Decimals Down the Well

adding and subtracting decimals

One day Kibena, Kiduchu, Koba and Baraka were playing football.

Koba kicked the ball hard at the goal.

The ball flew behind the goal and went over the wall into Mzee Kigo's yard.

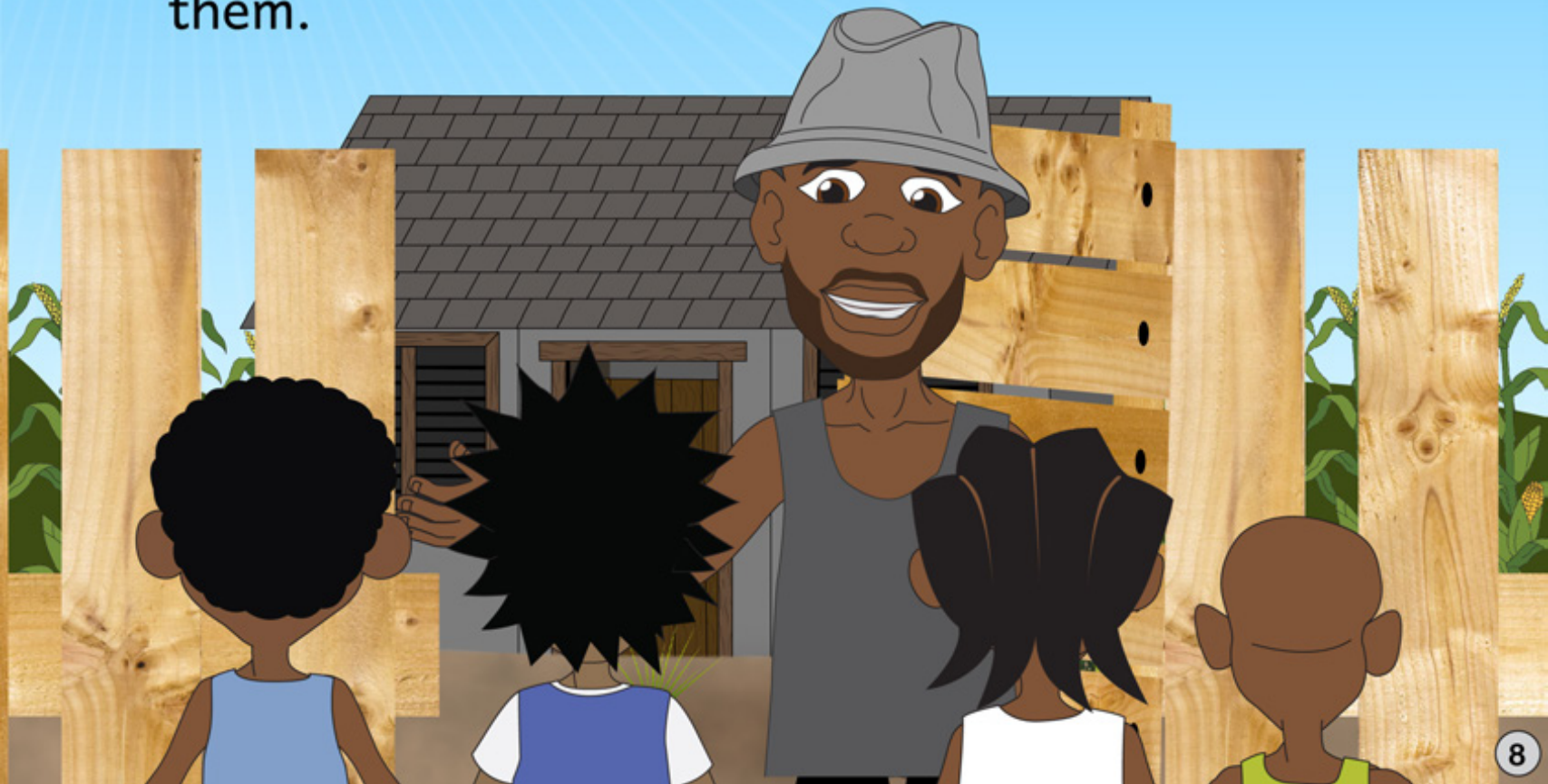
“Not again!” said Koba.

Koba and Kiduchu argued over who should go and get the ball.

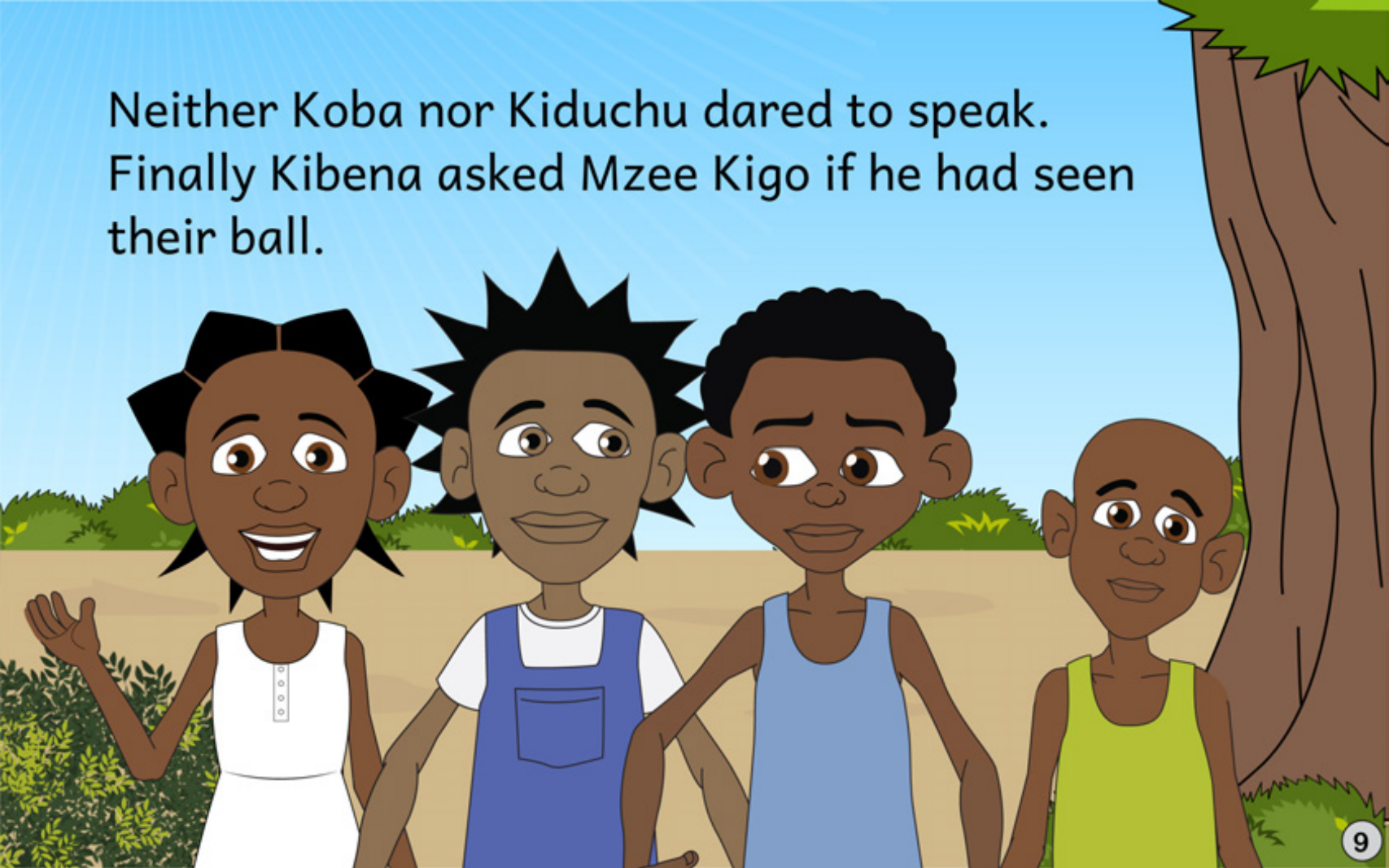
Kibena decided that they should all go together.

This time Kiduchu remembered to knock politely on the gate.

