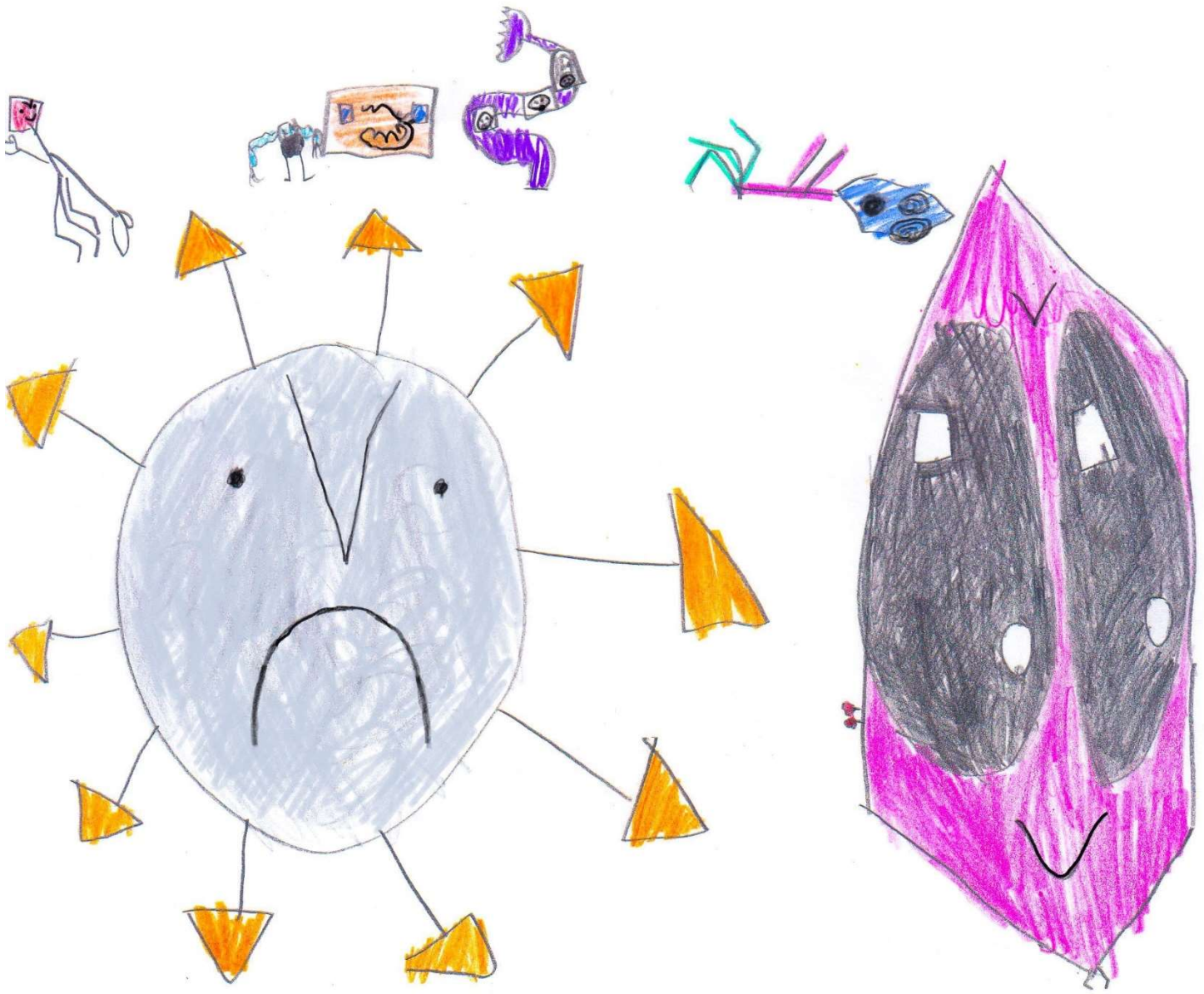


Virophage, the Good Virus

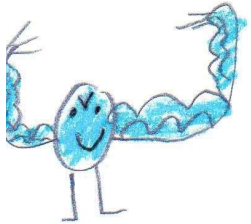


By Jonathan

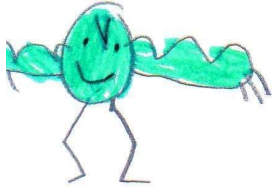


The story of Virophage begins in Bacteria City
...inside of a boy.

Immune system cells live in Bacteria City and keep the boy healthy.



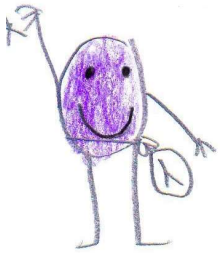
= white blood cell



= T cell

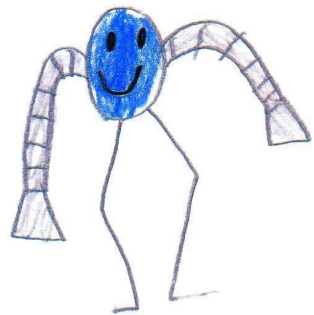
fights abne.

part of search-and-attack team.



= B cell

makes antibodies to mark invaders.

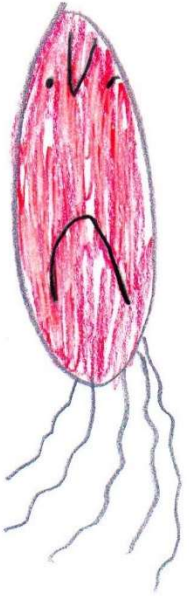


= Cleaner-up cell

cleans up dead invaders.

