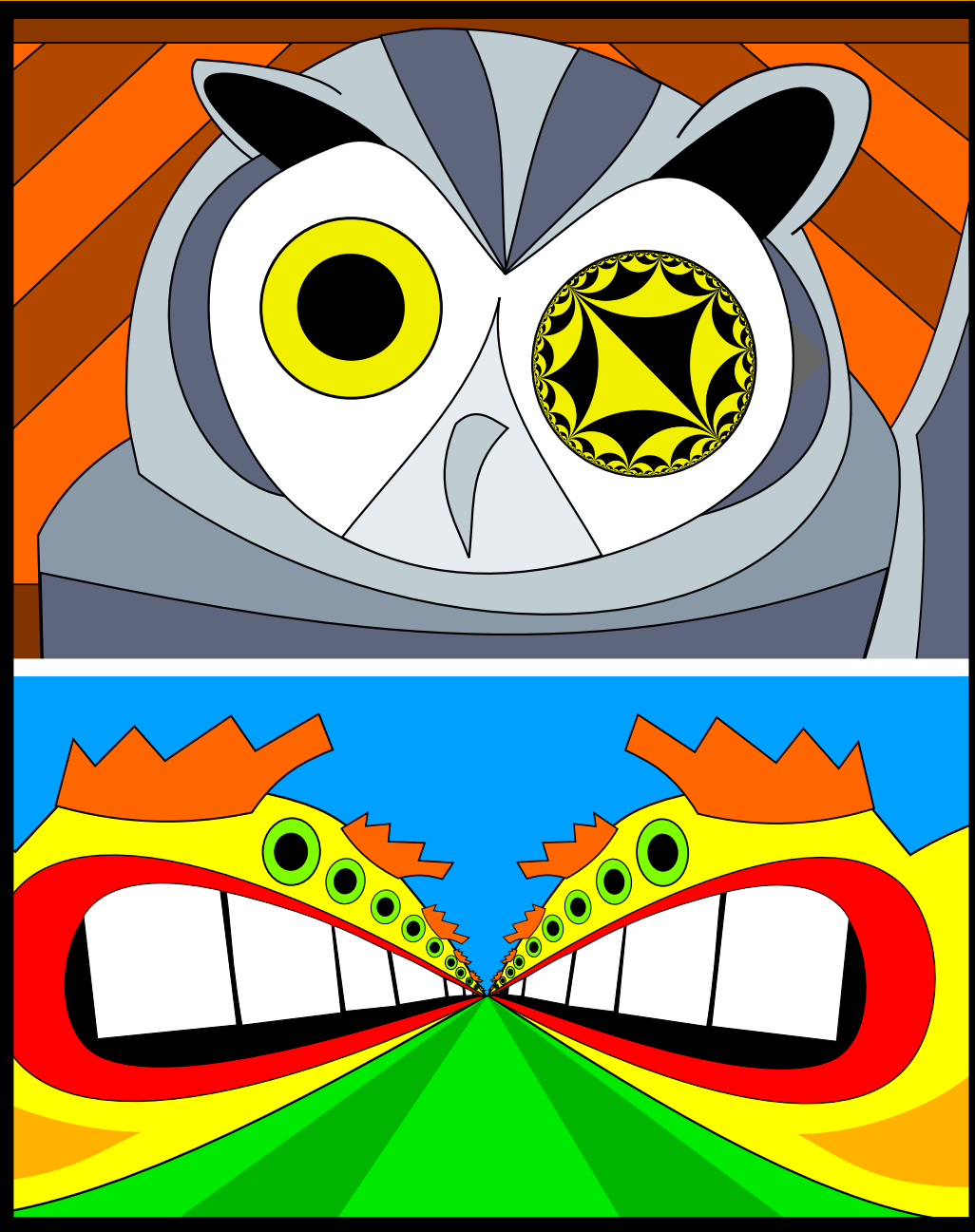


Life on the Infinite Farm

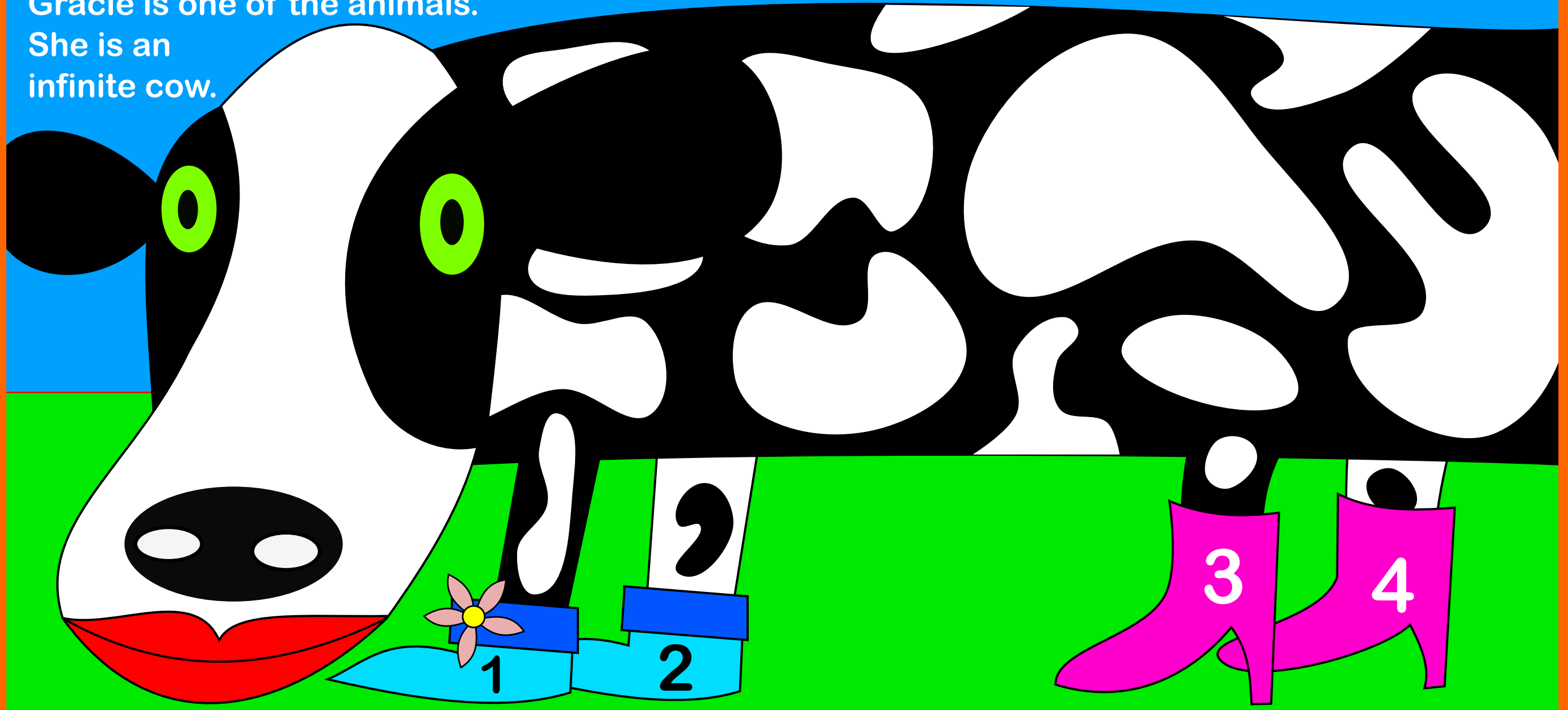
Richard Evan Schwartz



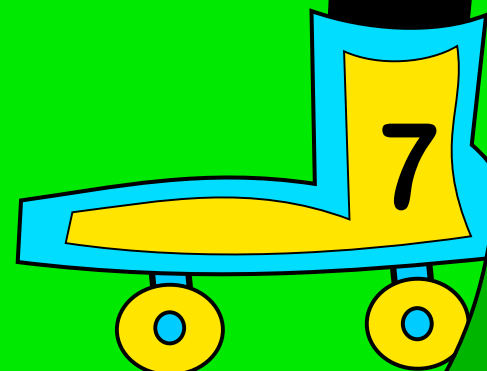
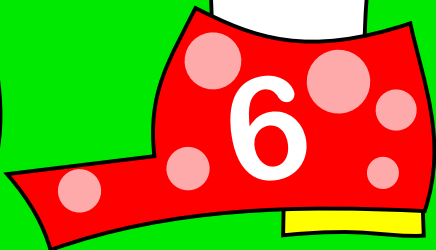
Who are the animals
on the infinite farm?



Gracie is one of the animals.
She is an
infinite cow.

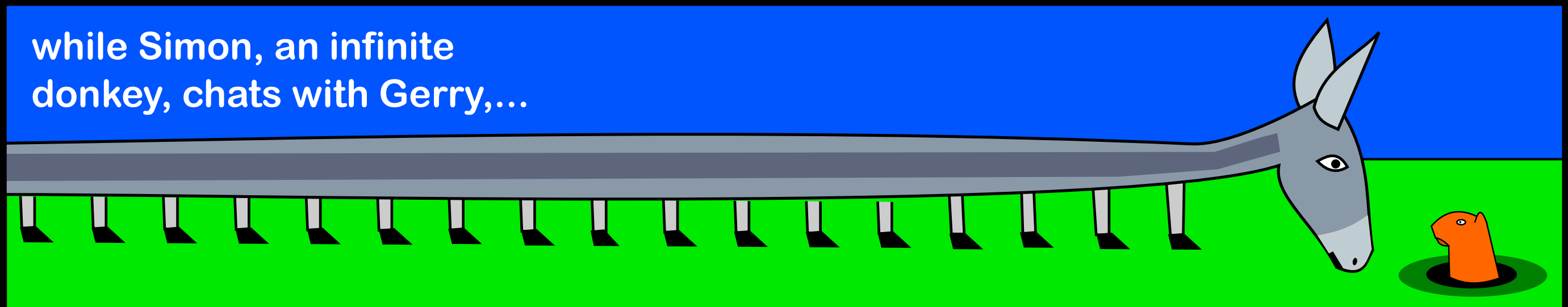
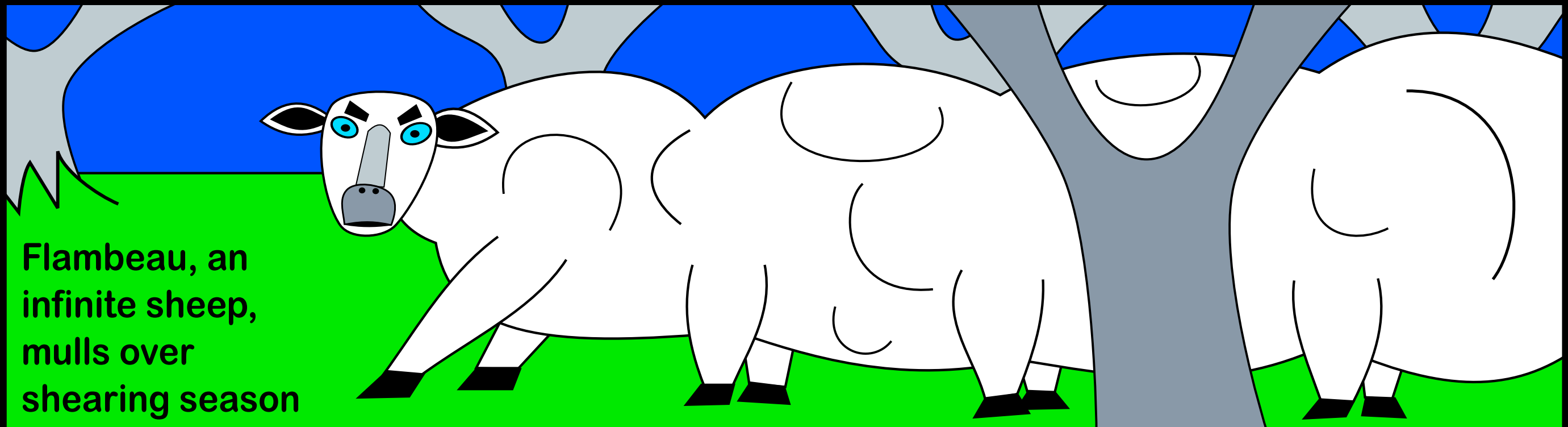


Gracie
loves
shoes.
She has
one
on every
foot ...



and her feet
go on forever!



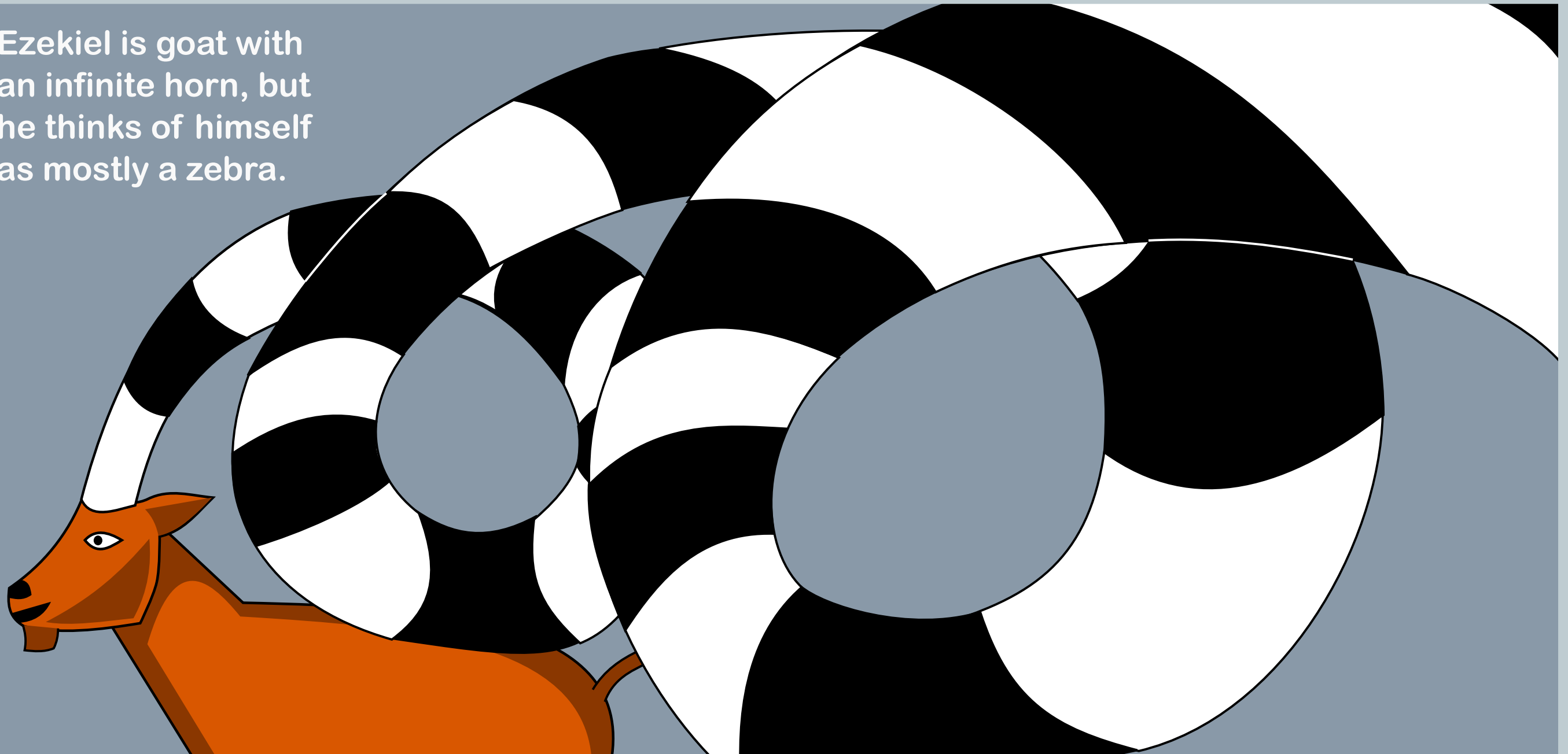




an infinite gopher.



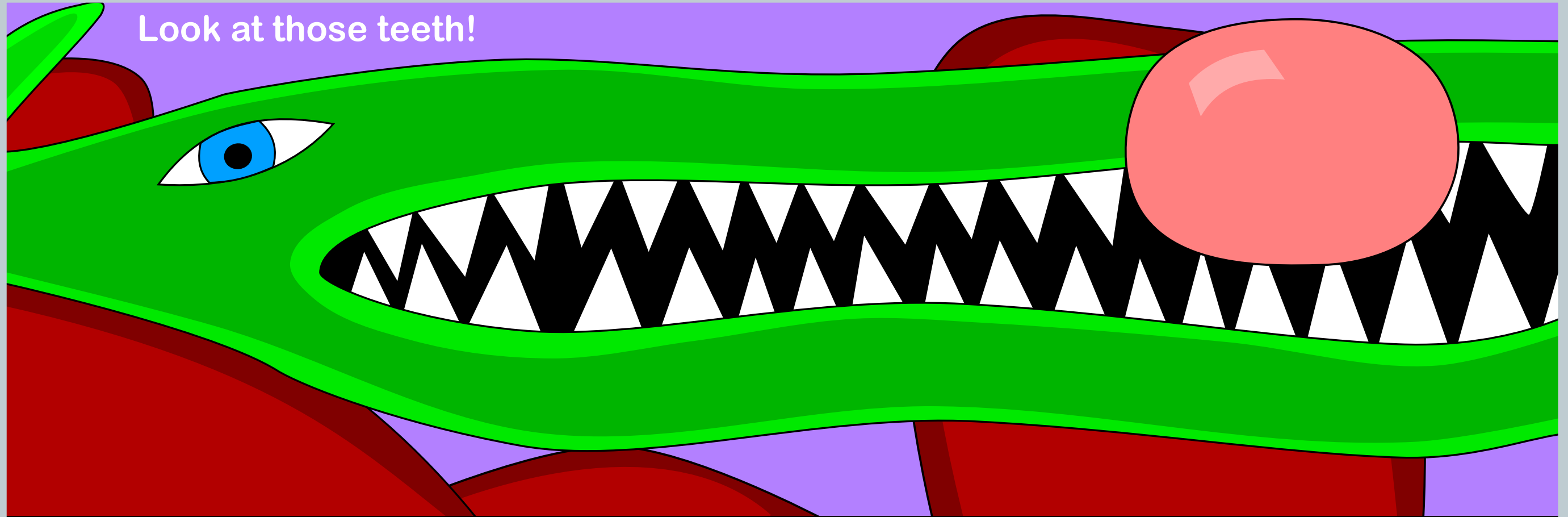
Ezekiel is goat with
an infinite horn, but
he thinks of himself
as mostly a zebra.



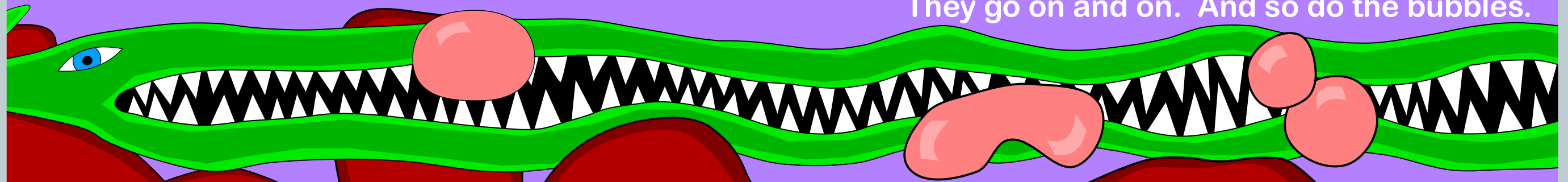
Hammerwood is an
infinite crocodile. Let's
zoom out to see him better.



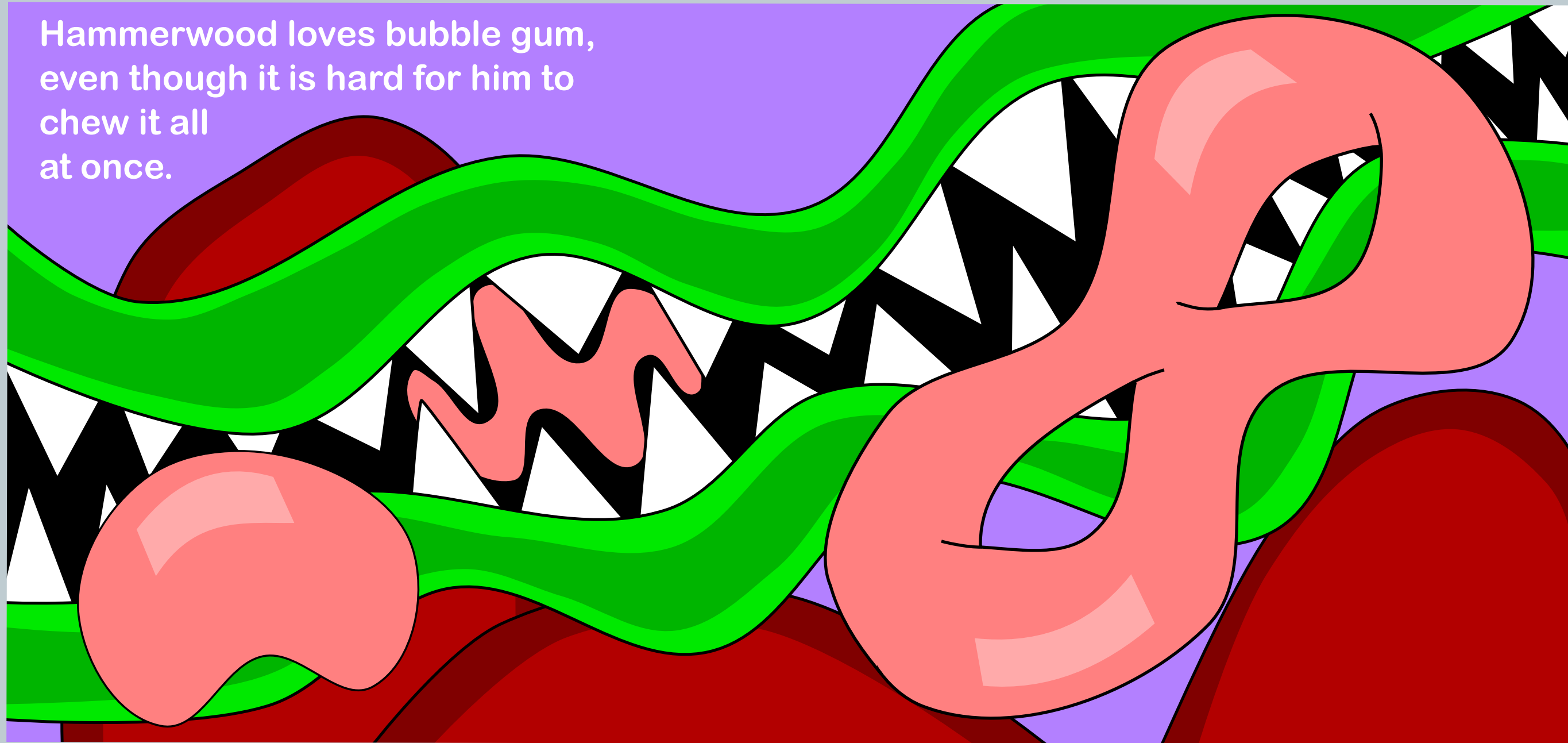
Look at those teeth!



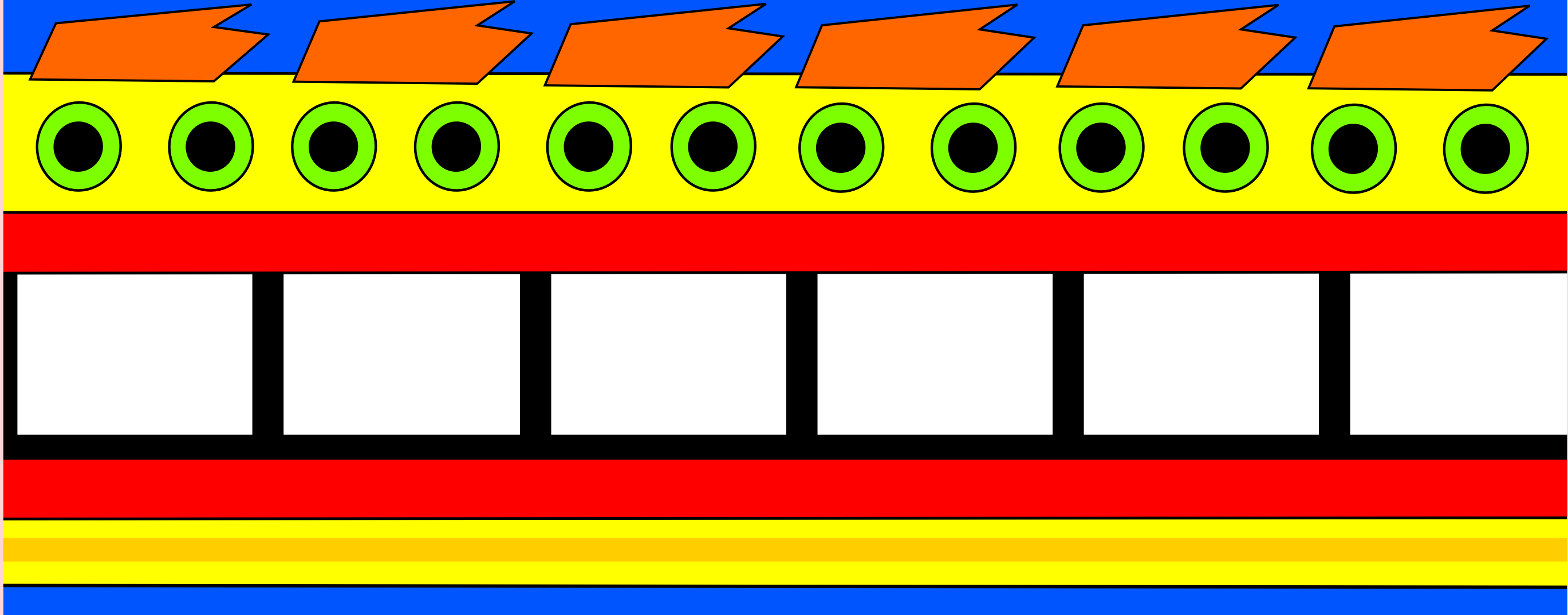
They go on and on. And so do the bubbles.

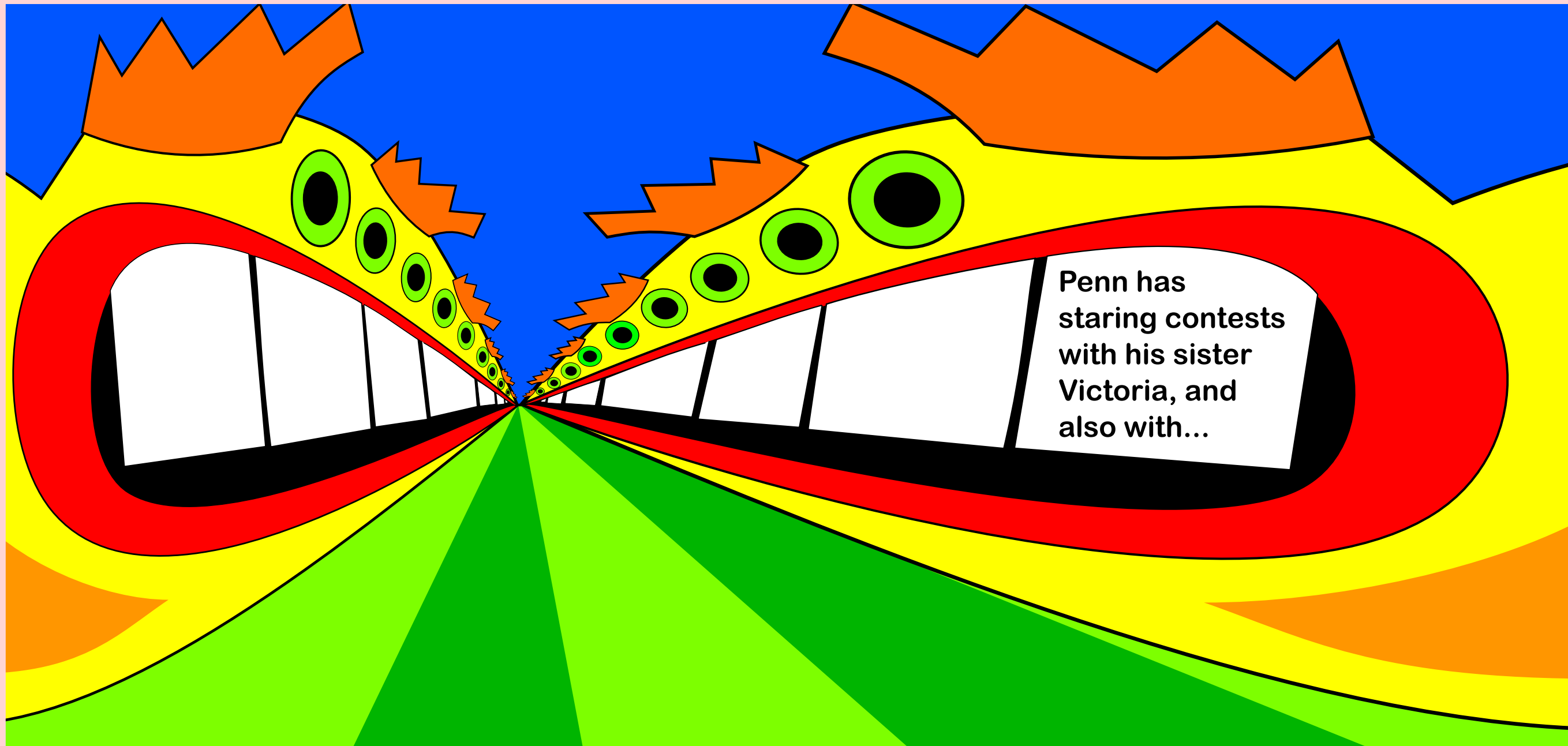


Hammerwood loves bubble gum,
even though it is hard for him to
chew it all
at once.