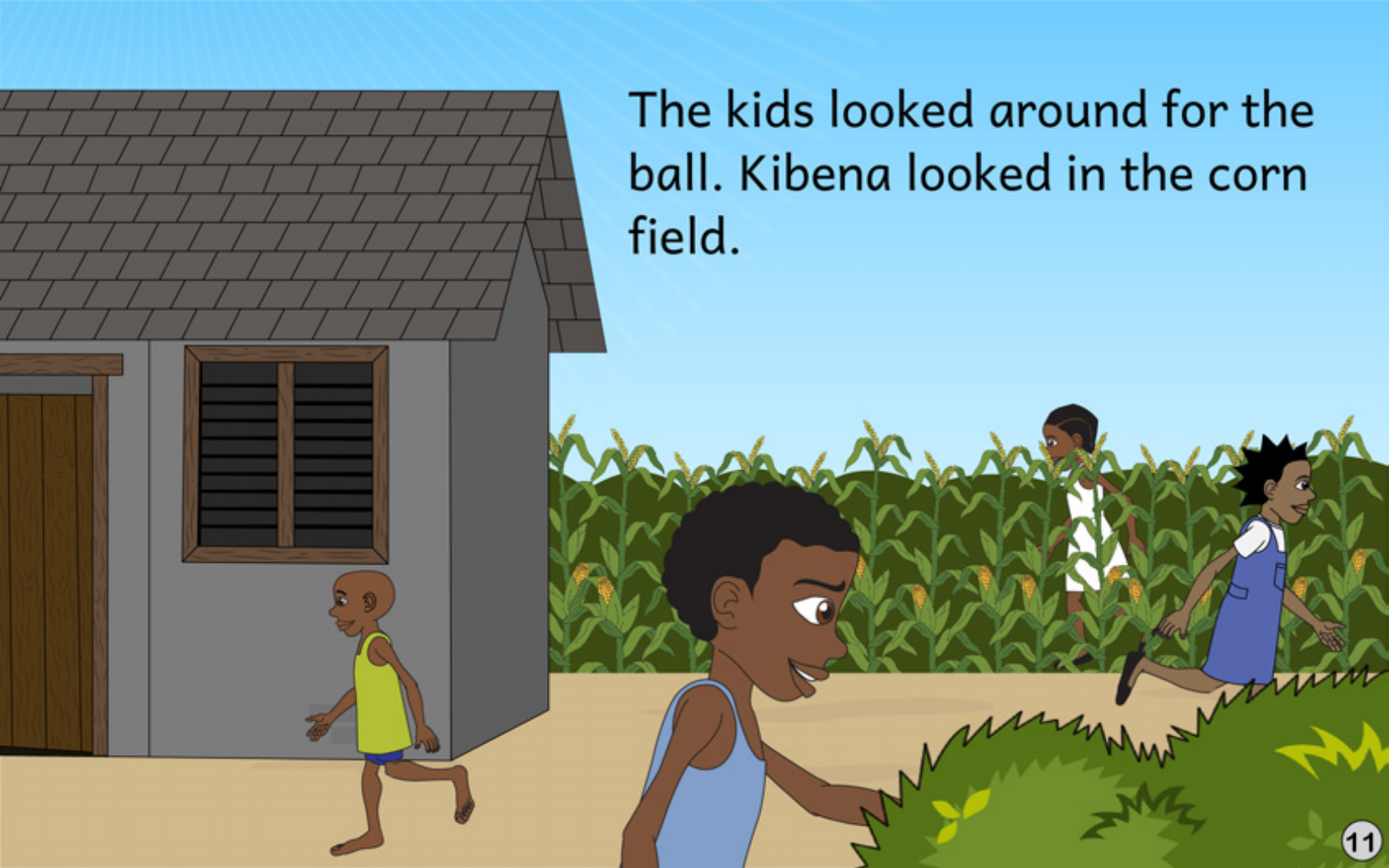
Mzee Kigo came out and asked how he could help them.



Neither Koba nor Kiduchu dared to speak. Finally Kibena asked Mzee Kigo if he had seen their ball.



Mzee Kigo said that he was inside the house and didn't see where their ball landed. He invited them in so they could look for it.


The kids looked around for the ball. Kibena looked in the corn field.
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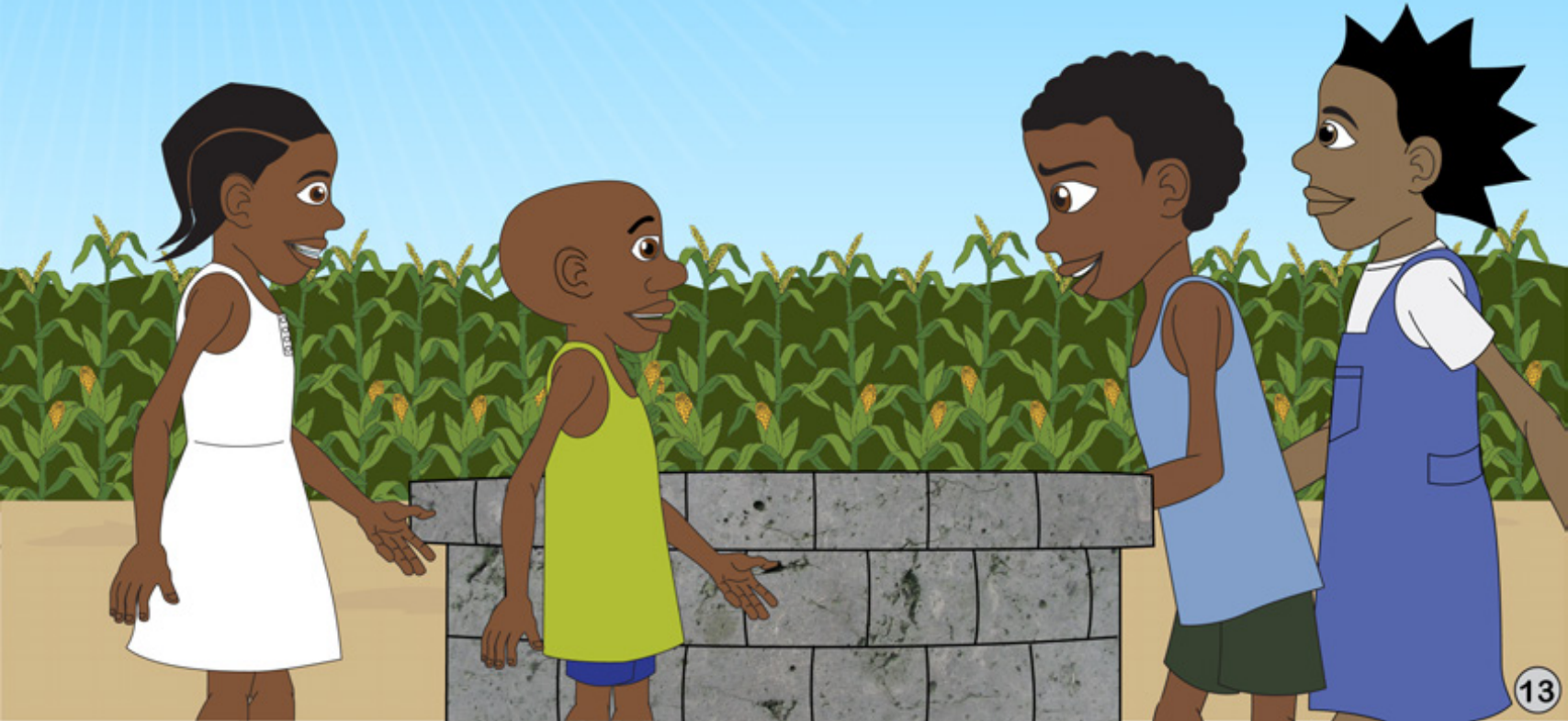
Kiduchu and Koba looked inside the water barrels.

It was Baraka who found the ball at the bottom of the well.

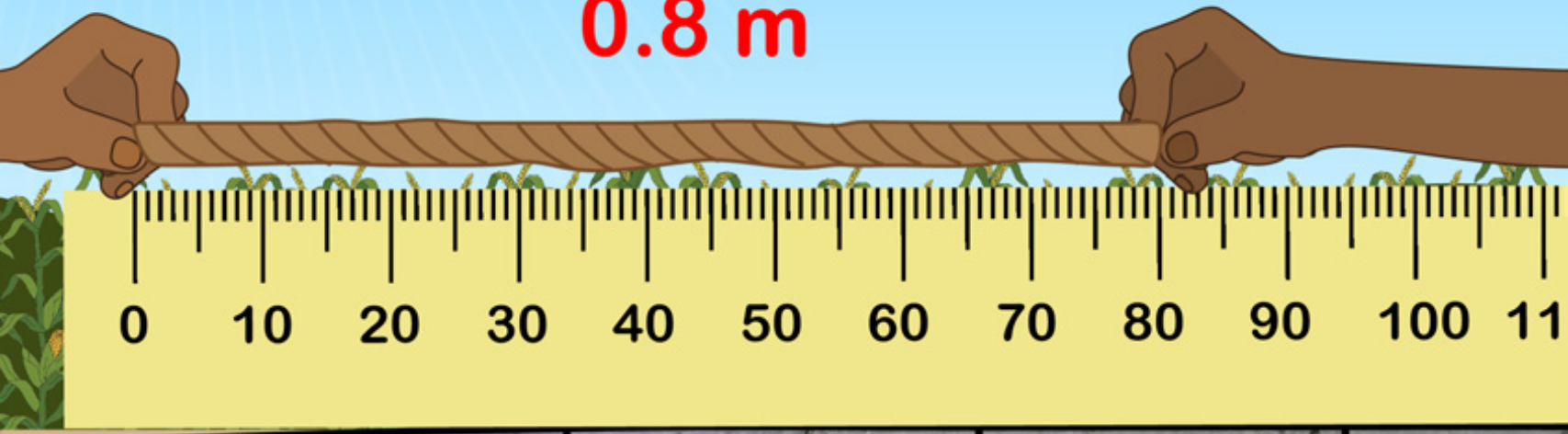


The kids looked down and were surprised to see how deep the well was.
Koba said that they would need a long rope to pull it up.