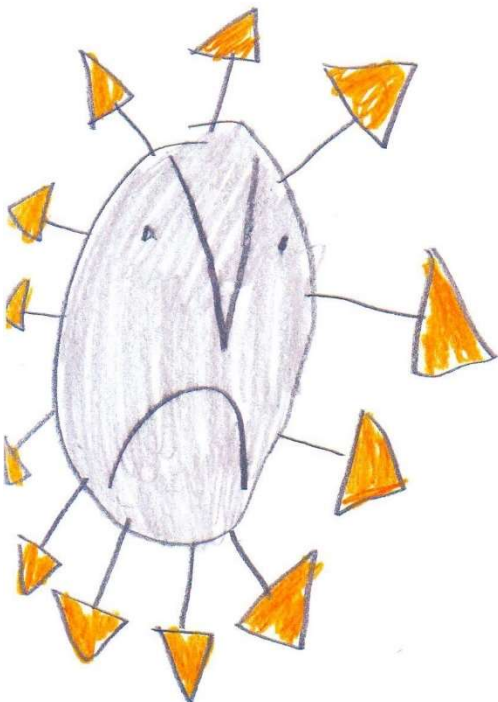
Sometimes, there are invaders.

Bad bacteria and viruses can make the boy sick.



= Bacteria

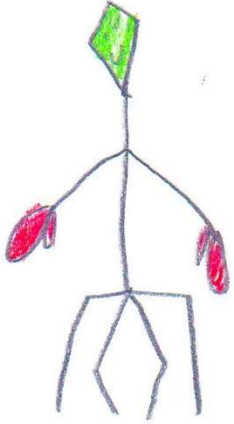
an invader.



= Virus

also an invader

But there is help.
Good viruses, phages, can fight invaders.



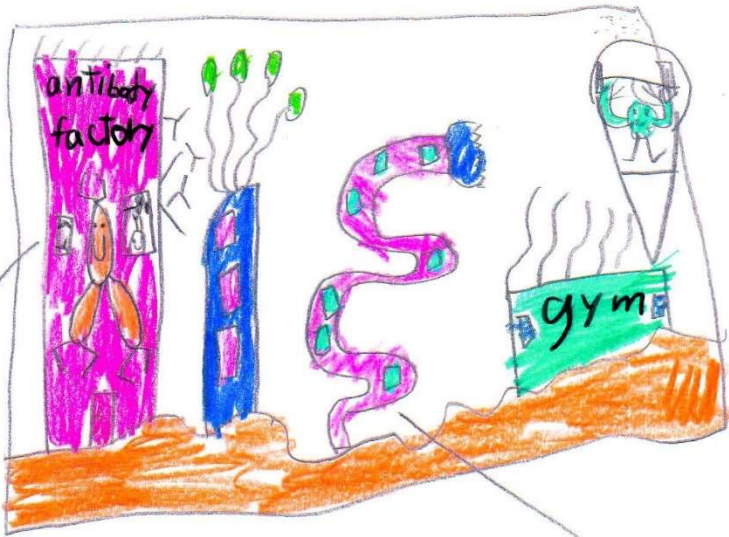
= Bacteriophage
good virus, kills
bacteria.



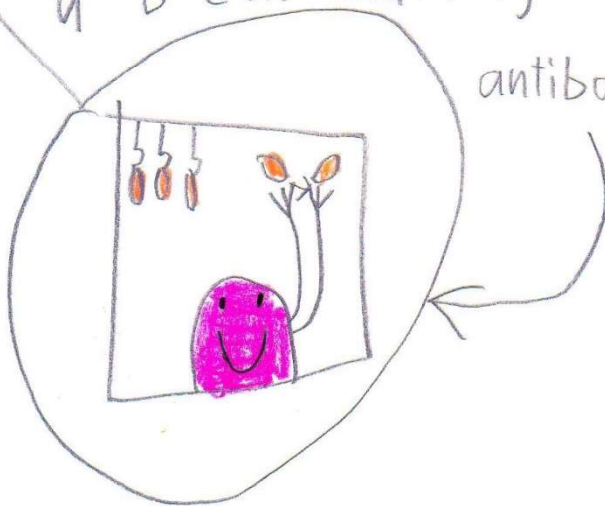
= Virophage
good virus, fights
viruses by
stopping their reproduction.

Every day in Bacteria City,
the immune system is hard at work.

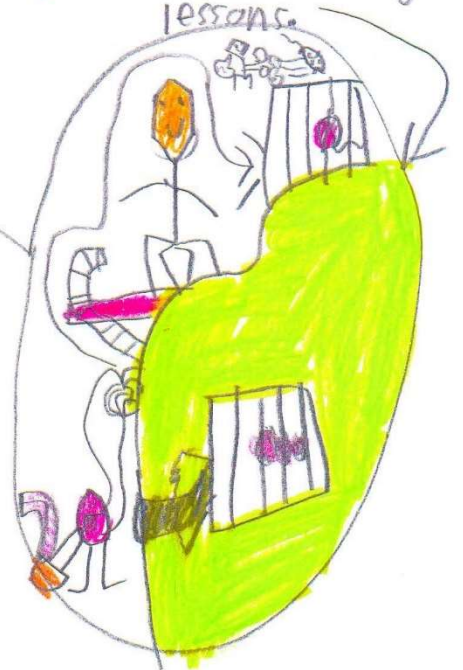
Bacteria city...



a B cell making
antibodies.

