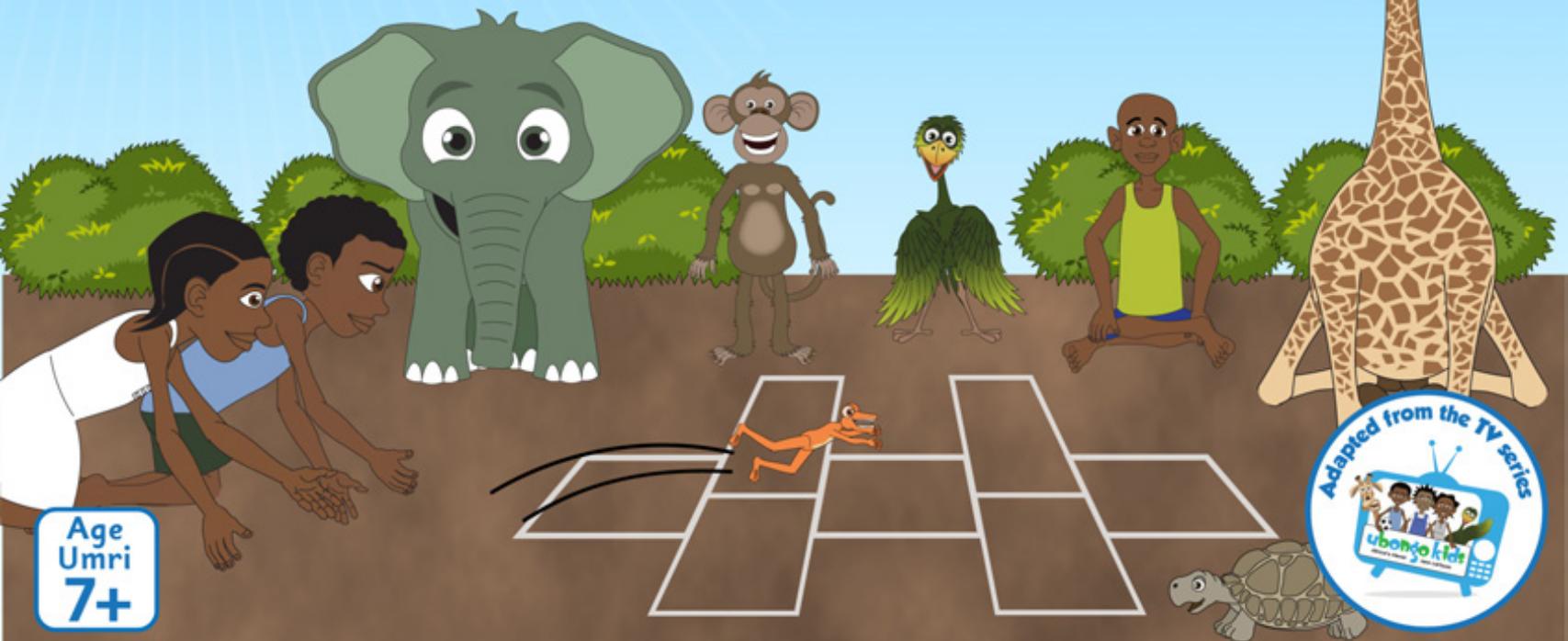


Animal Olympics

perimeter

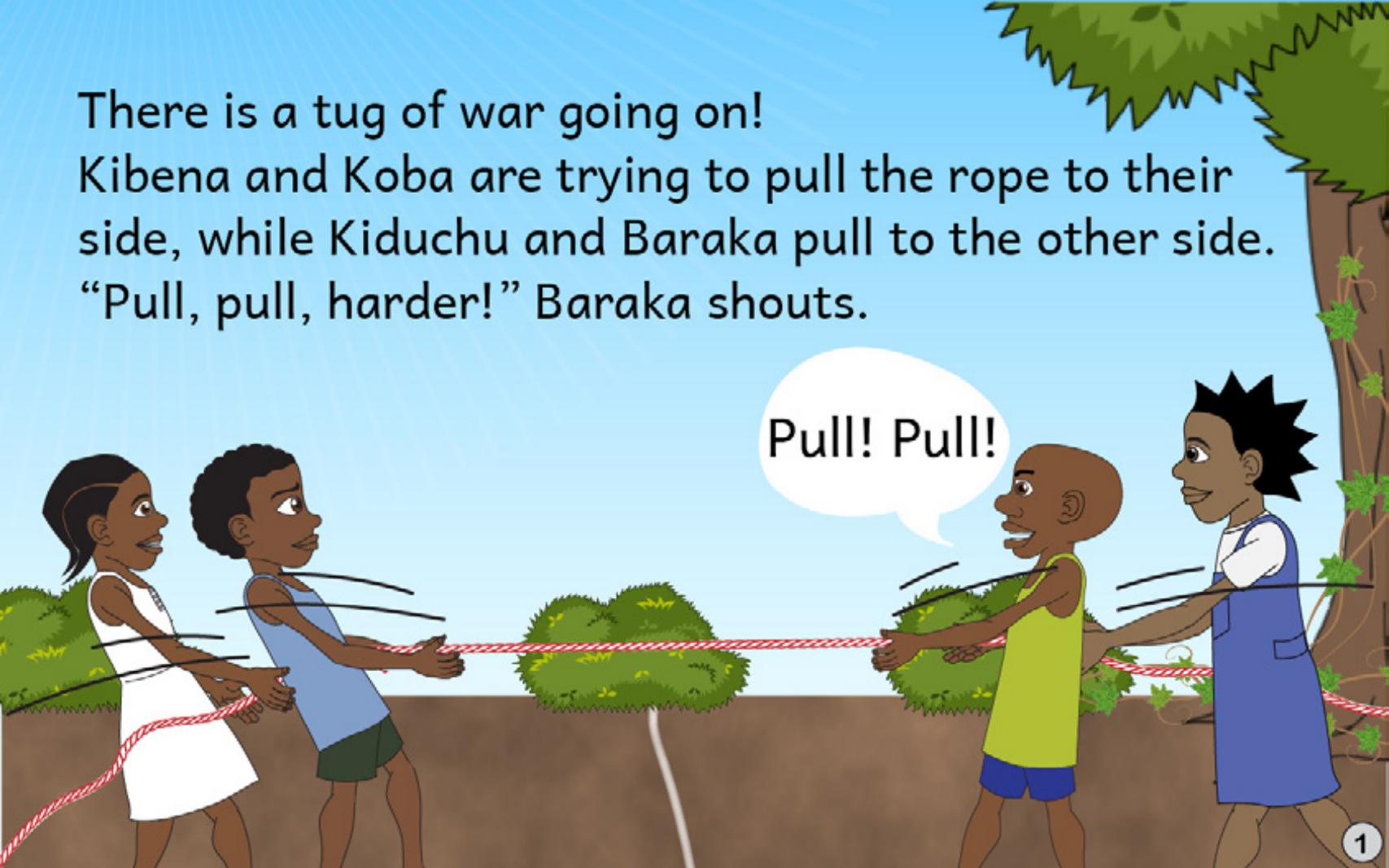


Age
Umri
7+

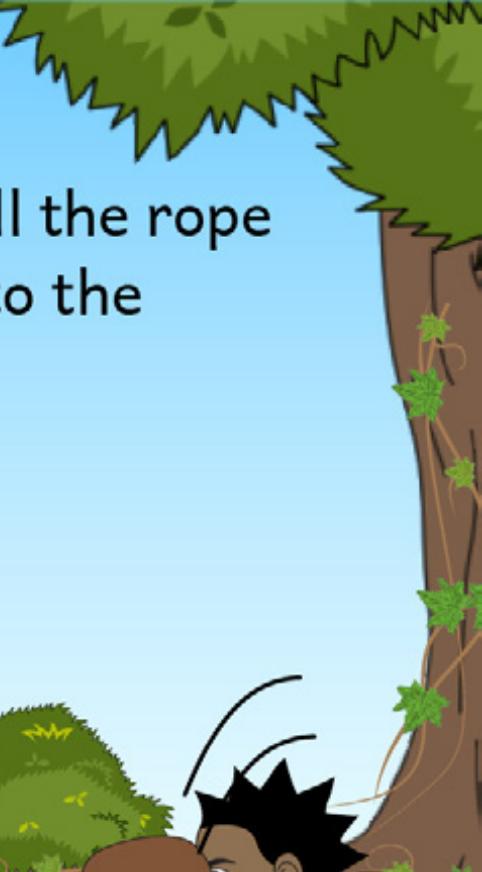


There is a tug of war going on!