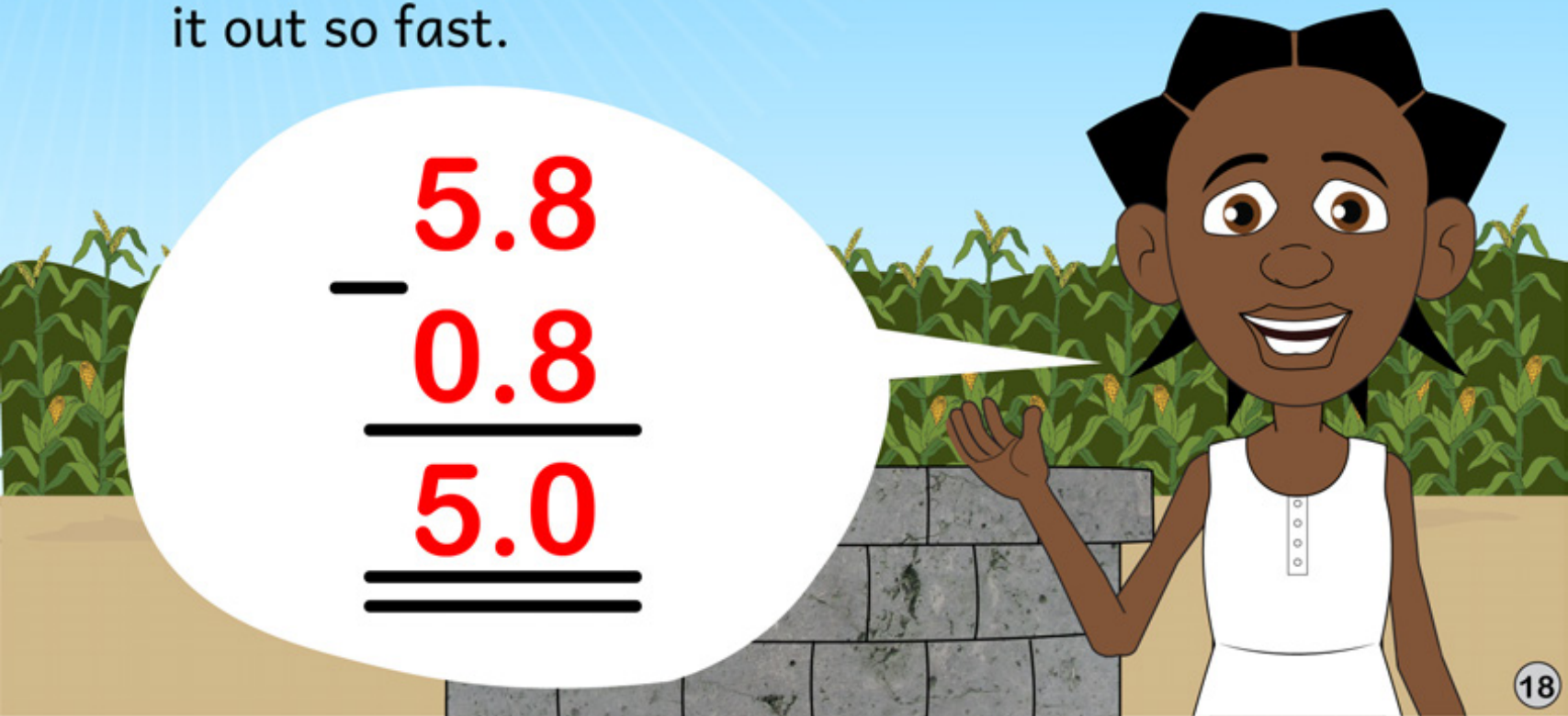
Mzee Kigo had only a short piece of old rope.
He said that it wouldn't be long enough because
the well was very deep, FIVE POINT EIGHT metres.

He gave the kids a measuring stick and told them to use their Ubongo or their brains to find a way to get their ball back.

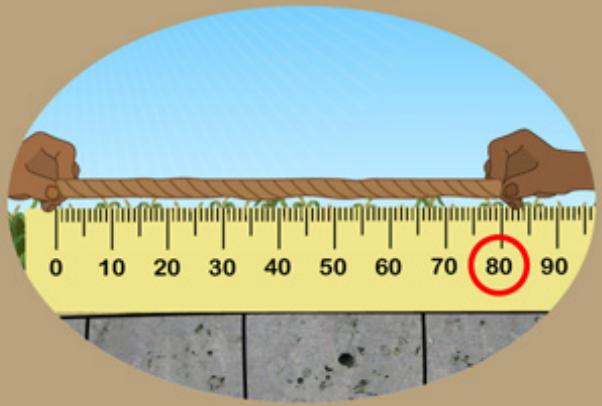
The kids stretched the short piece of rope along the measuring stick It reached to eighty centimetres or zero point eight metres.



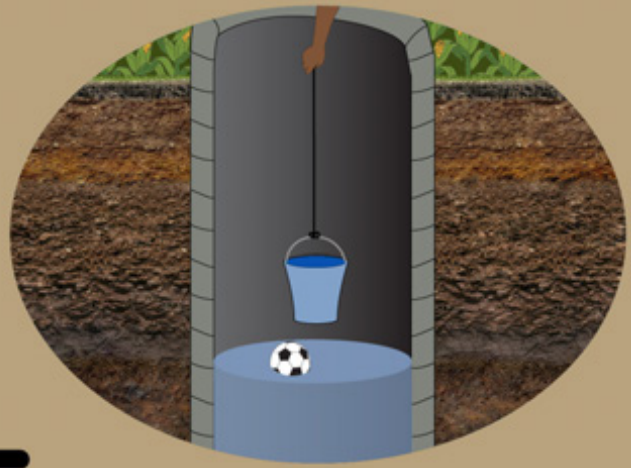
Kibena did the math quickly in her head and said that they would need another 5 metres of rope. Baraka was impressed and asked how she figured it out so fast.



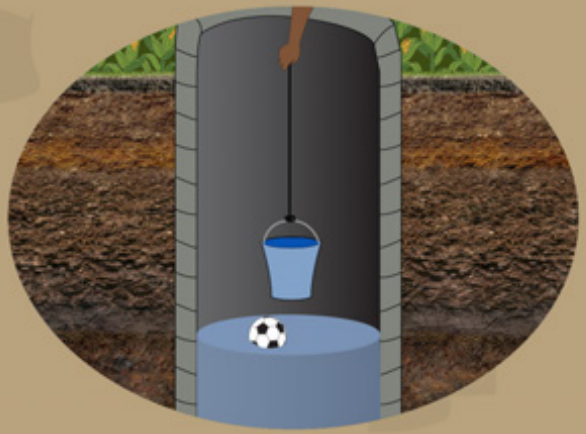
So Kibena showed Baraka, "Mzee Kigo told us that the depth of the well is five point eight metres and his rope is zero point eight metres.



$$5.8 - 0.8$$



So I subtract the length of the rope from the depth of the well. Notice how I make sure the decimal points line up right above each other.

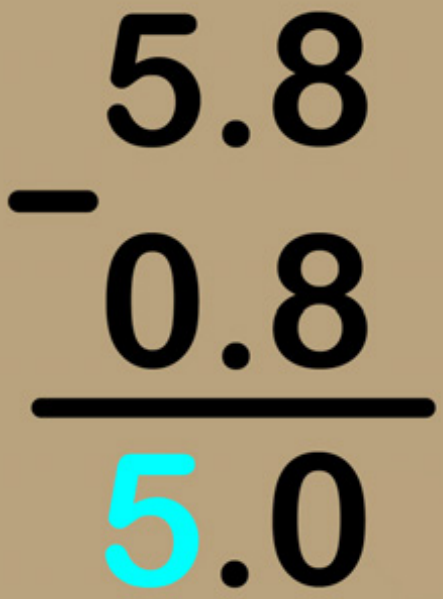


$$\begin{array}{r} 5.8 \\ -\ 0.8 \\ \hline 0.0 \end{array}$$

Eight minus eight is zero.

Next I bring the decimal point down, making sure it is in the same place.

So Baraka, what's five minus zero?"
"FIVE," replied Baraka.