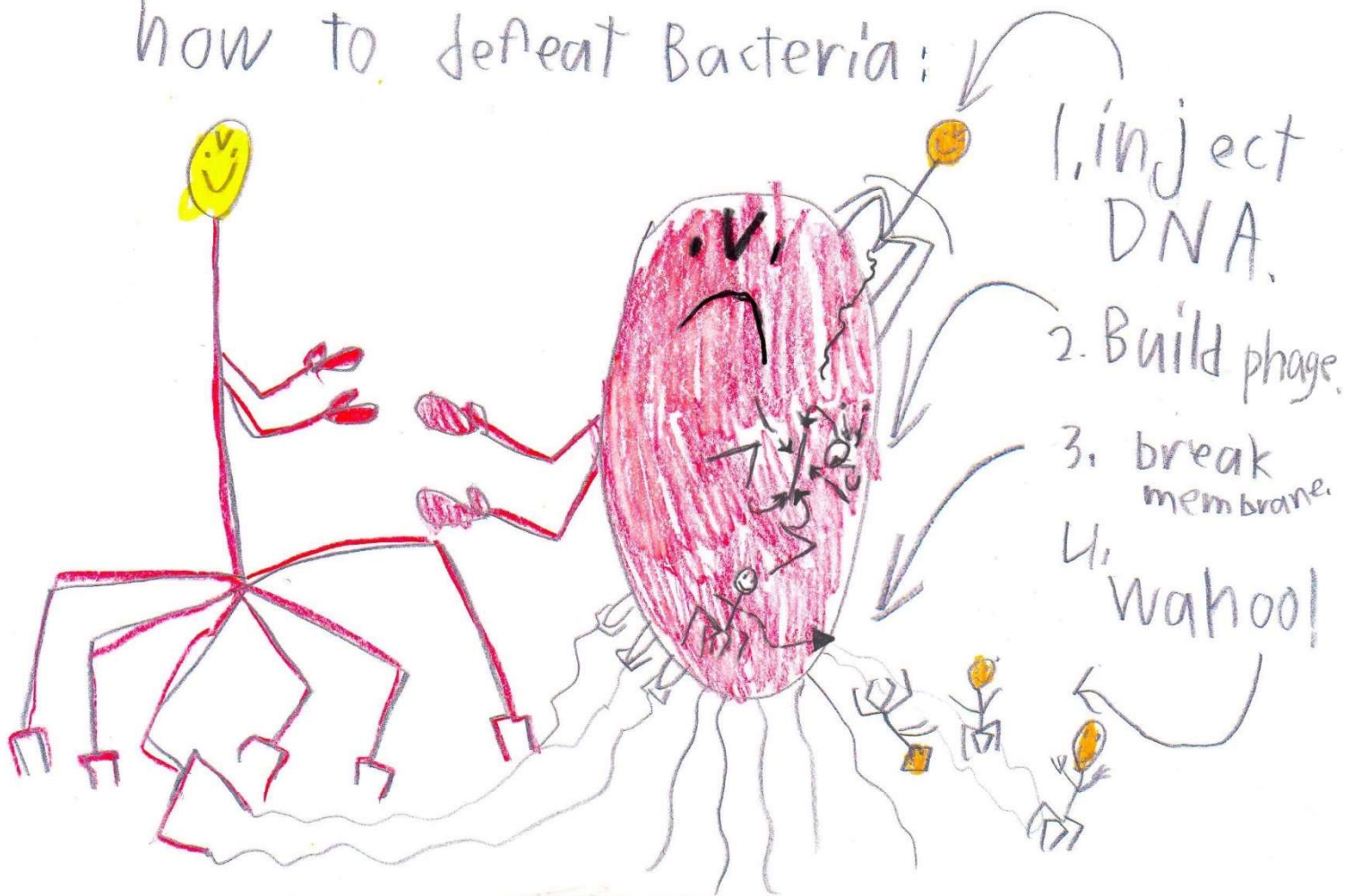


Bacteria killing
lessons.