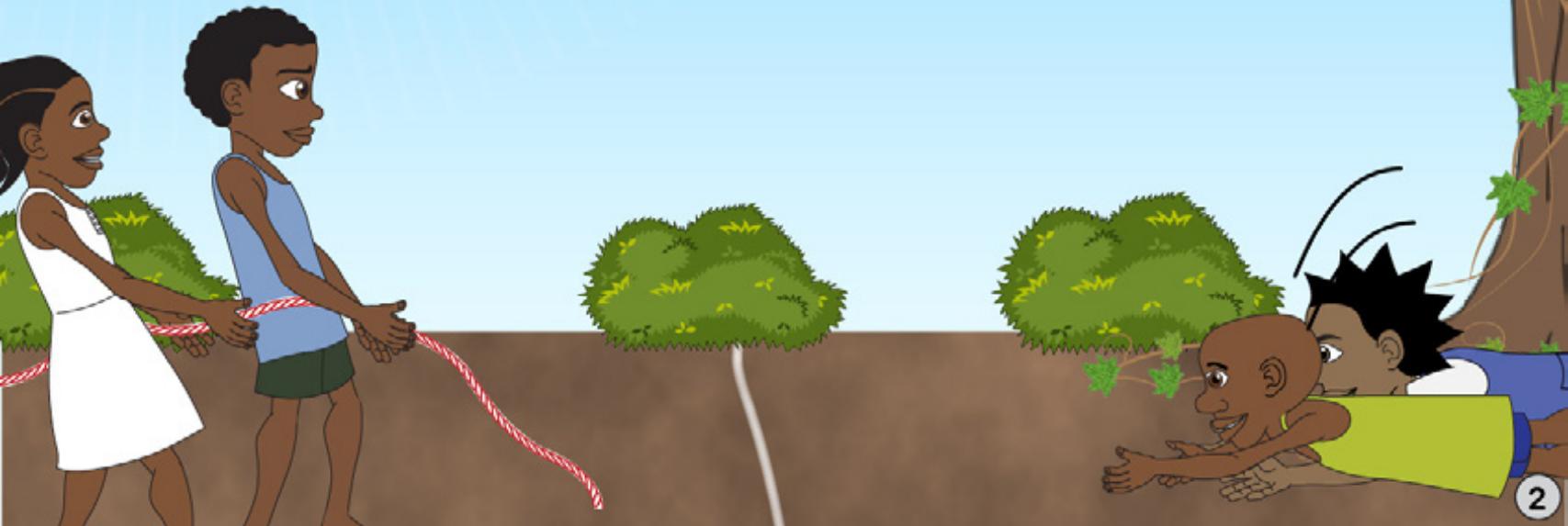
Kibena and Koba are trying to pull the rope to their side, while Kiduchu and Baraka pull to the other side.
“Pull, pull, harder!” Baraka shouts.



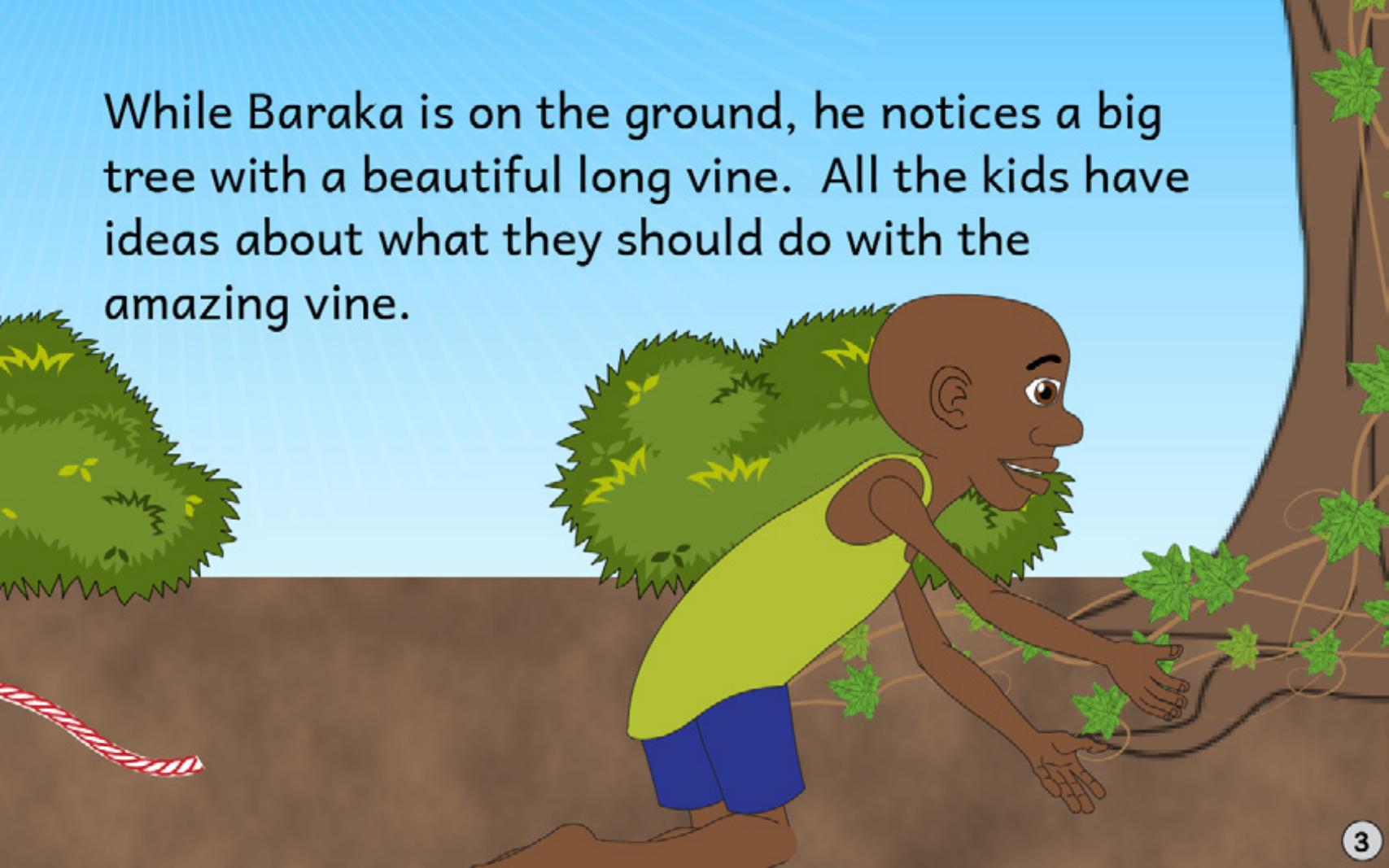
Pull! Pull!



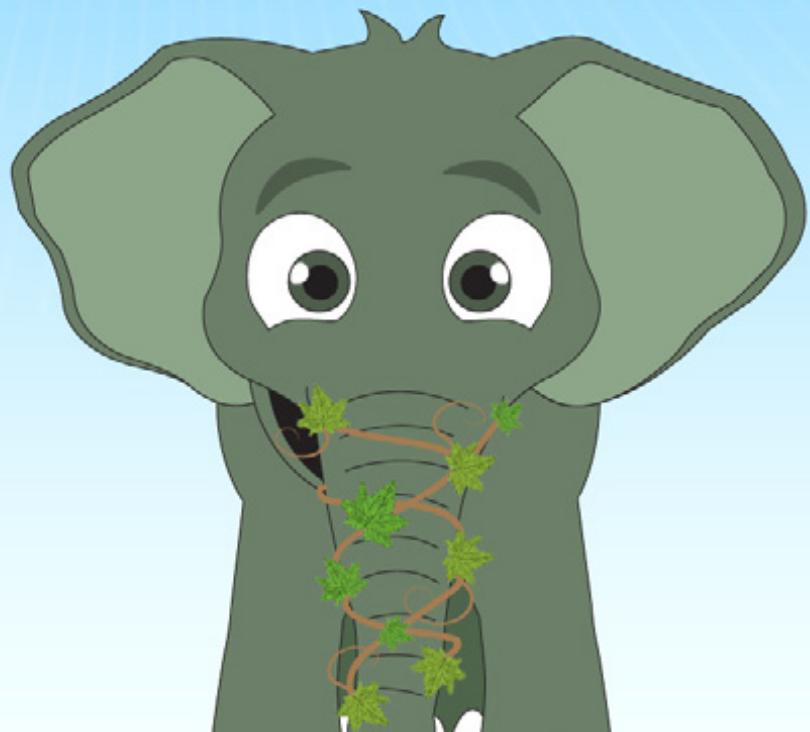
Finally, Koba and Kibena manage to pull the rope to their side. Baraka and Kiduchu fall to the ground and laugh.



While Baraka is on the ground, he notices a big tree with a beautiful long vine. All the kids have ideas about what they should do with the amazing vine.



They could give it to Tiny
Tembo to wrap around
his trunk...



...or to Uncle T to decorate
his neck...



...or to Ngedere as a
stylish necktie...



...or to Mama Ndege as
a crown, because she is
the queen of mathematics!



How should they decide?

The kids decide to have an animal sack race!

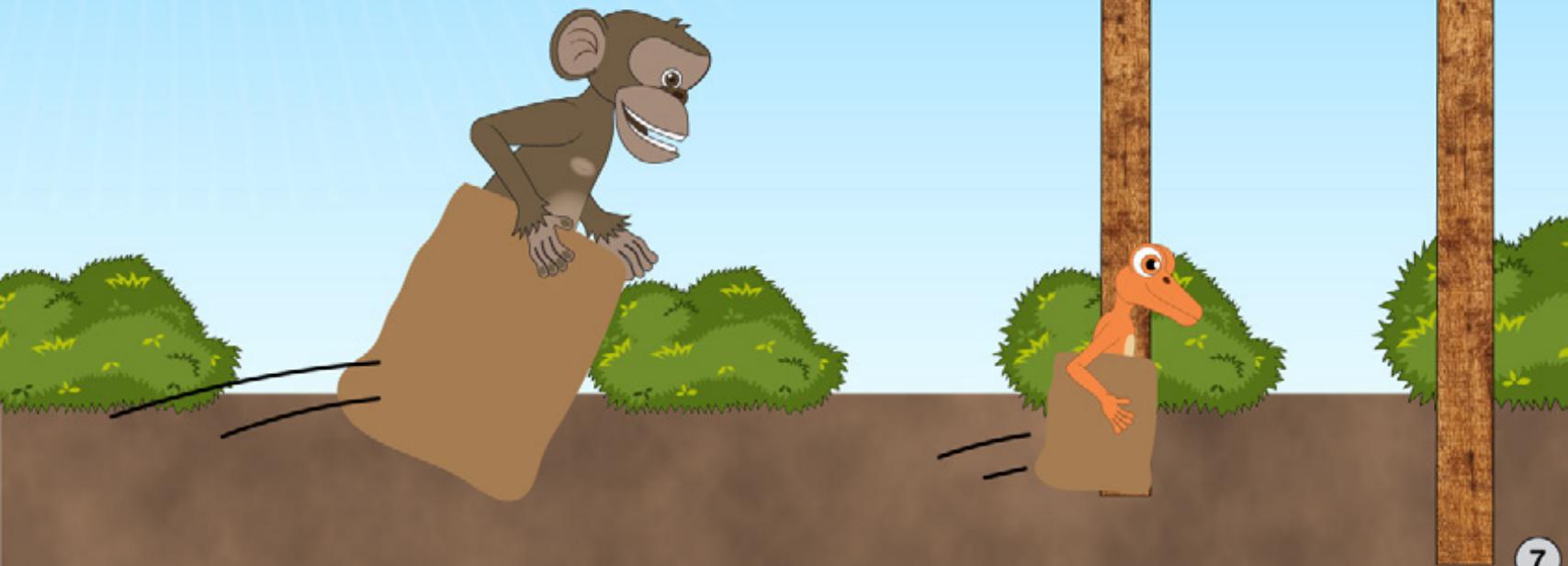
They give each animal a sack of
their size and line them up ready for the race.