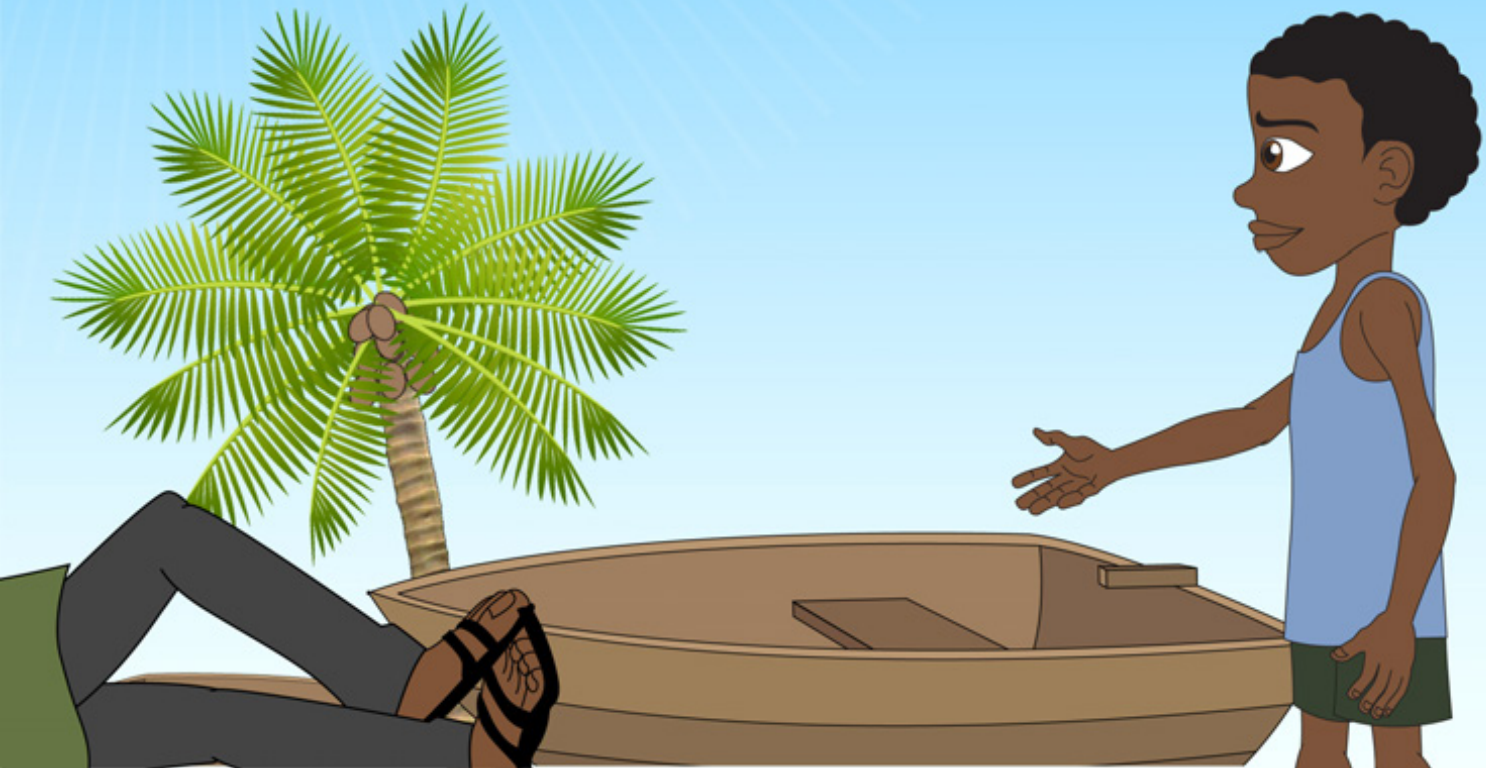


"That's how I know we need another five metres of rope," said Kibena.

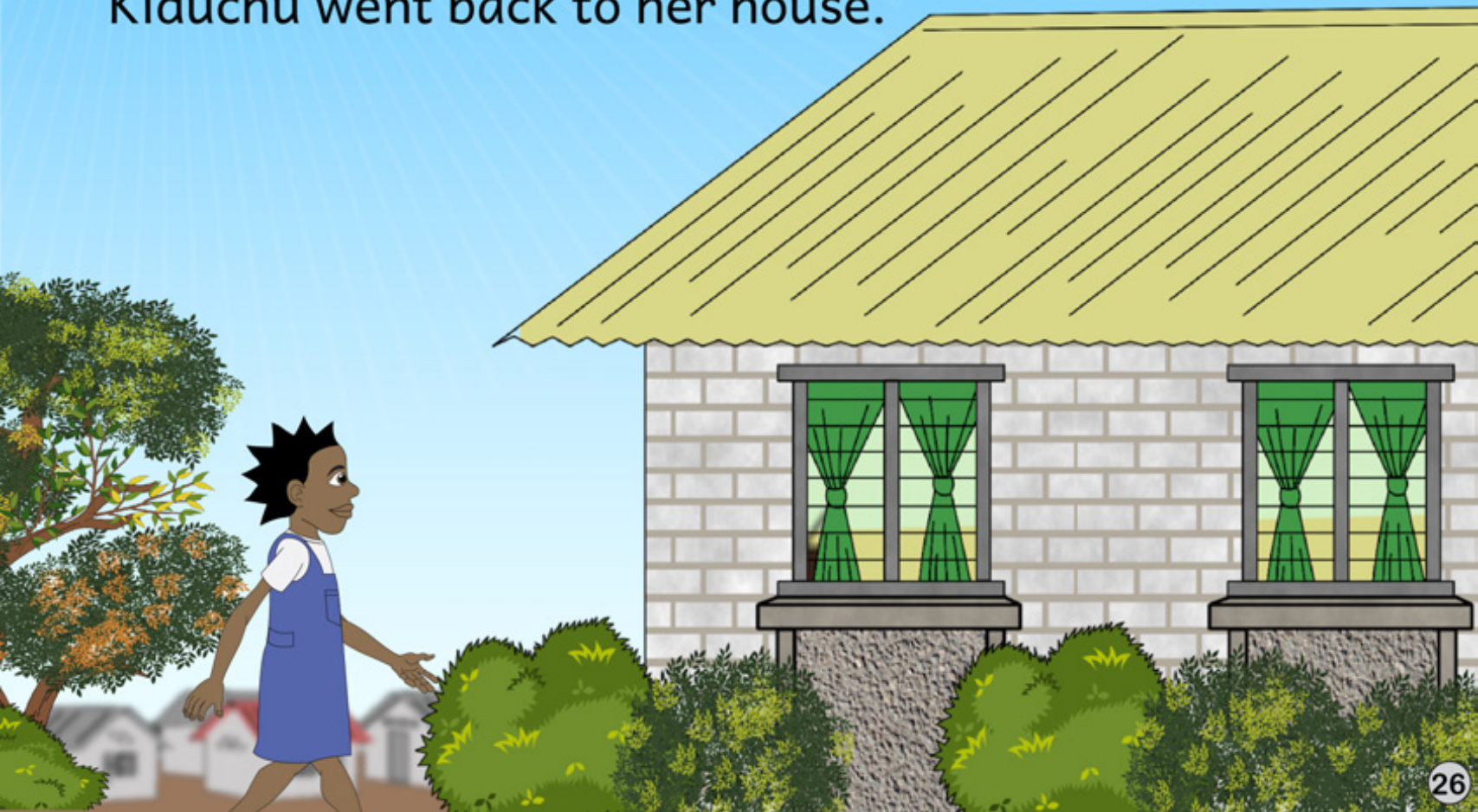
The kids agreed on a plan to find more rope and quickly ran off.

Kibena headed towards town, came across a fruit seller and asked if he had any rope. He had none.