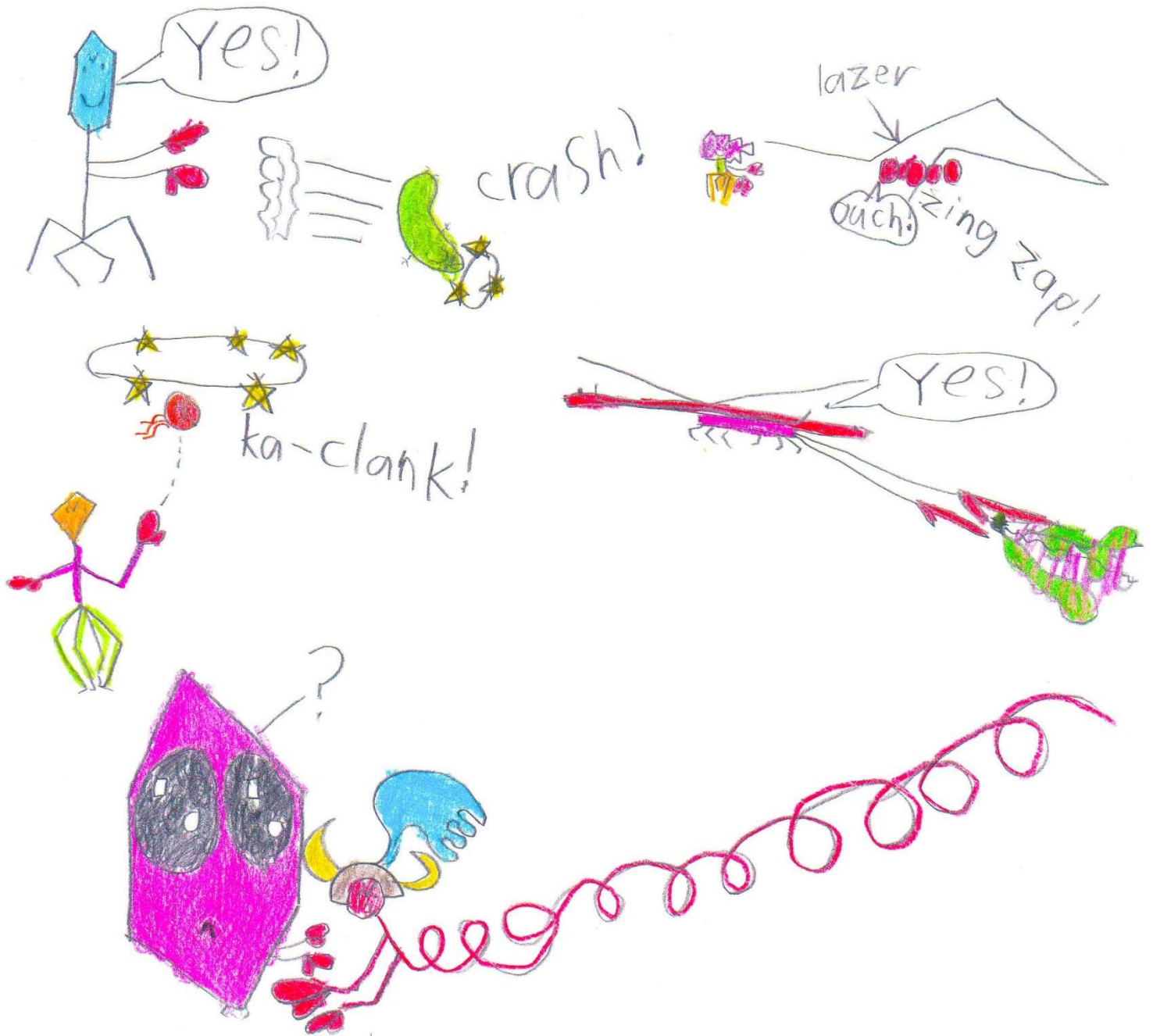


One day, in the gym, phages trained to destroy bad bacteria.

How to defeat Bacteria:

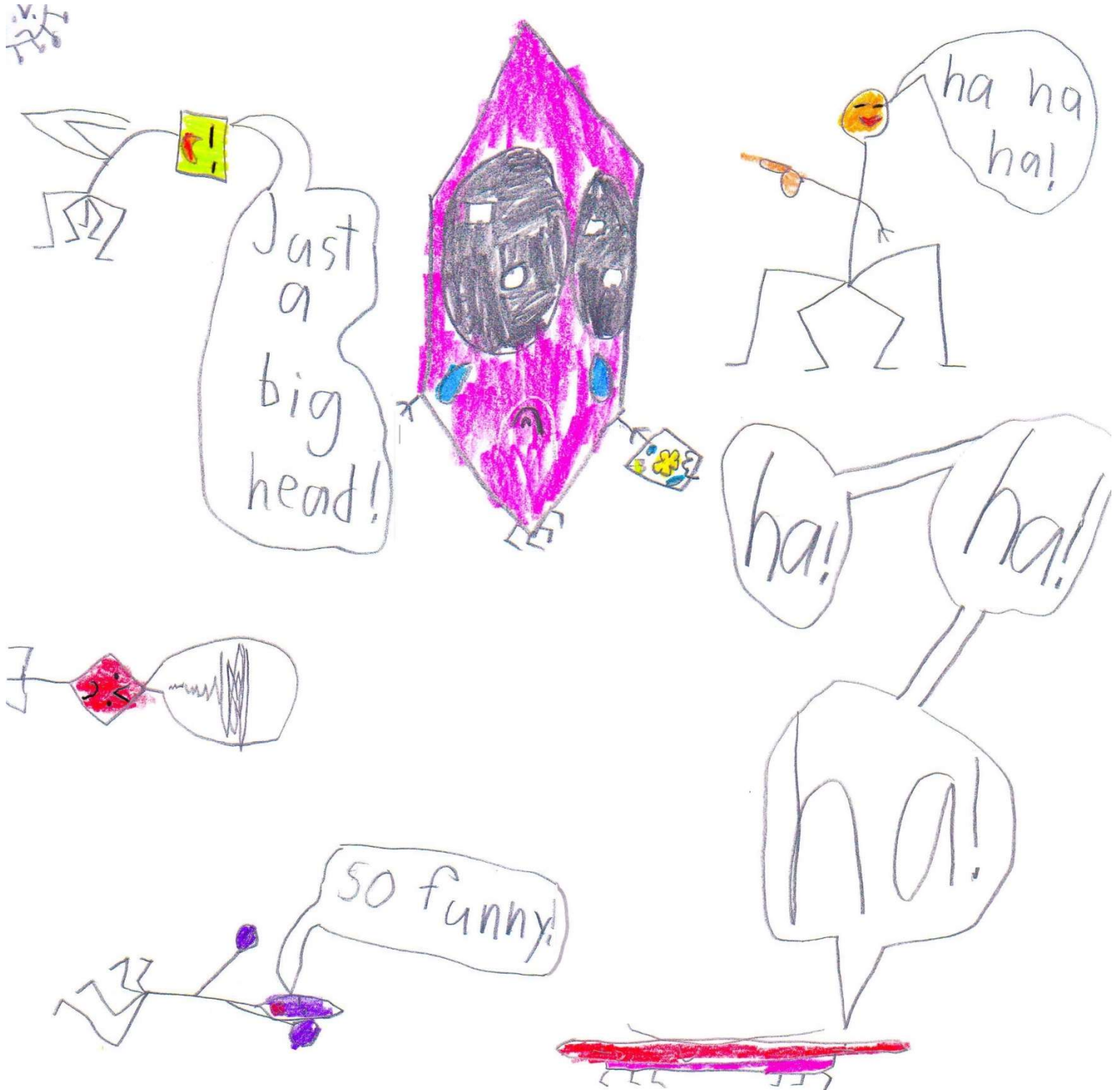


All phages could defeat their bacteria with ease.



Except one... Virophage did not know what his bacteria was. He felt useless.

Other phages made fun of him.



Sad, he went outside.
Then, he heard a voice...



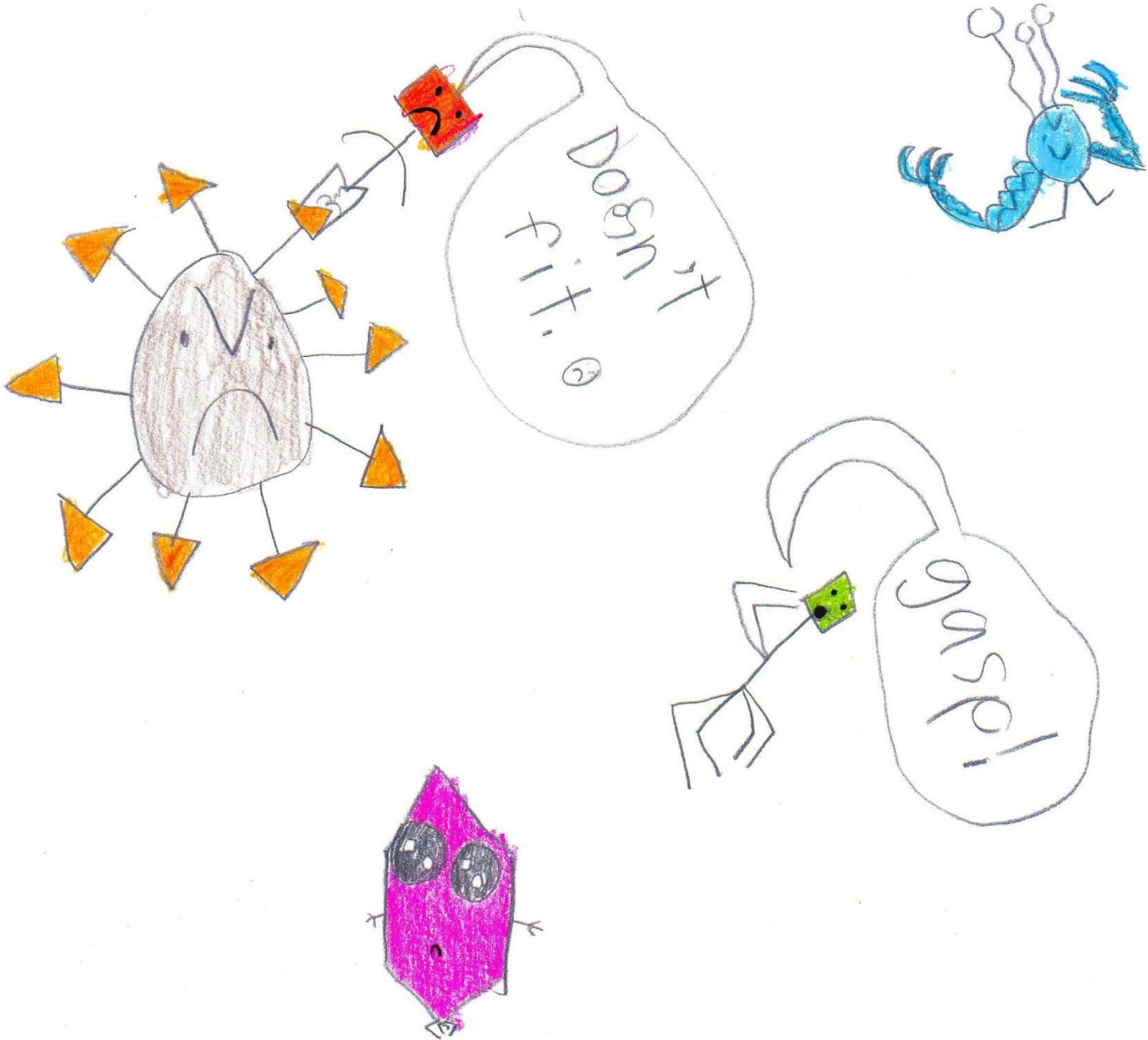
They boy said it is OK to be different.
And they became friends.

Who are you
talking to,
dear?

Just to
myself,
mam.