The winner will get the beautiful vine!



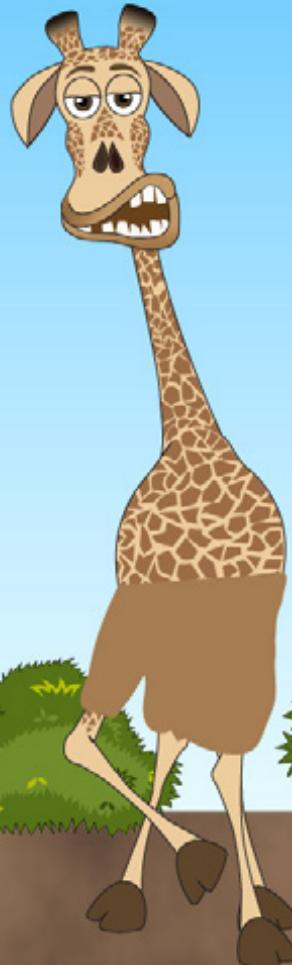
Da Chura, who jumps every day,
is the easy winner.

Ngedere, the agile monkey,
is close behind.



The other animals had problems with the sacks. Kobe rolled over inside his sack. Uncle T's feet tore the sack, so he is wearing the sack like clothes.

“I may not have won the vine, but I have new clothes!” he says.

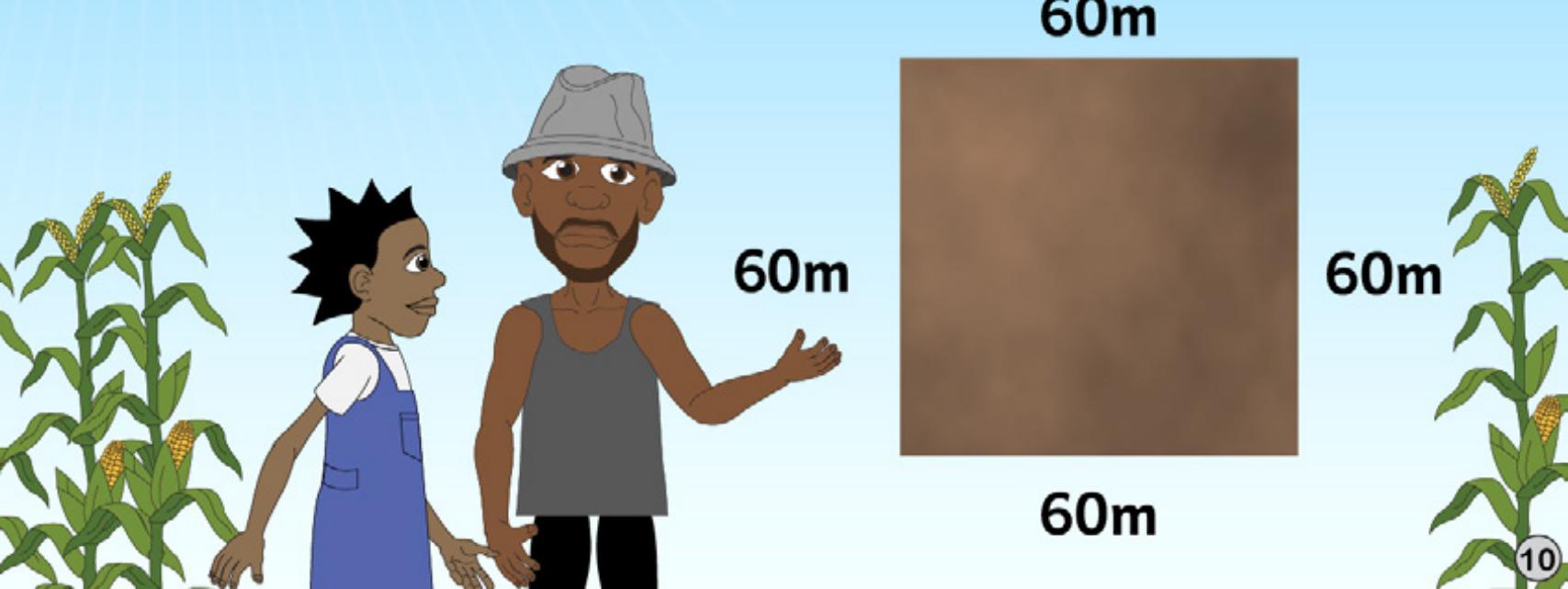




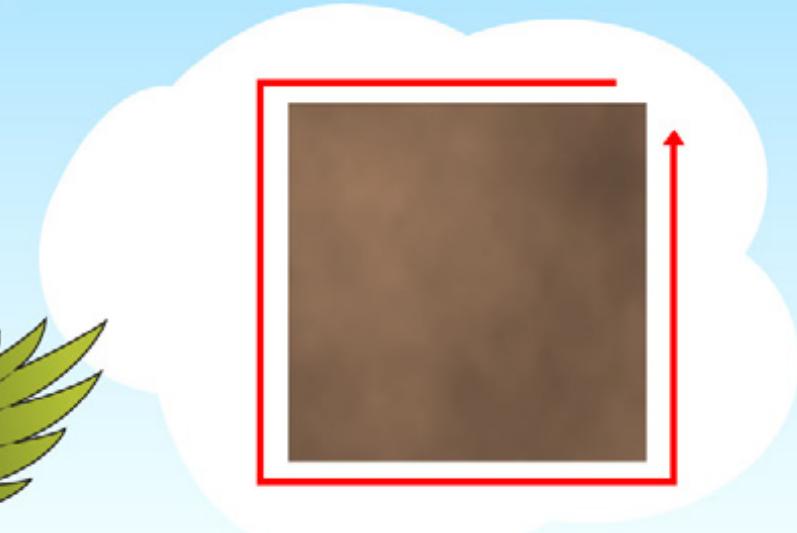
“How far did we race?” asks Kobe.
The kids know that the animals have raced
around the edge of the field.



Kiduchu finds Mzee Kigo to ask how big his field is.
“It’s an acre, and the shape of a square,
60 metres on each side,” he answers.



“Did we race an acre?” asks Kobe.
Mama Ndege explains that an acre measures
AREA. They need to figure out the **PERIMETER**,
the total distance around a shape.



“How do we figure out the perimeter?” asks Baraka.
Kibena says that she can show them how to figure it out.



She draws a square on the ground,
60 metres on each side.

60m

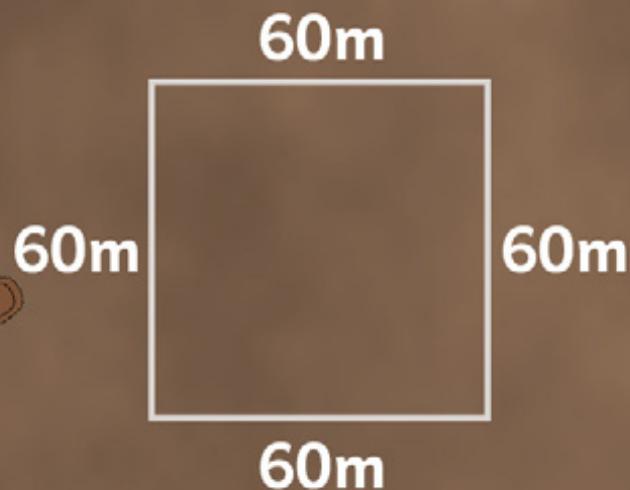
60m

60m

60m



Then she adds up the distance: 60 metres,
plus 60 metres, plus 60 metres, plus 60 metres.
The total is 240 metres.