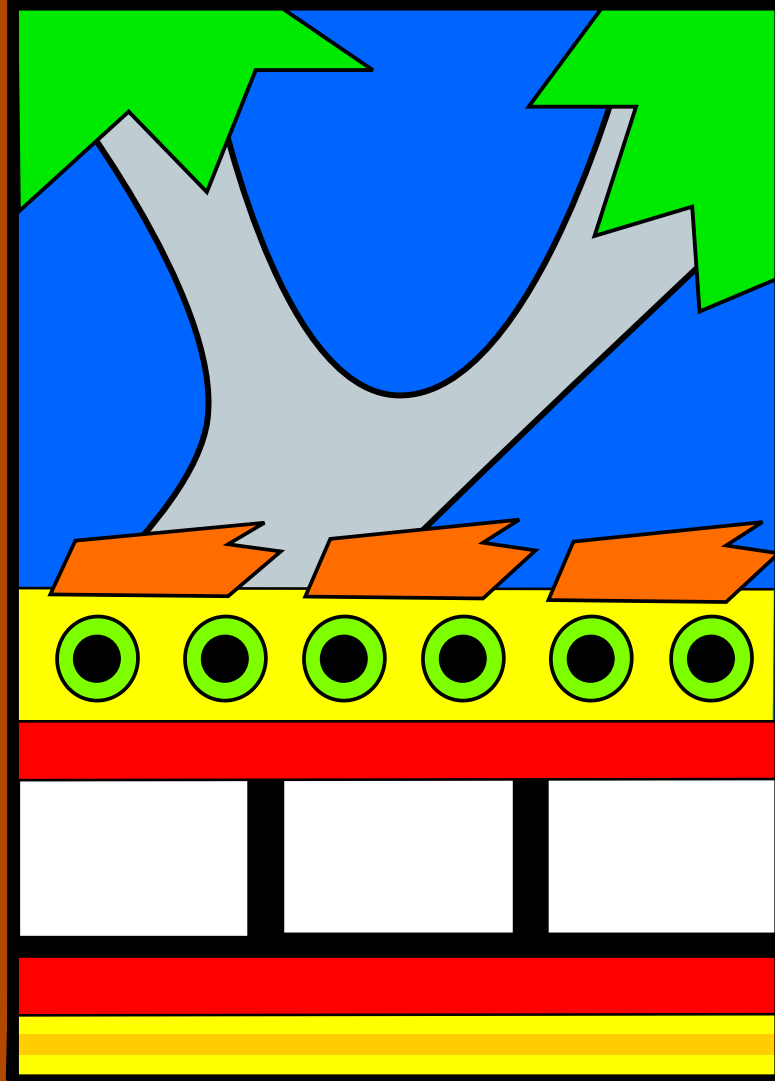
Penn also lives on the farm. He
is an infinite chicken. On the infinite
farm, chickens have teeth too.

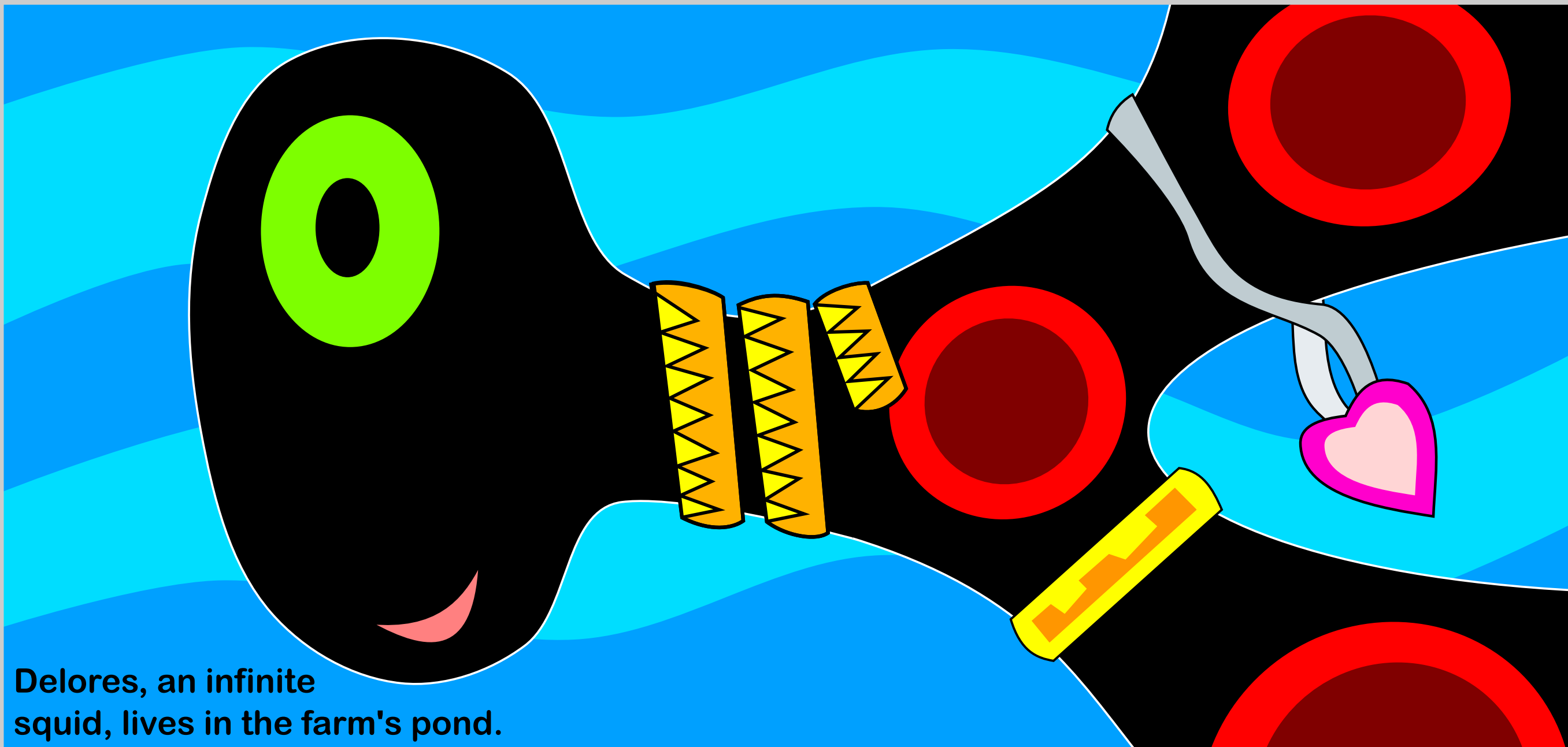




Penn has
staring contests
with his sister
Victoria, and
also with...

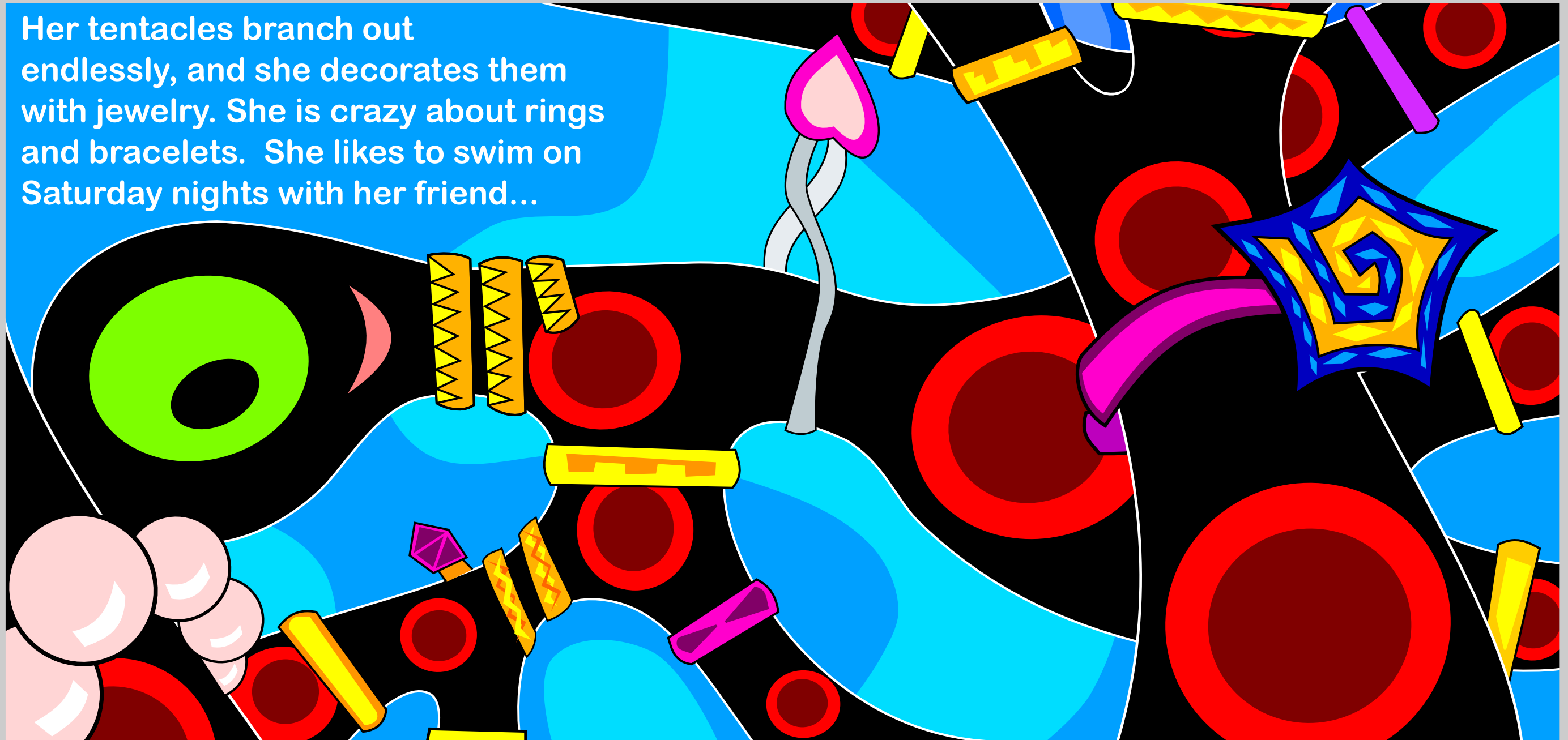
Bill, an owl with an
infinite eye.

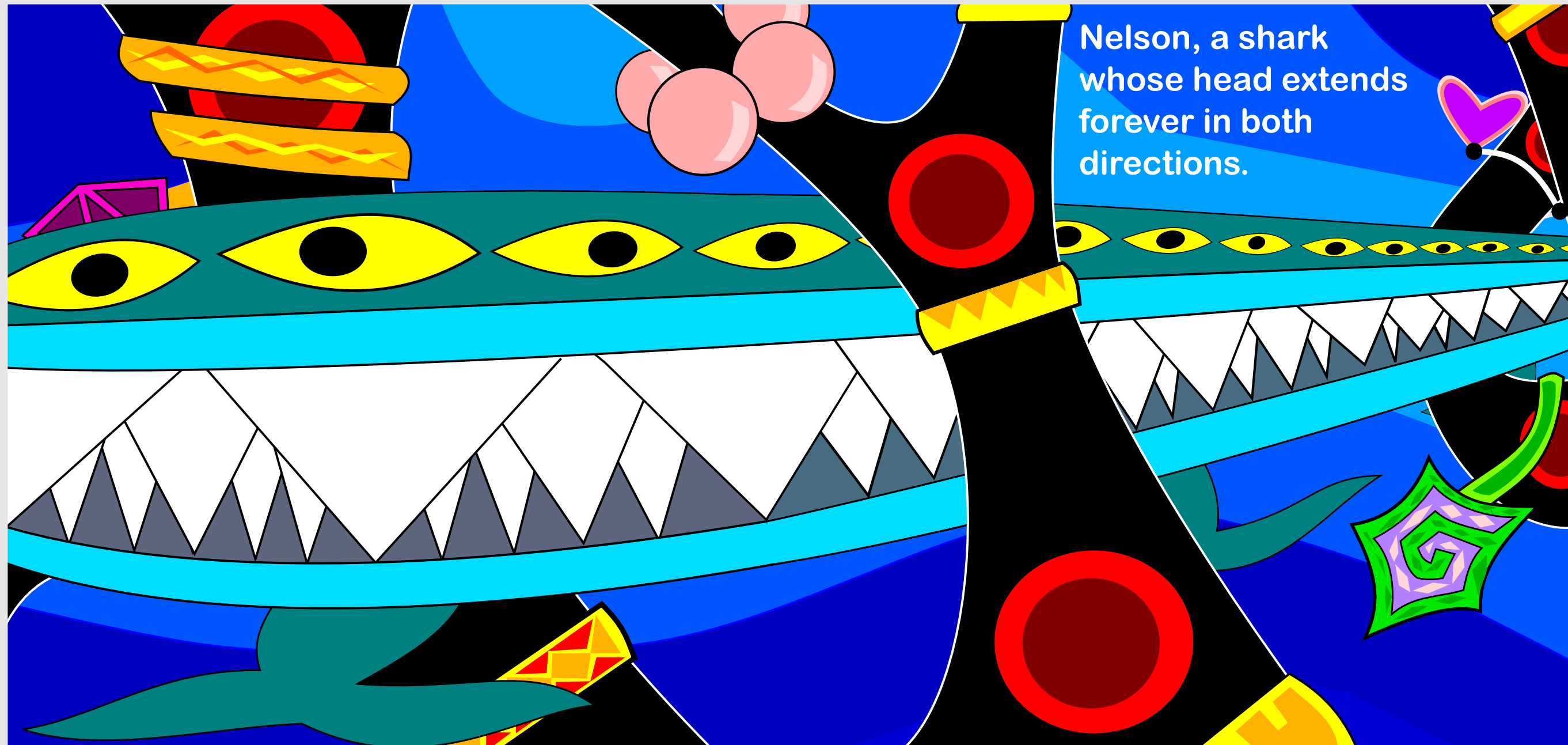


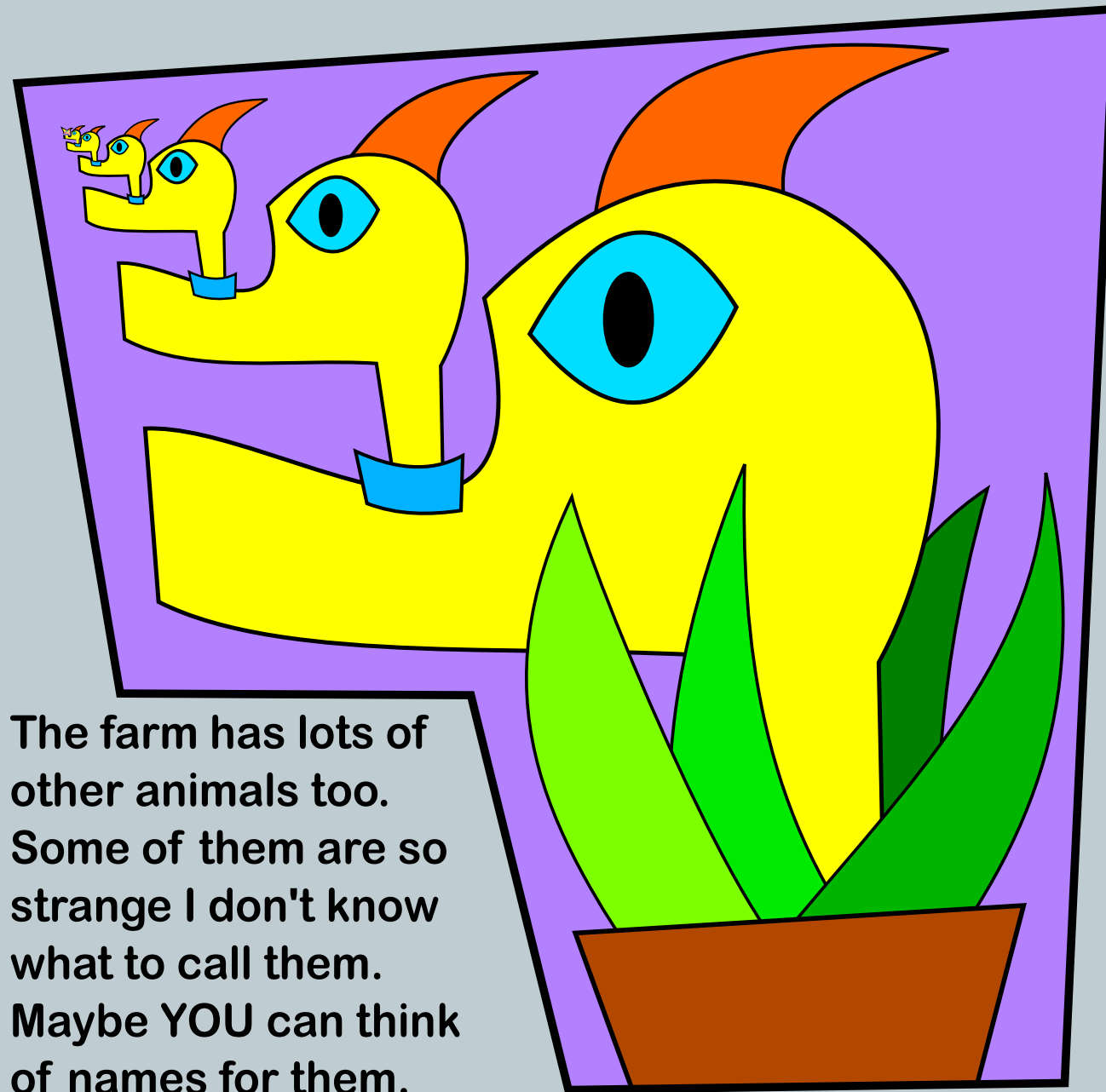


Delores, an infinite squid, lives in the farm's pond.

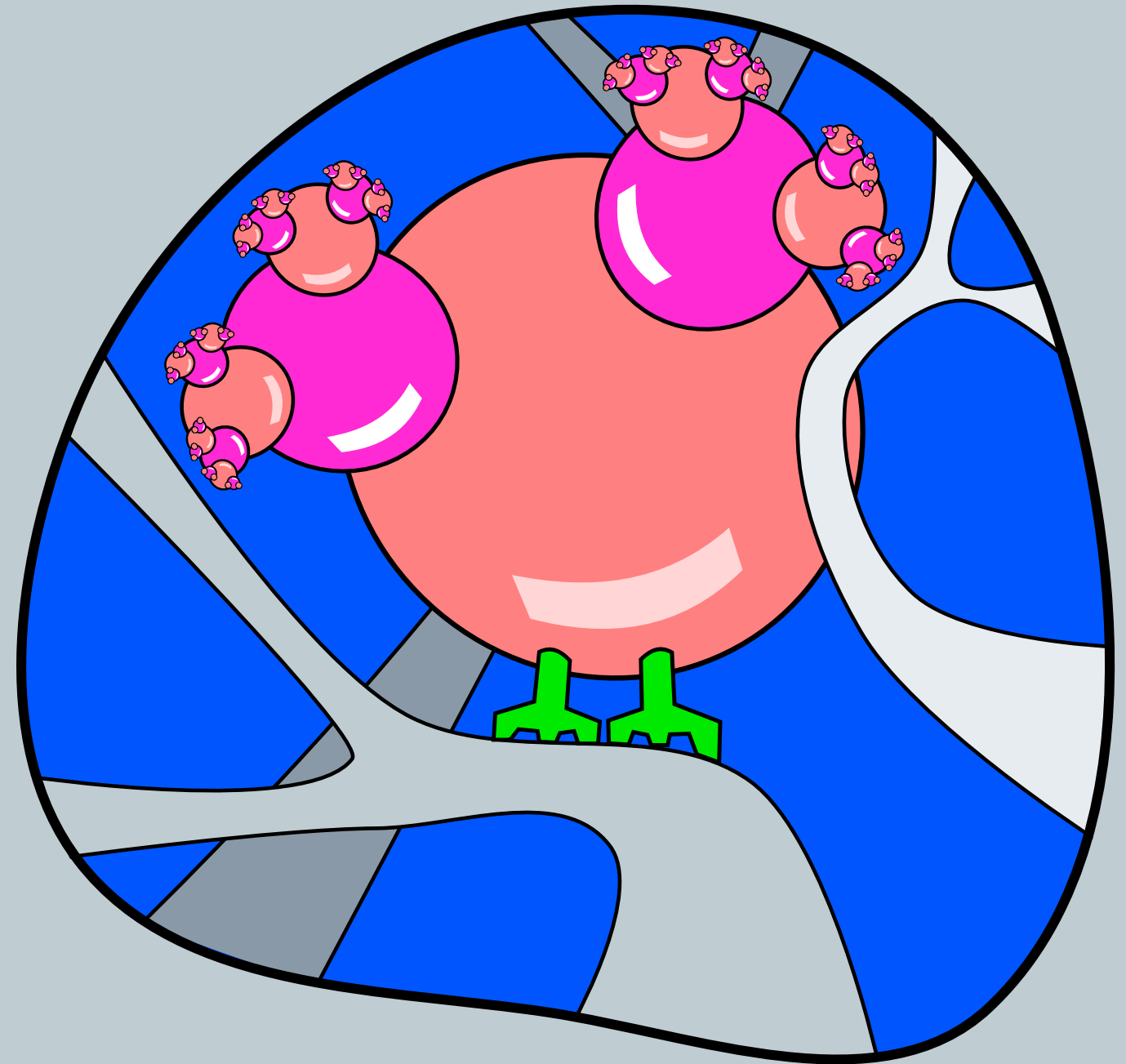
Her tentacles branch out endlessly, and she decorates them with jewelry. She is crazy about rings and bracelets. She likes to swim on Saturday nights with her friend...







The farm has lots of other animals too. Some of them are so strange I don't know what to call them. Maybe YOU can think of names for them.



Do the animals have any
problems on the farm?

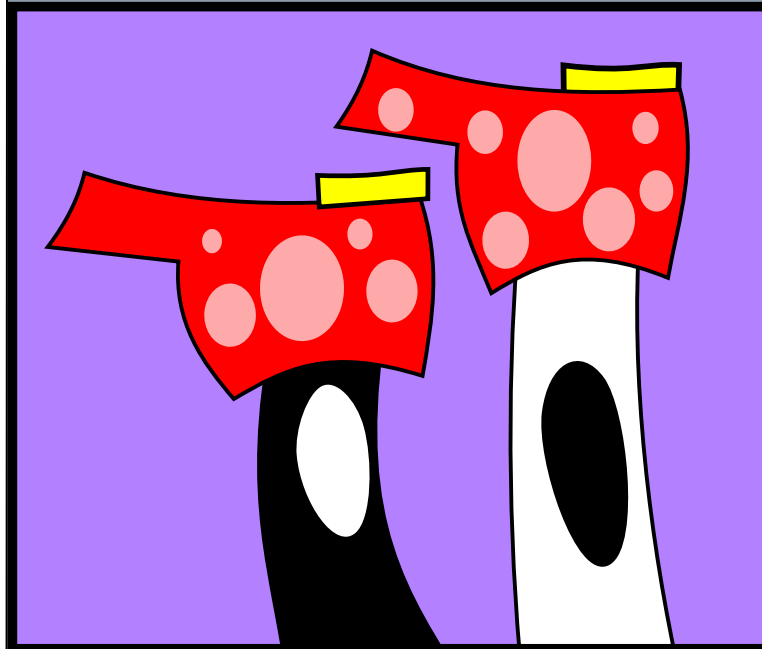
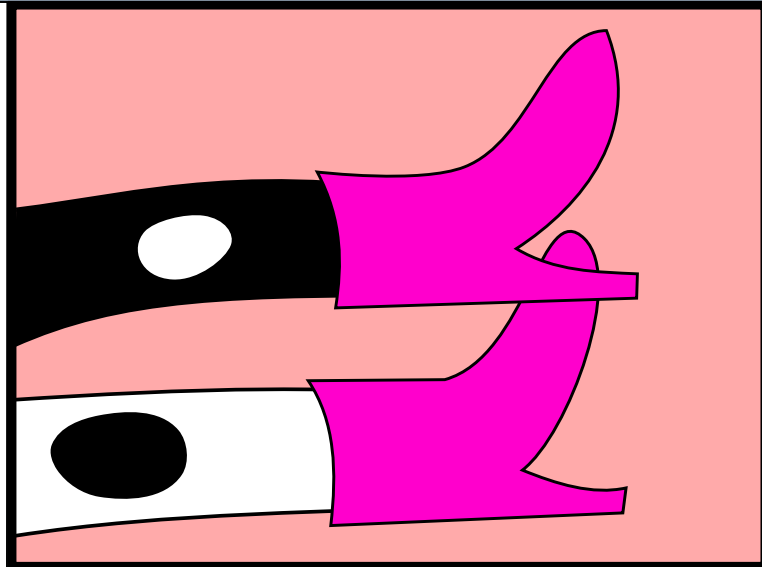
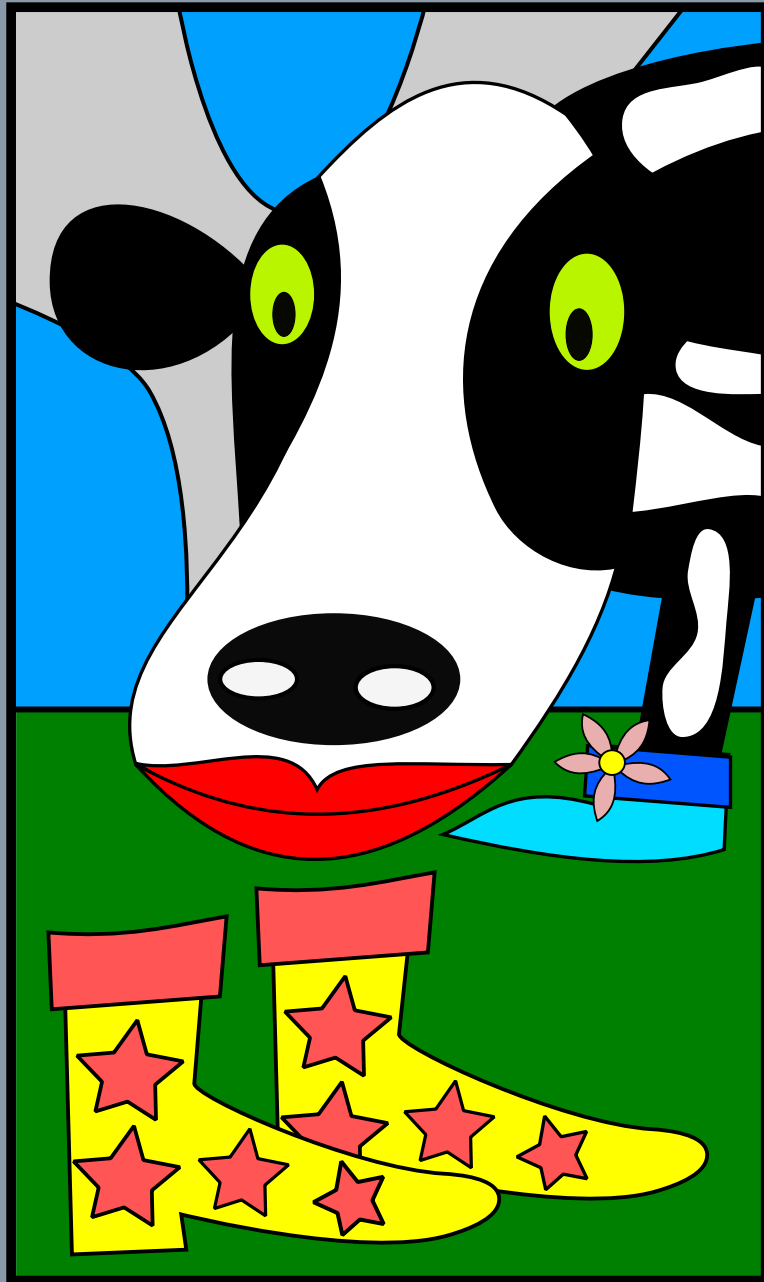




Oh yes,
lots of
problems!

Gracie has
a problem
with shoes.
Her friends
know that
she loves
shoes, so
they bring
her new
ones as
presents.





Meanwhile, Hammerwood
has problems
of his own.

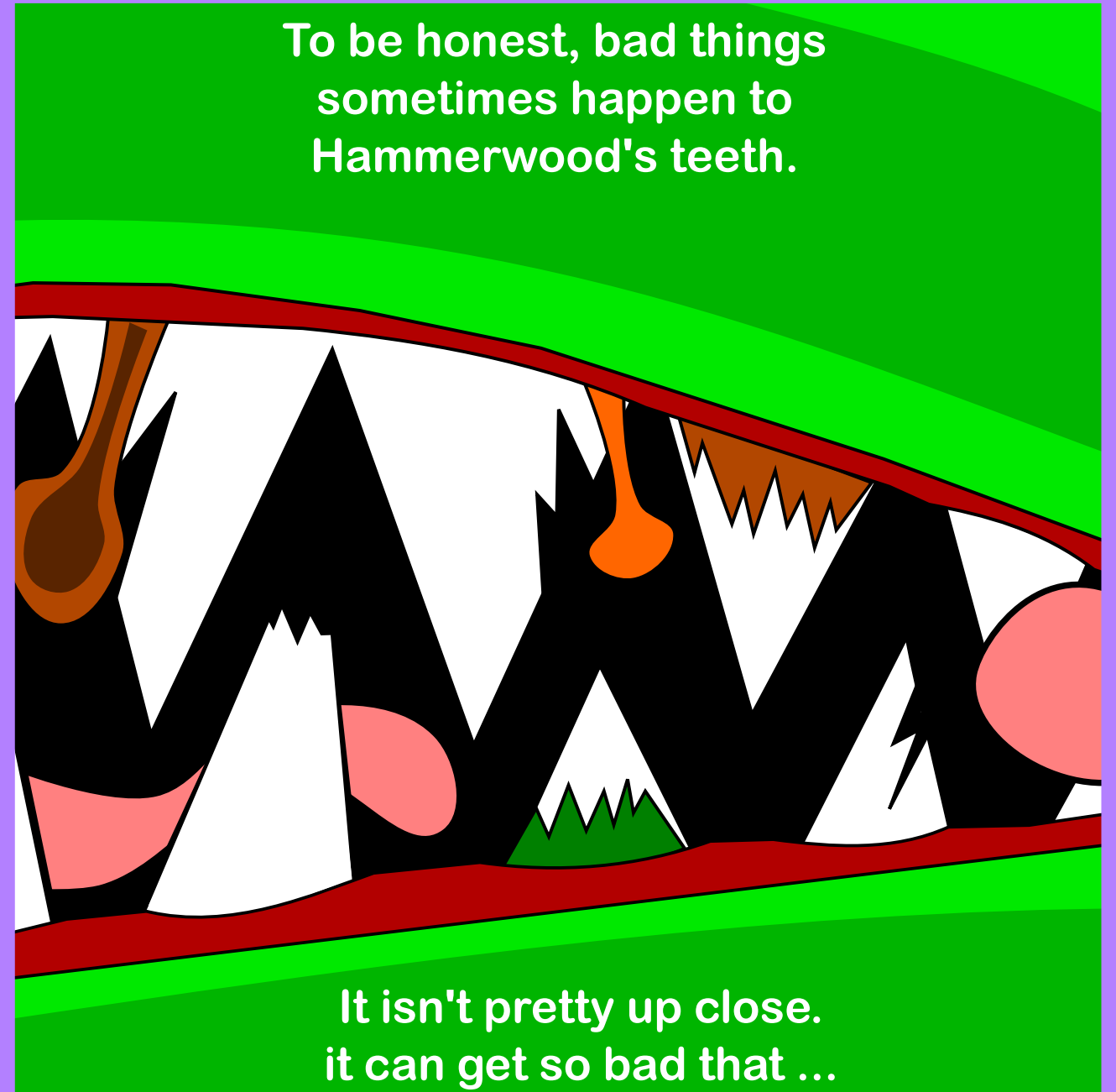


He has so much fun
blowing bubbles ...

