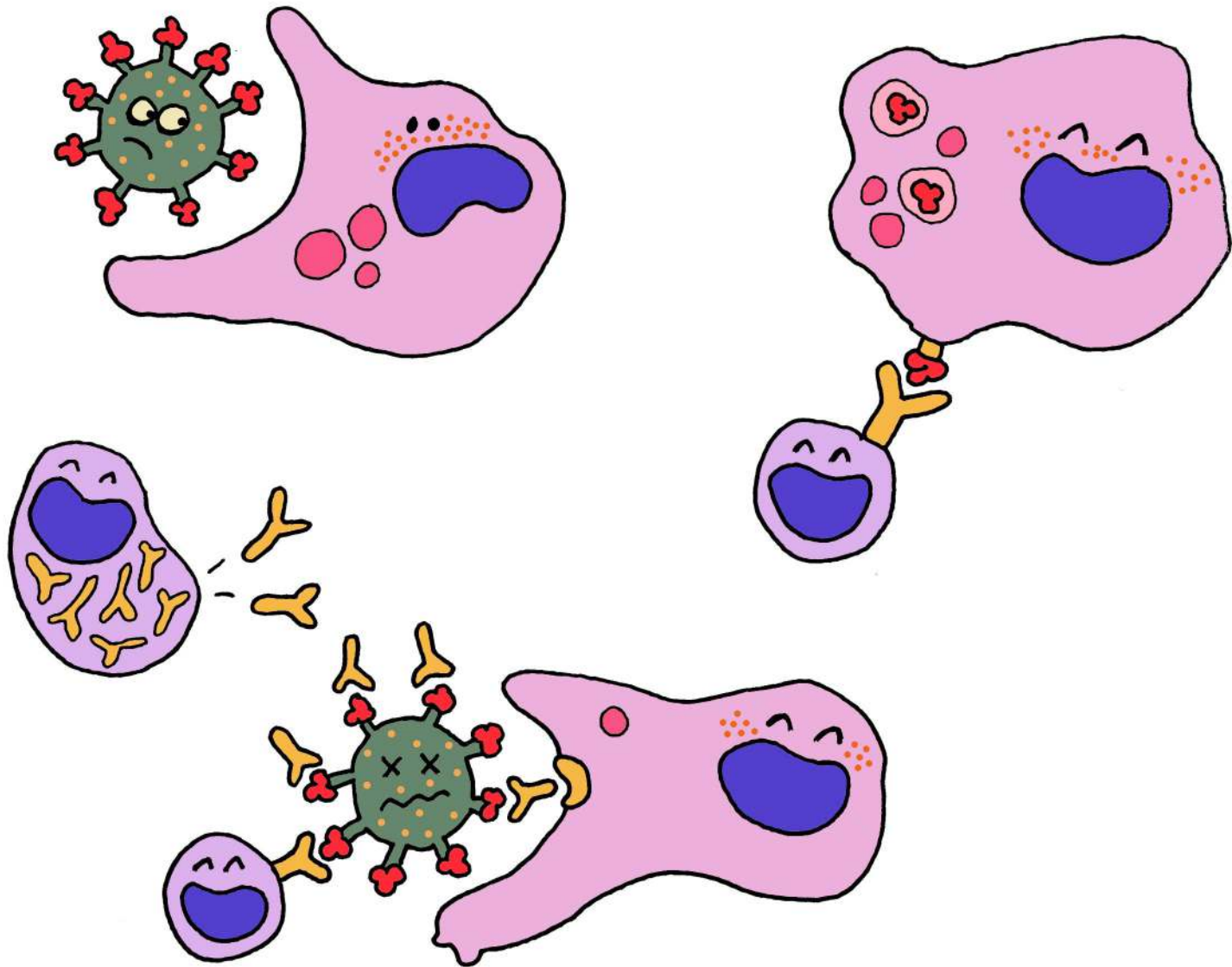
Is there a treatment? Can we take antibiotics?

Antibiotics are useless for viruses; you can only take them to fight bacteria. Scientists are looking for other drugs against viruses (the antivirals), but for now, none have proven to be effective enough to cure this coronavirus.



Can we get a vaccine?