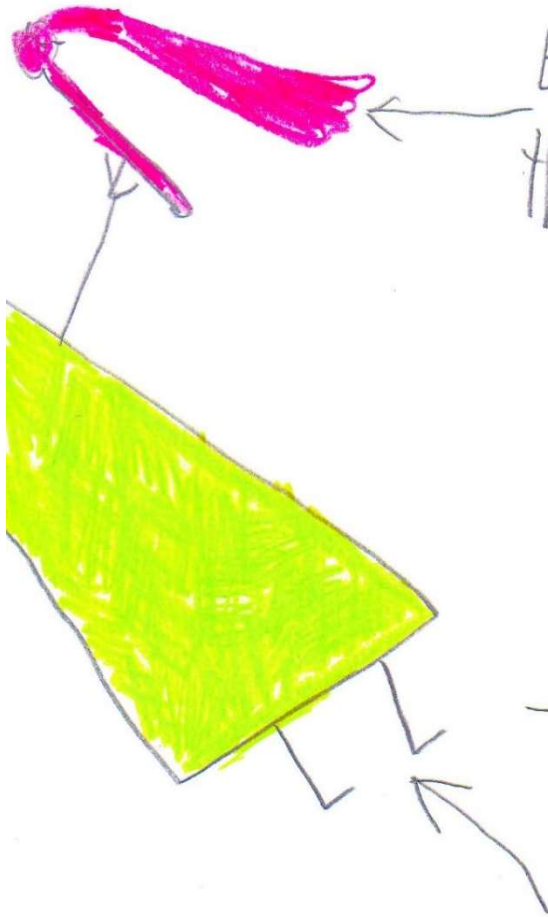
One day, a new undefeatable virus appeared.
Bacteriophages could not help.



The boy got VERY sick.

107°F!

broken
thermometer



Zong!



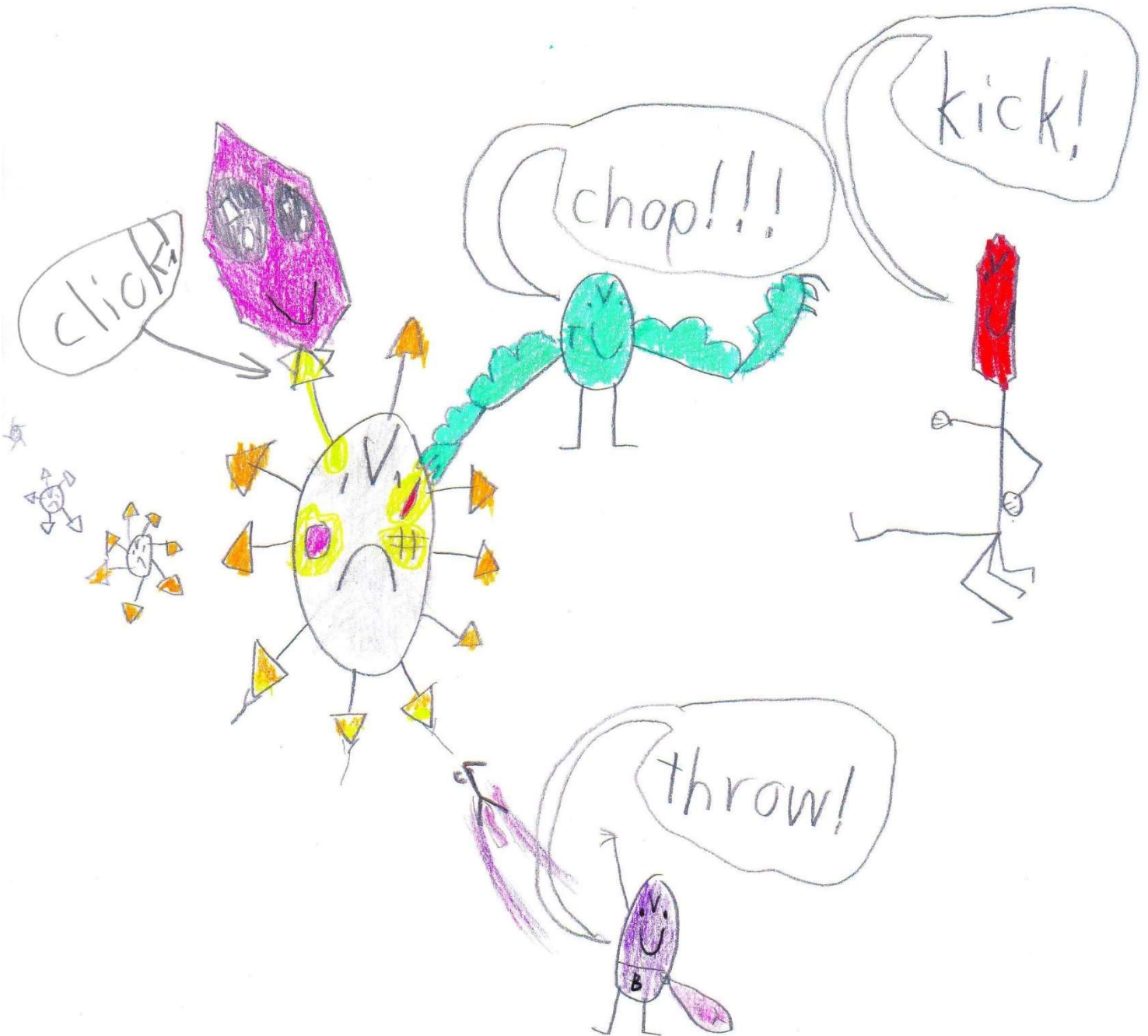
The immune system attacked.



But there was a problem.
The virus multiplied too fast!