...that he often forgets
to brush his teeth.



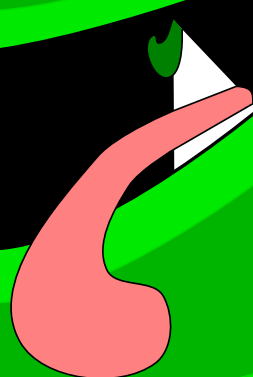
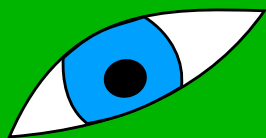
To be honest, bad things
sometimes happen to
Hammerwood's teeth.



It isn't pretty up close.
it can get so bad that ...

he loses most of *his* teeth.

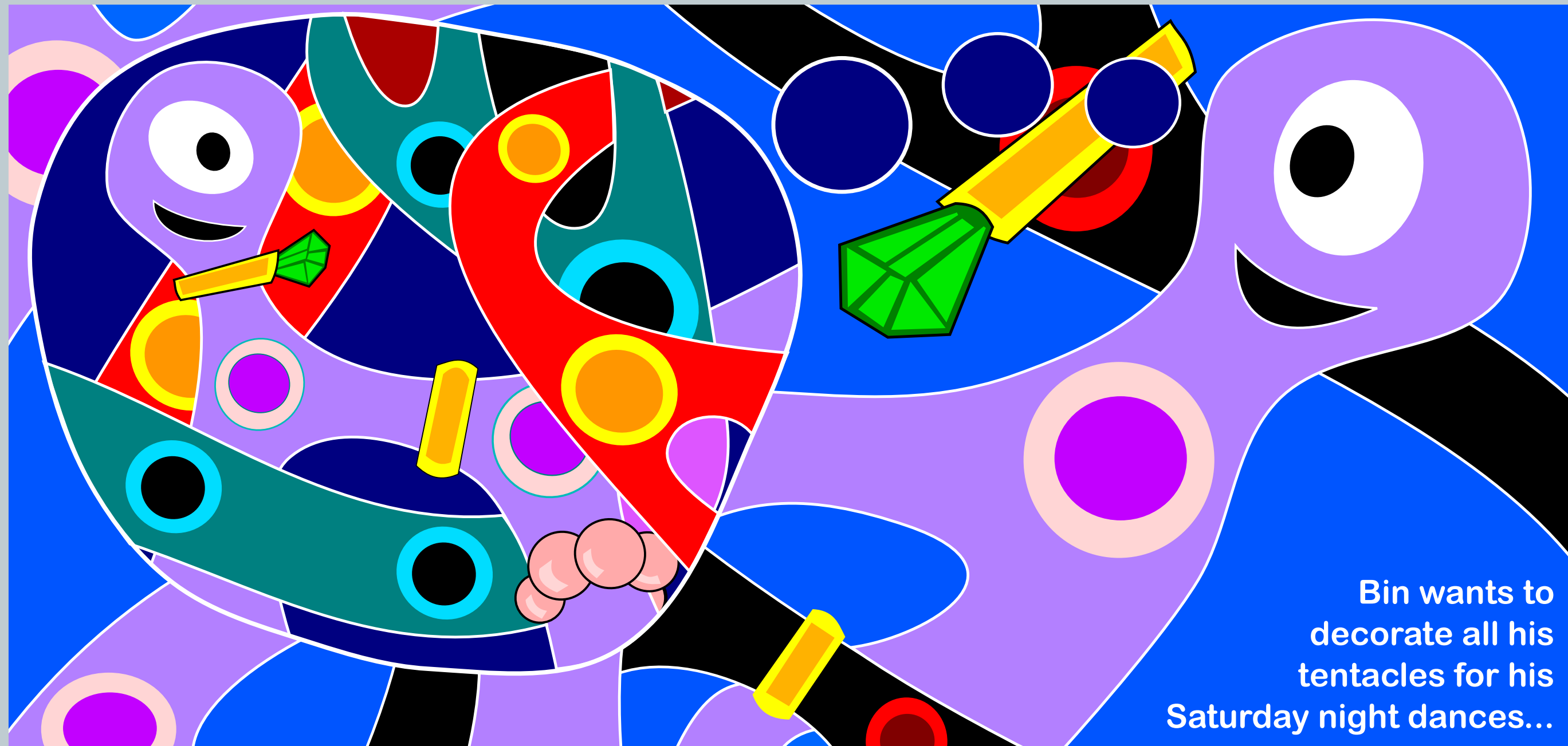
He needs those teeth for chewing
and he can't grow new ones.



How can he fix his teeth?



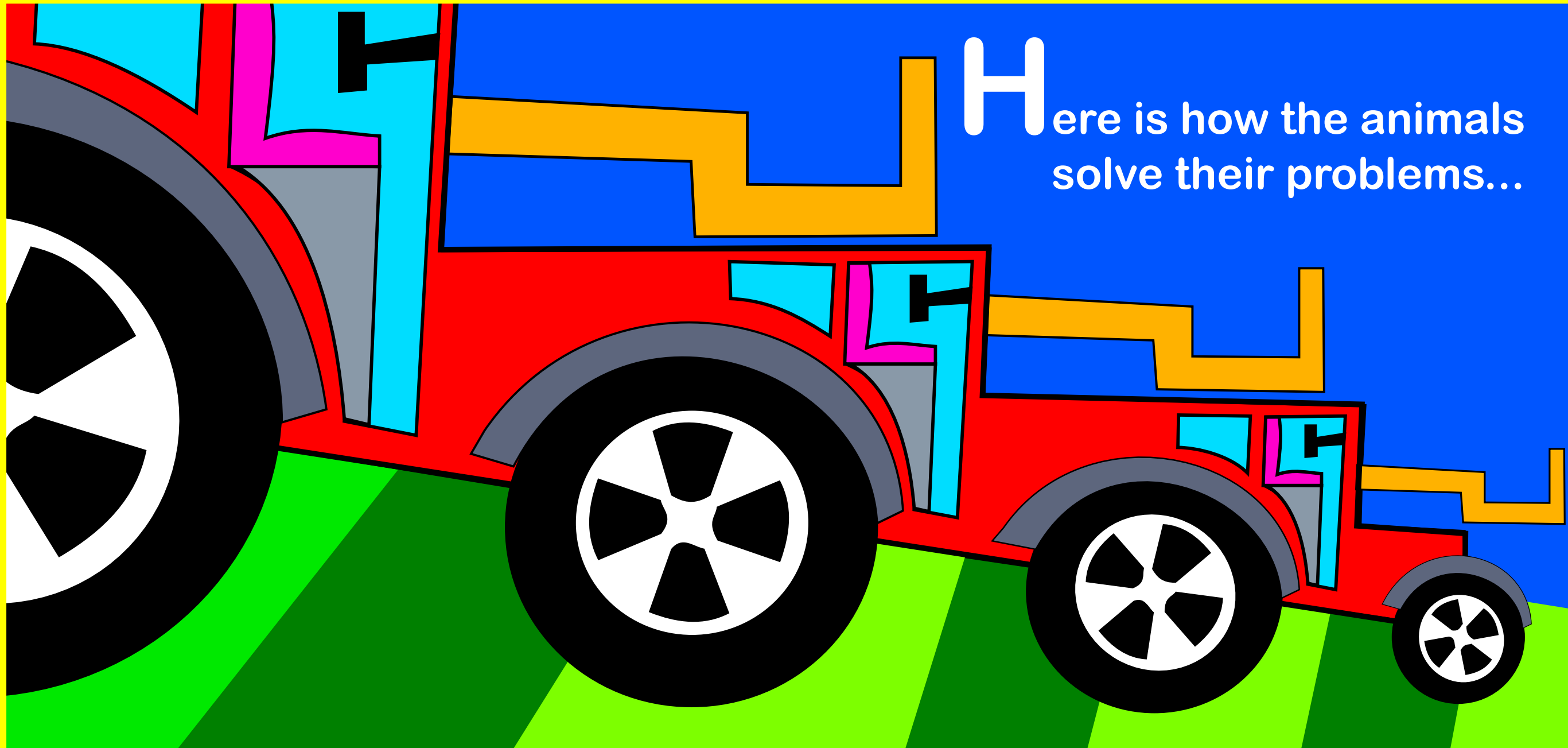
Delores has a problem
too. Every week her
cousin Bin swims over
and asks to borrow her
jewelry.



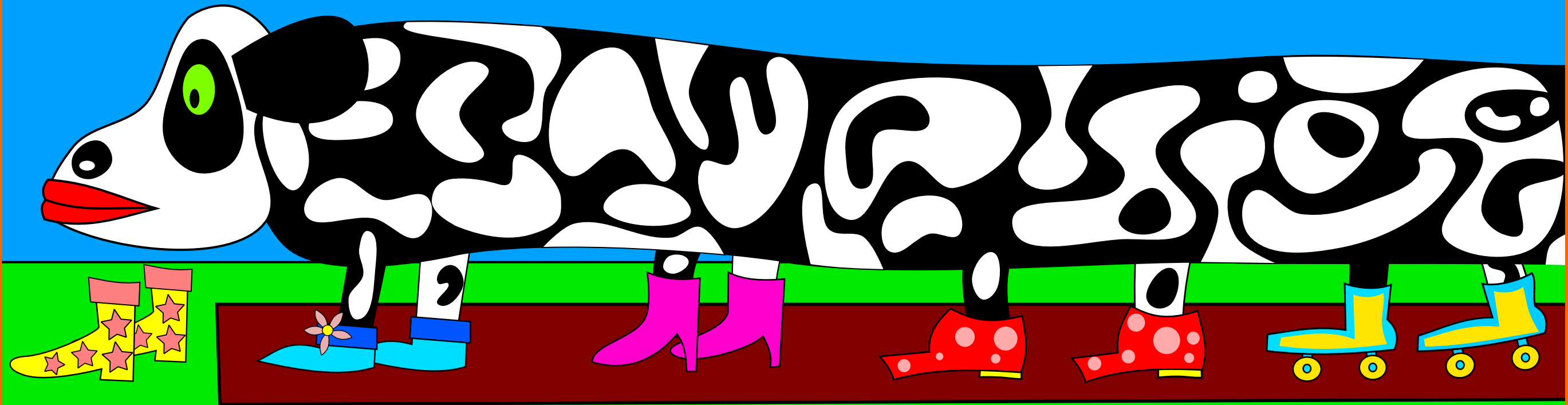


but Delores wants to decorate all HER
tentacles for her Saturday
night swims with Nelson.
How can she
stay fully
bejeweled and
still help
Bin?

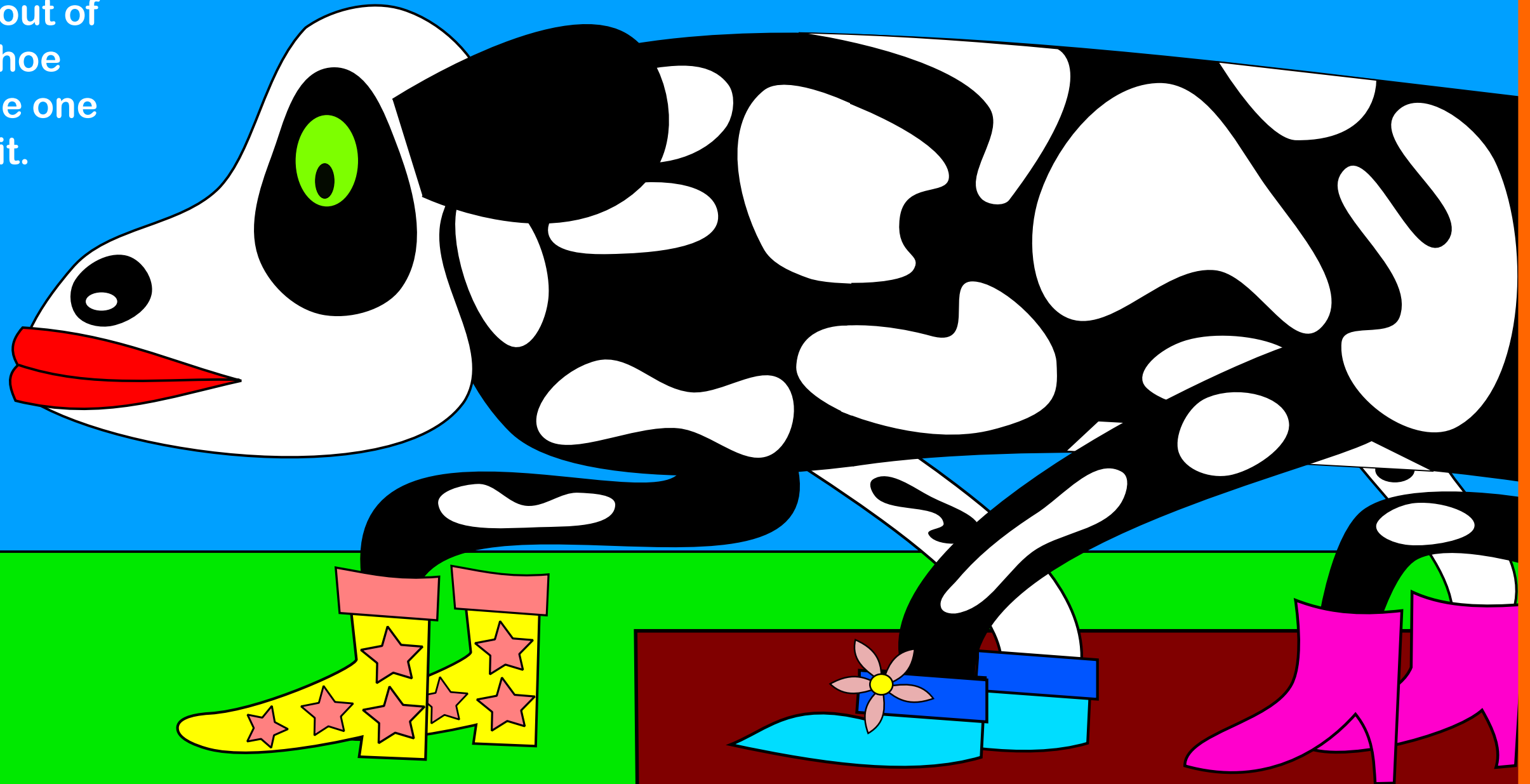
Here is how the animals
solve their problems...



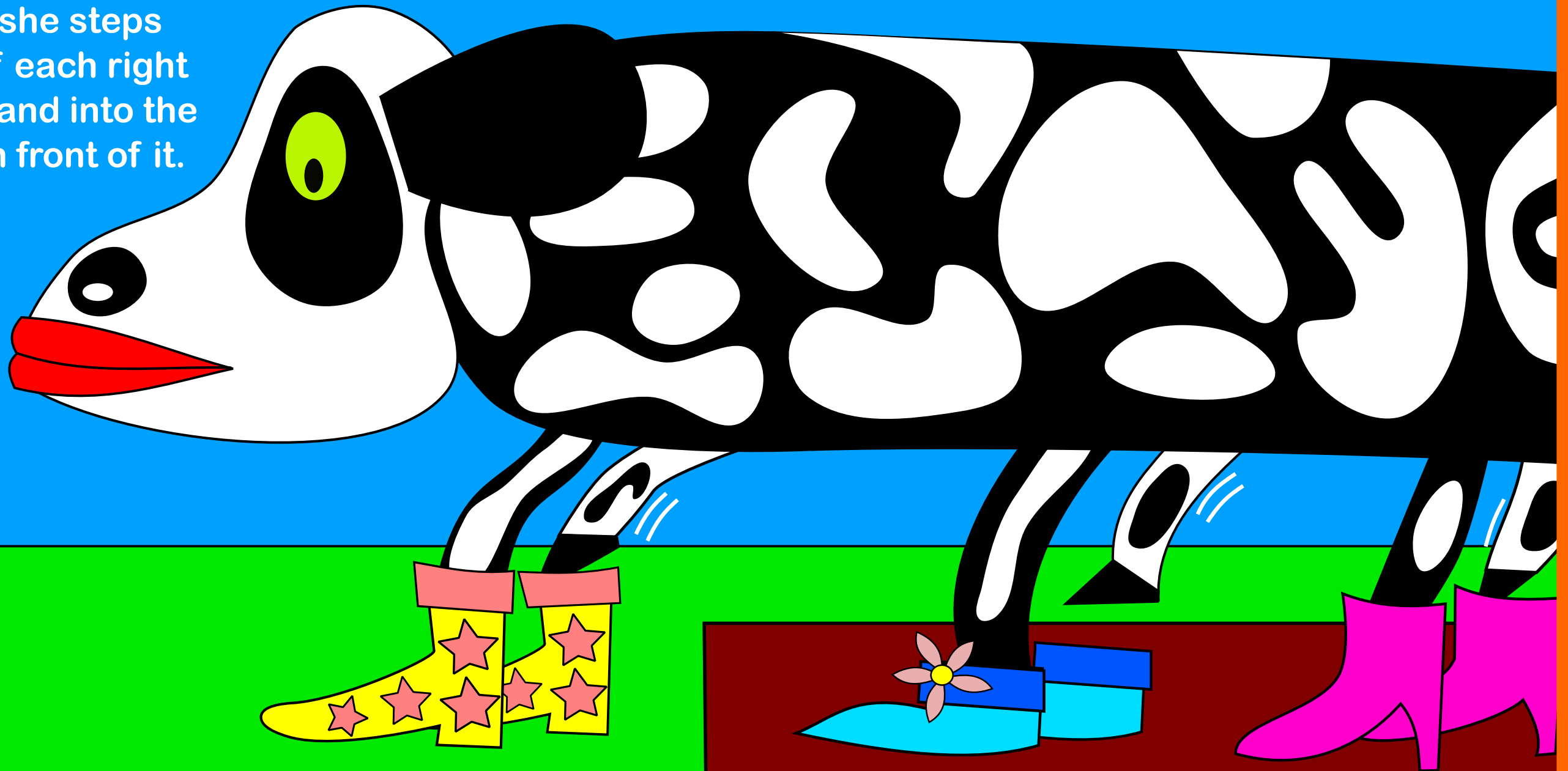
Gracie prepares to put on her new shoes by standing behind them on an infinitely long sticky strip.

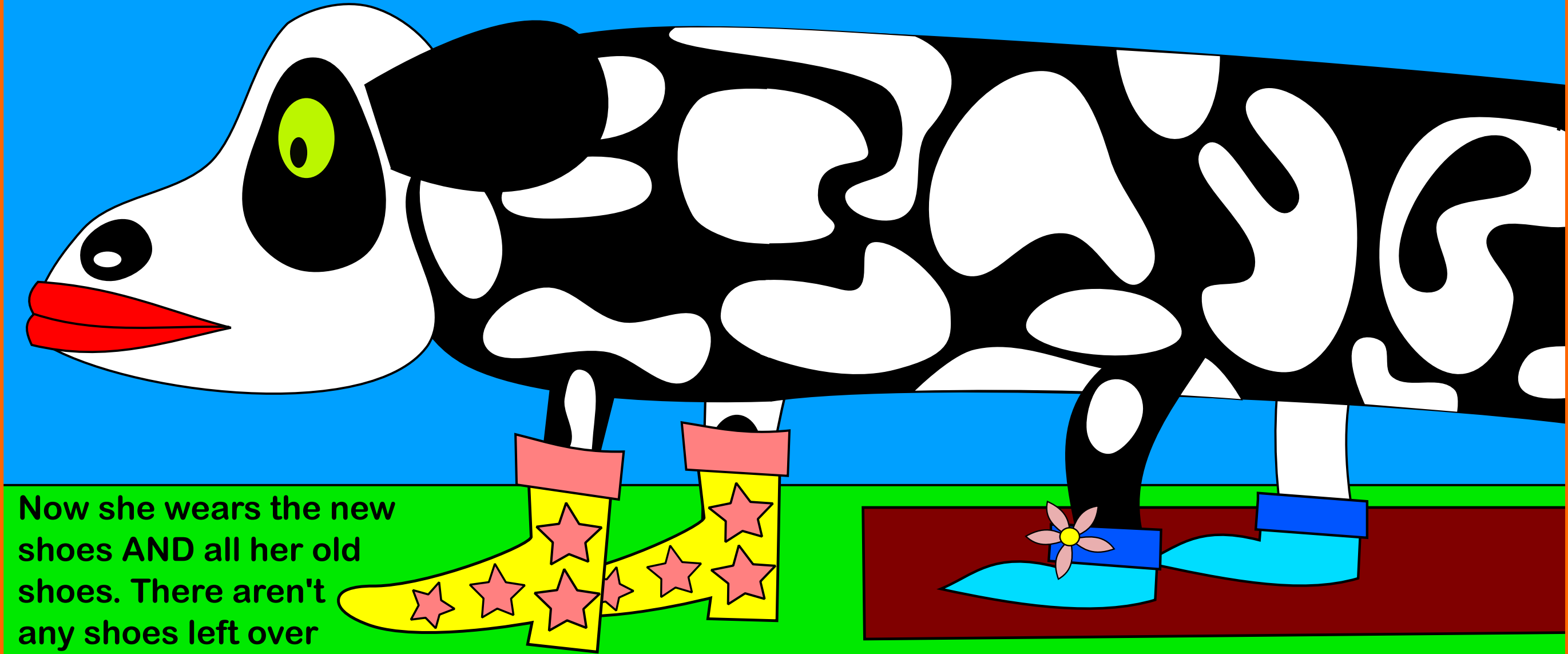


She steps out of
each left shoe
and into the one
in front of it.



Then she steps
out of each right
shoe and into the
one in front of it.

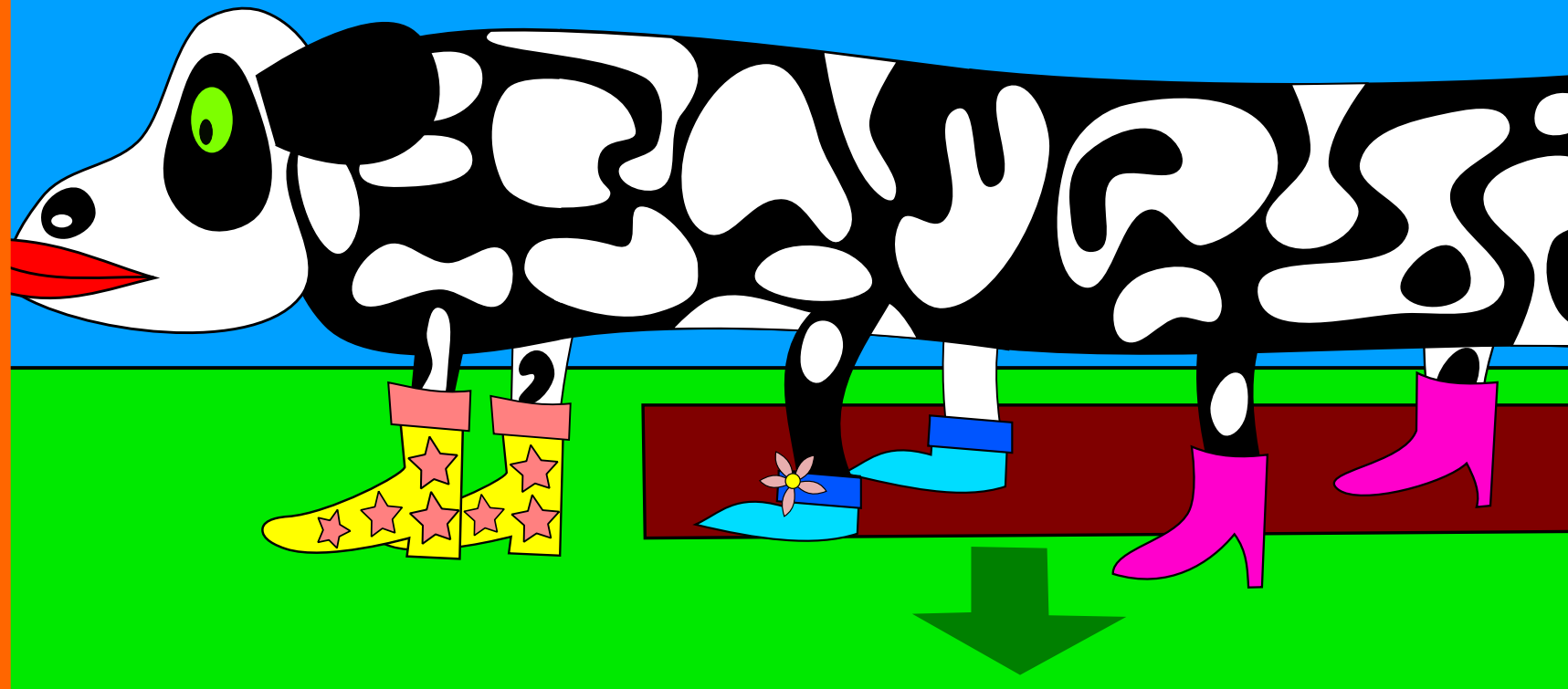




Now she wears the new shoes AND all her old shoes. There aren't any shoes left over at the back end because...

Gracie doesn't have a back end!

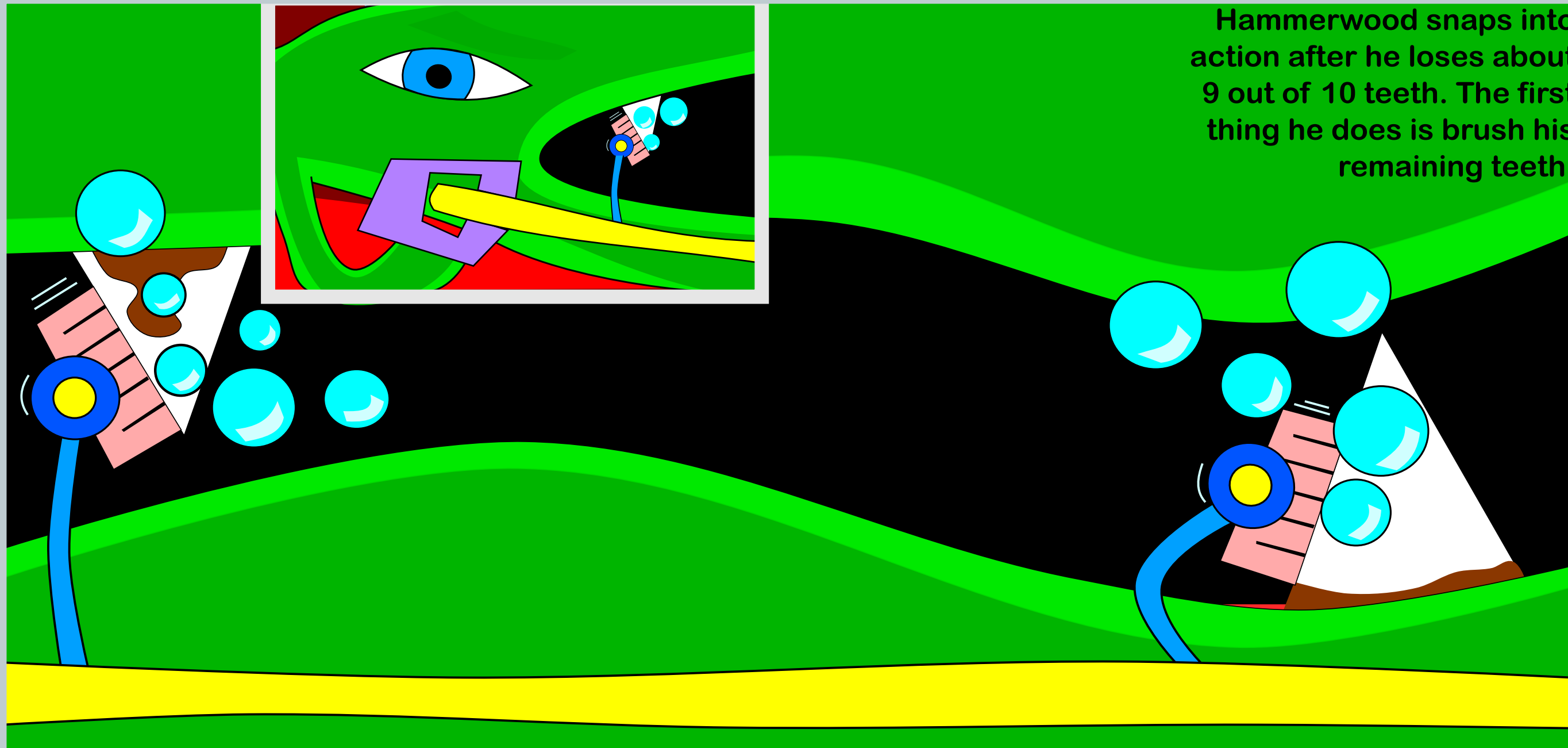
Gracie moves off the
sticky tape and then...