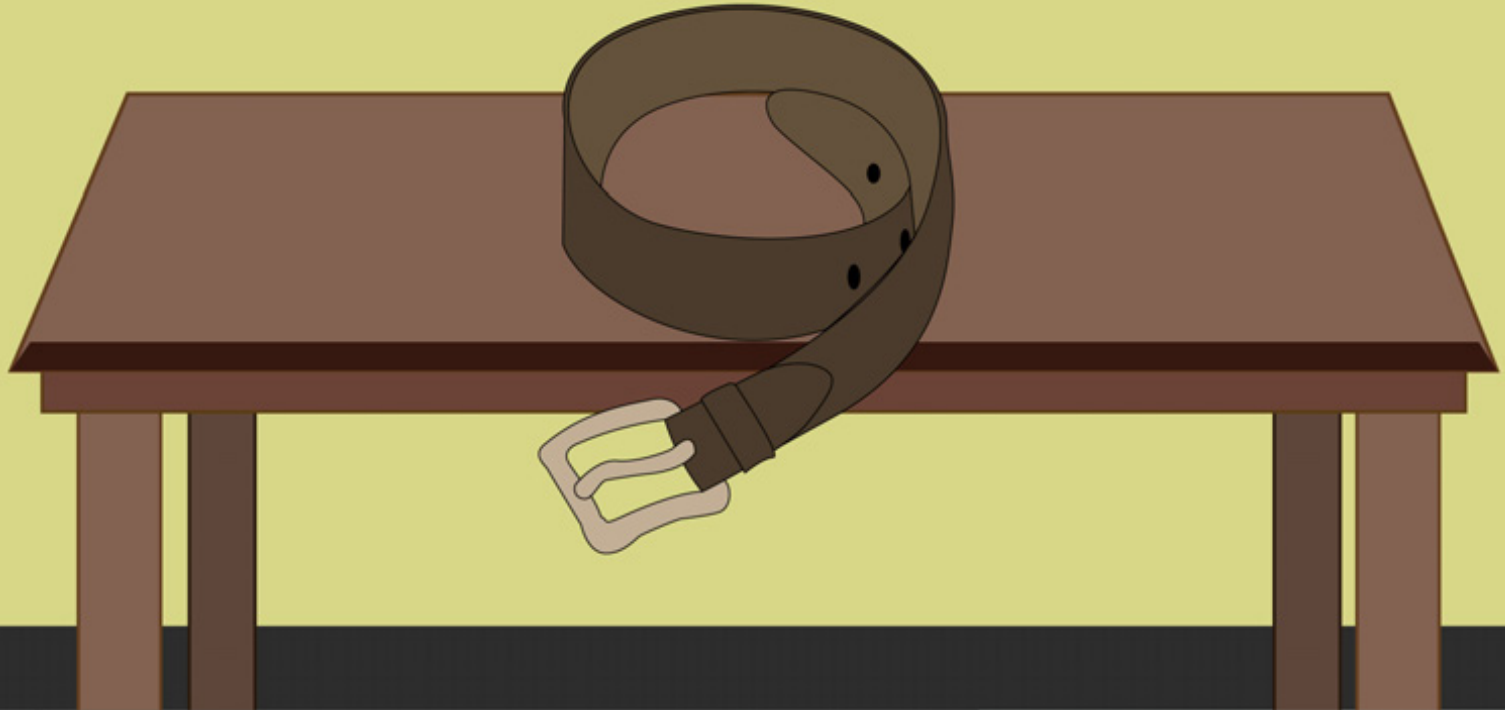
Koba went to the seaside to get some from the fishermen but they were all asleep.



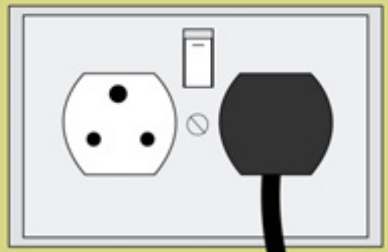
Kiduchu went back to her house.



She saw a brown belt on the table and grabbed it.



She also yanked the power cable from the TV!

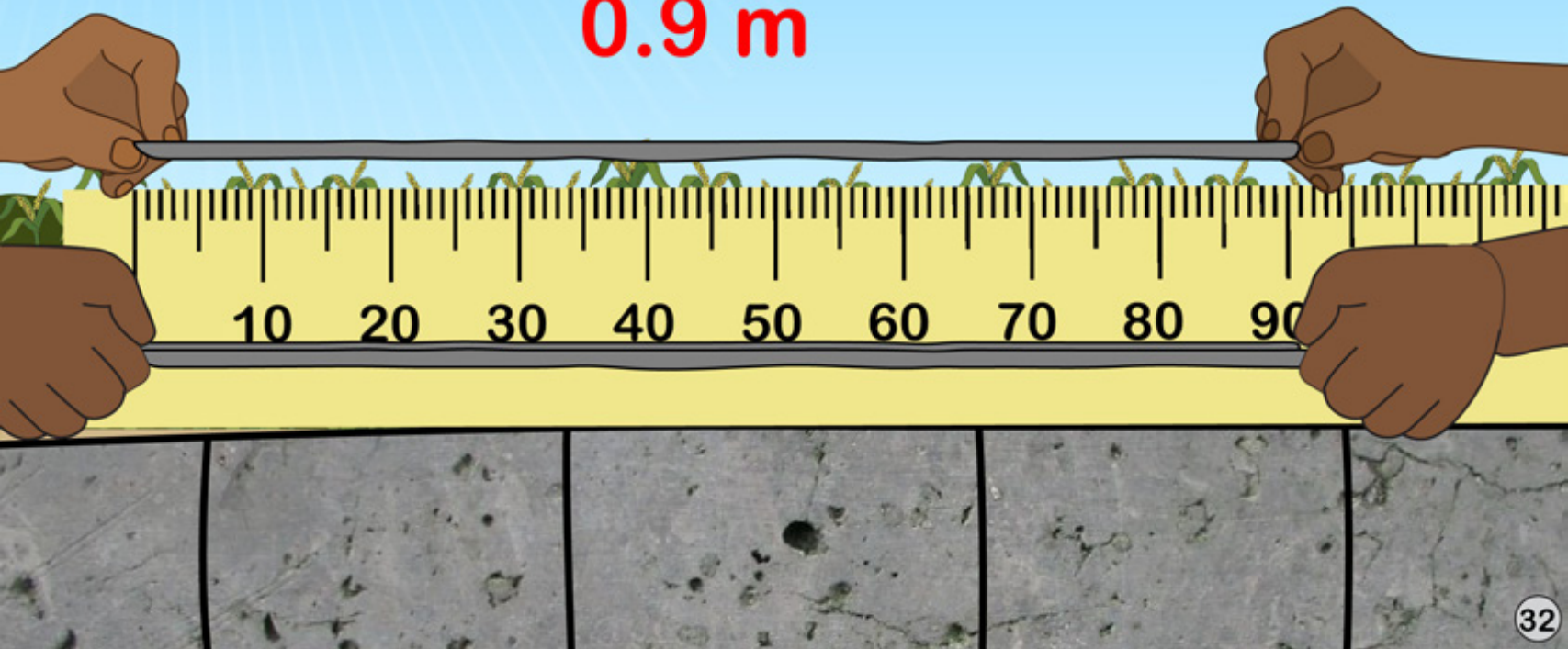


Baraka went to the forest and heard someone singing, "What is mathematics? It's like mental acrobatics." He followed the sound into the forest.

Meanwhile Kibena and Koba were back at the well.
Kibena had brought back a piece of black rope.

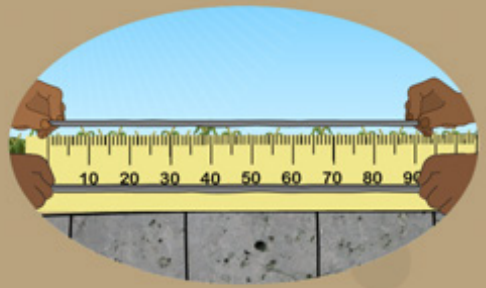
Koba found none, so he pulled the laces out from his shoes!

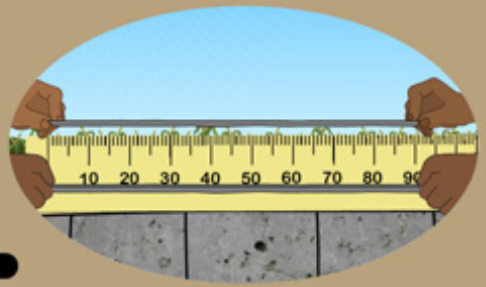
The shoe laces measured zero point nine metres each.