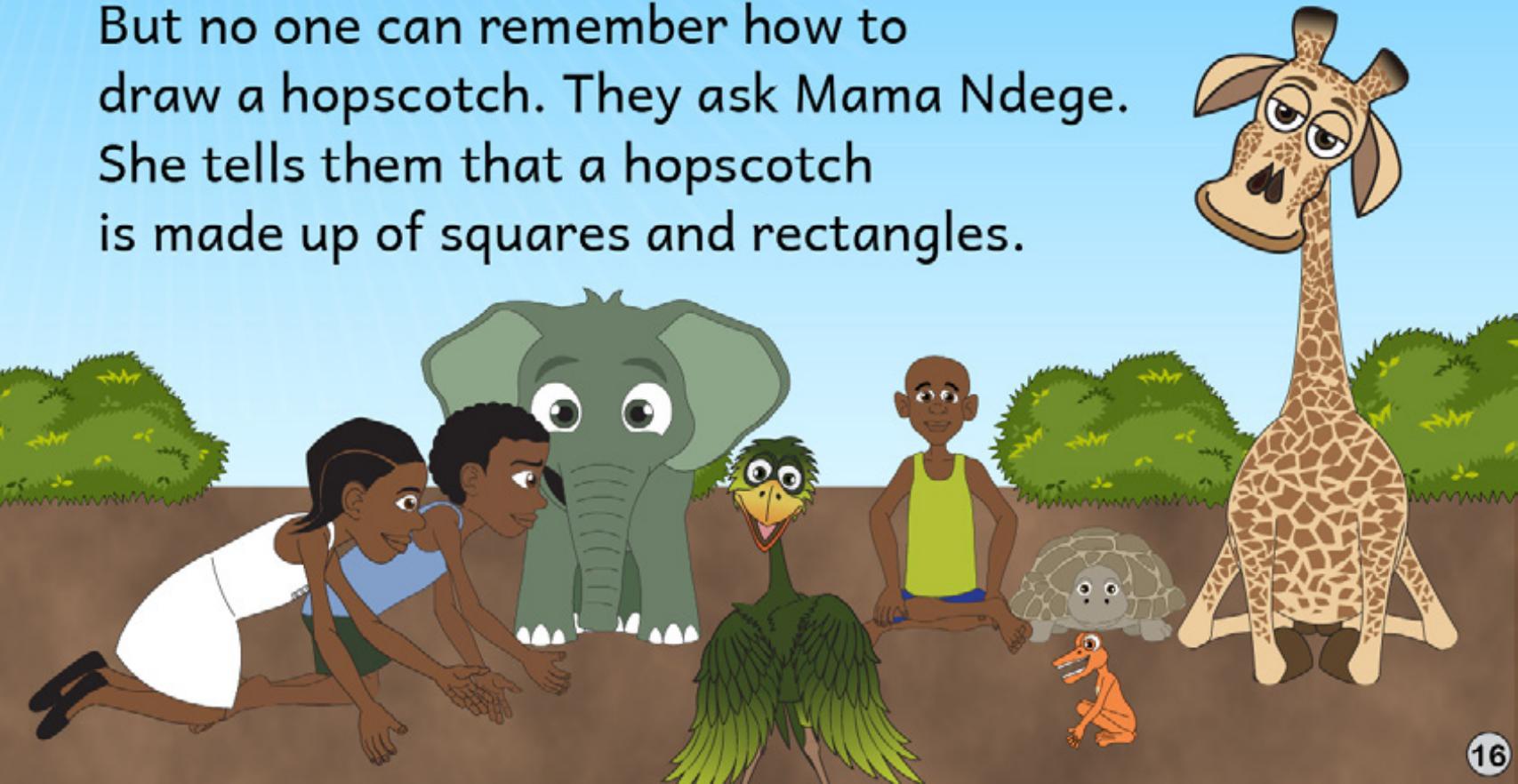


$$60+60+60+60 = 240\text{m}$$

The animals are proud that they hopped 240 metres!
“We’re jumping stars!” boasts Ngedere.
But Da Chura won because she hops every day.
They decide to have another game.

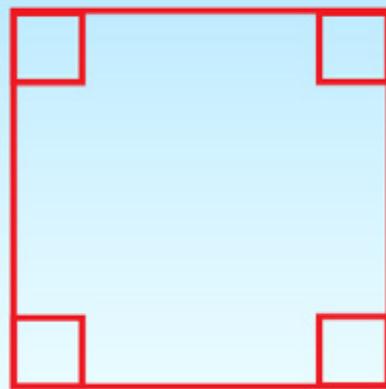


They decide on a game of hopscotch.
But no one can remember how to
draw a hopscotch. They ask Mama Ndege.
She tells them that a hopscotch
is made up of squares and rectangles.

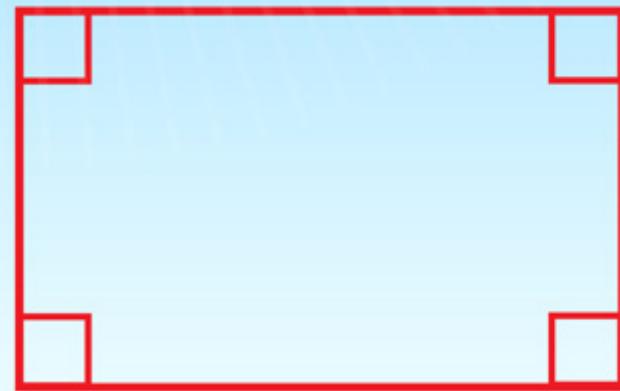


“A square is a shape with four equal straight sides, and four right angles. The height and width are equal,” she explains.

“What about a rectangle?” asks Koba.



“A rectangle is a shape that has two sides of equal length opposite each other, and two other sides of equal length opposite each other. It has four corners, all with right angles.”



They draw the hopscotch,
combining squares and rectangles.

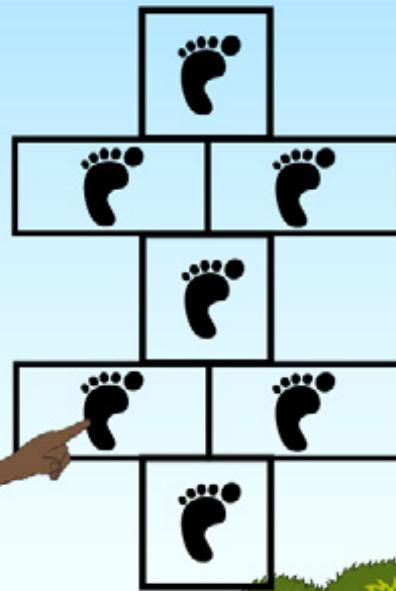
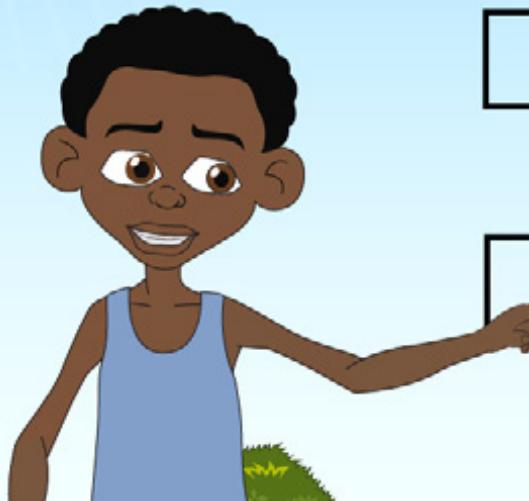


Next Mama Ndege hops from square to rectangle, saying,
“You see, these are squares...and these are rectangles.”



To make the game fair to all the animals,
Koba explains the new rule.

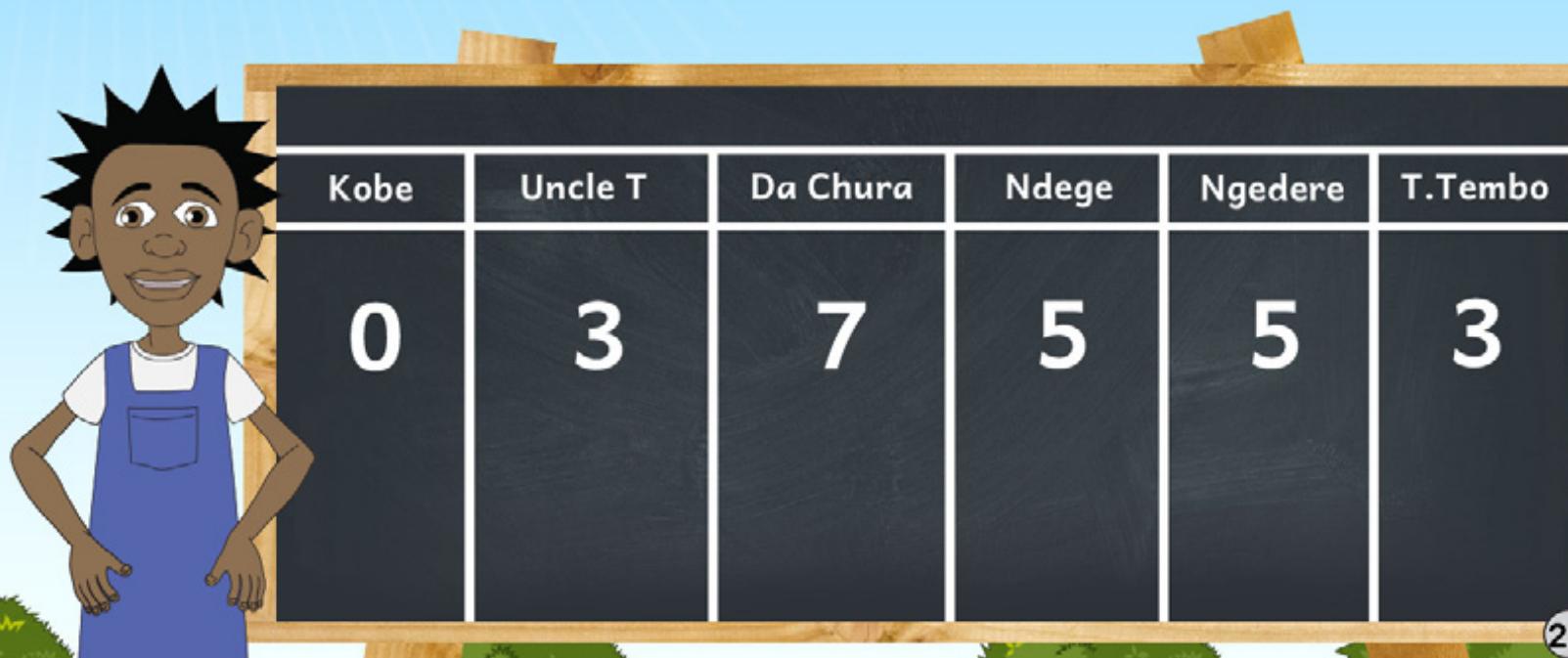
“You have to make it to the top in the least
number of hops. And you must touch down in the
middle of each square or rectangle,” he says.