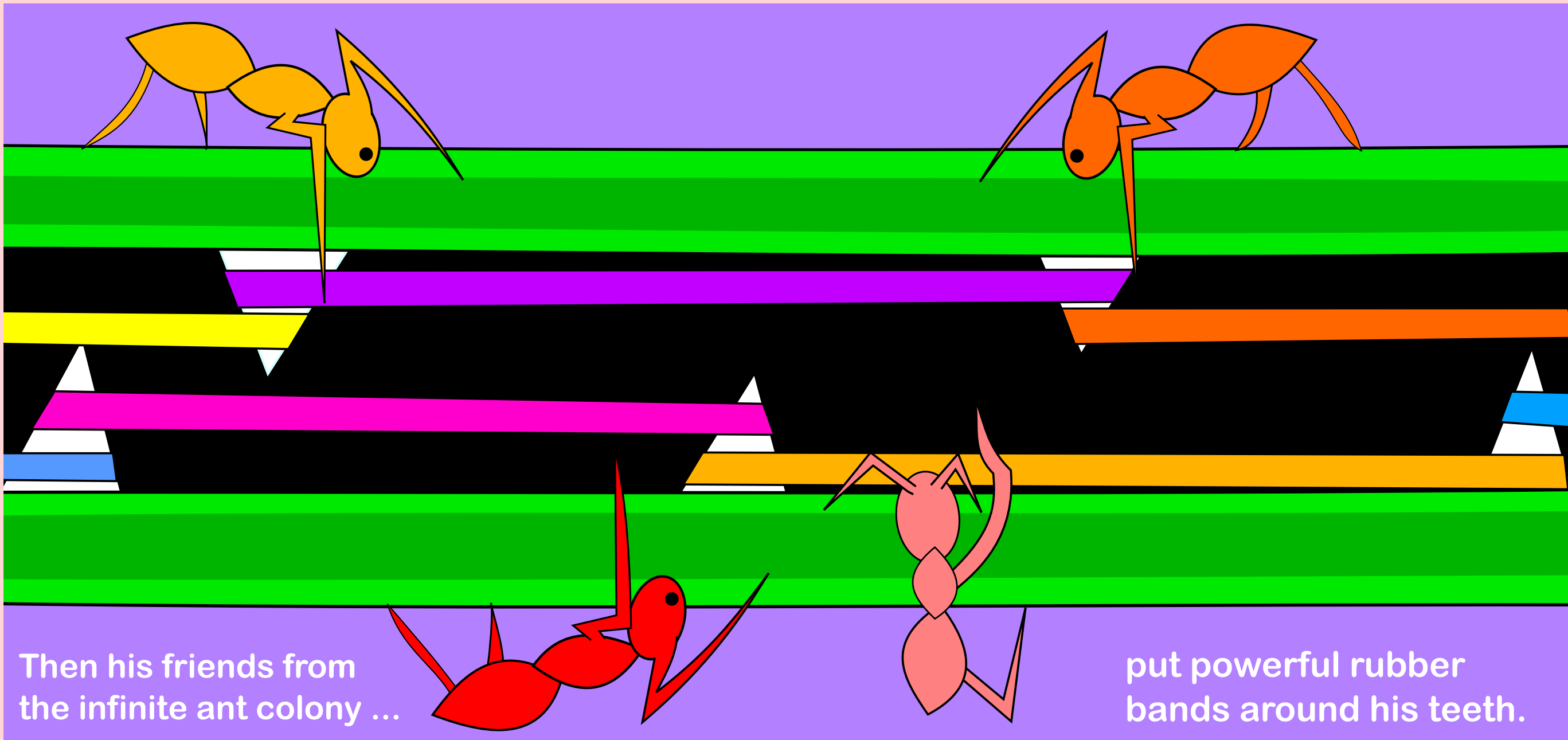


she is ready for another present.



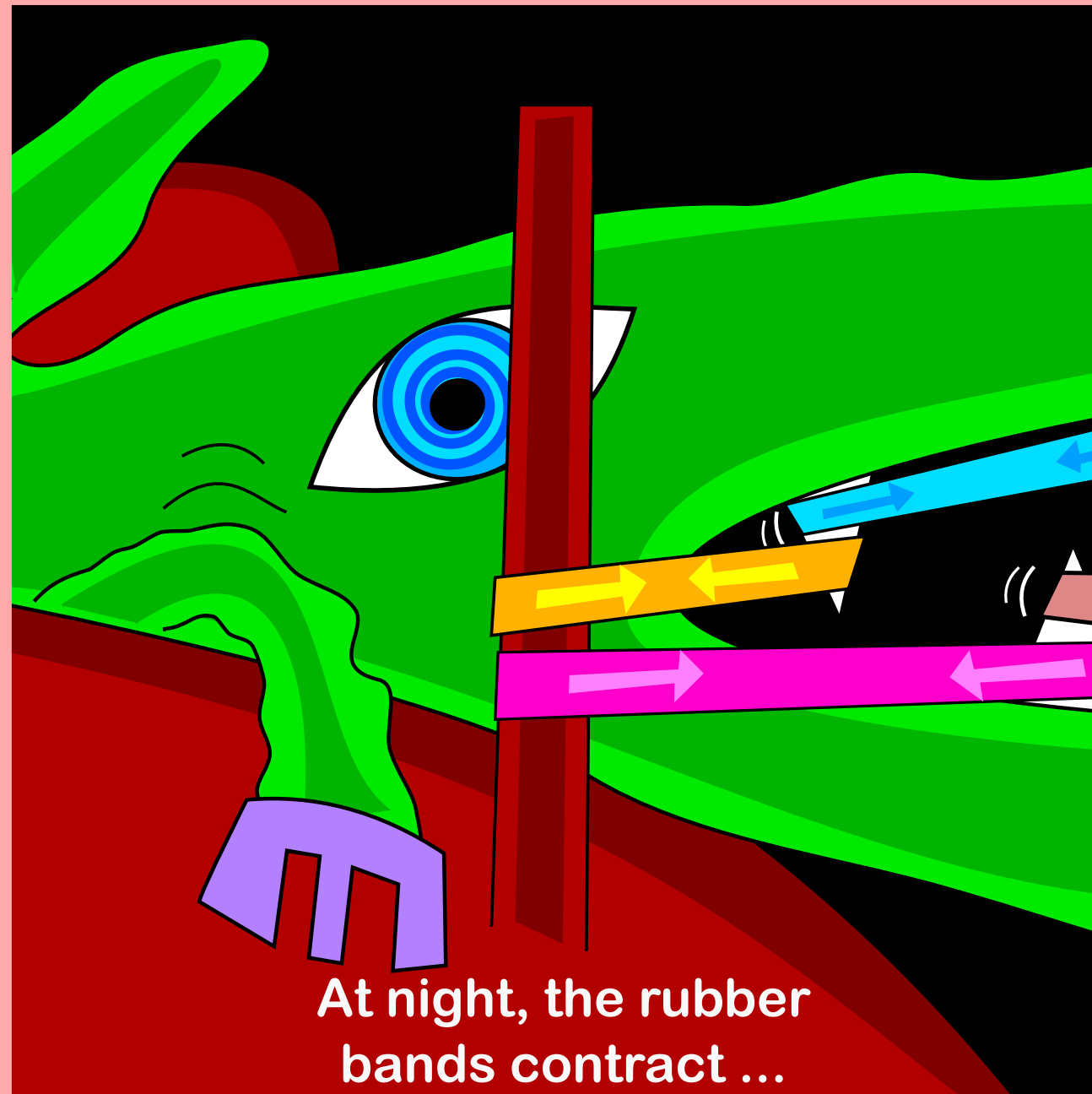
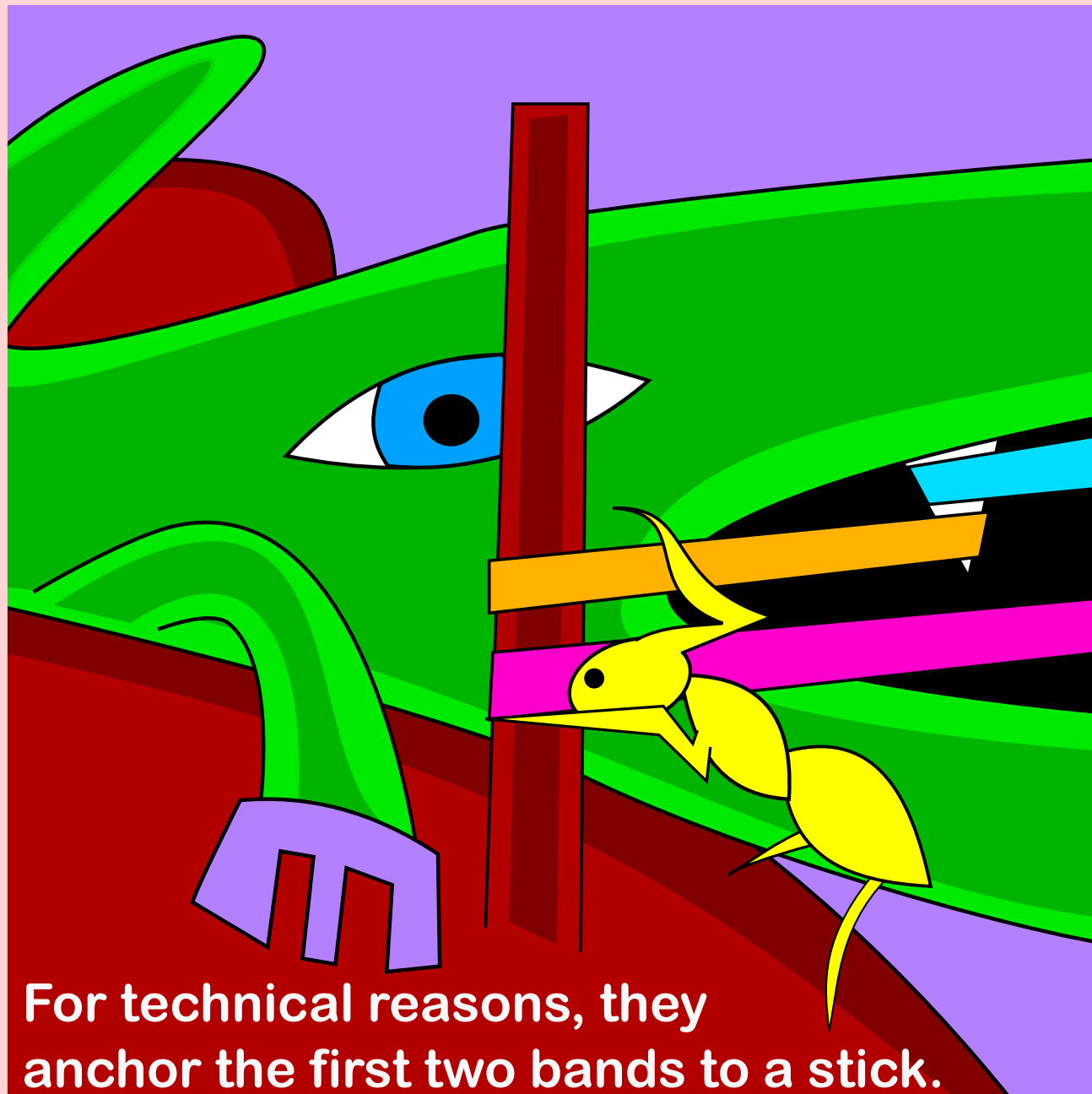
Hammerwood snaps into action after he loses about 9 out of 10 teeth. The first thing he does is brush his remaining teeth.

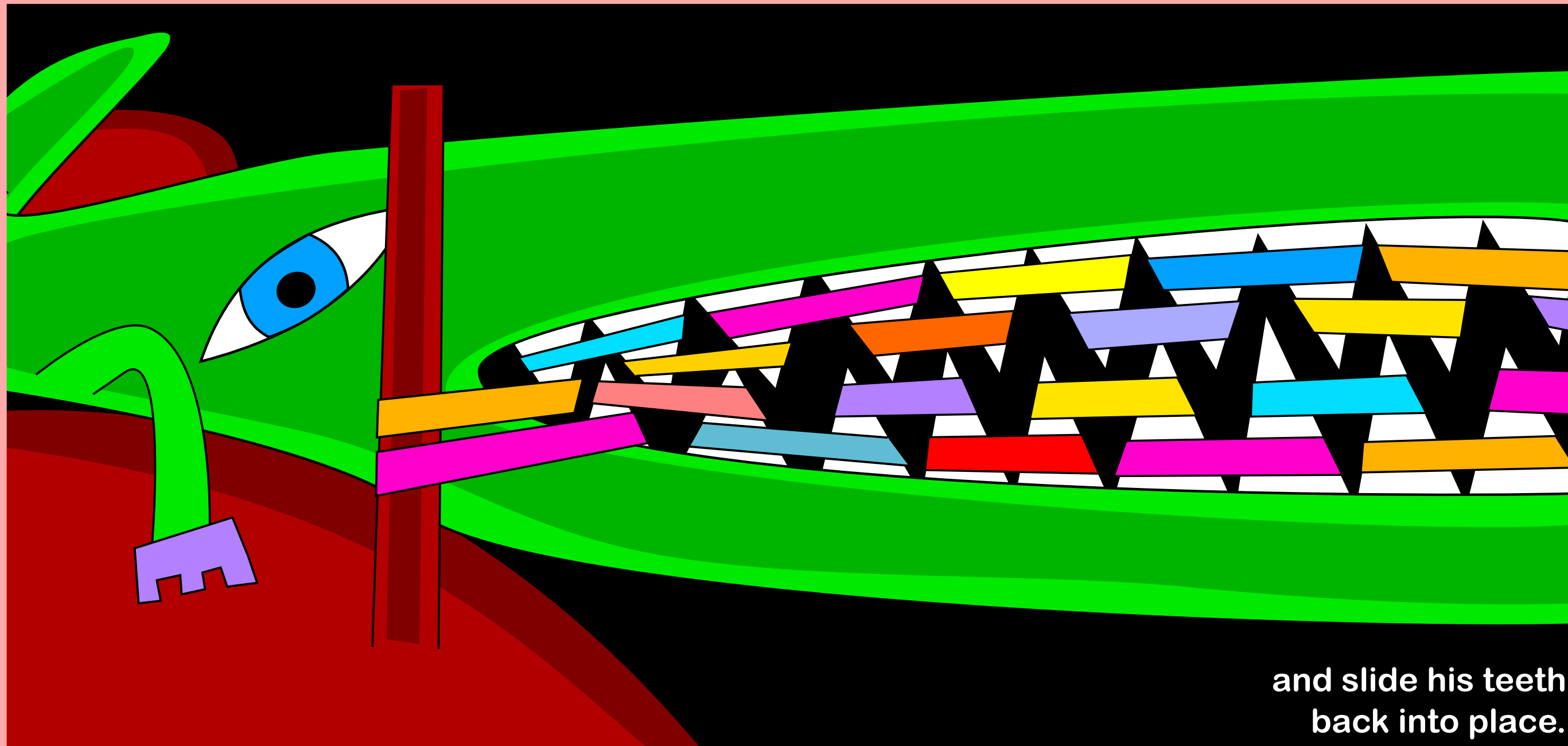




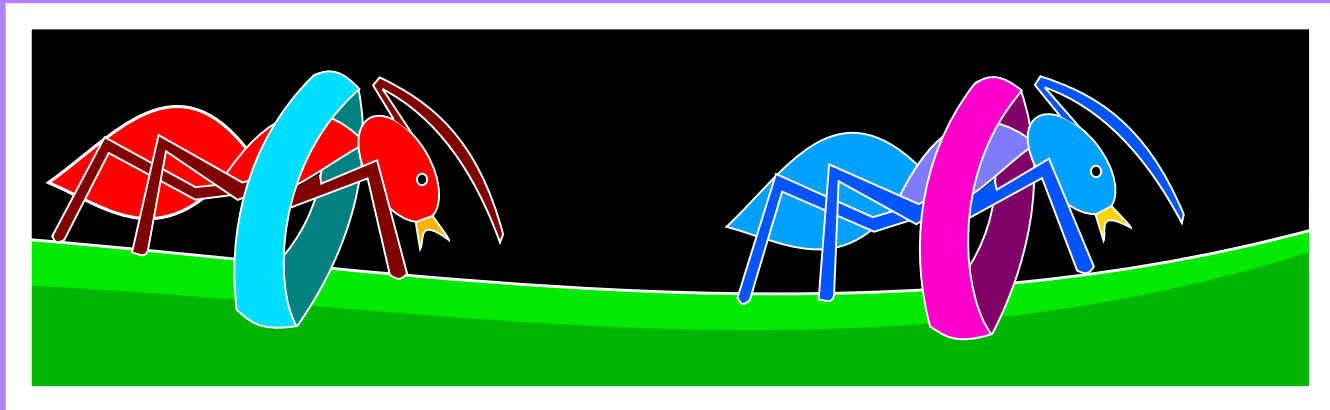
Then his friends from
the infinite ant colony ...

put powerful rubber
bands around his teeth.





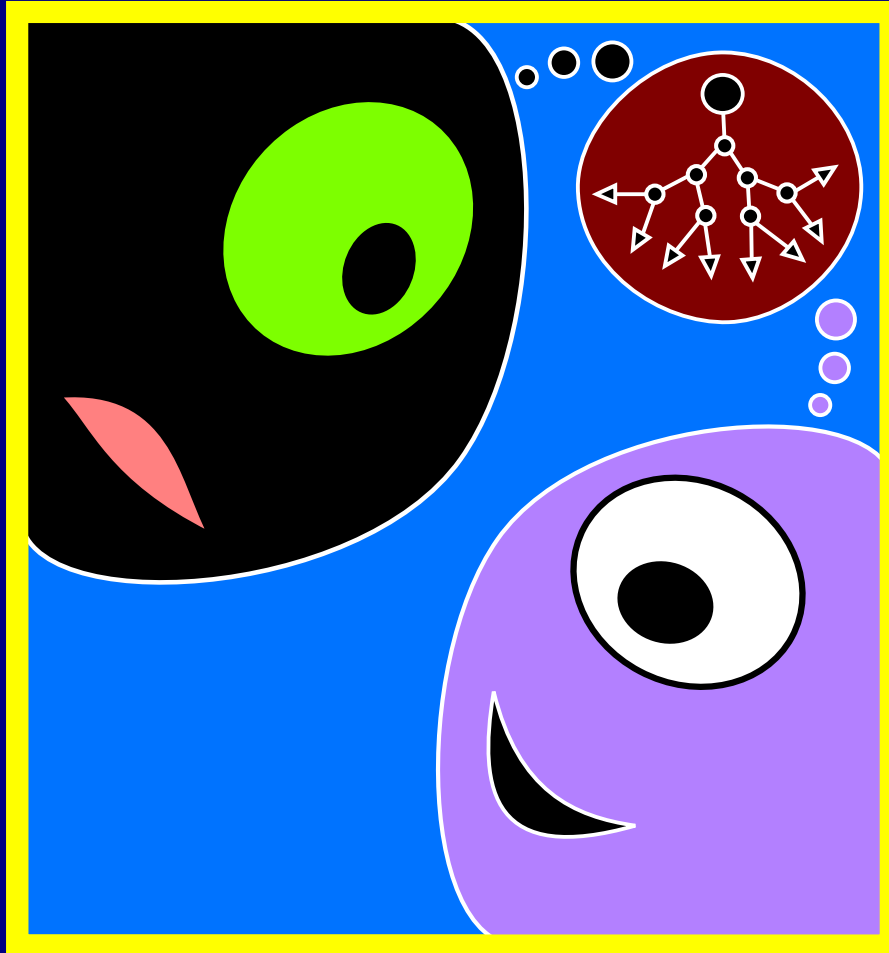
and slide his teeth
back into place.



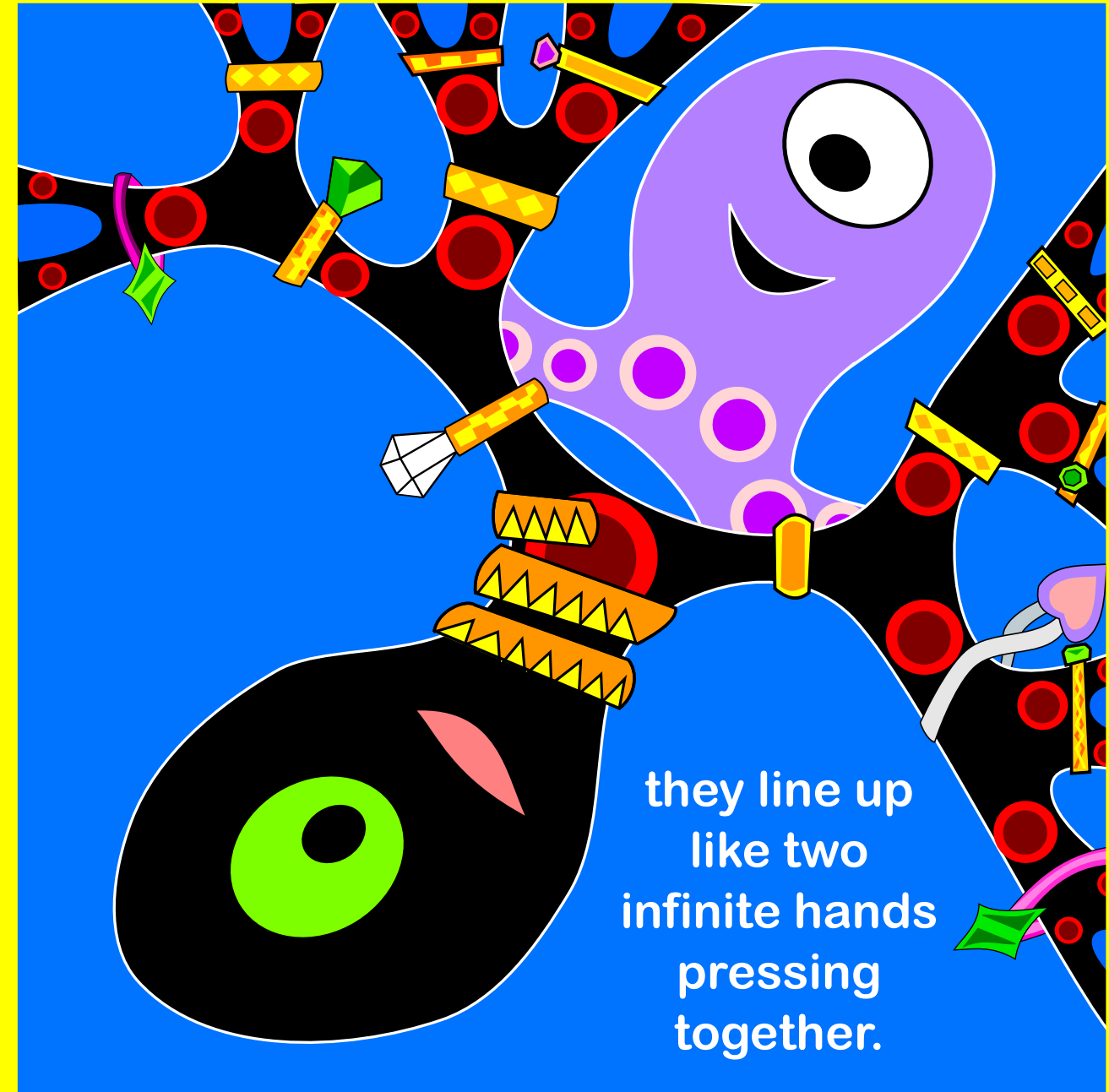
The ants carry off the rubber bands and then his teeth are as good as new.



Delores agrees to lend
Bin some jewelry.



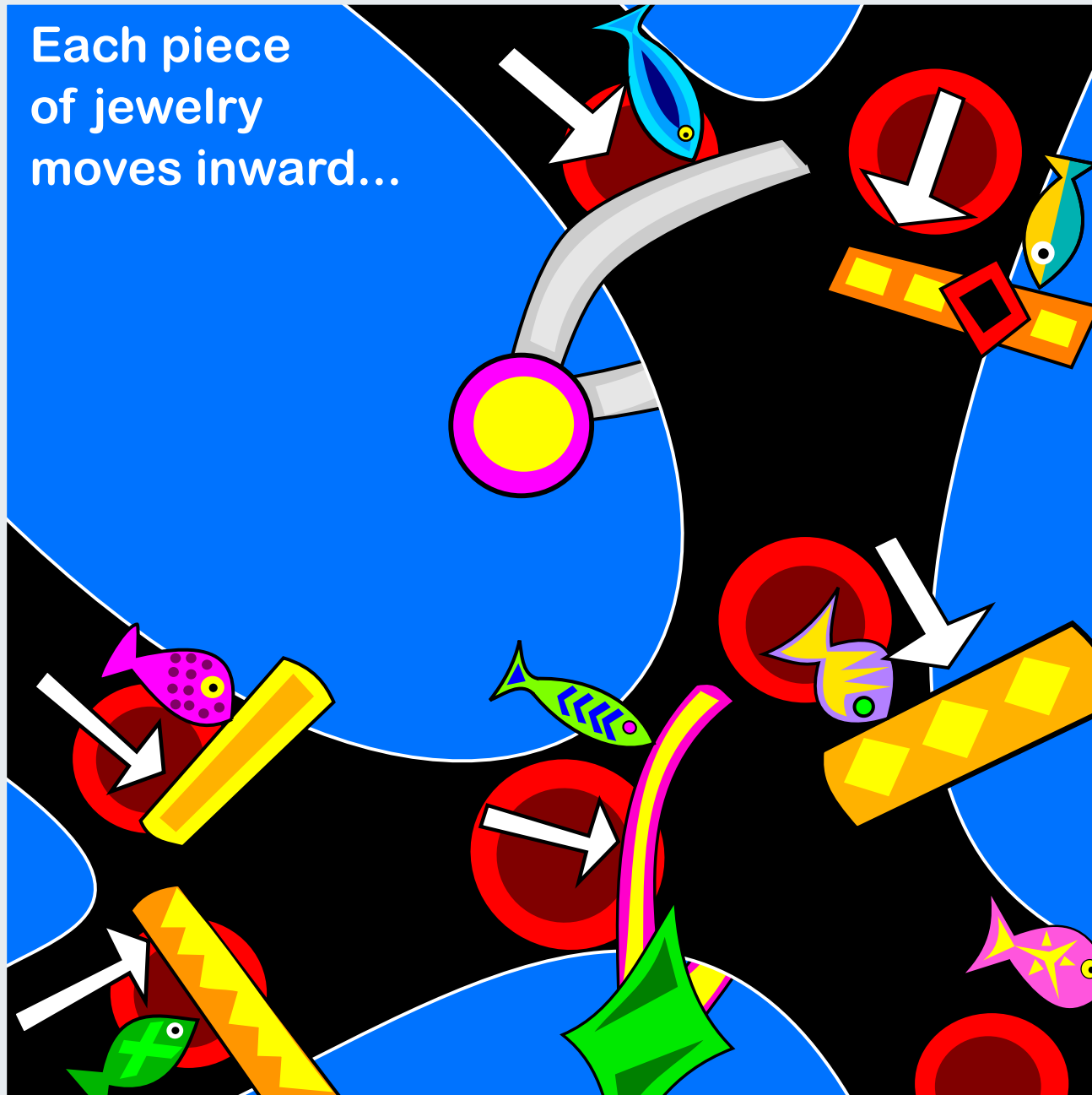
Their tentacles branch out in the
same way, so on Saturday afternoon...



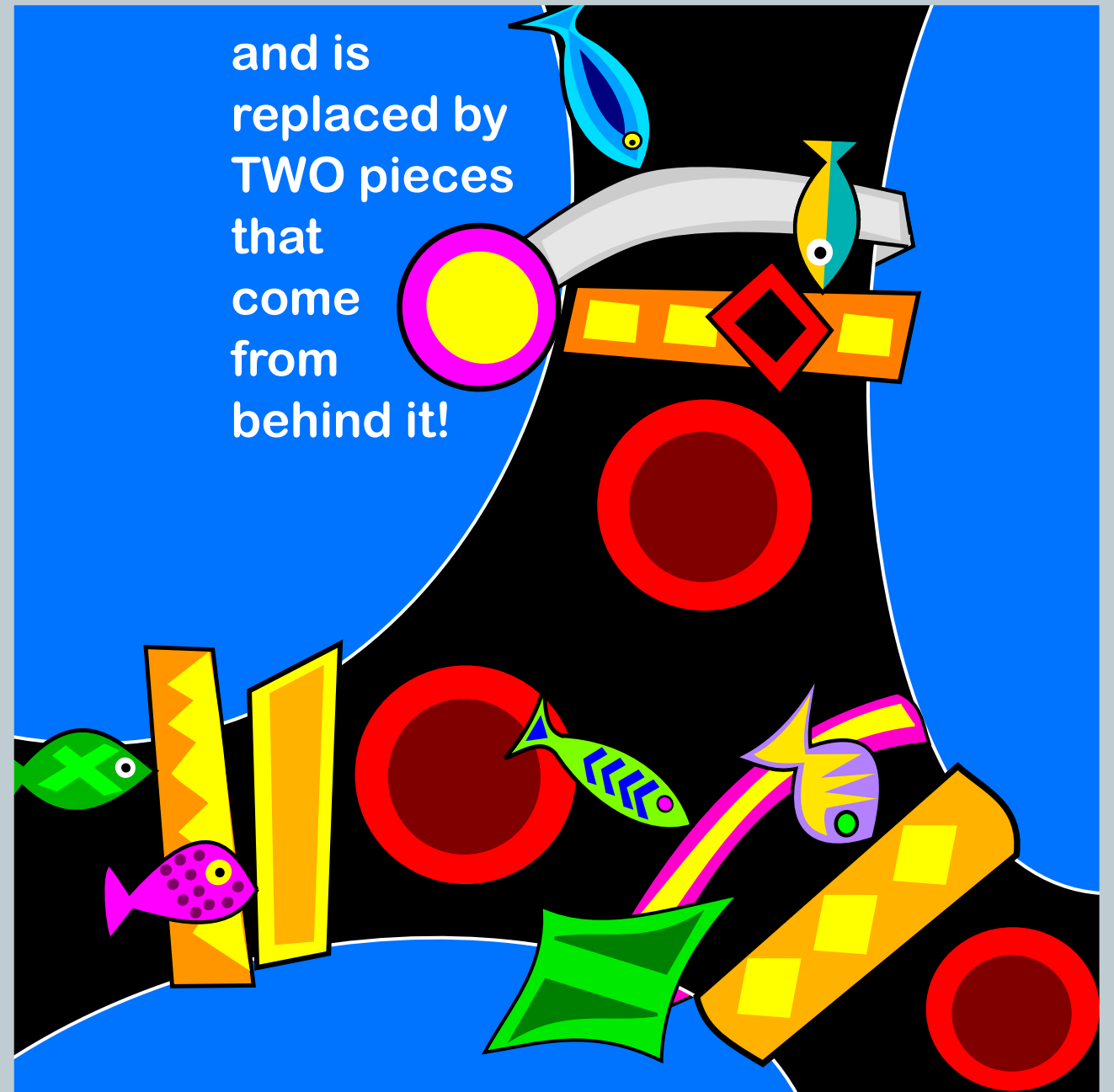
[illegible]

The fish move each piece one step towards Delores' head.