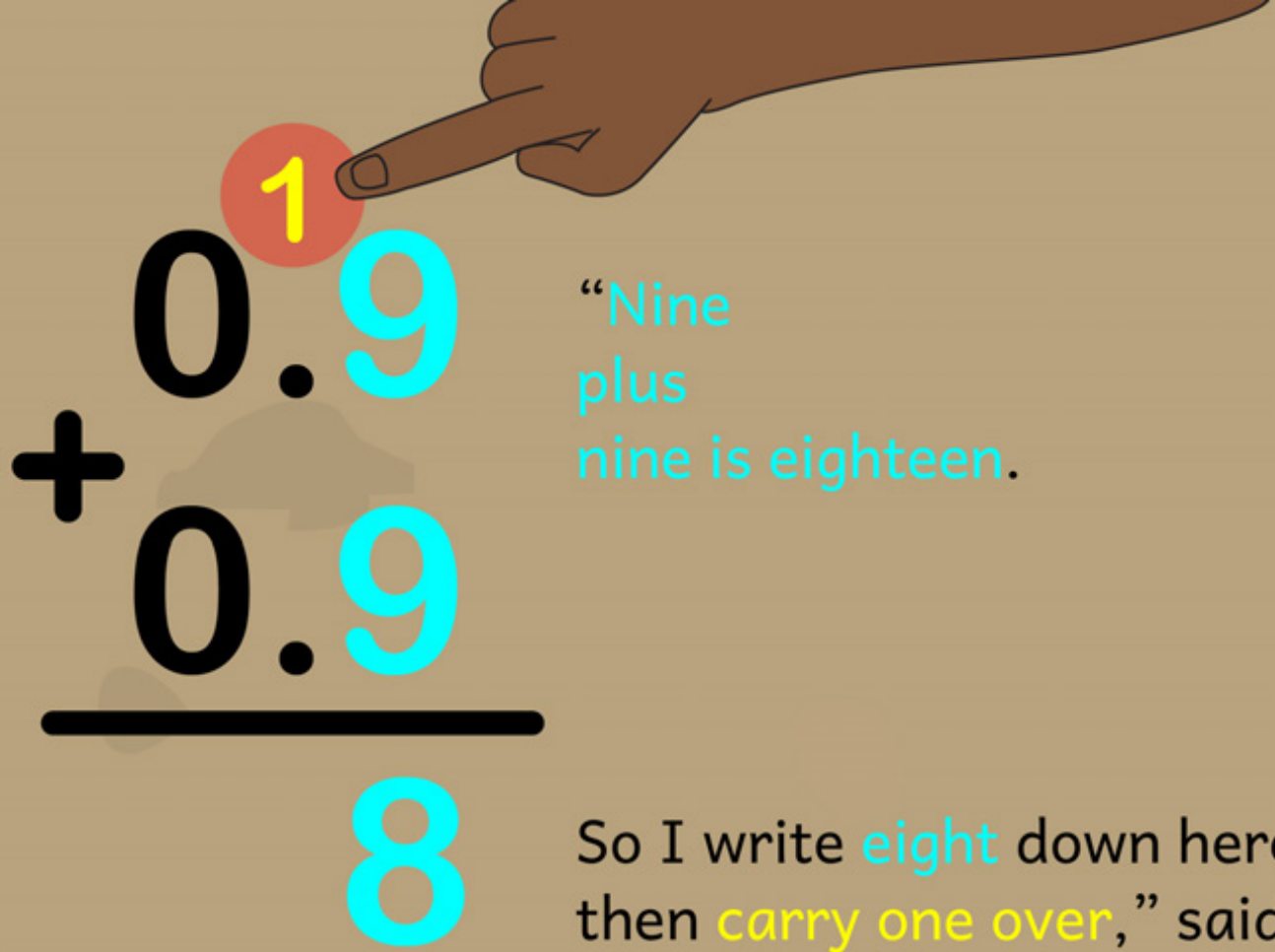


To find the length of both laces, Koba added zero point nine and zero point nine together.

$$0.9 + 0.9$$



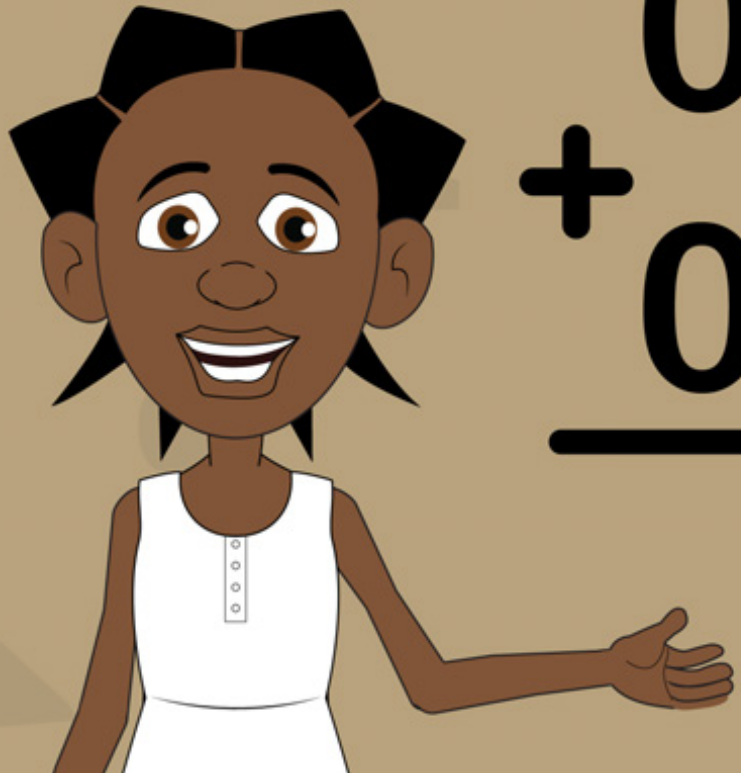




"Nine
plus
nine is eighteen.

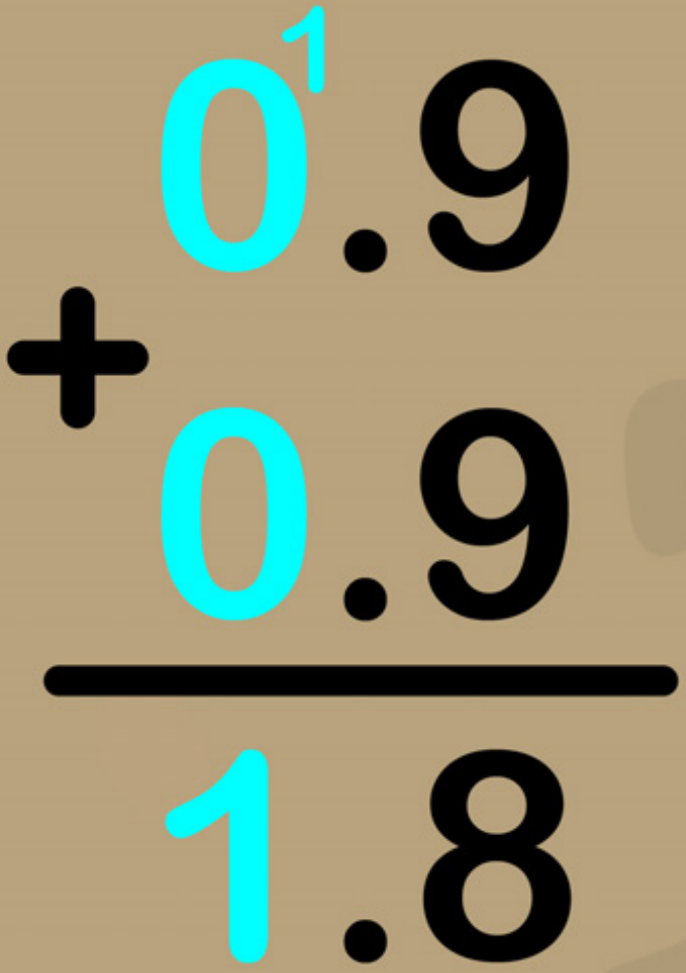
So I write eight down here
then carry one over," said Koba.

Then Kibena reminded him to bring down the decimal point.



$$\begin{array}{r} 0.9 \\ +\ 0.9 \\ \hline .8 \end{array}$$

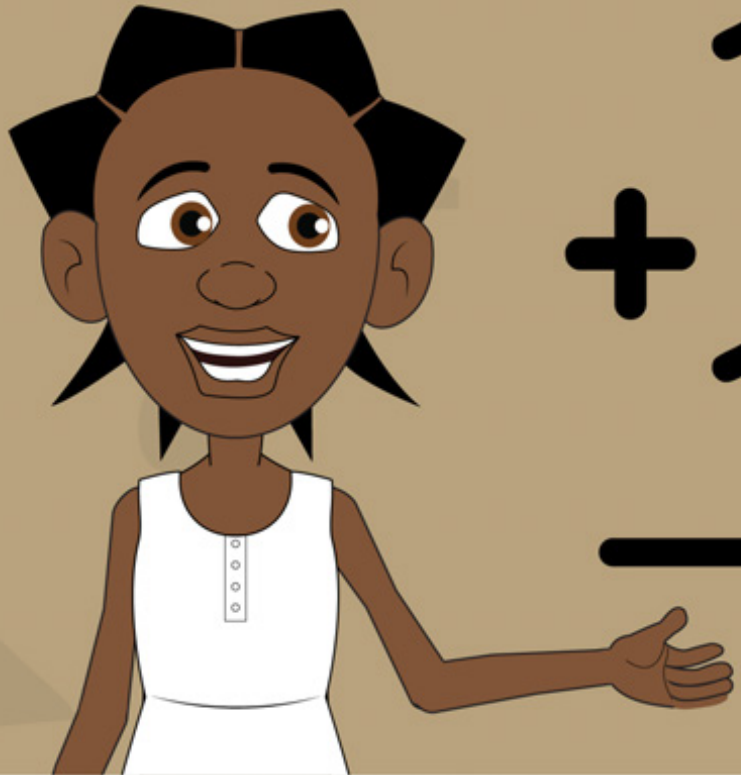
Koba continued,
"Zero plus zero is zero.
Now I add the one
I carried over, I get ONE!
So my two shoe laces are
one point eight metres
long. That's not nearly
enough! Lets add your
rope also, Kibena!"