The animals gather at the hopscotch. Baraka is ready to keep score. One by one, the animals take turns. Kobe gives up on hopping and just rolls.



As Kiduchu is about to announce the winner, some of the animals complain that Koba's rules were unfair because they are not all good hoppers. So they decide to play another game, this time with balls.



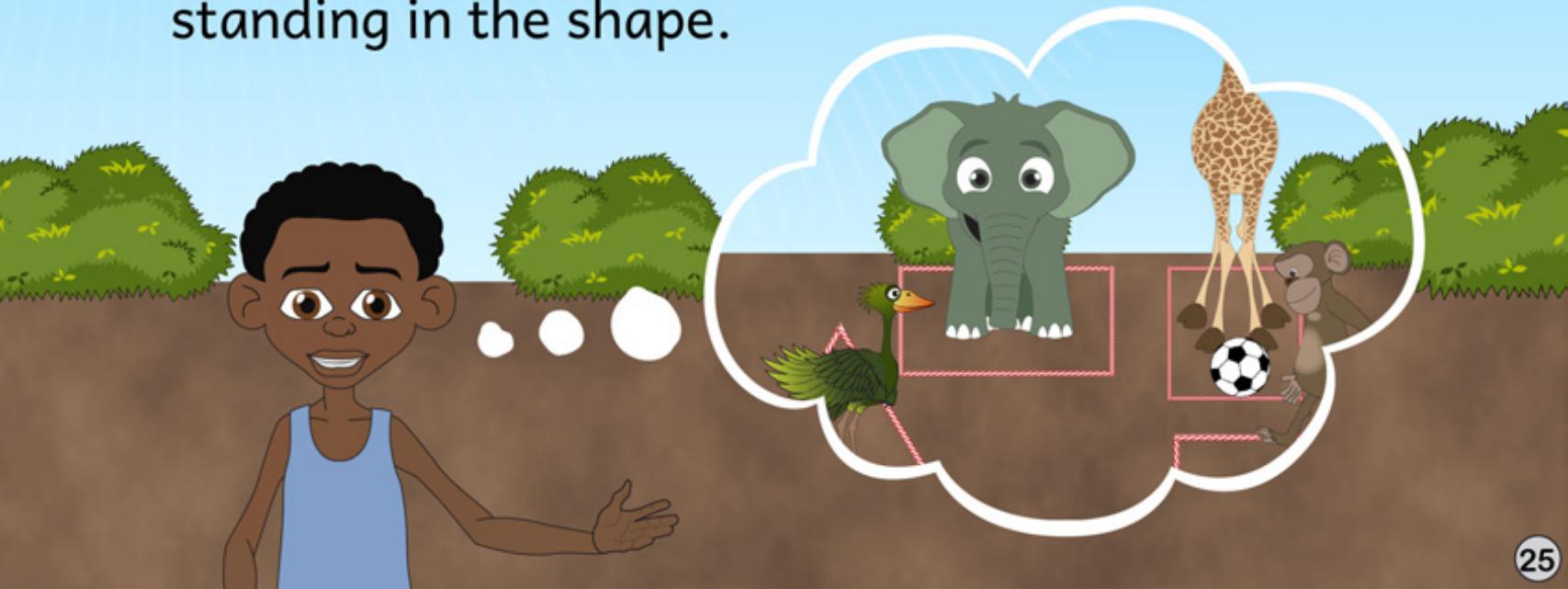
Koba explains the rules of the new game.
Each of the kids will get a piece of string that is
12 metres long. They will each make a shape
with the string, any shape they want.



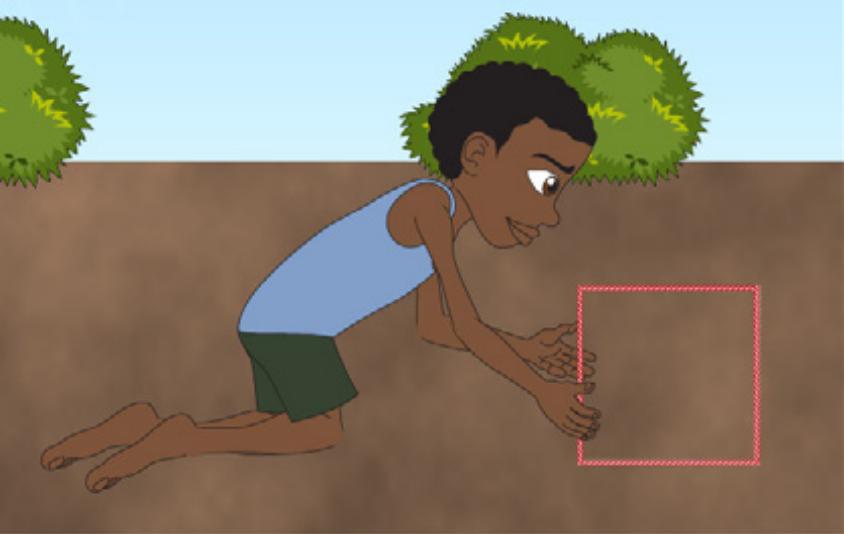
12m

They will put the shapes on the ground for the animals to stand in as they volley a ball.

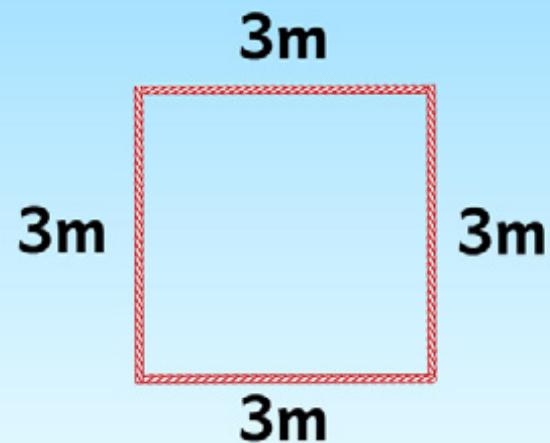
If they drop the ball or step outside the shape, they are “out.” The winner is the last animal standing in the shape.



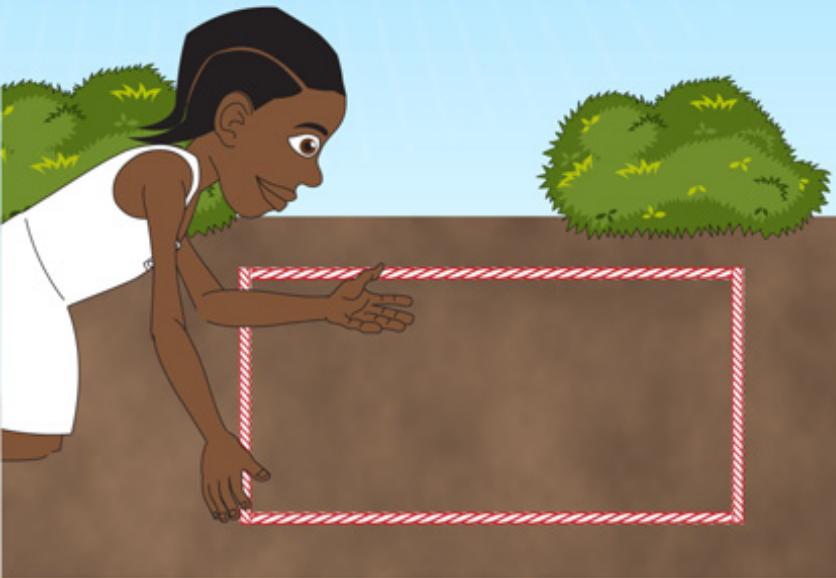
Koba makes a square...



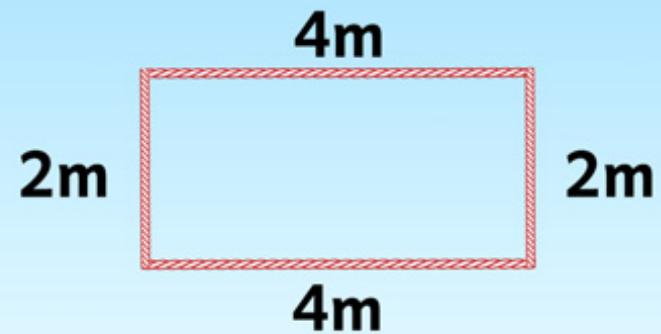
three metres on each side.