Virophage discovered
he could attach to the virus!

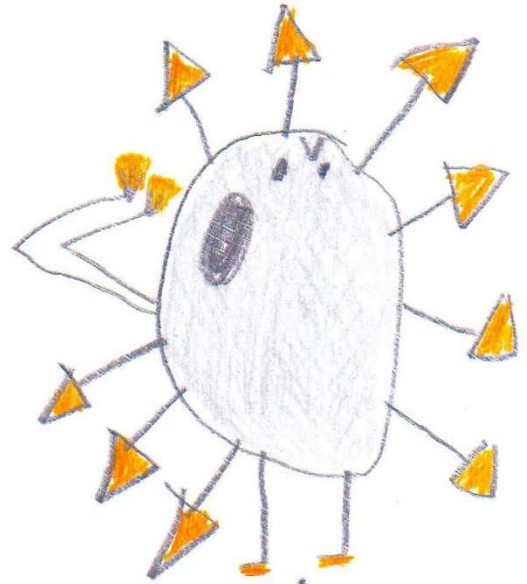
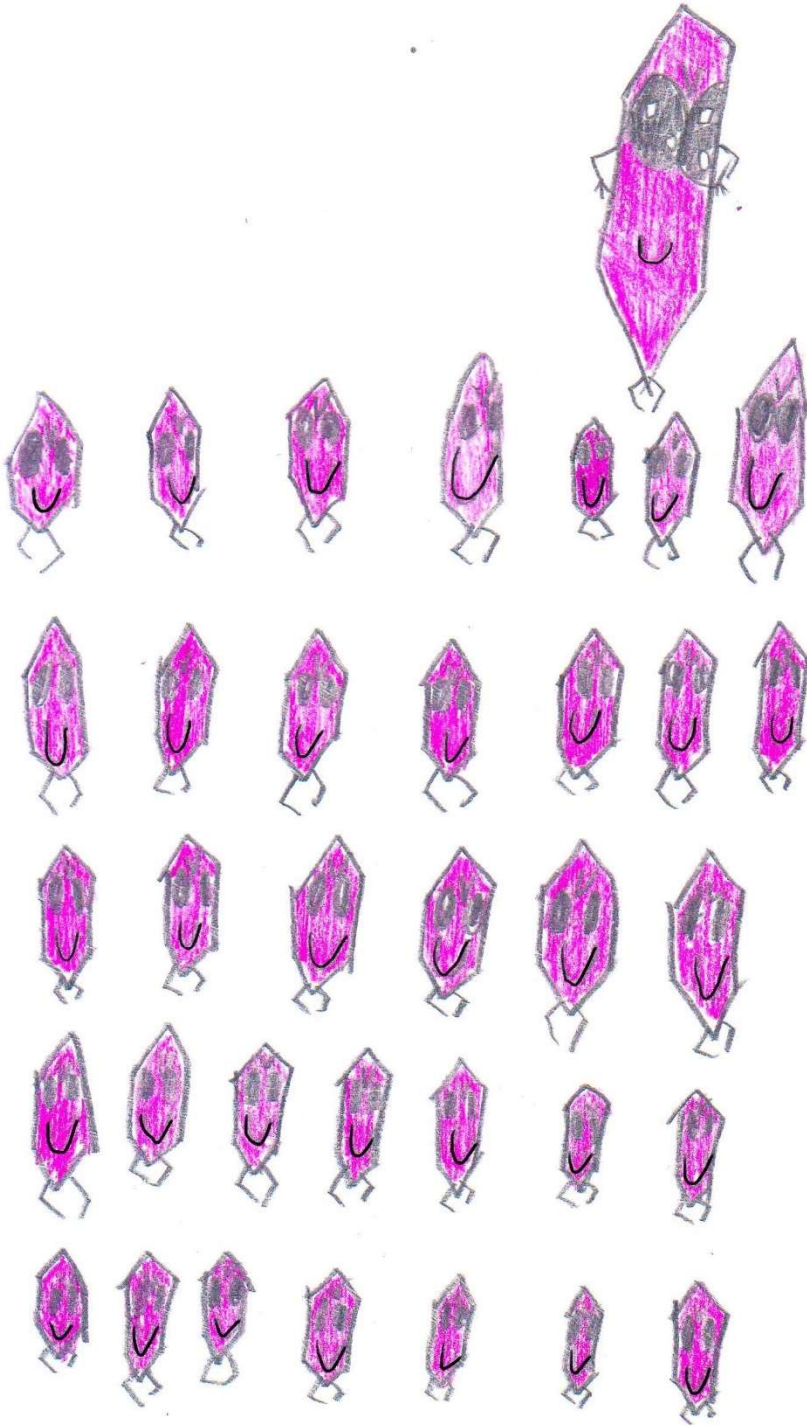


He stopped the virus from multiplying...



1. Enter cell,
2. cell makes copies of virophages.
3. Cell does NOT make copies of viruses.
4. Repeat 1,000,000 times.

...and built a big army.



Oh, no! We
cannot
multiply!

© 2012

And the immune cells...