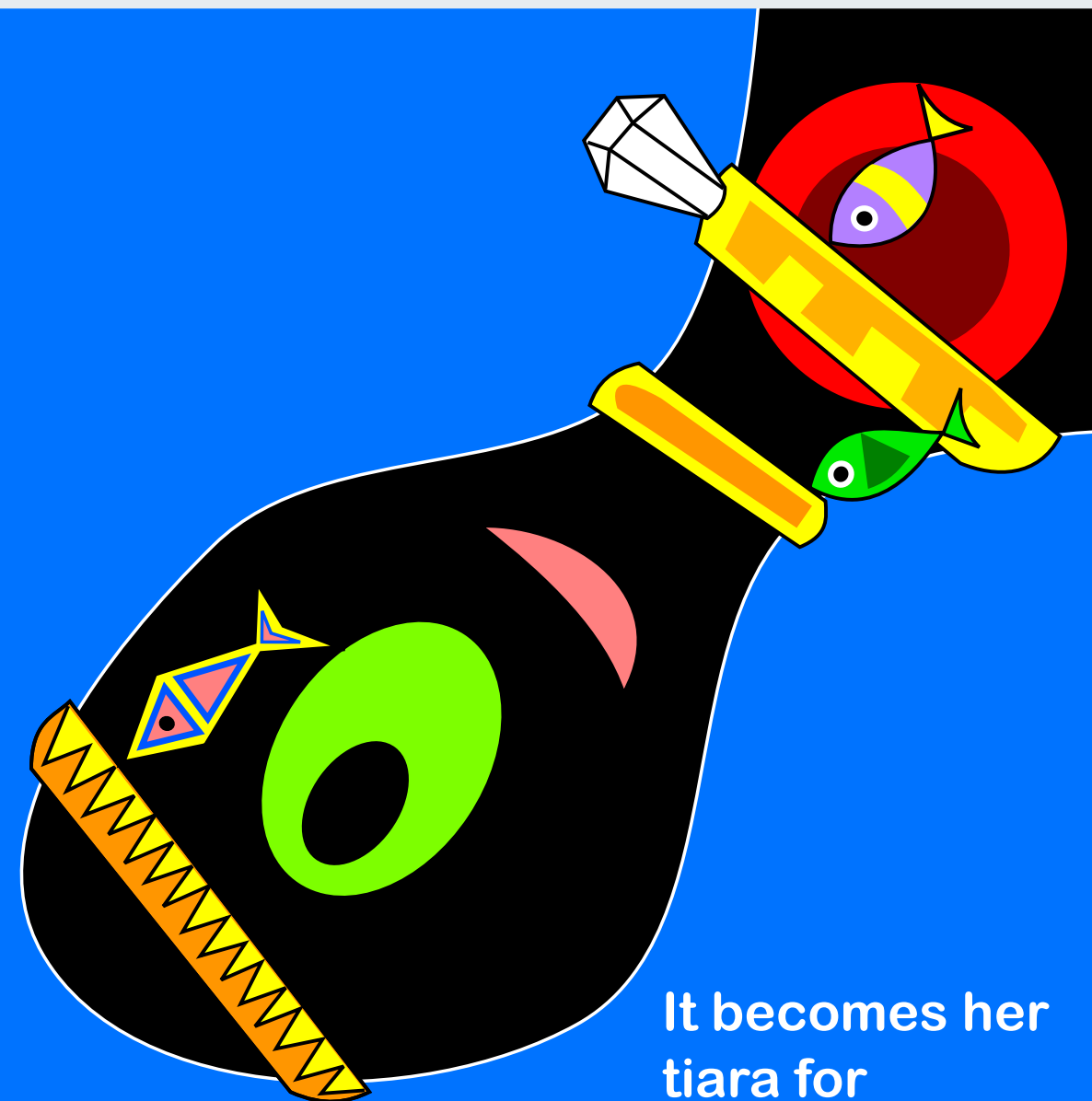
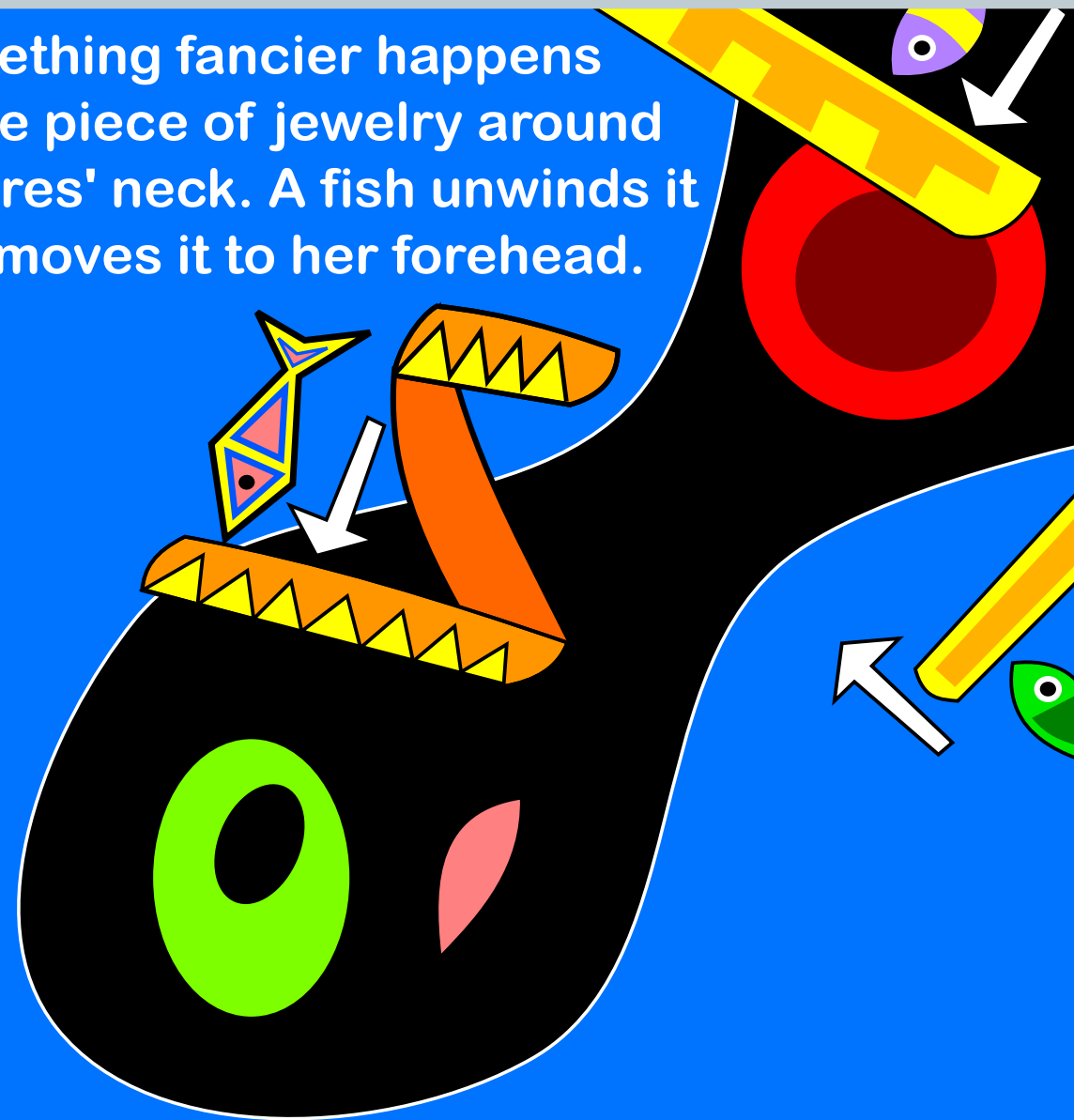
Each piece
of jewelry
moves inward...



and is
replaced by
TWO pieces
that
come
from
behind it!

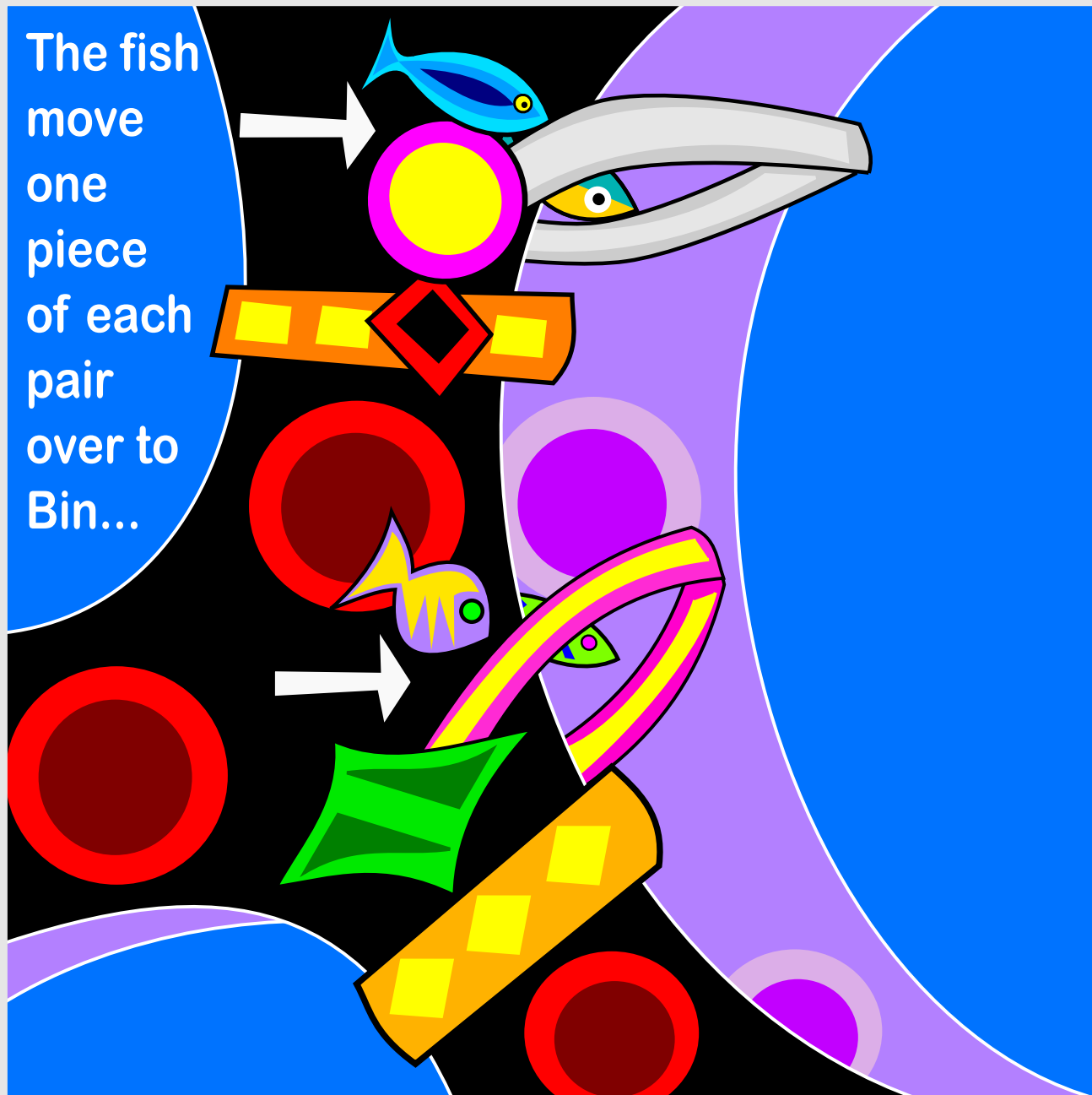


Something fancier happens
to the piece of jewelry around
Delores' neck. A fish unwinds it
and moves it to her forehead.

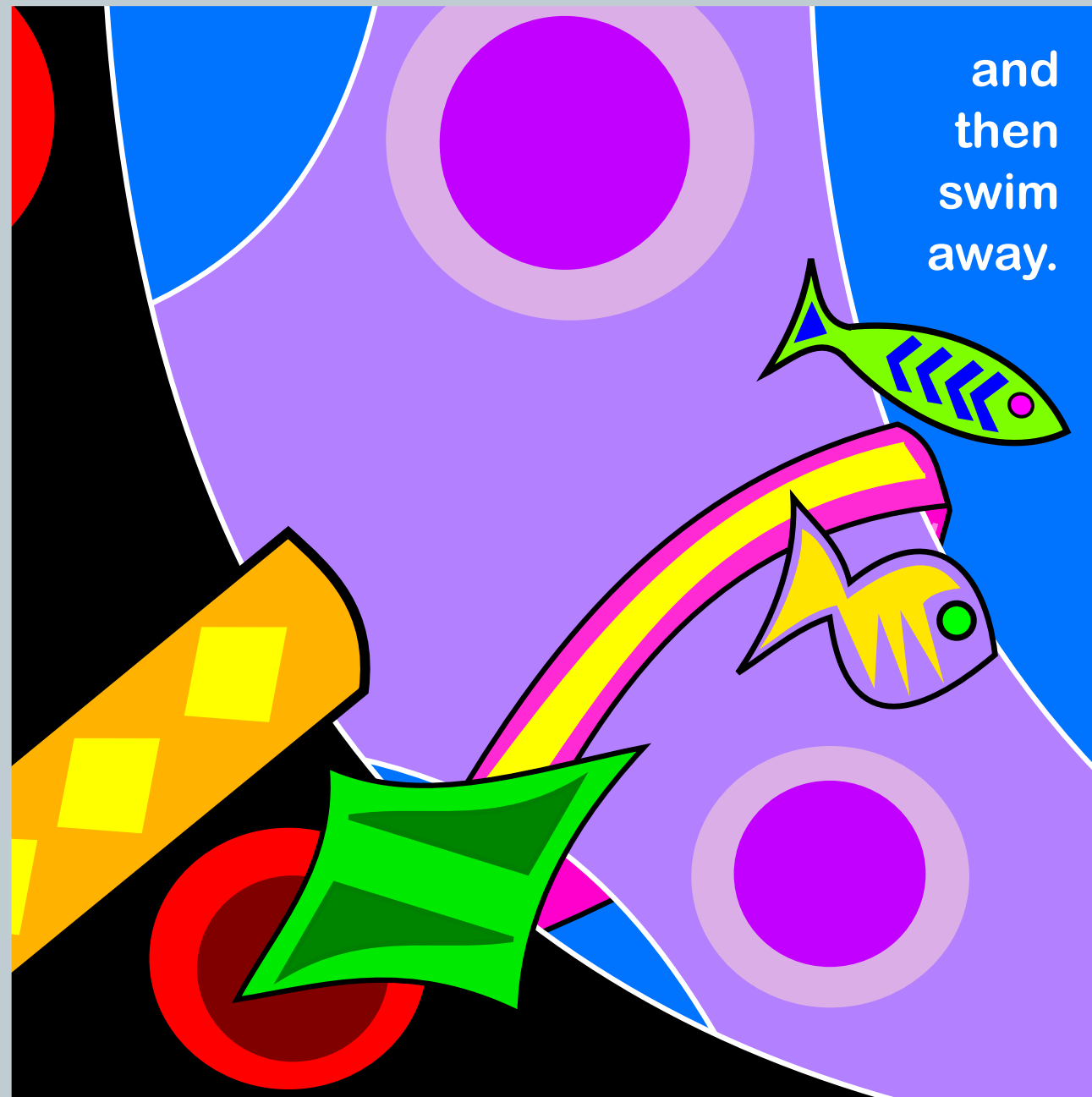


It becomes her
tiara for
the evening.

The fish
move
one
piece
of each
pair
over to
Bin...



and
then
swim
away.





Except for the tiara, Delores has the same pattern of jewelry as in the beginning, and Bin has it too.



Bin thanks Delores for being so amenable and then the cousins swim off to their Saturday night fun.

A ny questions?

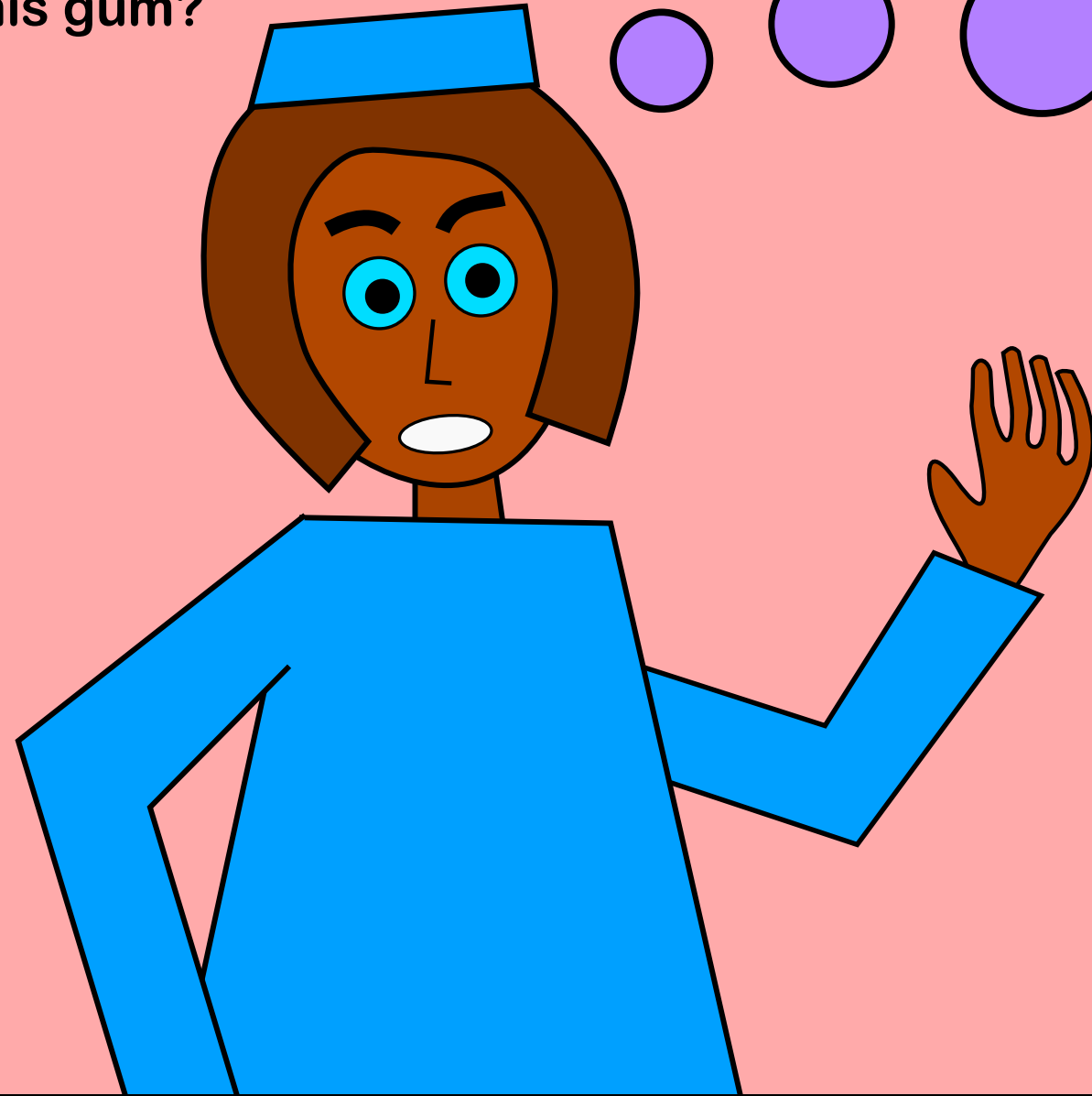


How does Delores get her jewelry back from Bin?

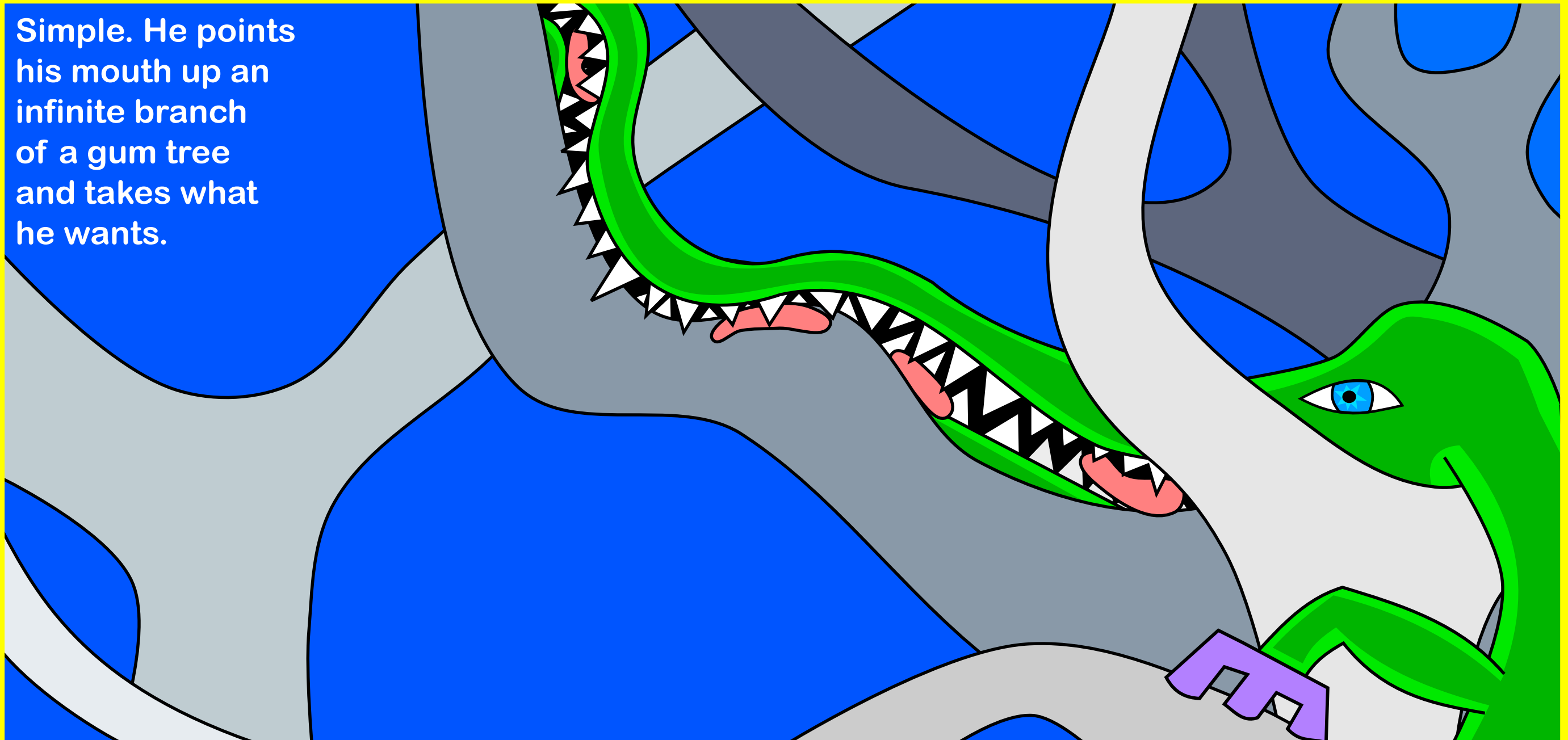
A colorful cartoon illustration. At the top, a woman with long brown hair and a pink dress looks down. Below her is a blue pool containing various elements: a small orange fish, a yellow diamond-shaped object, a large black mask with a green eye, a purple fish with a large white eye, and a yellow diamond-shaped object. The background is yellow.

Easy. On Sunday morning they line up again and reverse the whole process.

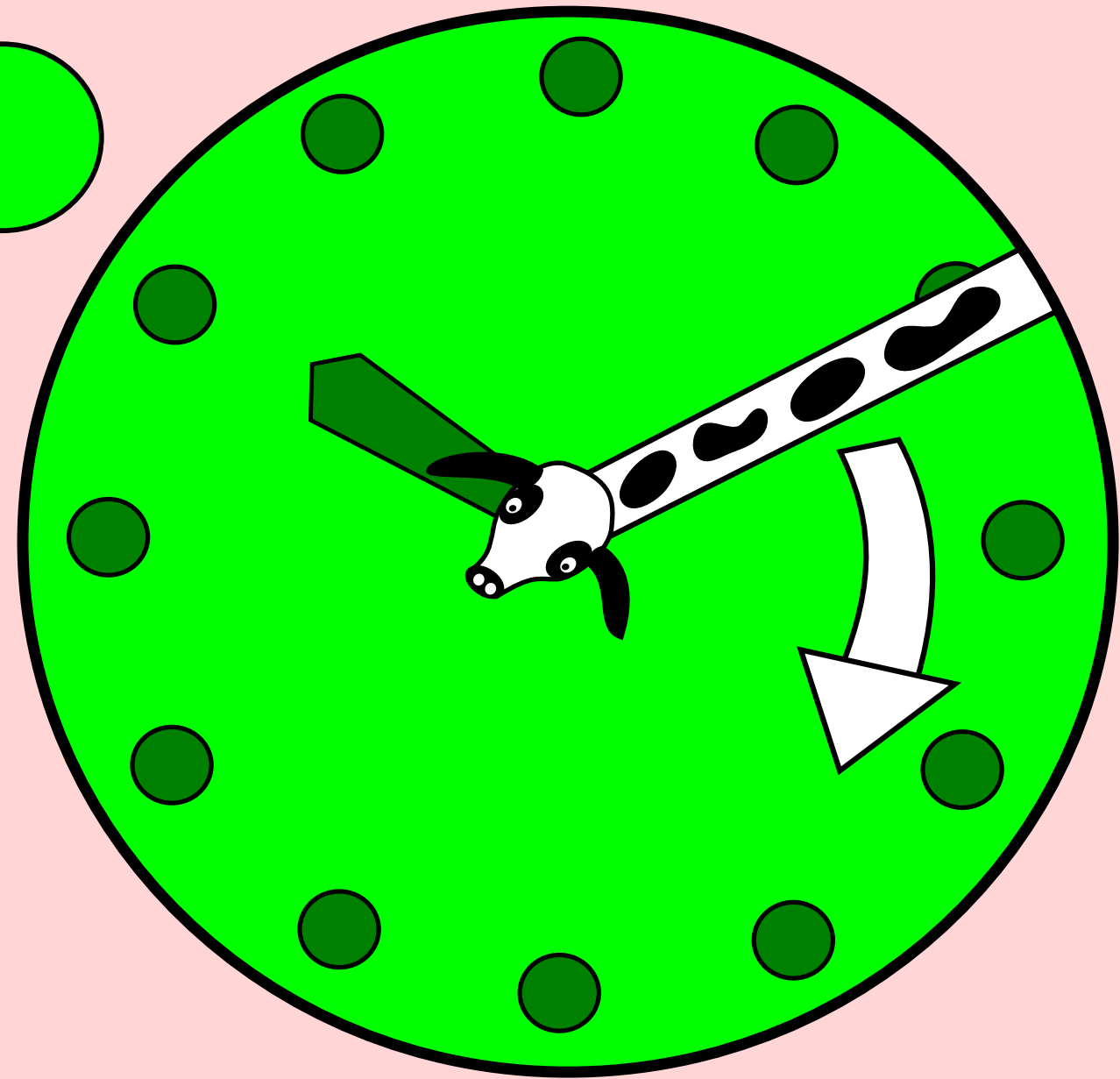
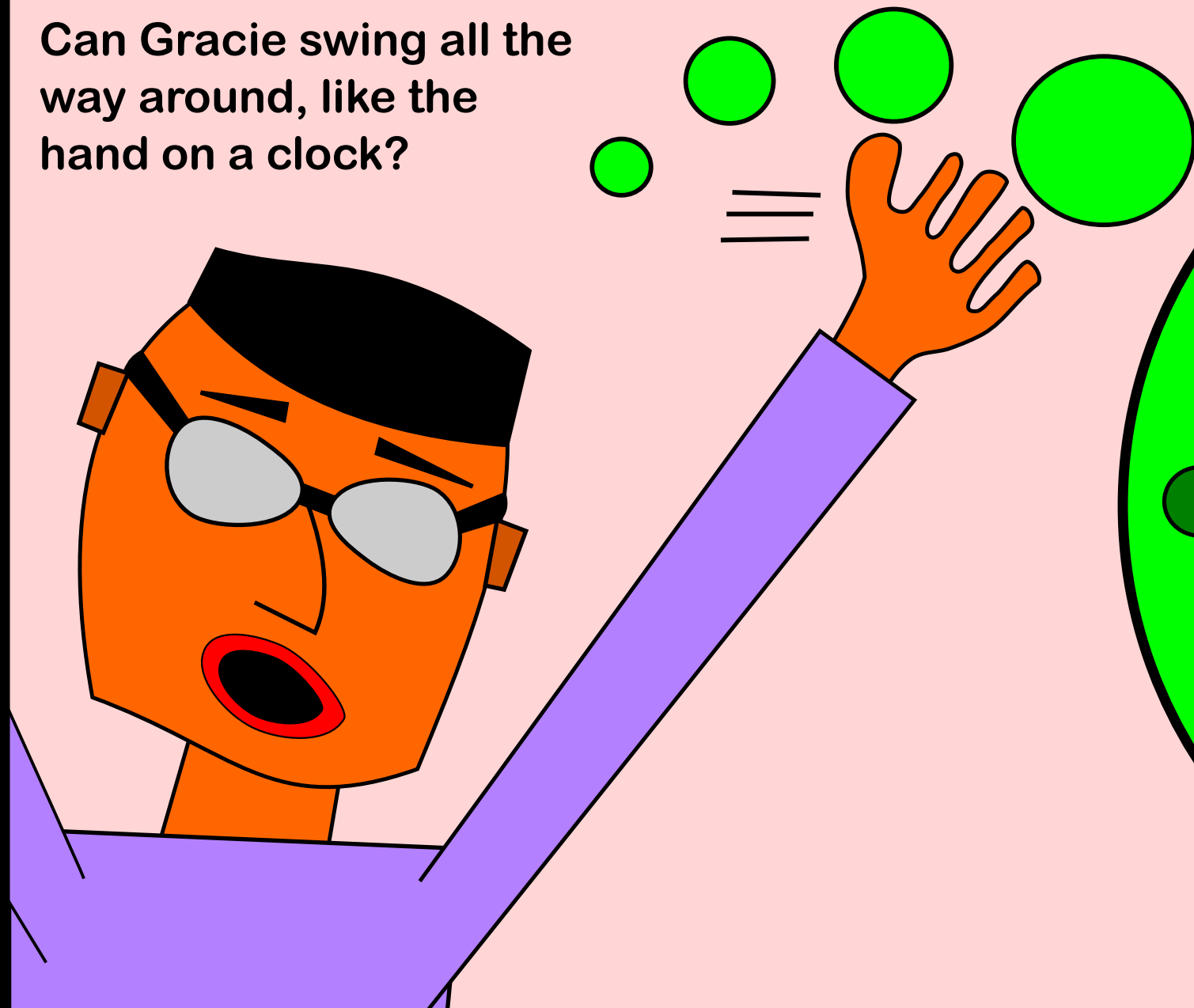
Where does
Hammerwood
get his gum?