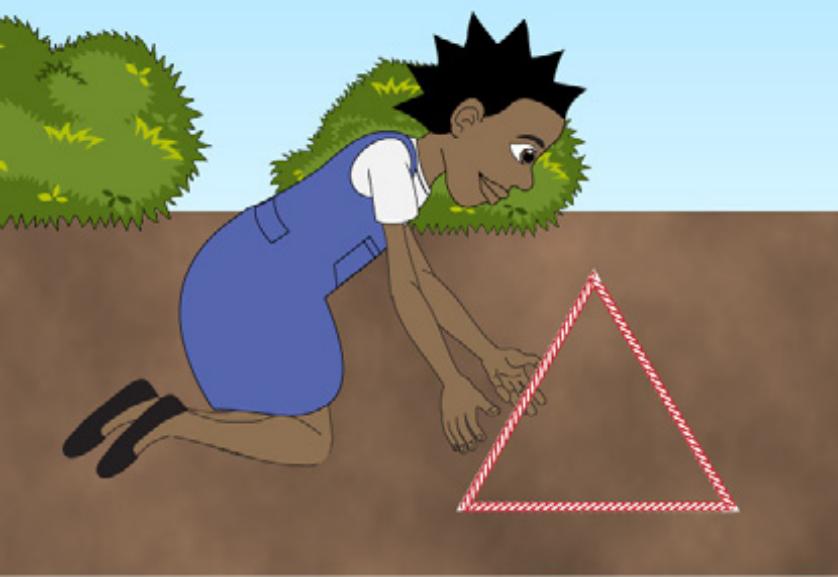
Kibena makes
a rectangle...



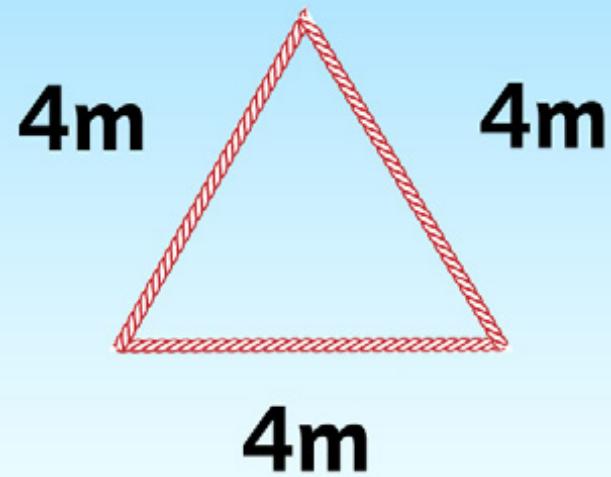
...two metres long and
four metres wide.



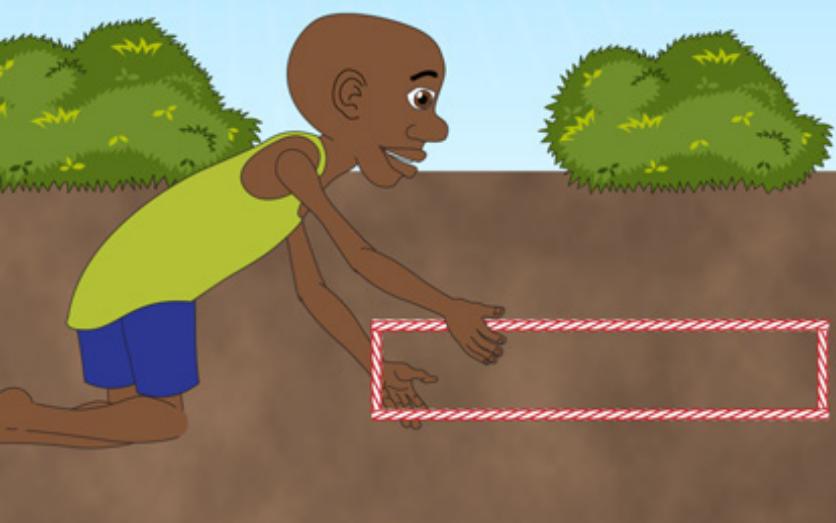
Kiduchu makes a triangle...



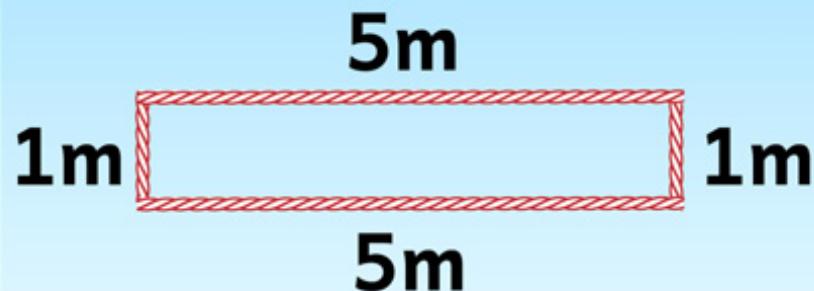
four metres on each side.



Baraka makes a long rectangle...



...one metre long and five metres wide.



“Look at all the different shapes we made from strings of the same length!” exclaims Kiduchu.

Koba



Kiduchu

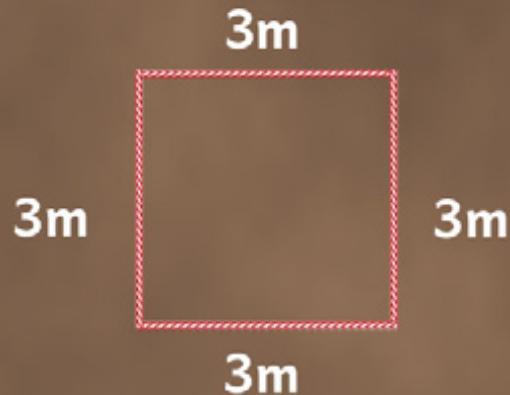


Kibena



Baraka

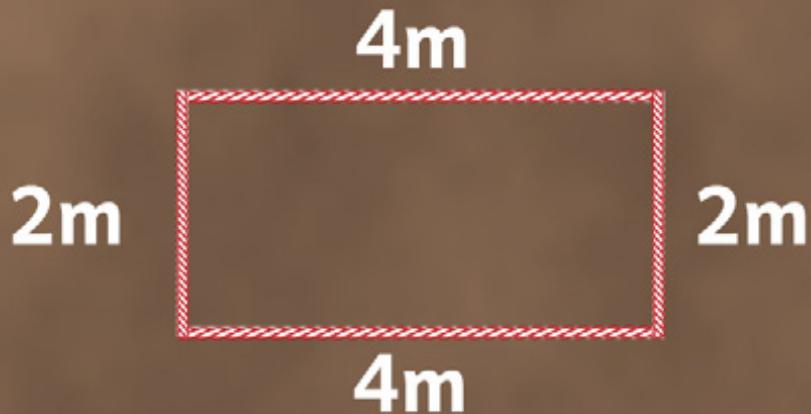
Mama Ndege asks them to check the perimeter of their shapes. Koba adds 3 plus 3 plus 3 plus 3, and says, "Mine is a square, and its perimeter is 12 metres."



$$\begin{aligned}\text{Perimeter} &= 3+3+3+3 \\ &= 12\text{m}\end{aligned}$$

Kibena traces the perimeter of her rectangle, 2 metres long and 4 metres wide.

“The perimeter of my rectangle is 12 metres,” she says.

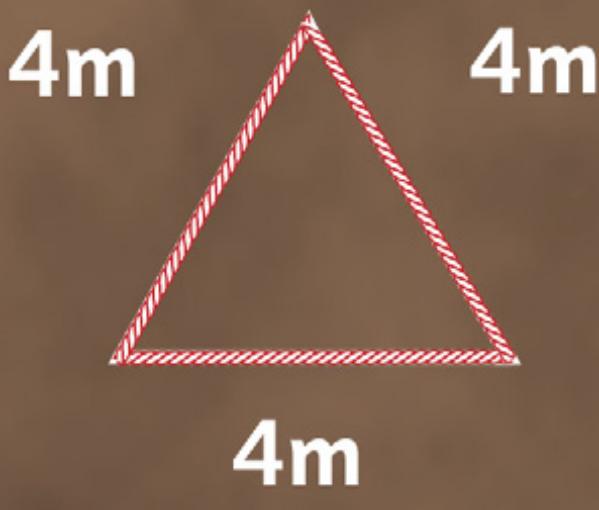


$$\begin{aligned}\text{Perimeter} &= 2+4+2+4 \\ &= 12\text{m}\end{aligned}$$



Kiduchu adds the three sides of her triangle,
4 metres plus 4 metres plus 4 metres.