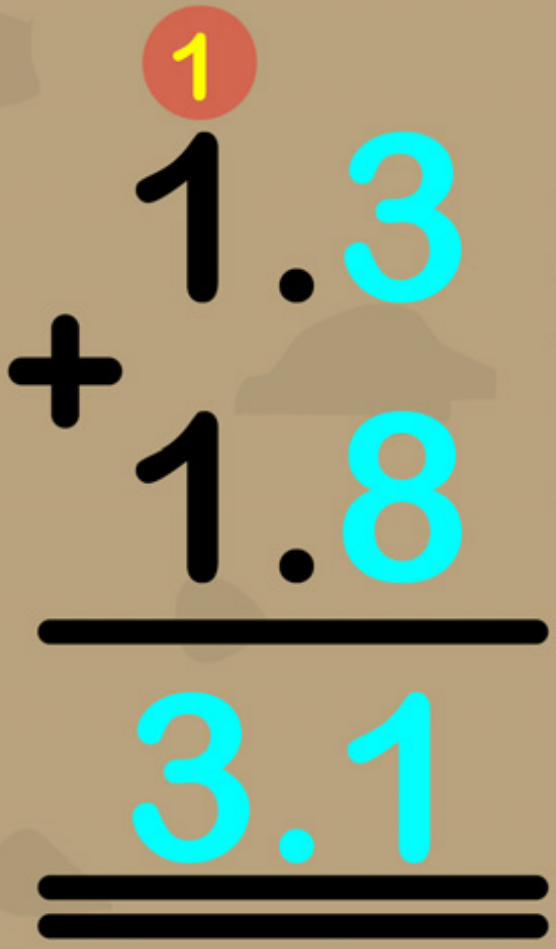
They measured Kibena's black rope.
It was one point three metres long.

1.3 m

Then Kibena added one point three and one point eight.



$$\begin{array}{r} 1.3 \\ +\ 1.8 \\ \hline \end{array}$$

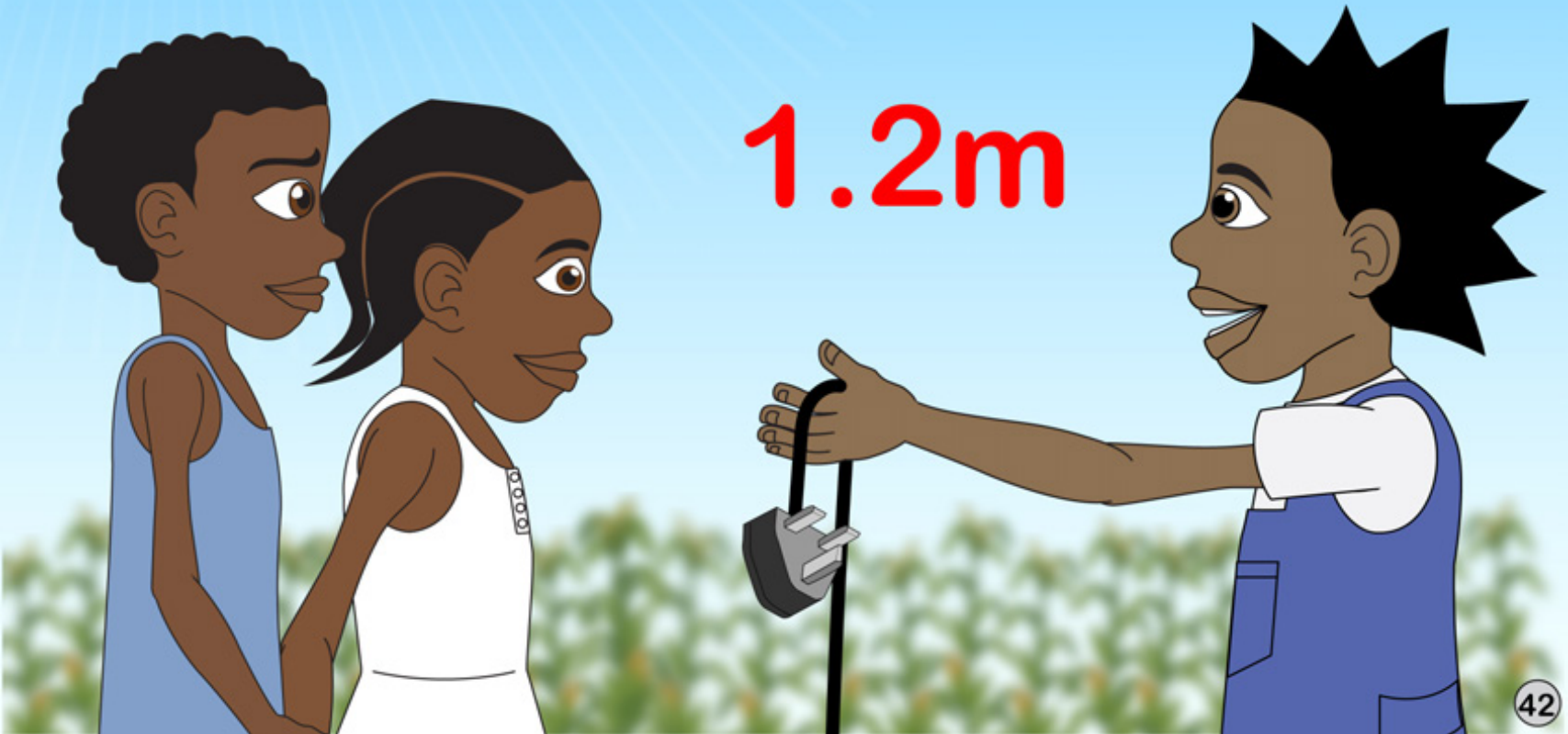


"Three plus eight is eleven.
I put one down here
and carry one over.
One plus one, plus
the one I carried over is three.
Between yours and mine
we have THREE POINT ONE metres."

Then Kiduchu came back waving a power cord in one hand and a belt in the other, saying, "Don't you worry! Kiduchu's here to save the day."

She bragged, “I’ve already measured mine.
The belt is zero point seven metres long,

and the TV cable is one point two metres long."
"Nice, Kiduchu!" said Kibena.

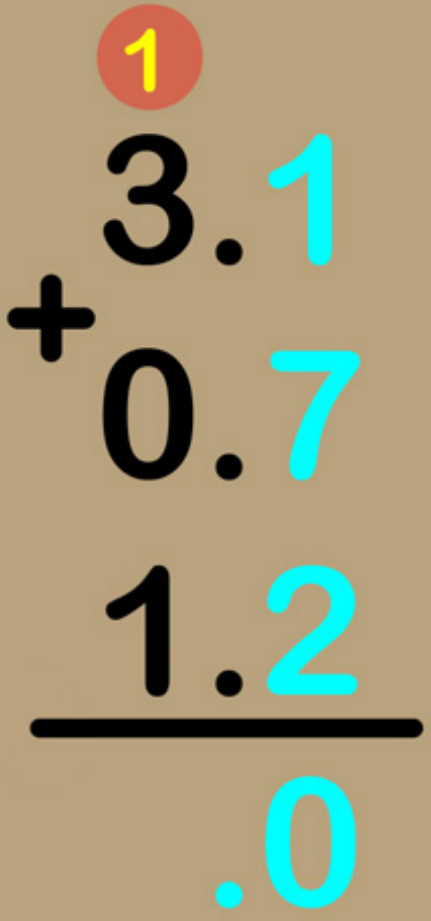


"Let's add together
Koba's laces and my rope
(three point one metres),

Kiduchu's belt
(zero point seven)

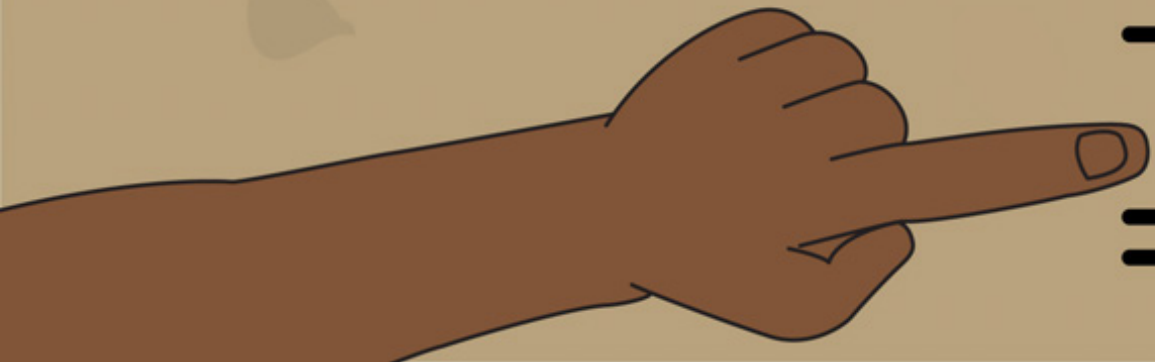
and the TV cord
(one point two)."

"Let me do the adding,"
said Kiduchu.
"One plus seven
plus two is ten.
I write zero, carry one over
and bring down
the decimal point.