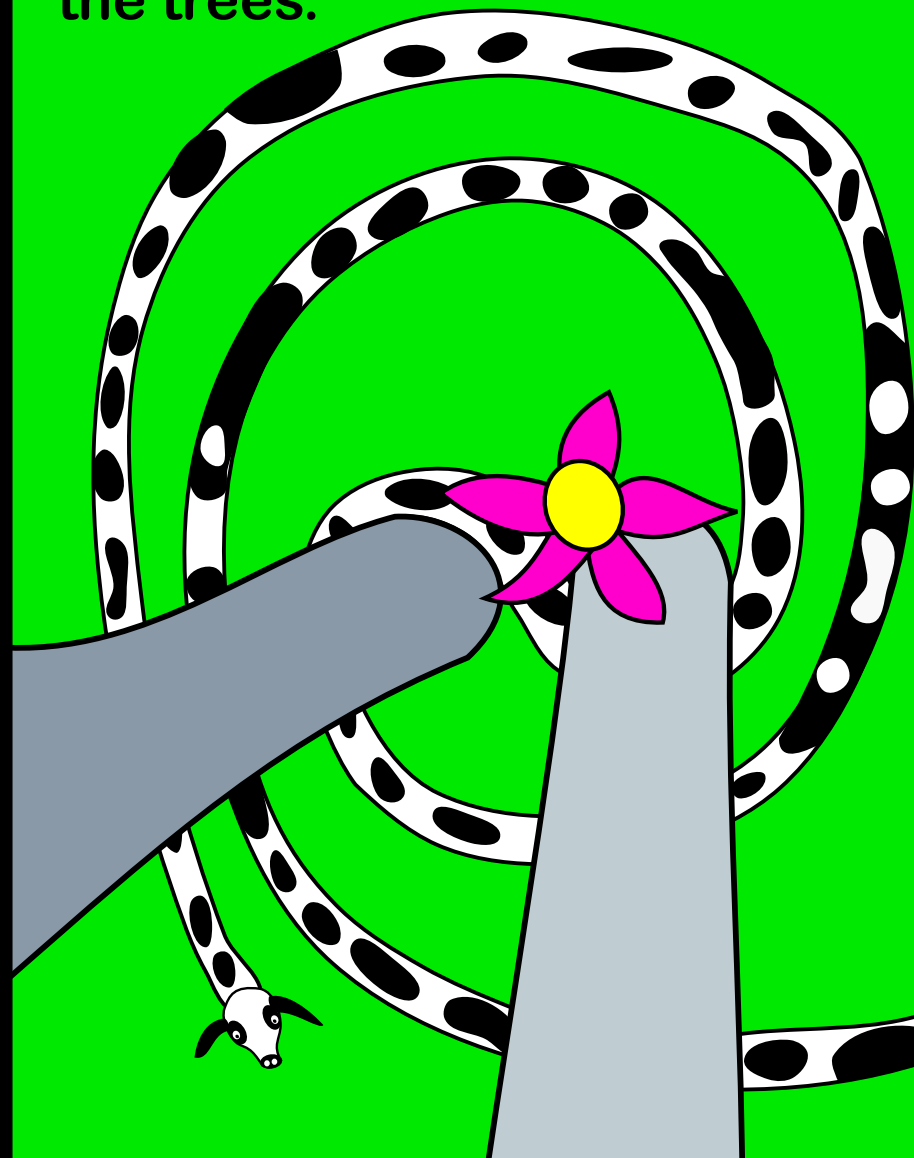
Simple. He points
his mouth up an
infinite branch
of a gum tree
and takes what
he wants.



Can Gracie swing all the way around, like the hand on a clock?



No. She would get stuck on the trees.

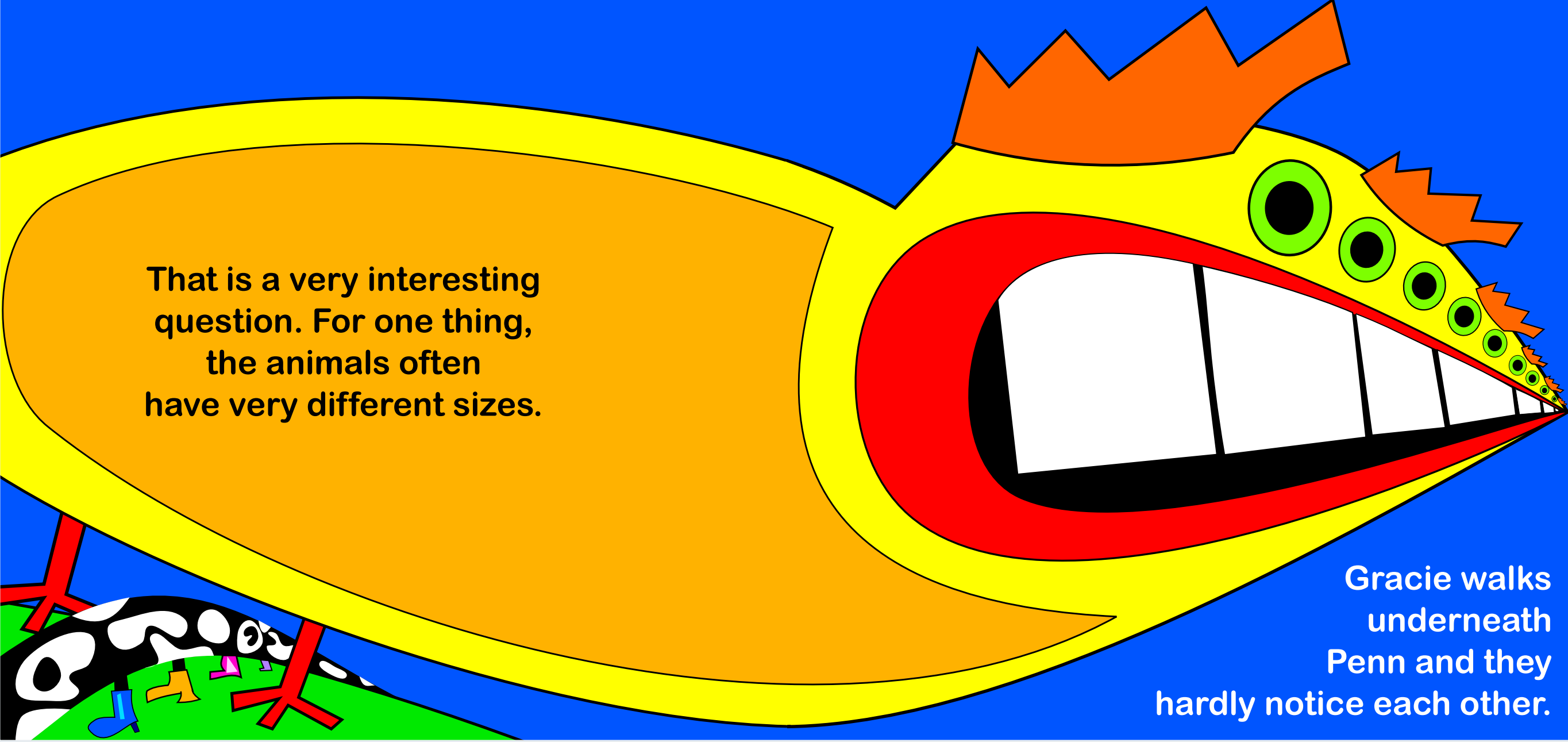


But otherwise
she is quite
flexible.



How do the
animals
get around
each other?

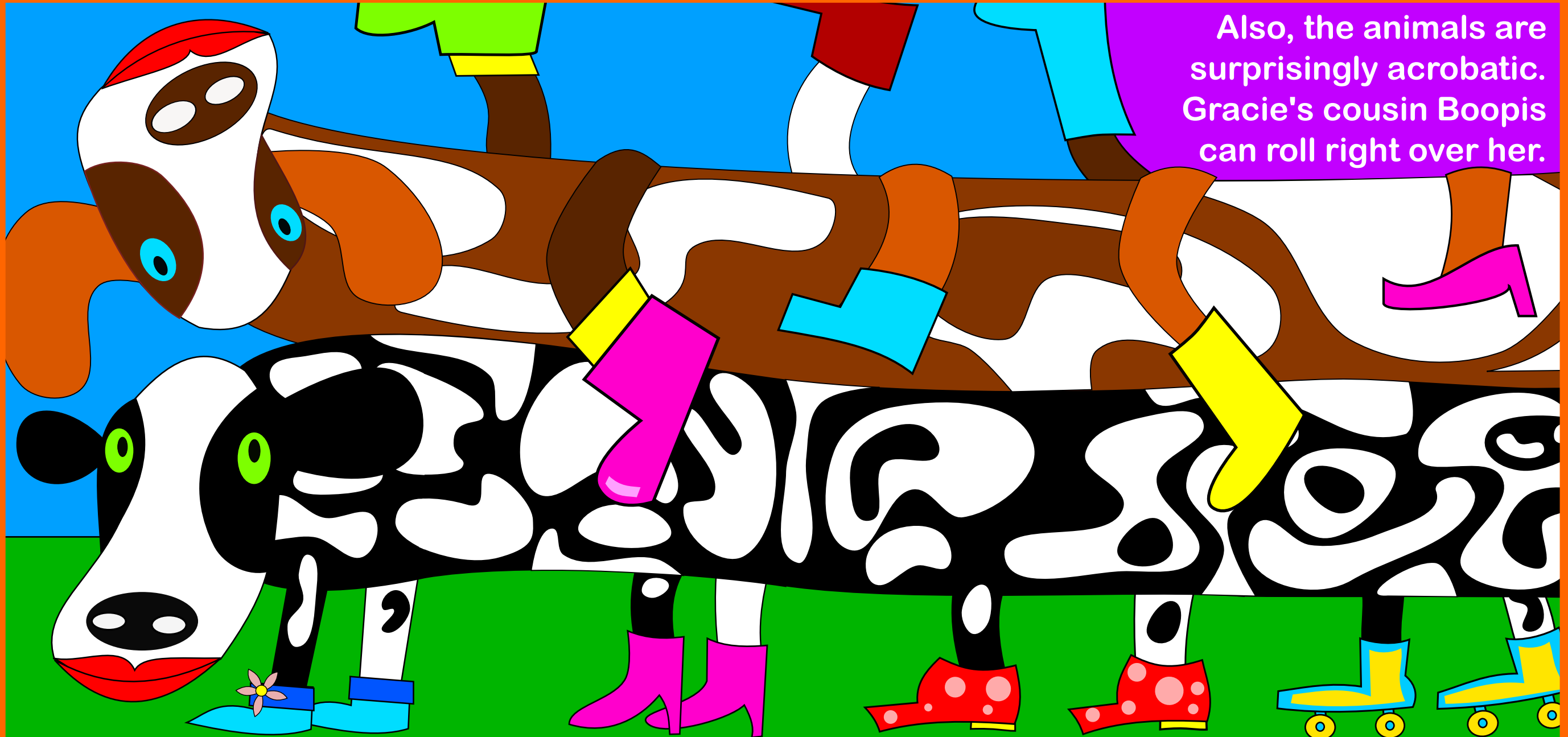




That is a very interesting
question. For one thing,
the animals often
have very different sizes.

Gracie walks
underneath
Penn and they
hardly notice each other.

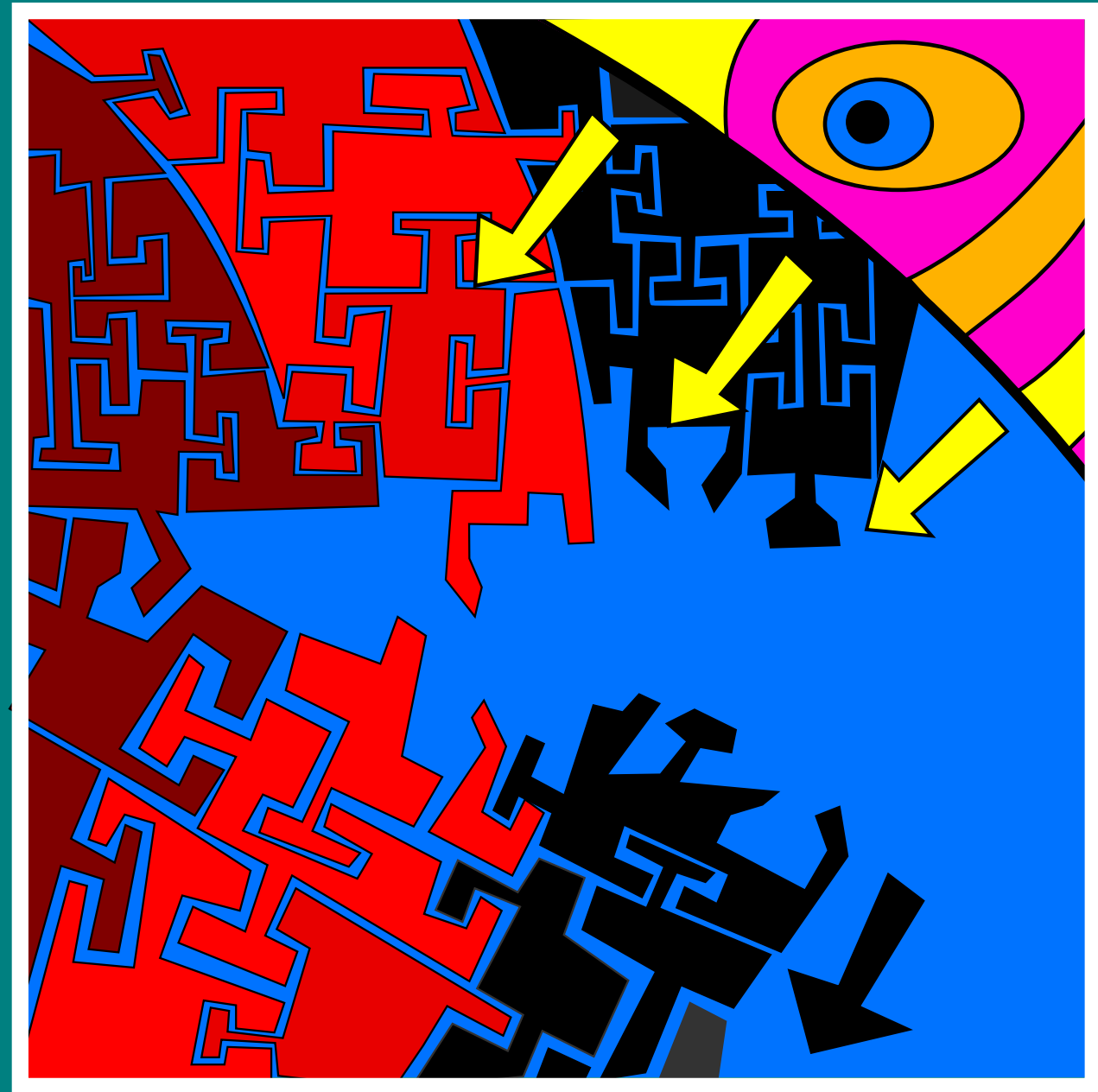
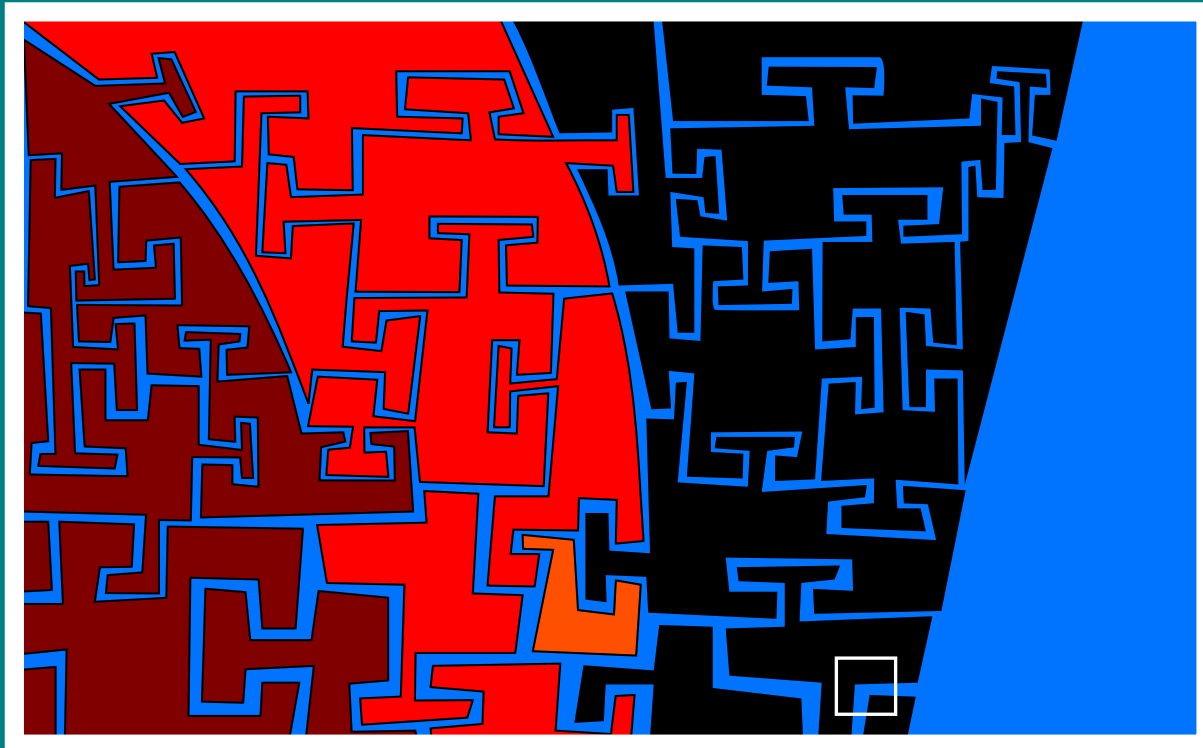
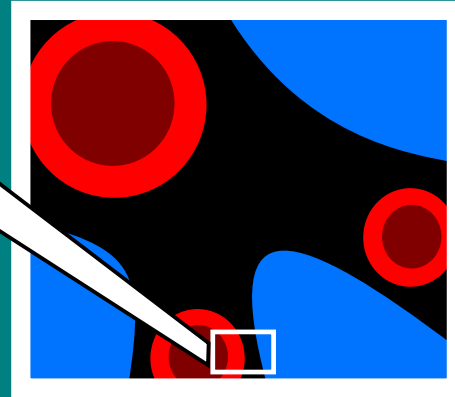
Also, the animals are surprisingly acrobatic. Gracie's cousin Boopis can roll right over her.

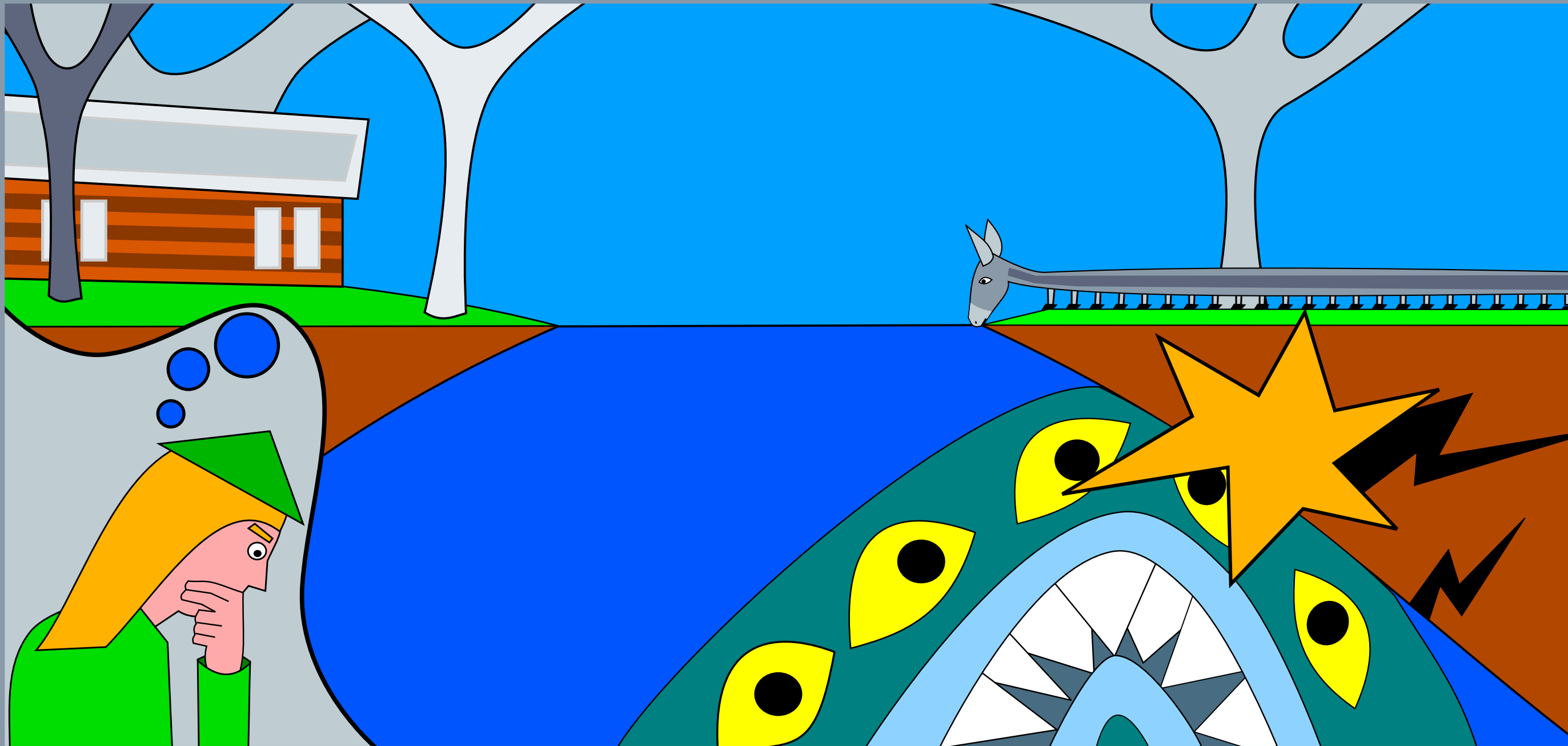


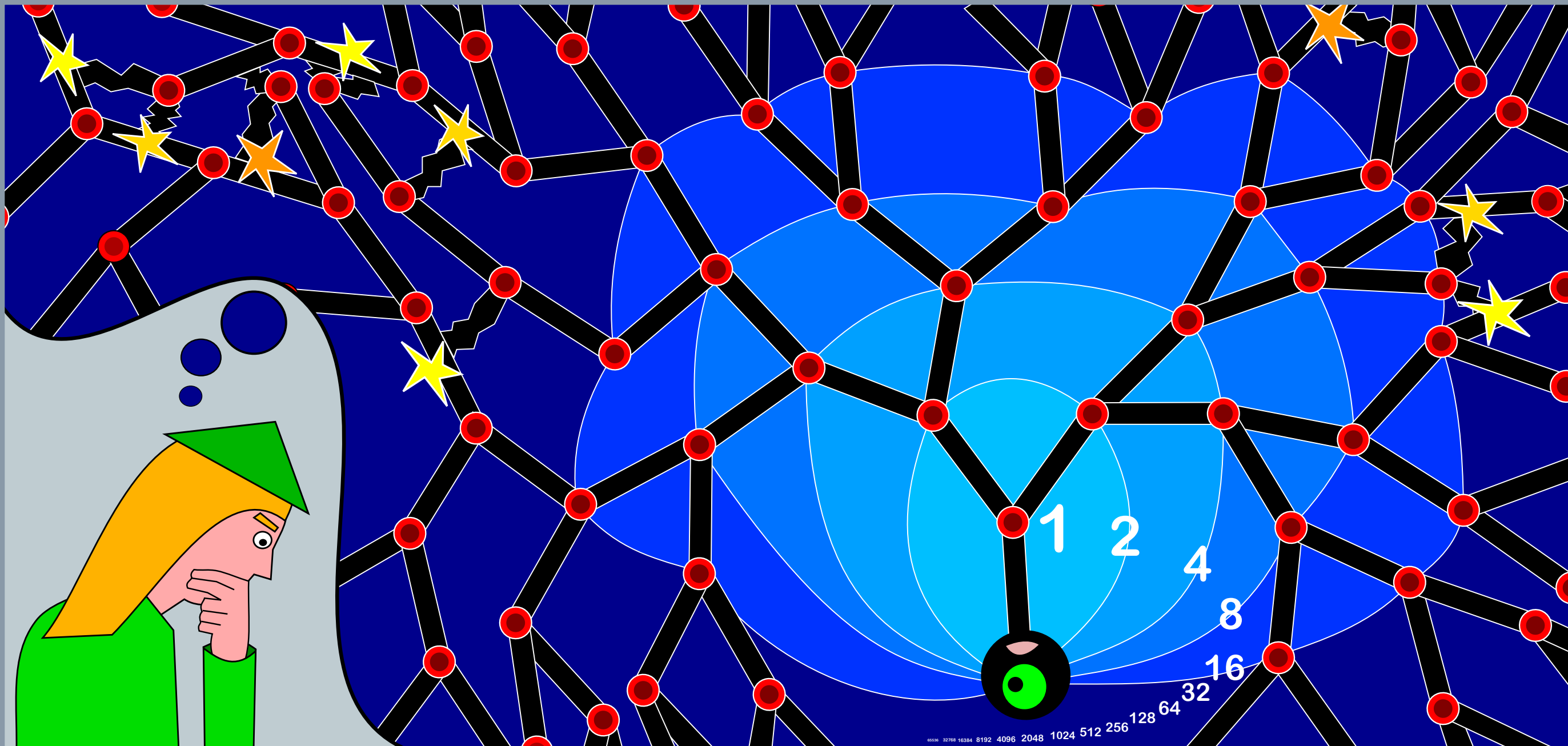
Some of the animals have special tricks. Nelson's head can swing open like a door...



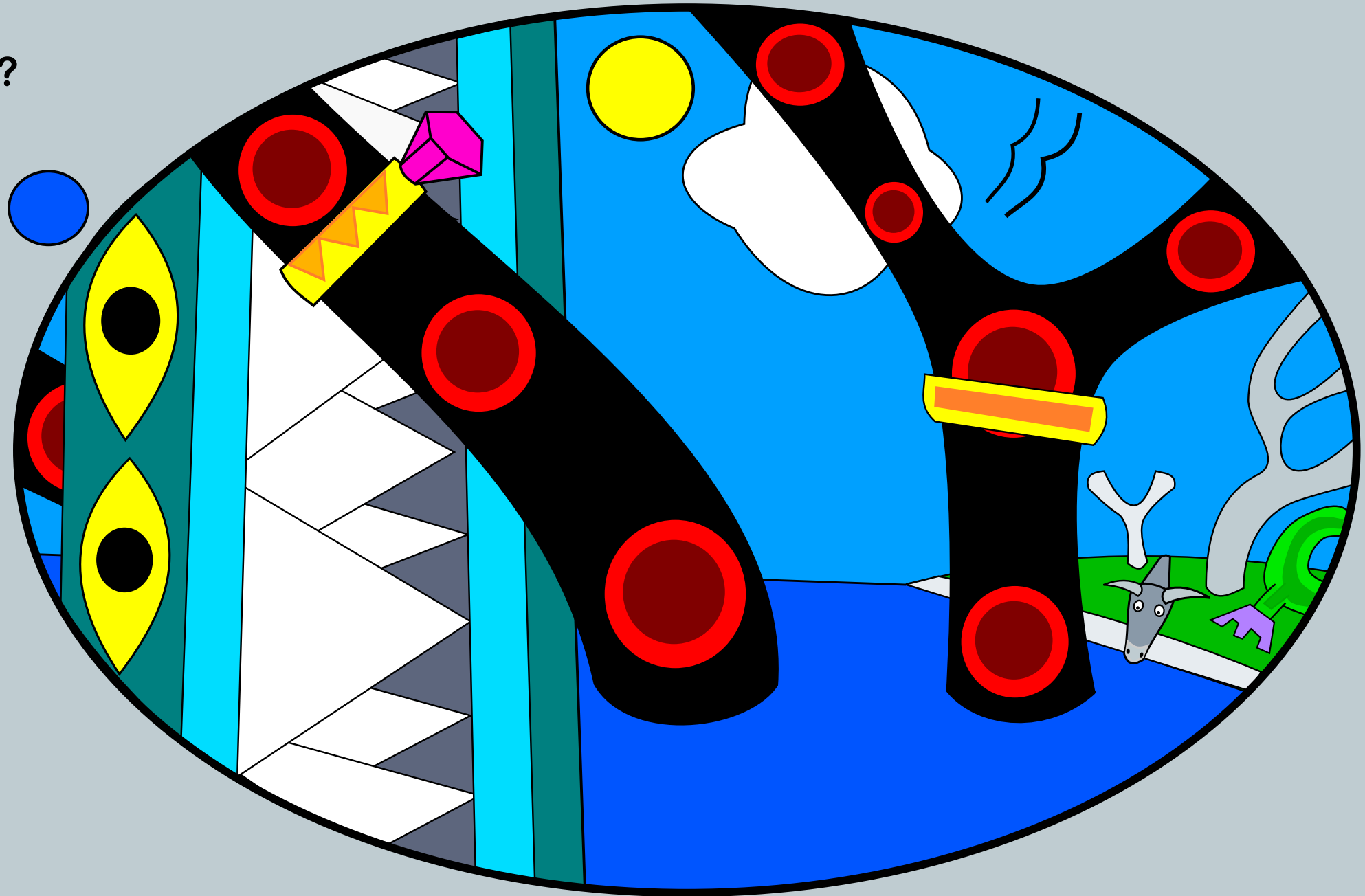
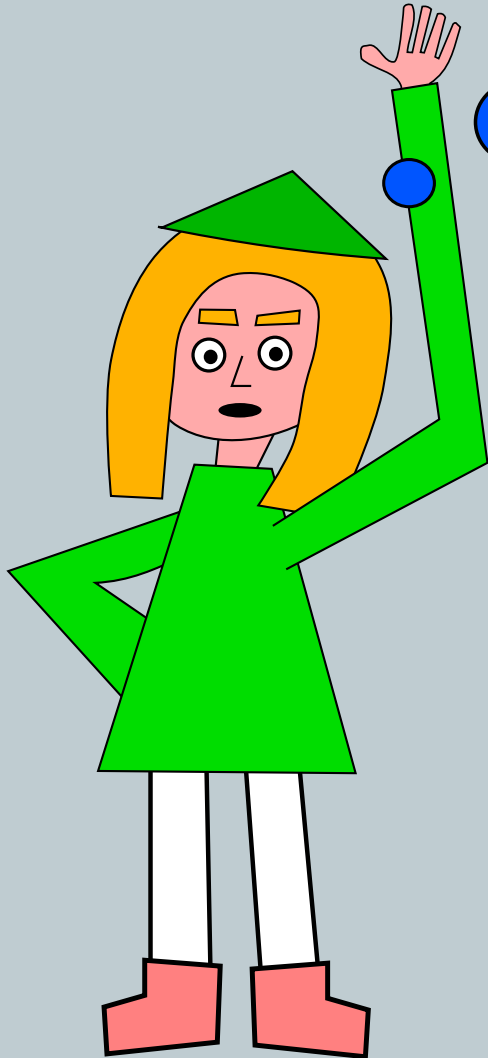
and Delores, who is built like a flexible puzzle, can pull herself apart to let another animal through.