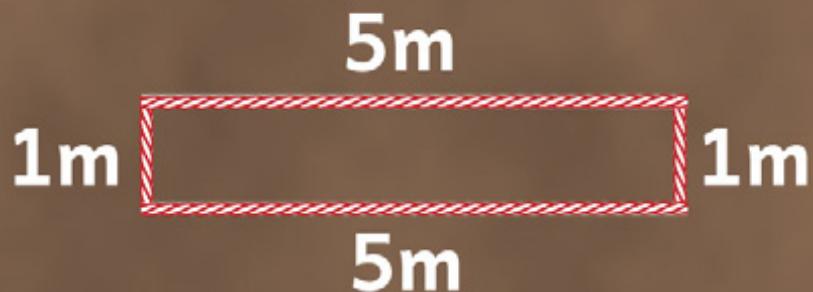
“I get a perimeter of 12 metres as well,” she says.



$$\begin{aligned}\text{Perimeter} &= 4+4+4 \\ &= 12\text{m}\end{aligned}$$



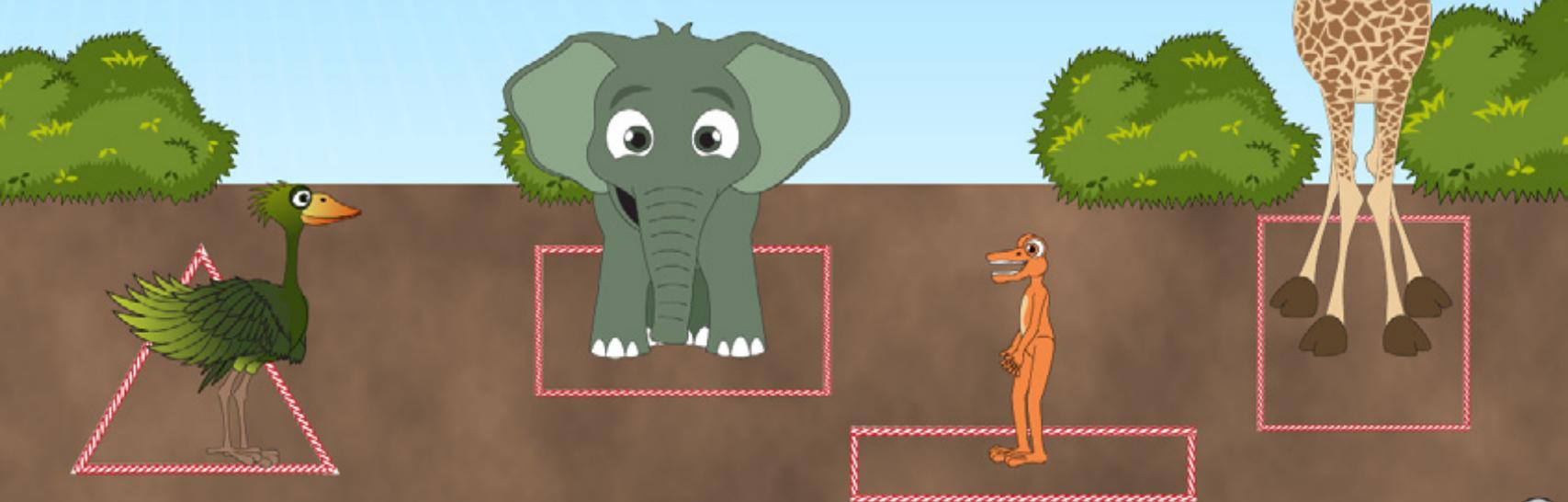
Baraka's long, thin rectangle also adds up to 12 metres: 1 plus 5 plus 1 plus 5.
Now they are ready to play!



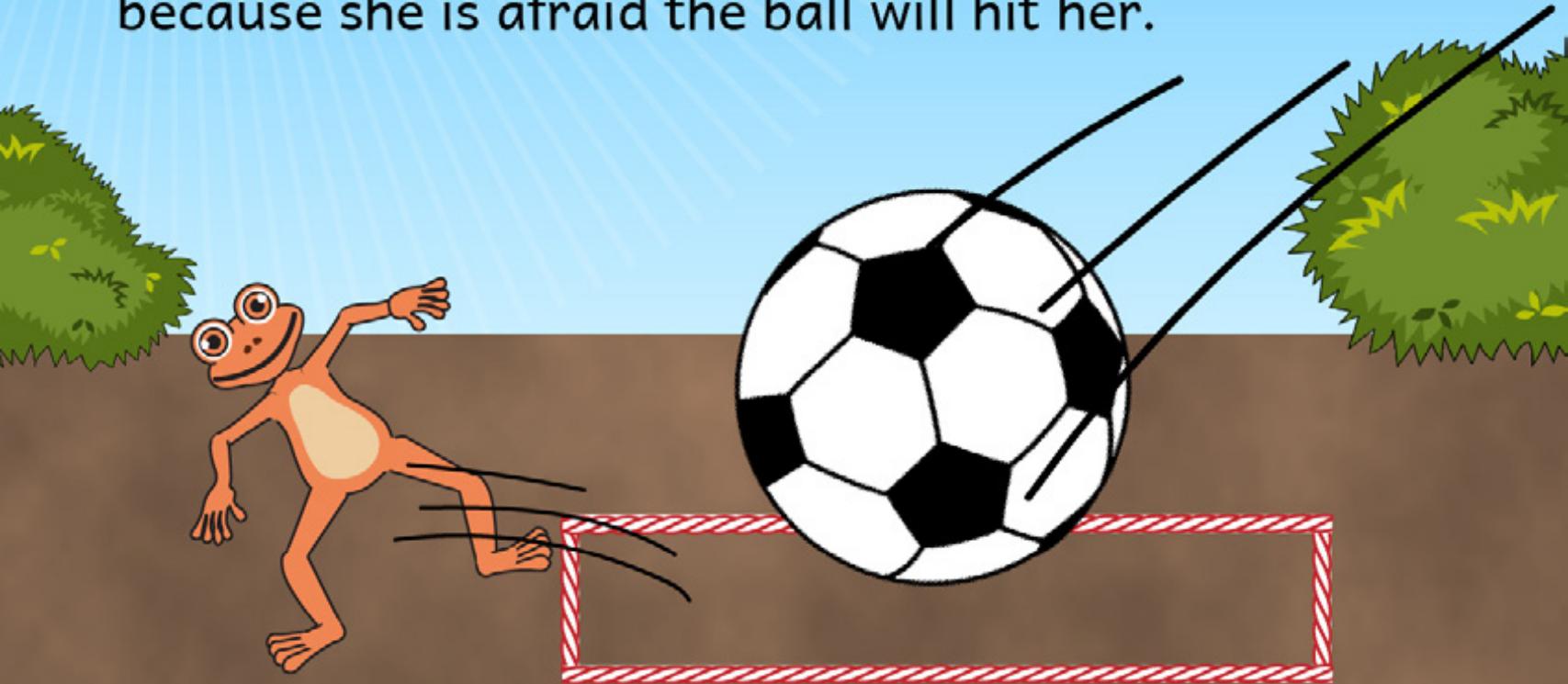
$$\begin{aligned}\text{Perimeter} &= 1+5+1+5 \\ &= 12\text{m}\end{aligned}$$



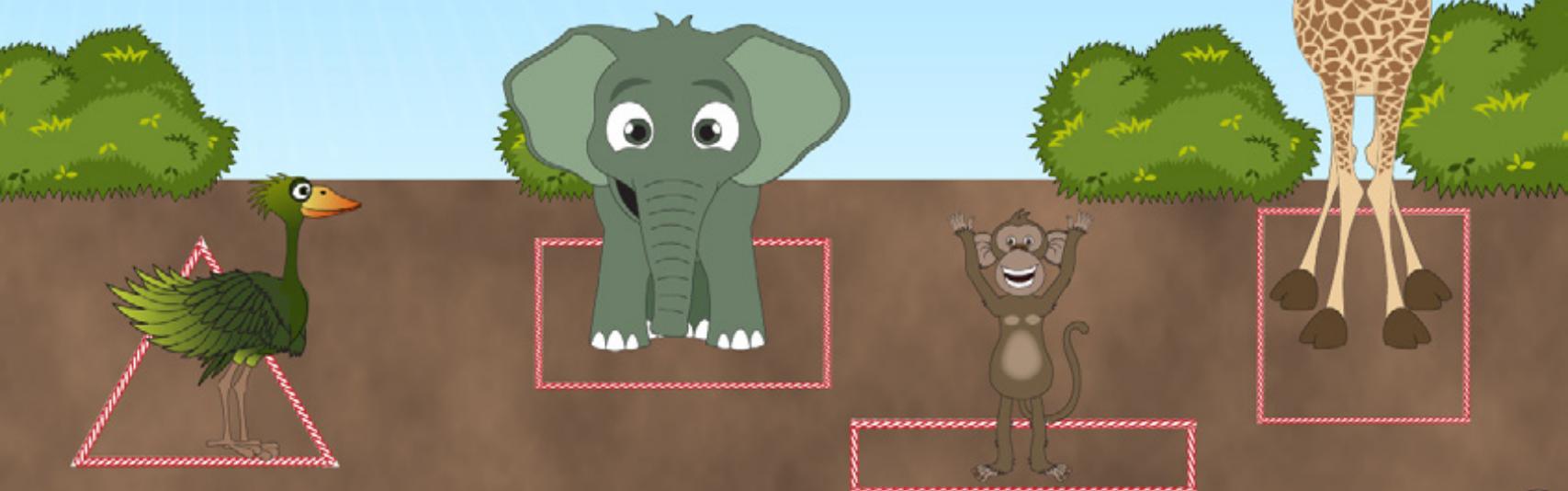
The animals take their places. Uncle T is in the square, Tiny Tembo in the rectangle, Mama Ndege in the triangle, and Da Chura in the thin rectangle. The game begins!