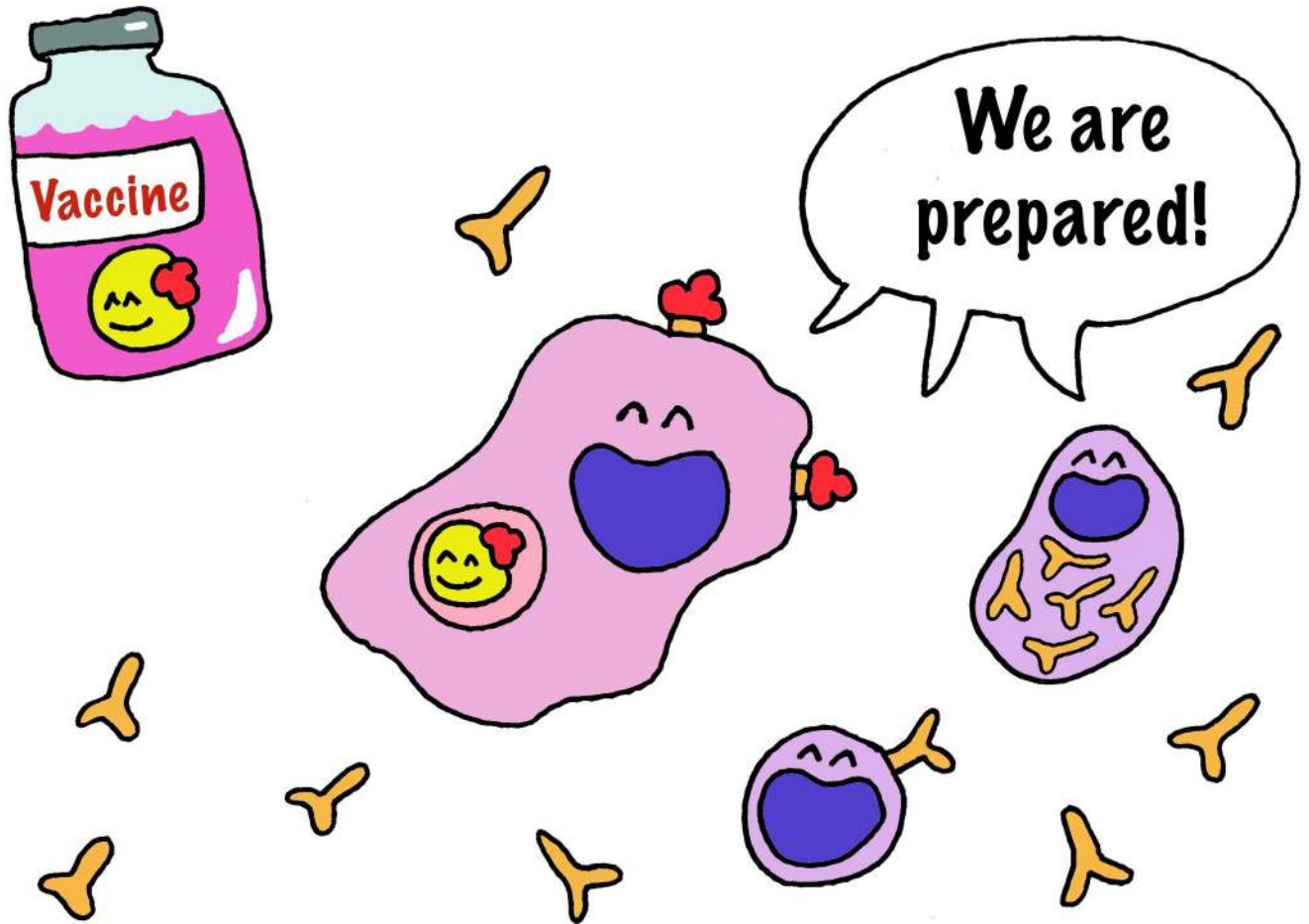
Yes, scientists are also trying to discover a vaccine to help us stop the coronavirus, but it will take a while. Vaccines are difficult to produce and this is a new virus we are facing!



But, what is a vaccine? How does it work?

**When a microbe gets into our body,
our immune system cells produce antibodies.**

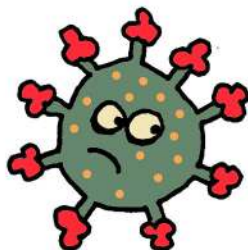
**These are molecules that enable the cells that kill microbes,
such as lymphocytes, to recognize the viruses and inactivate them.**



Vaccines are a way to trick the body into producing antibodies against a component of the virus, or even against an inactivated version of the virus, one that does not cause any illness. This way, when the real virus arrives, lymphocytes recognize it immediately and inactivate it before we get sick.



**Mussol has never lived during a pandemic,
a disease affecting people all over the planet!
Now, he is a little bit more aware of it and feels better.
He knows he must pay attention to what doctors and scientists say.
He must be patient, since it is going to be a long process.
He is certain that, if we work together, we will be able to move forward!**



Drawings by Enric Vidal (🐦 @vidal_enric), self-isolated in Barcelona. March 2020.
In collaboration with Júlia Vergara-Alert (🐦 @vergaralert) and
Xavier Abad Morejón de Girón (🐦 @xavierabadMdG), researchers at IRTA-CReSA .
English translation: Núria Artigas i Bellsollé
Language review: Becky and Rick Flickinger

This story is a personal and unpaid initiative. The opinions and interpretations included are of our own and do not represent those of the institution for which we work.

If you have any doubt, it is important to only check official sources.
Mussol recommends you to resort to the health department of your local government.

To Eloi, Quim, Carla and Gina Vidal and also to Carla and Oriol Bernardo, and Maria Mellins.