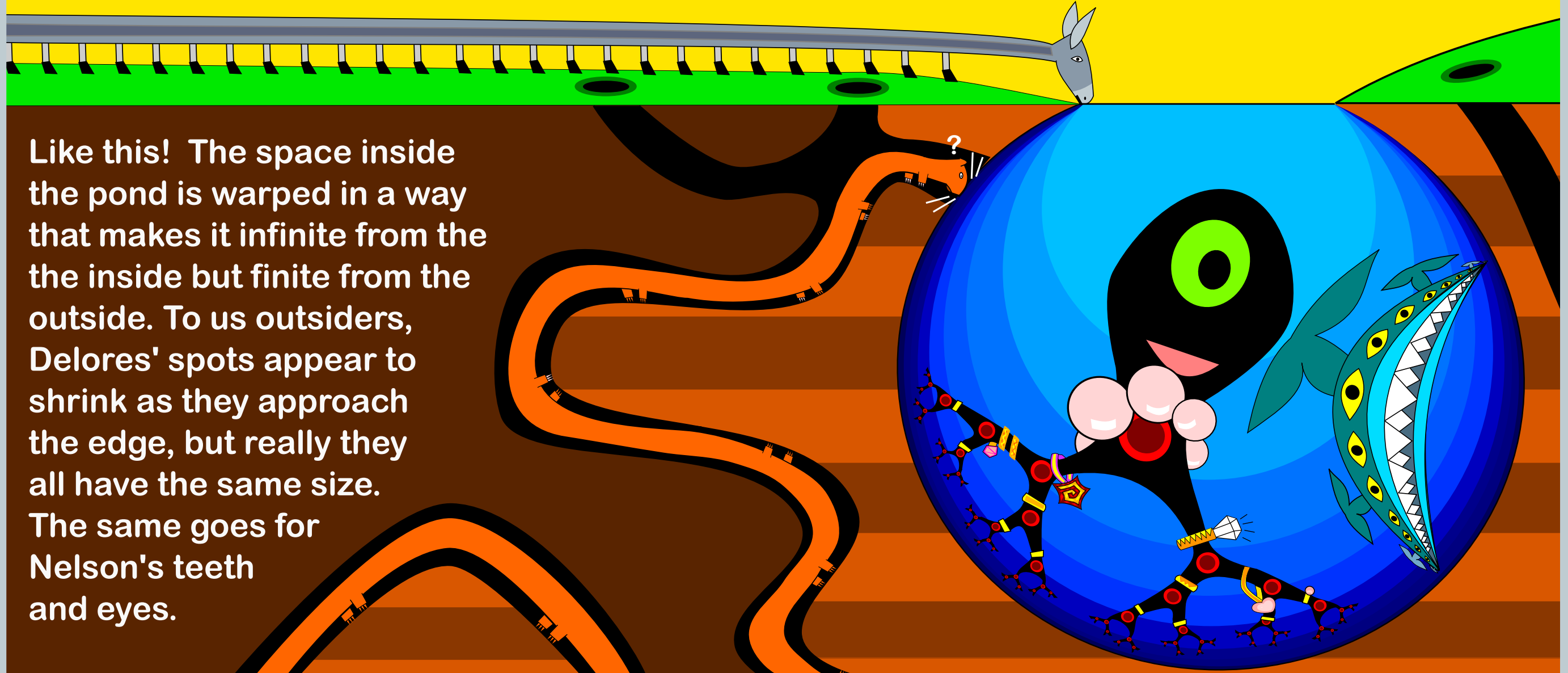




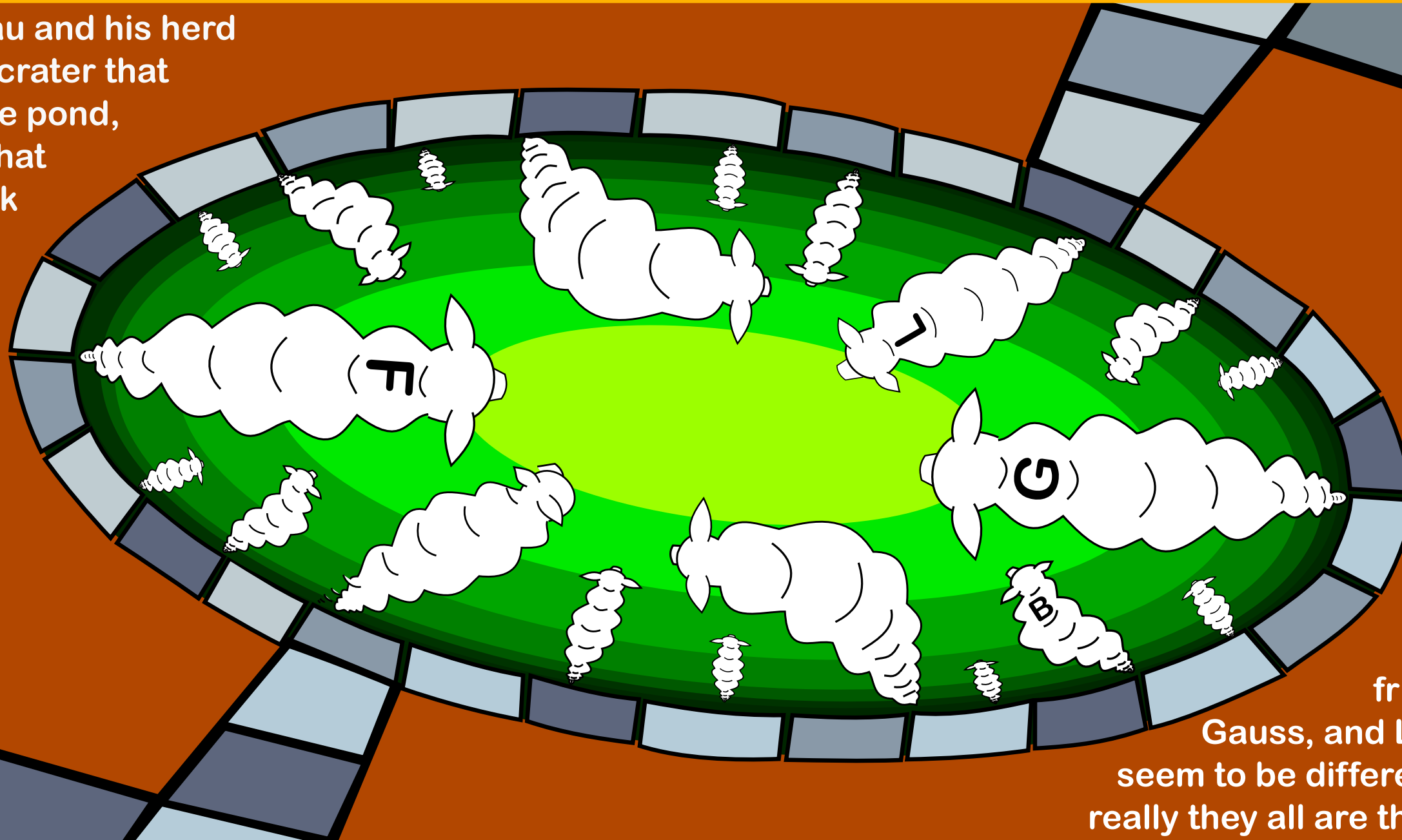
How do the infinite animals fit in the pond?



Like this! The space inside the pond is warped in a way that makes it infinite from the inside but finite from the outside. To us outsiders, Delores' spots appear to shrink as they approach the edge, but really they all have the same size. The same goes for Nelson's teeth and eyes.



Flambeau and his herd
live in a crater that
is like the pond,
except that
they walk
on the bottom.

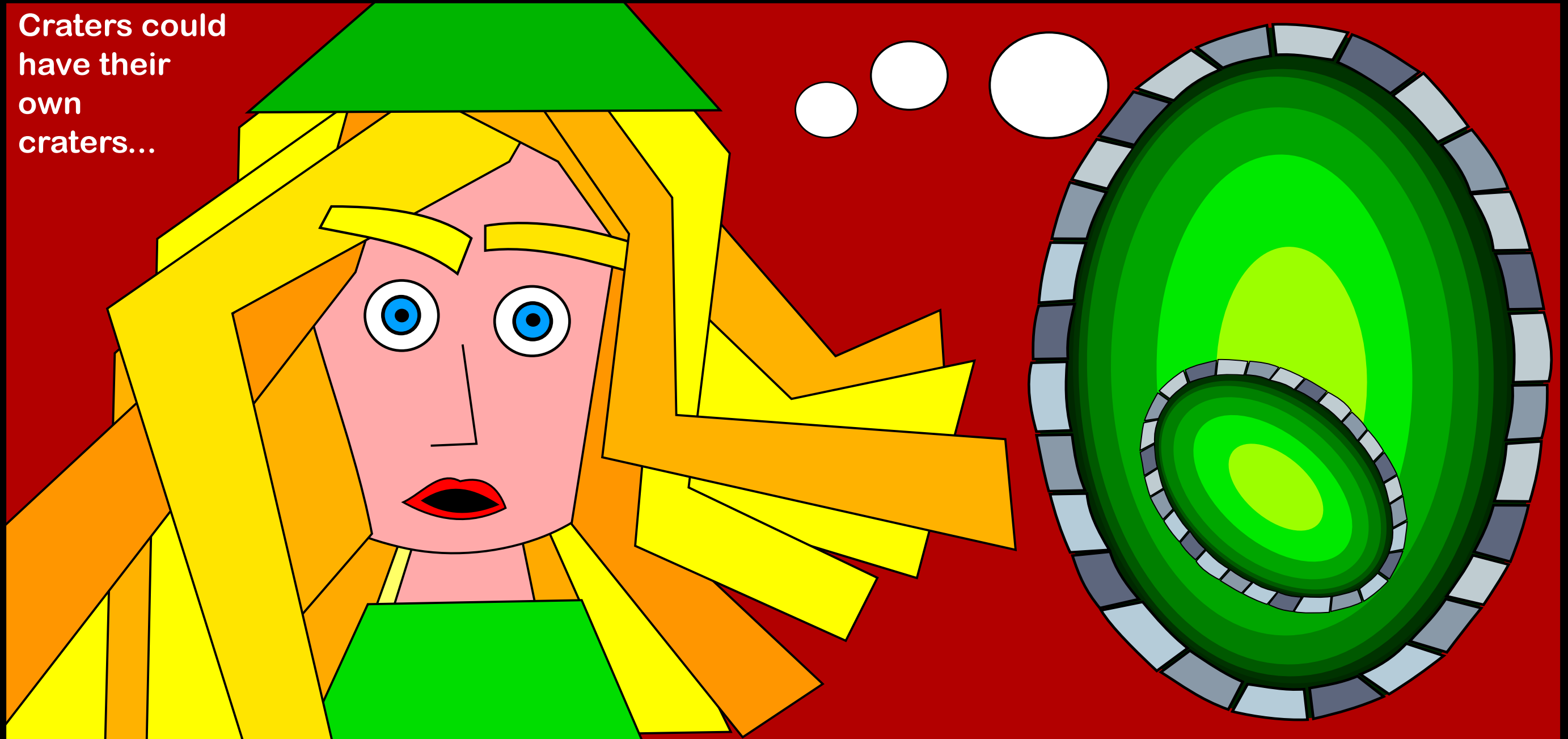


From the
outside,
Flambeau's
friends Bolyai,
Gauss, and Lobachevsky
seem to be different sizes, but
really they all are the same size.

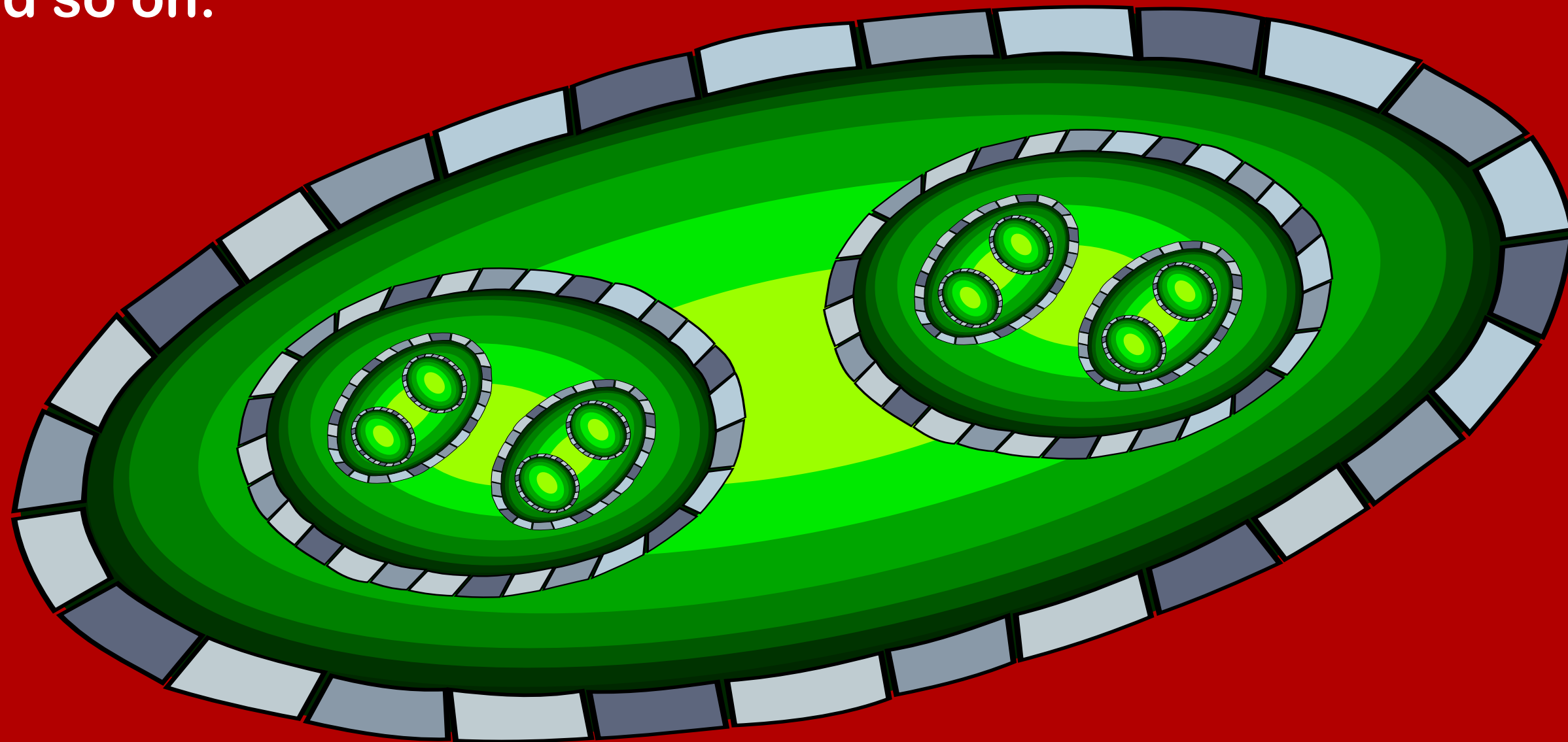


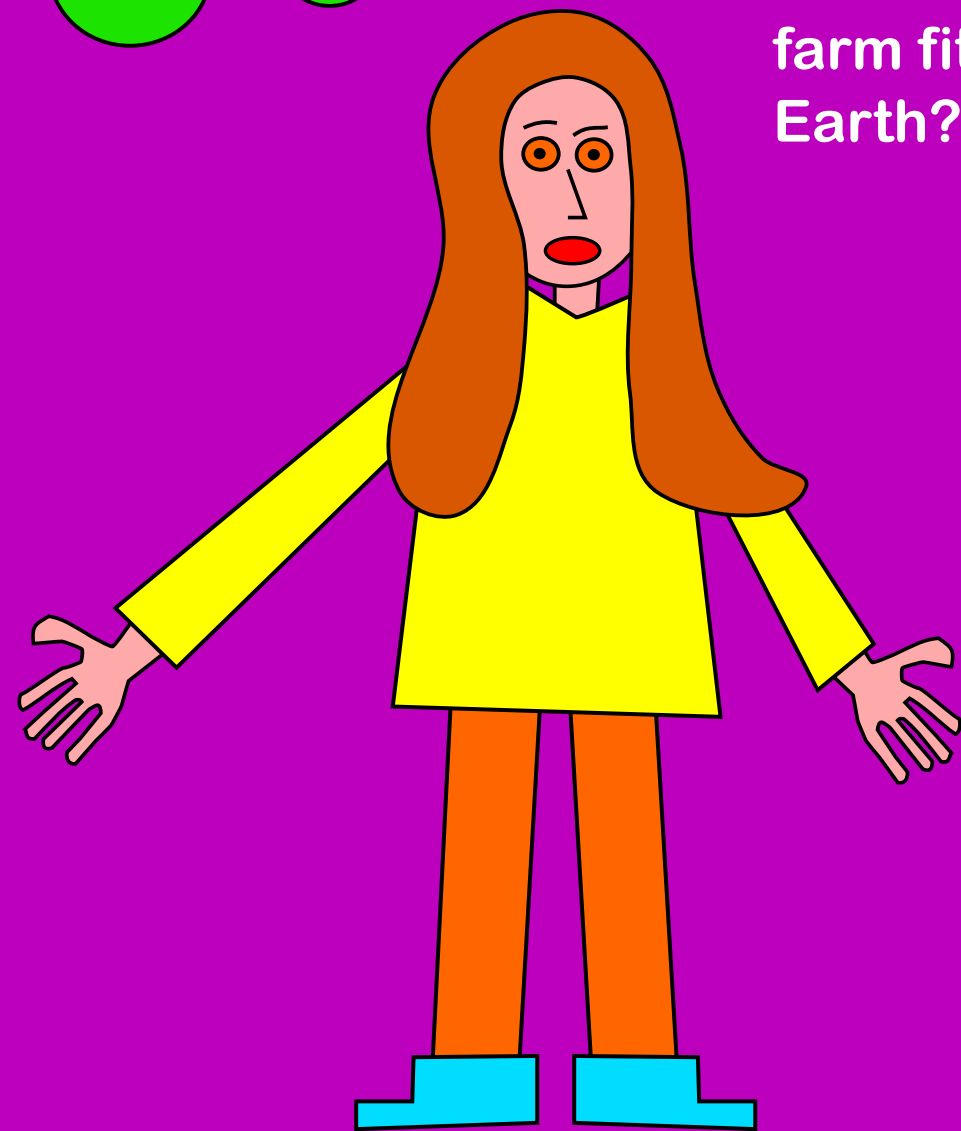
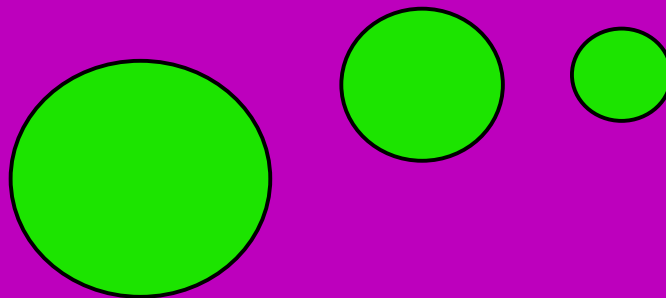
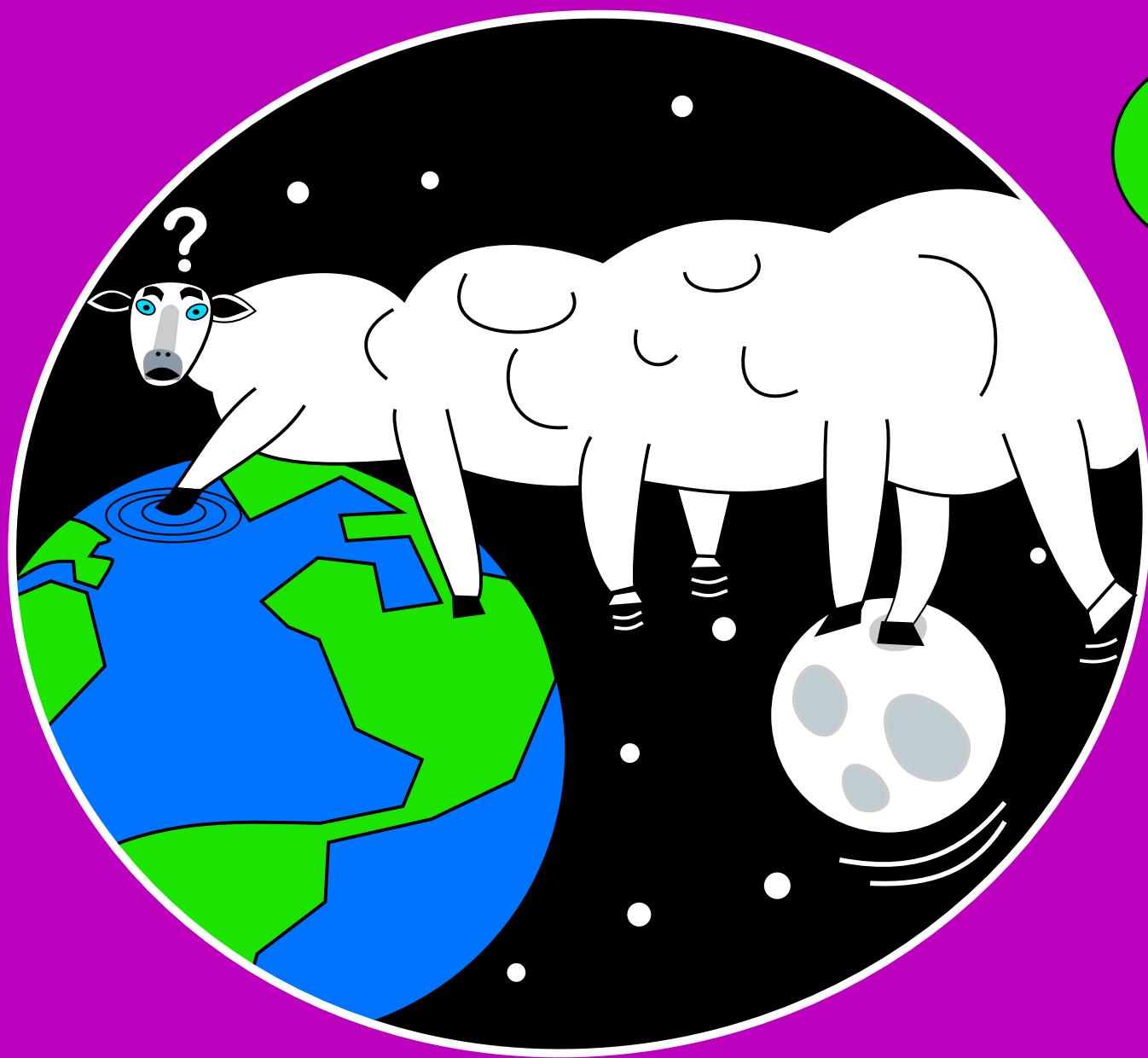
Bill's eye is also one of these enclosed infinite spaces. He loves watching Flambeau and the other sheep. He can see their whole crater perfectly.

Craters could
have their
own
craters...



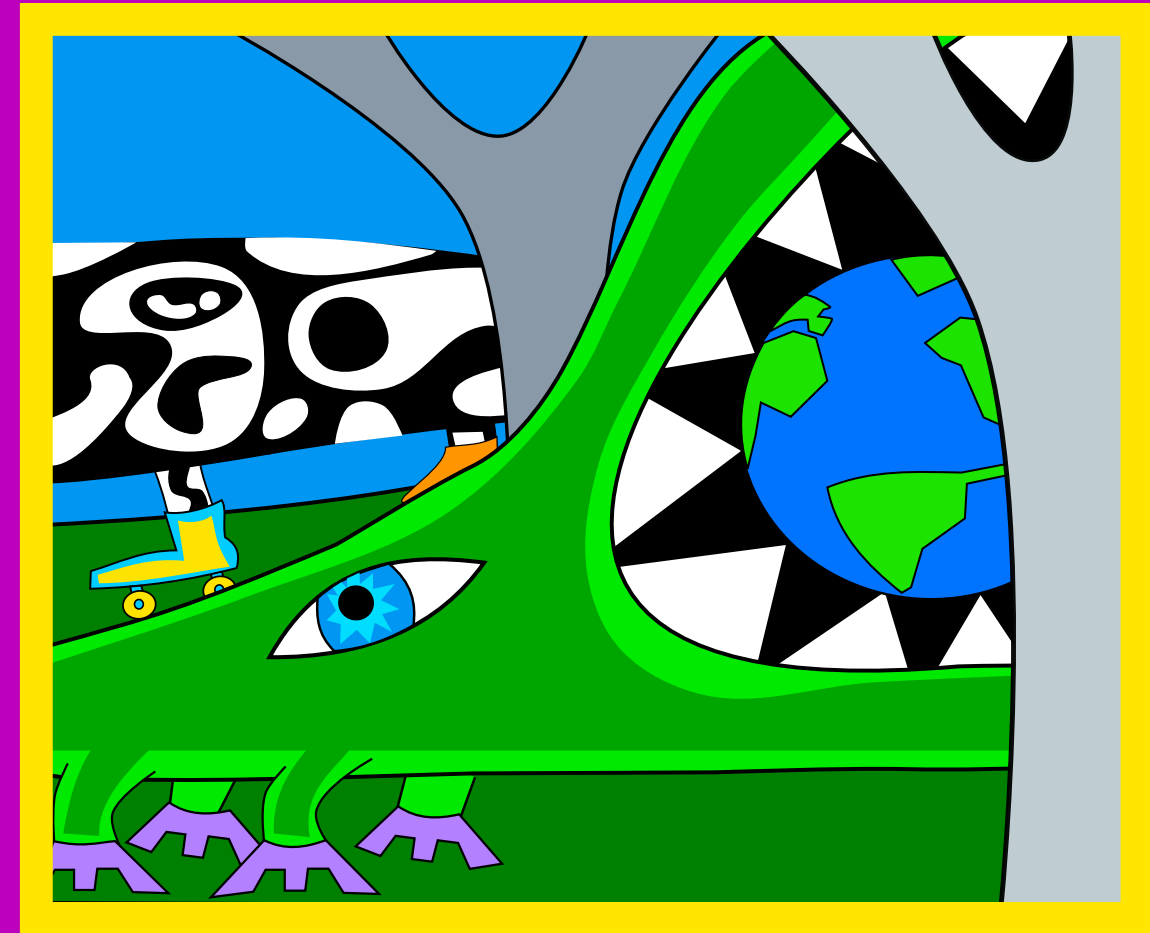
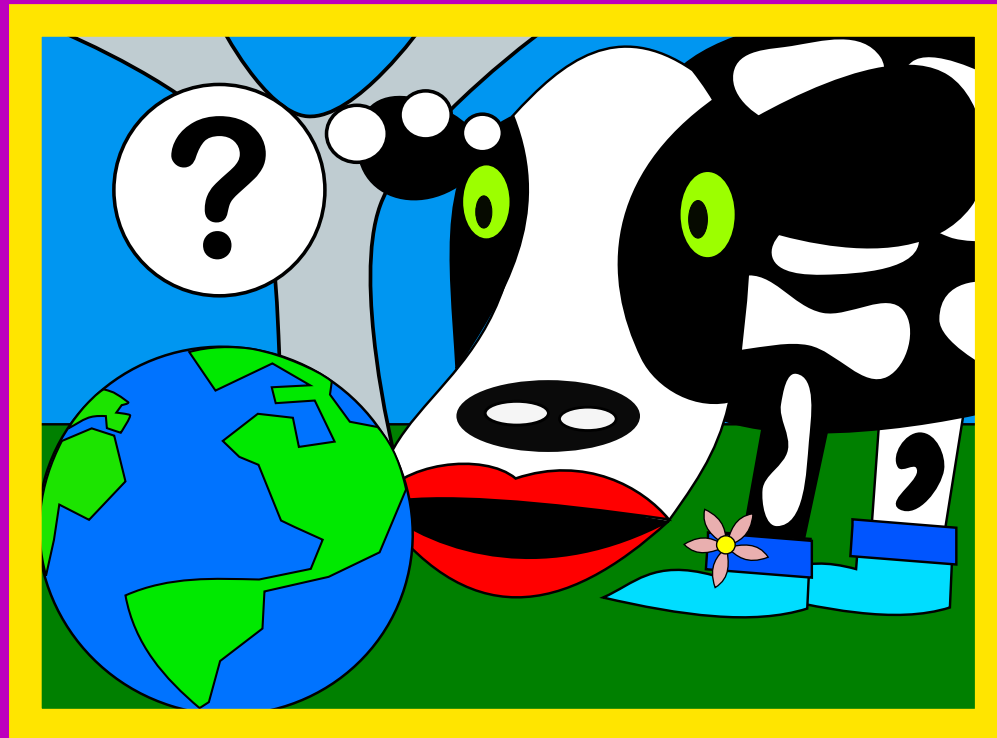
And so on.





Can the
infinite
farm fit on
Earth?

This has a subtle answer.
At first, it seems impossible.
The farm doesn't close up like
Earth does, so how could it fit
on Earth? That sounds like the
end of the story, but...