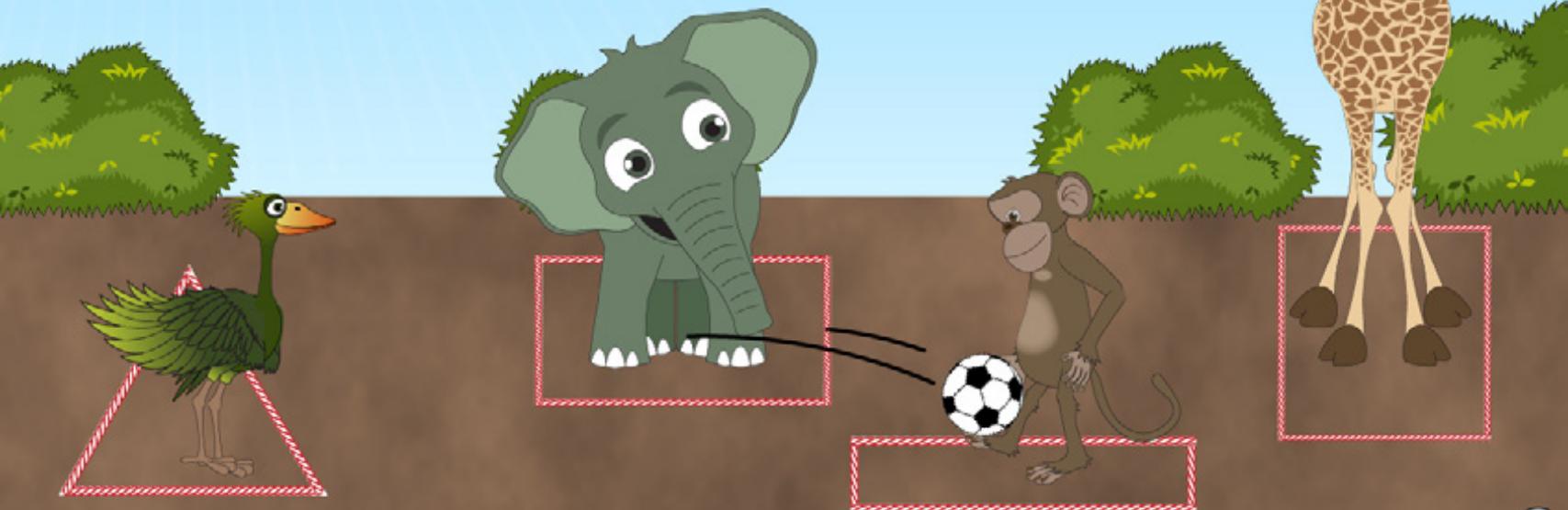
Da Chura is the first one “out.” She jumps out of her shape and lets the ball hit the ground because she is afraid the ball will hit her.



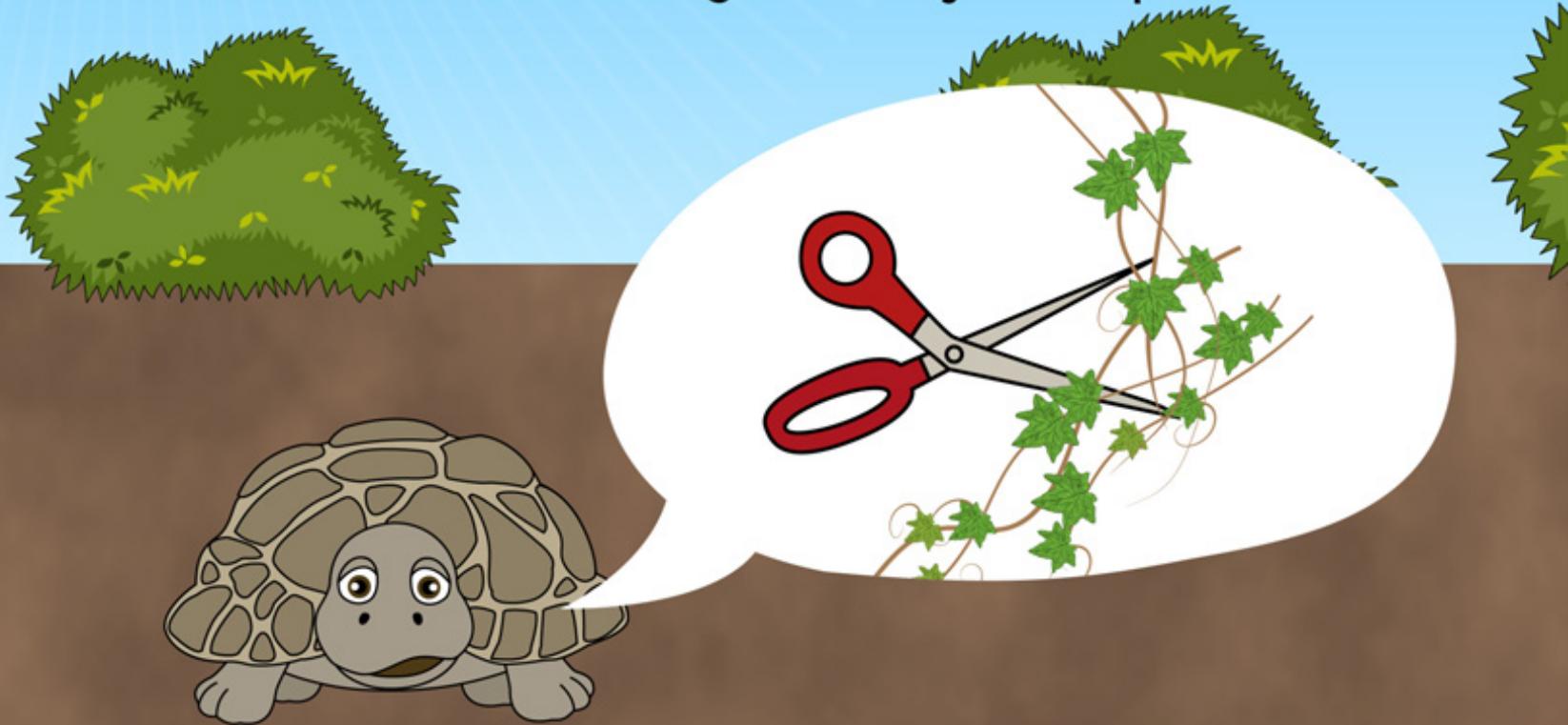
Ngedere takes her place
in the thin rectangle.



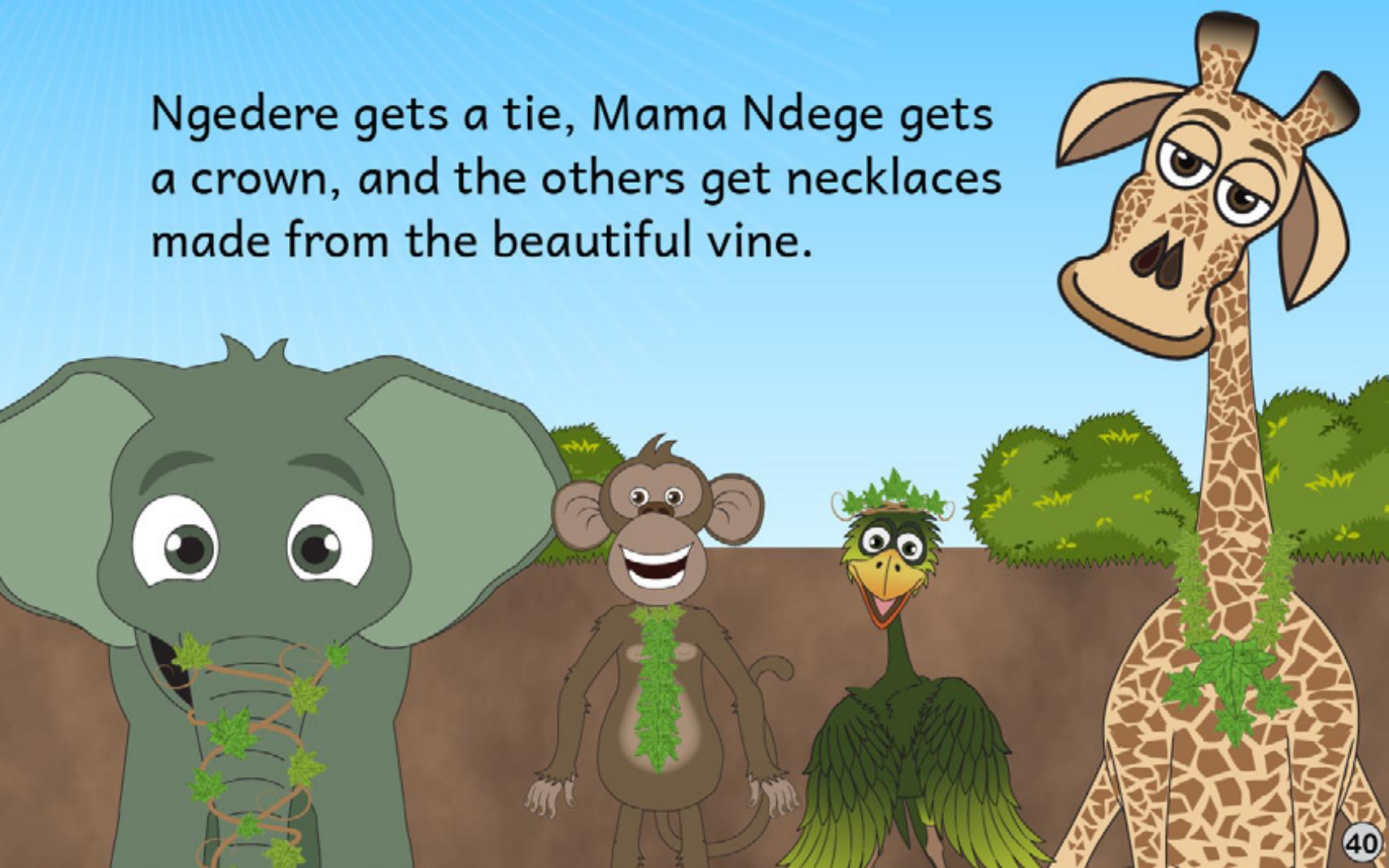
They play several rounds. All play perfectly and no one steps out of their shape.



Finally Kobe exclaims, “You’re all winners!
Let’s cut the vine and give everyone a piece of it!”



Ngedere gets a tie, Mama Ndege gets a crown, and the others get necklaces made from the beautiful vine.



Then Kibena and Koba ride on Tiny Tembo, and Baraka and Kiduchu on Uncle T. They gallop around the field, celebrating that they have learned about PERIMETERS.



The End

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