Introducing... T cell punch!

easy
animation

extra
cheesey

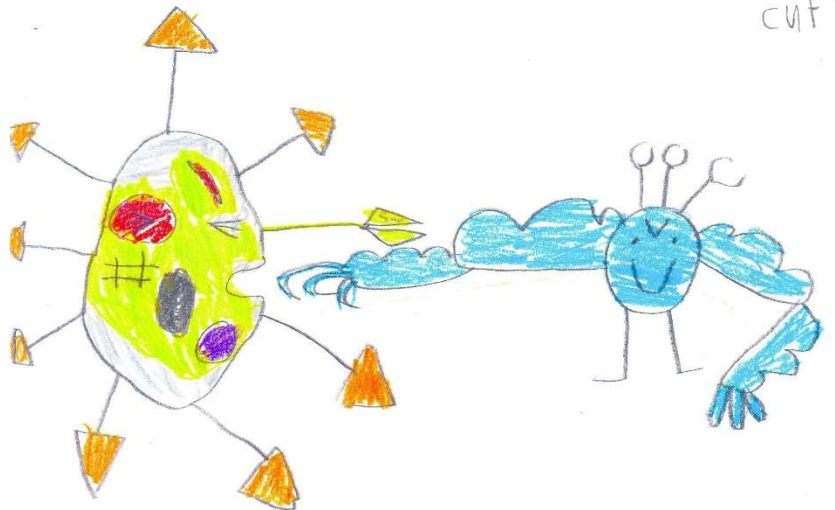
cut here!

Worked...



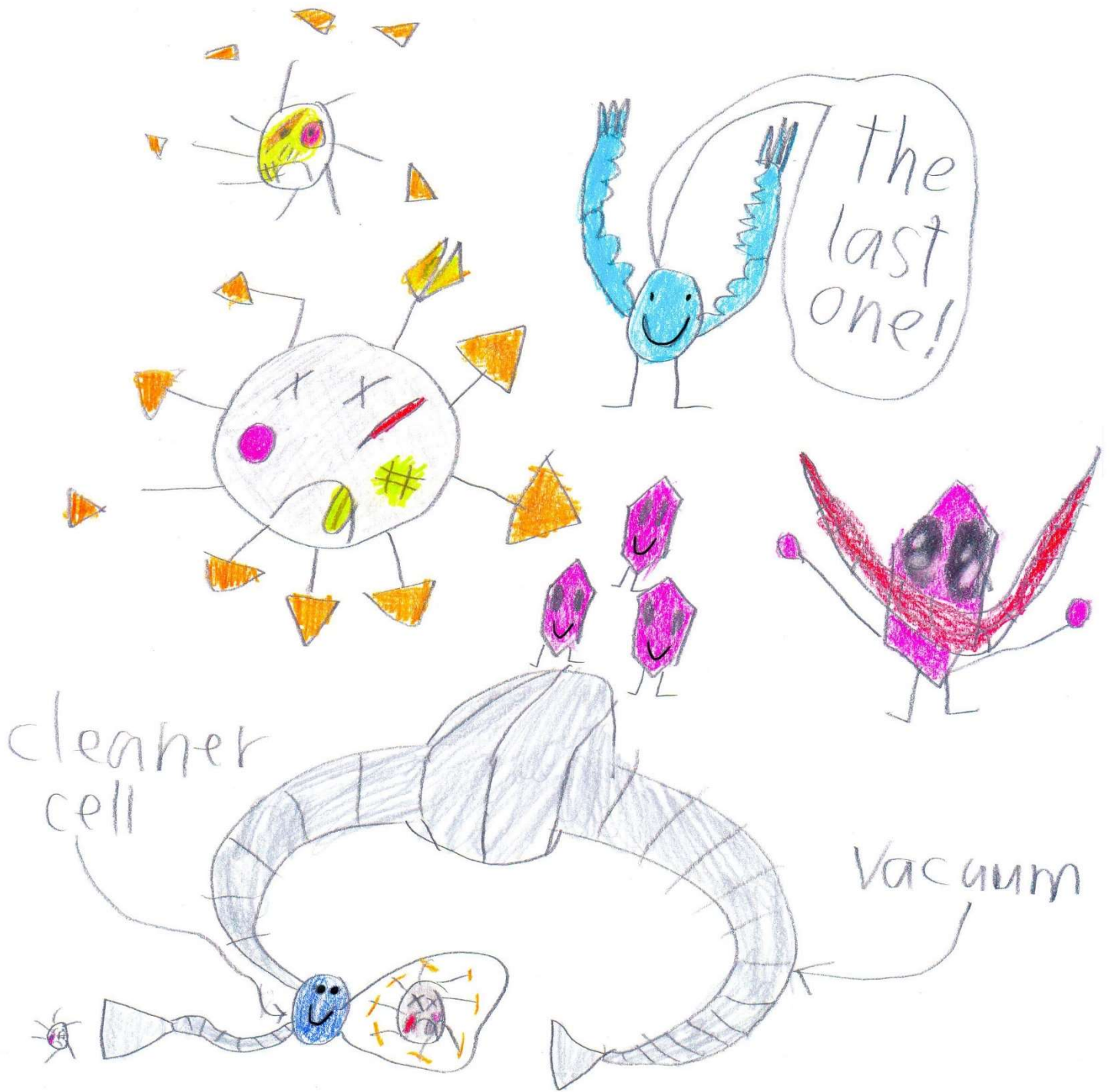
cut here!

and punched...



and fold

...until they finished the job.



Everyone celebrated victory.



Bacteria city had a parade.
And virophage was happy among new friends.



The
end



About the author

Jonathan is fascinated by bacteria, viruses, and the amazing world of his immune system. Unable to meet his human friends until the children's coronavirus vaccine becomes available, Jonathan is dreaming up other ways to fight the virus. He is happy to share one of his many adventures in Bacteria City with other children.