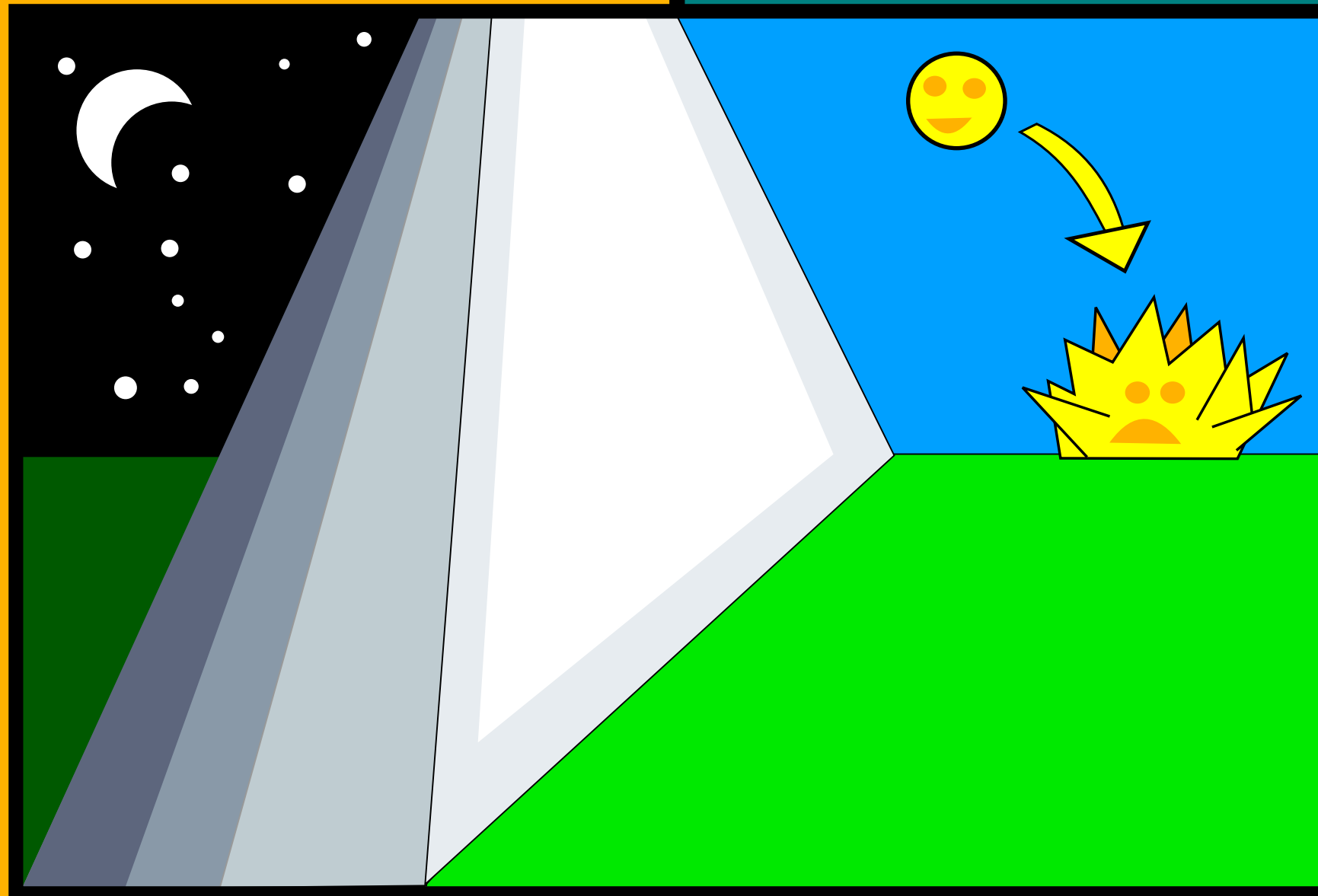
think back to how the pond and
those craters take up a finite
amount of space from the
outsider's point of view.



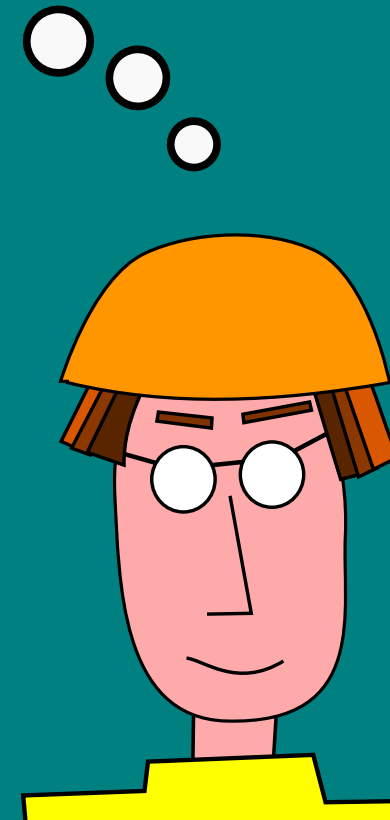
Yes,
precisely,
but there is
a catch. On
Earth the
physical
laws*
would
prevent
one of
those
craters
from
existing.
So, the
infinite farm
can't REALLY
fit on Earth.

*A crater like this seems to require matter to exist on all scales, which is incompatible with the atomic nature of our world. Even setting this aside, the crater might generate a gravitational field that would crush our entire universe.

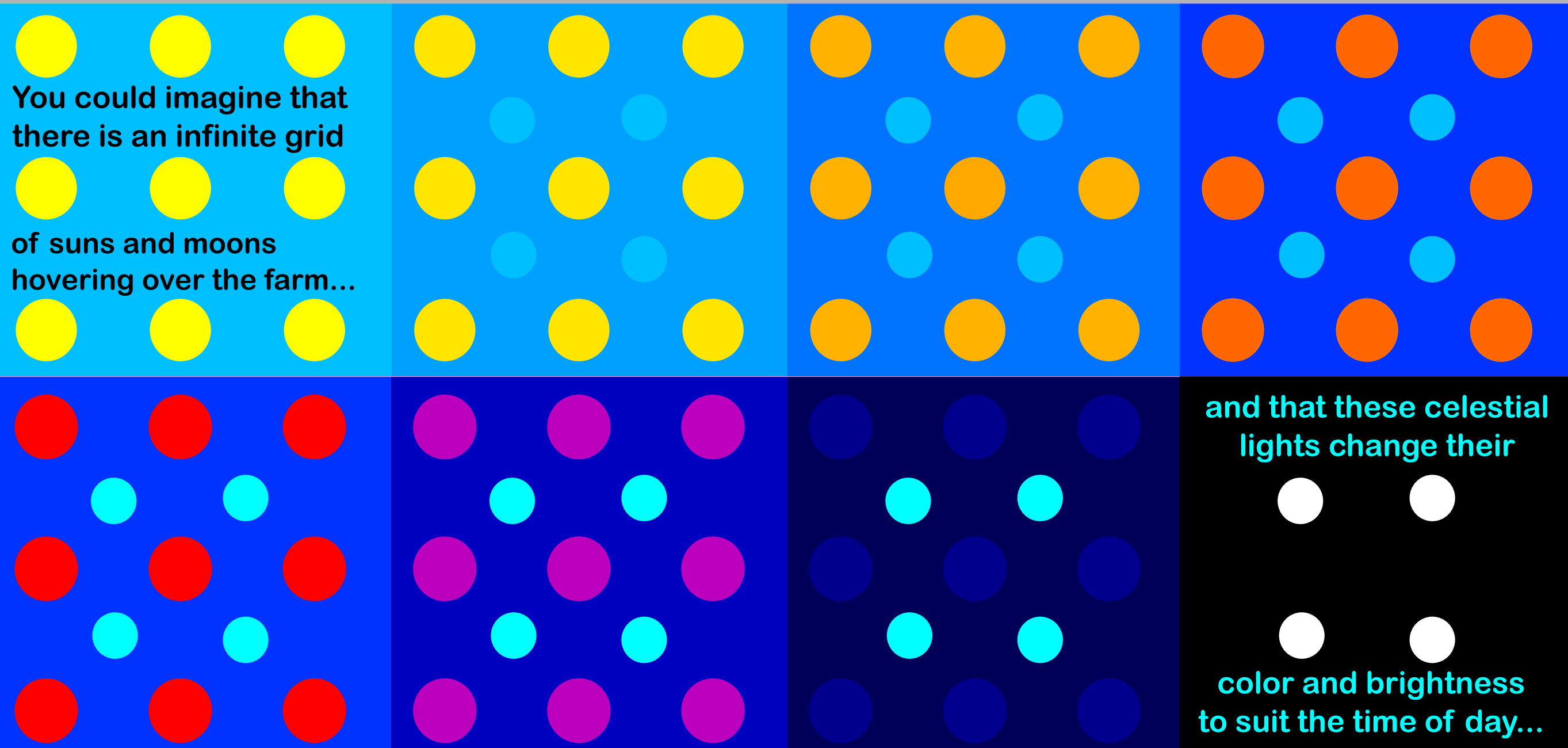
How does
day change
to night on
the farm?



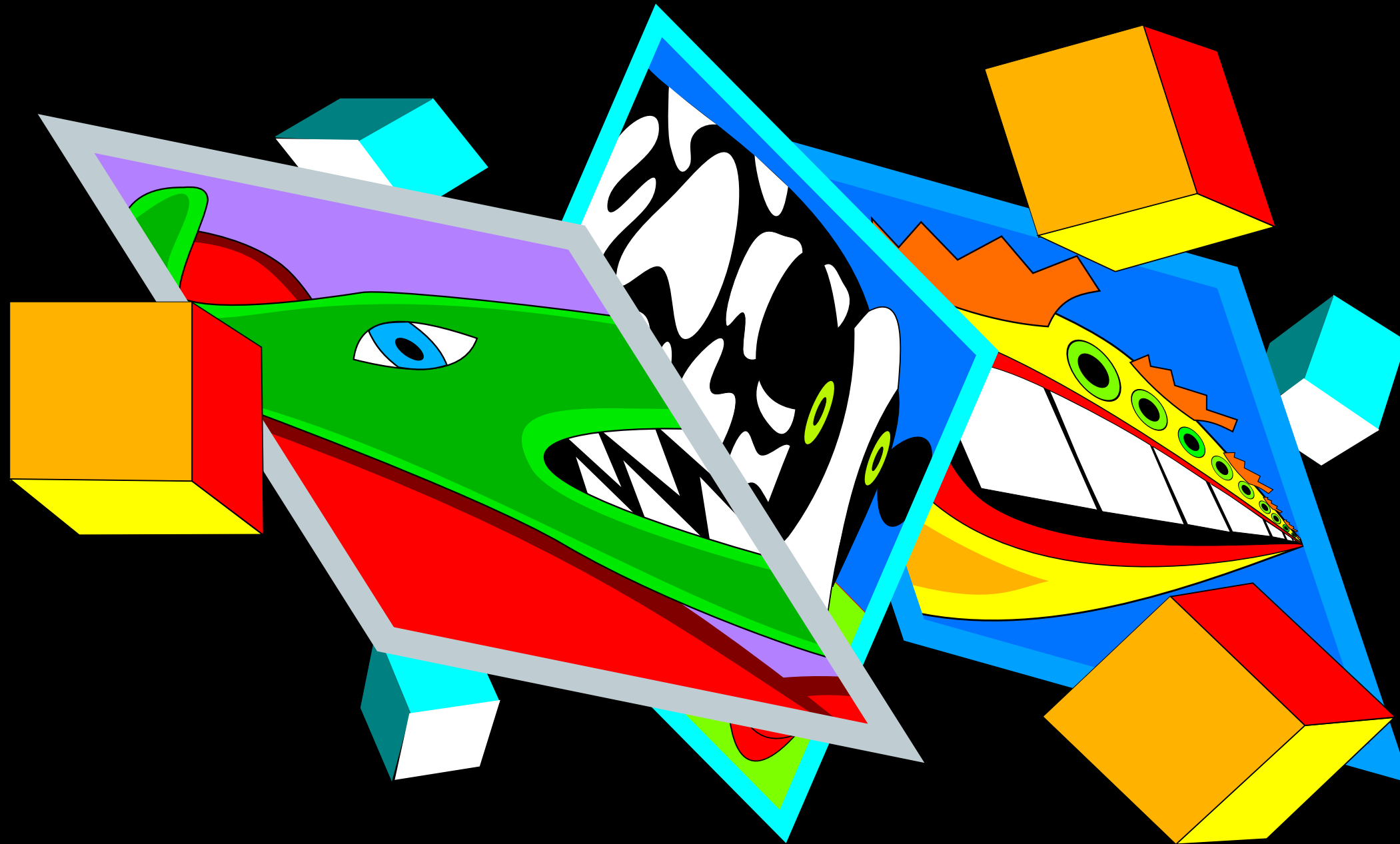
Yeah, how
does the
sun get
around
the farm?

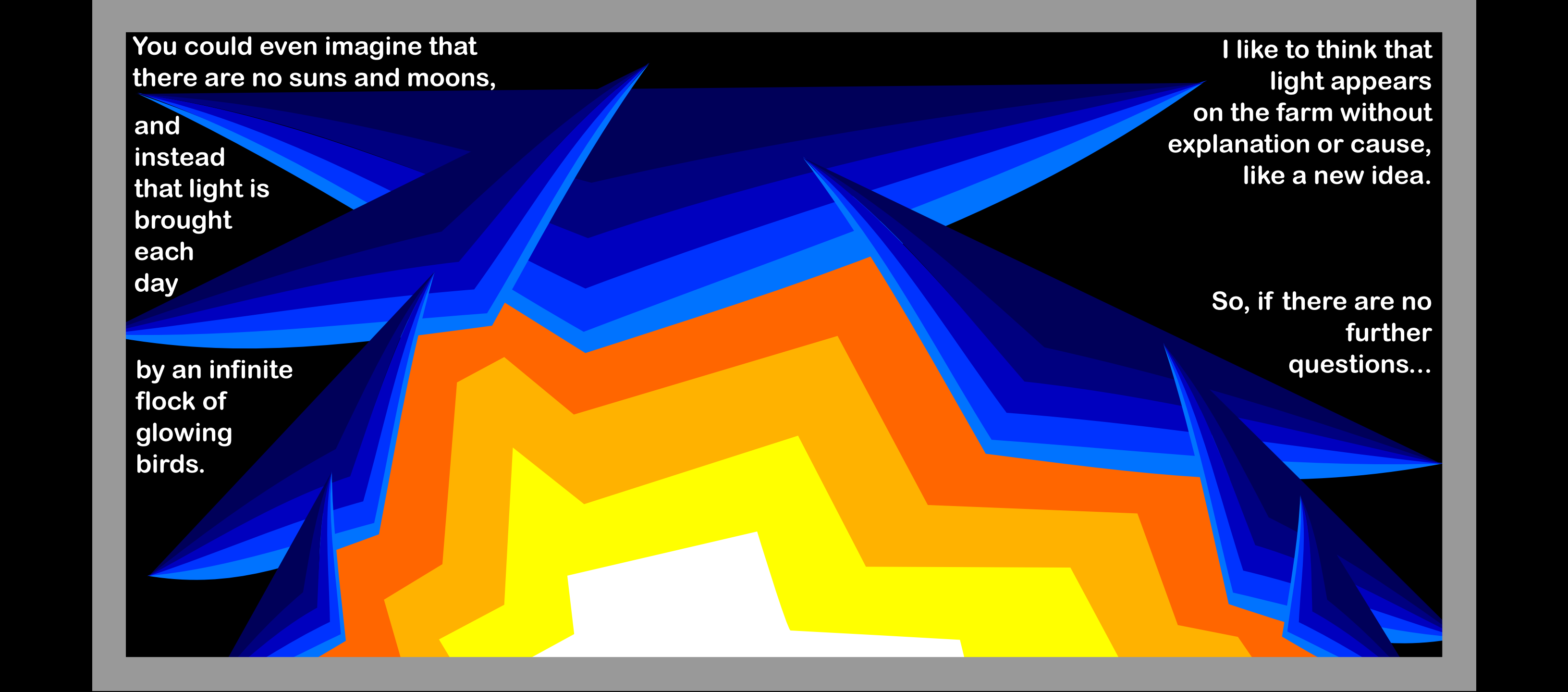


You could imagine that
there is an infinite grid
of suns and moons
hovering over the farm...



or you could
imagine that
the suns and
moons dance
around the
farm in a
complicated,
multi-dimensional
pattern.



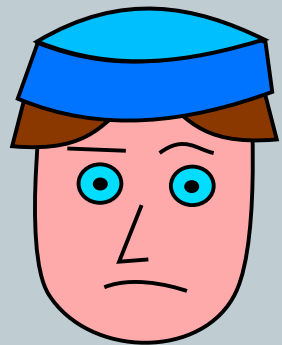
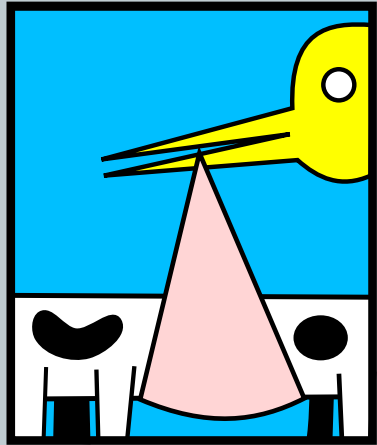
The background is a complex, abstract geometric composition. It features a series of overlapping, jagged shapes in various shades of blue, ranging from deep navy to bright cyan. These shapes are layered over a base of orange and yellow, which also has jagged, geometric edges. The overall effect is a sense of depth and movement, with sharp points and angles creating a dynamic, almost crystalline structure. The colors transition from dark blue at the top to lighter blue and then to orange and yellow towards the bottom, with a small white area at the very bottom center.

You could even imagine that
there are no suns and moons,
and
instead
that light is
brought
each
day

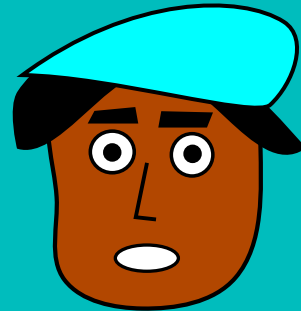
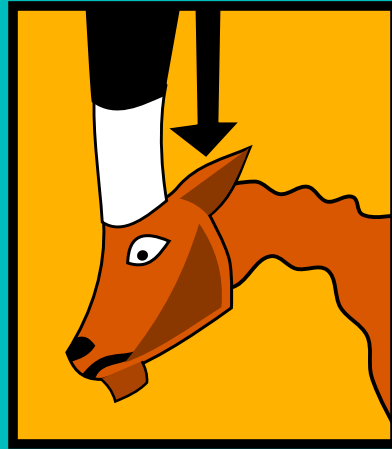
by an infinite
flock of
glowing
birds.

I like to think that
light appears
on the farm without
explanation or cause,
like a new idea.

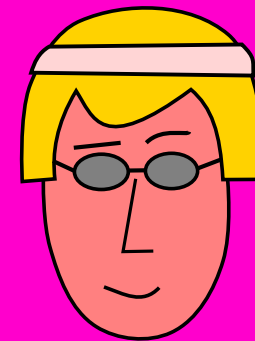
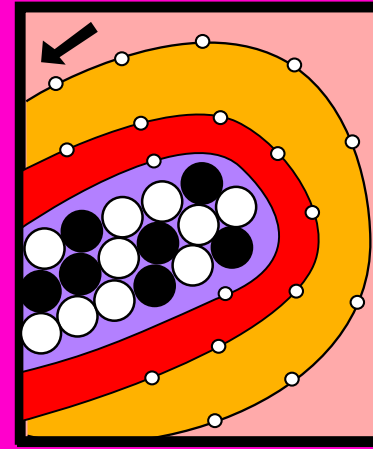
So, if there are no
further
questions...



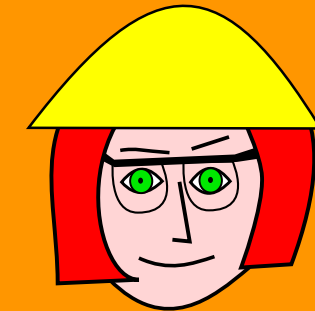
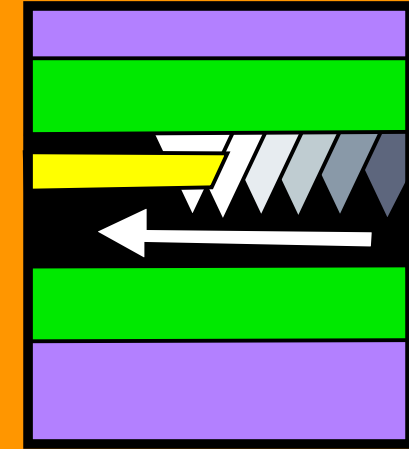
How did
Gracie
get on
the farm?



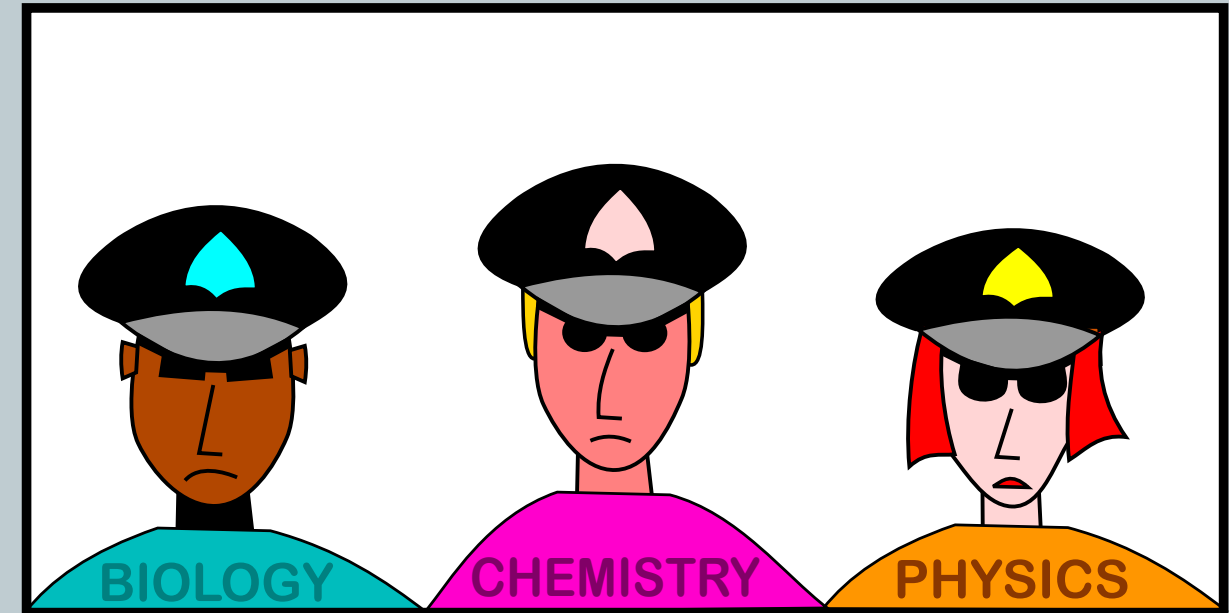
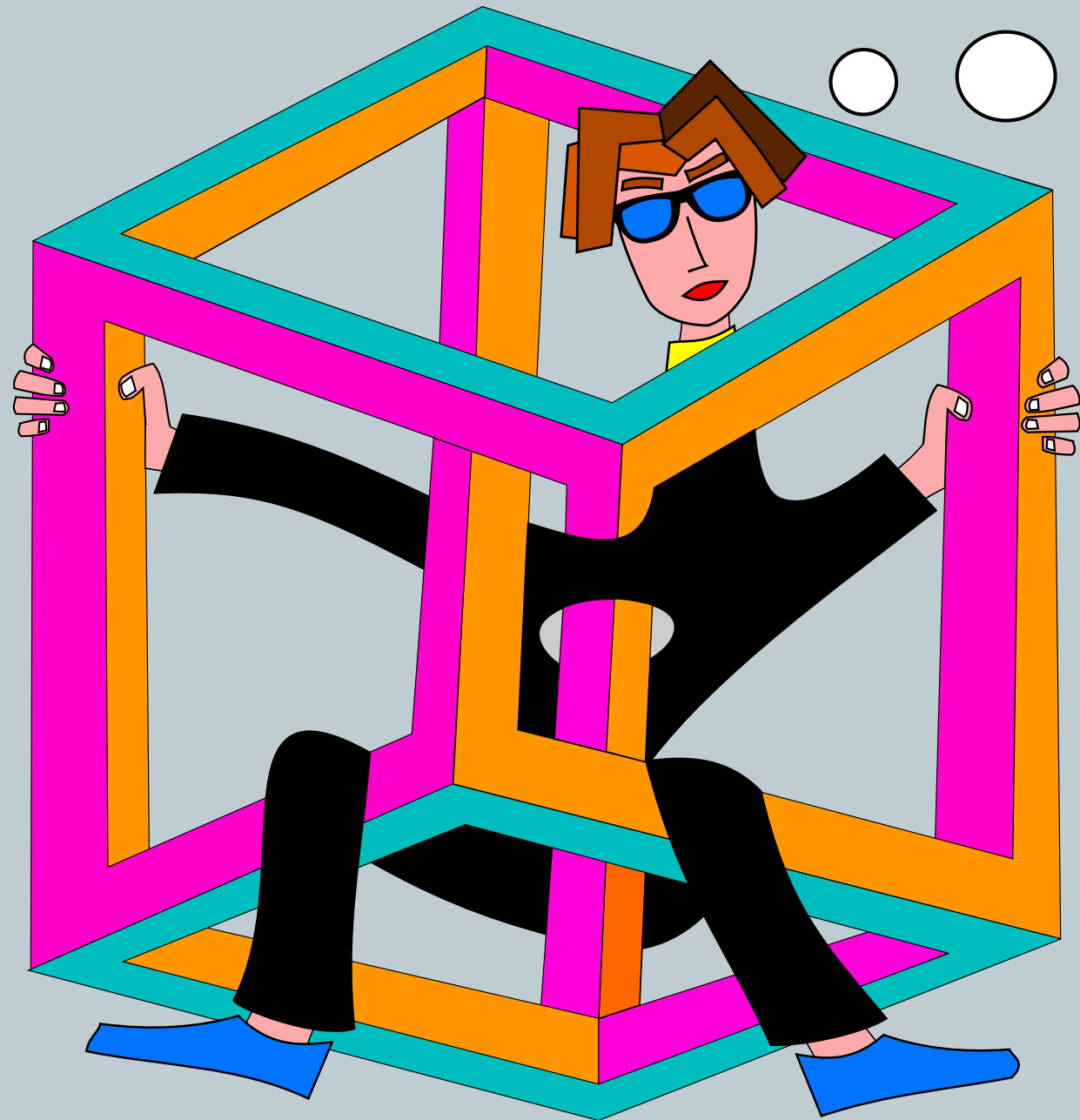
How can
Ezekiel's
neck support
his infinite horn?




Would the farm
have infinite
atoms and/or
infinite
biomolecules.?



Since most of his teeth would
have to move faster than the
speed of light, isn't
Hammerwood's teeth-fixing
process incompatible with
the constraints of special
relativity?



OK, OK, slow down! Let me try to answer all these questions at the same time. In our universe the sciences are relentless enforcers. They seem to look into every situation, no matter how large or small, and make sure that it unfolds according to the law...



On the infinite farm,
the sciences
are more like
negligent babysitters
who check in from time
to time but mostly
just play around.

Meanwhile,
out on
the farm,...

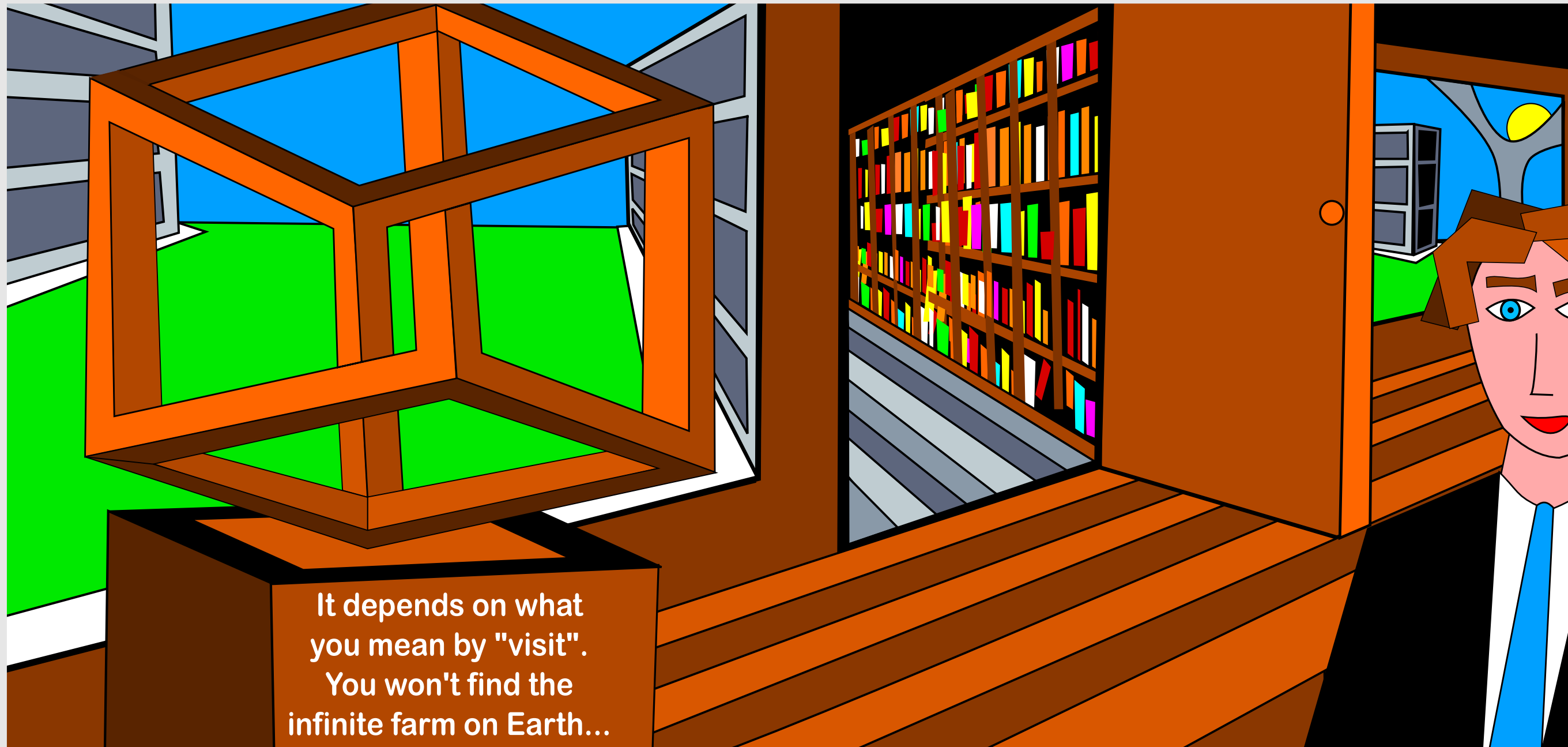
GEOMETRY
makes
the
rules.



Well, I guess
there's time for one
last question.

Can we VISIT
the infinite farm?





It depends on what
you mean by "visit".
You won't find the
infinite farm on Earth...