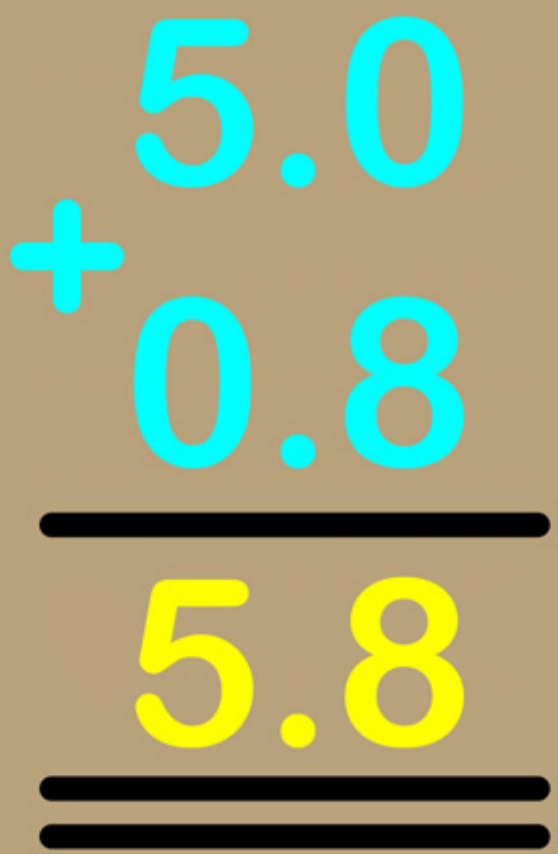
Three plus zero, plus one, plus the one that I carried over...is FIVE."

"Wow! We've got exactly five metres!" said Kibena.

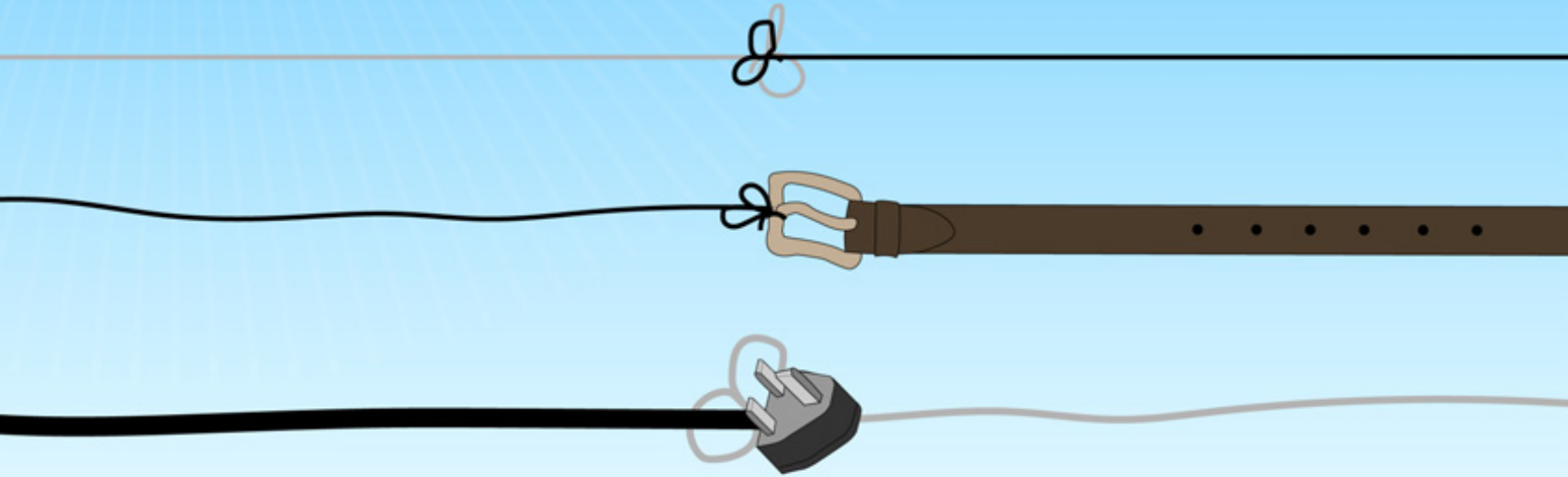


$$\begin{array}{r} {\scriptstyle 1} \\ 3.1 \\ +\ 0.7 \\ \hline 1.2 \\ \hline 5.0 \\ \hline\hline \end{array}$$

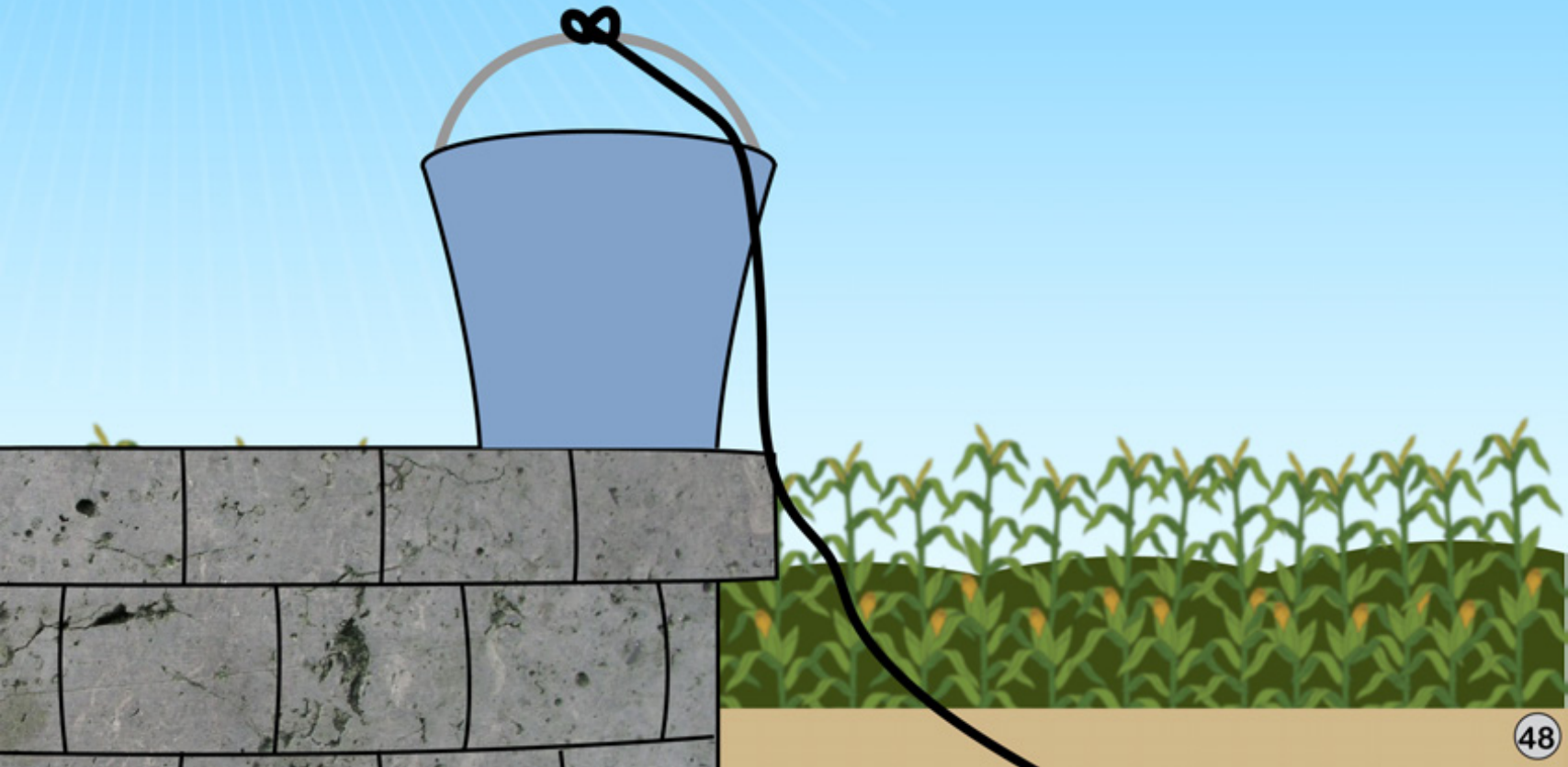
“So add our five metres and the zero point eight metres of Mzee Kigo’s old rope together, and we get five point eight.
That’s the same as the depth of the well!
Woohooo!” said Kiduchu.



The kids tied all the ropes, belt and TV cable together.



They also added a bucket at one end.



As they worked, they sang:

A little girl with teary eyes,
Sat by the well and cried!
What was she crying for?
She wanted to get her ball!
But where could her ball be?
In the bottom of the well so deep!
Use your brain! Use your brain!
Until you can get it back!
Use your brain! Use your brain!
Until you can get it back!

They lowered the bucket into the well, letting out all the rope until they were just holding on to the very end.

They looked into the well and saw that it still didn't reach the bottom. "Why doesn't it reach?" wondered Kiduchu out loud.

“I don’t get it! We’ve managed to get five metres of rope... plus there’s the bucket. Why isn’t it enough?” asked Koba.

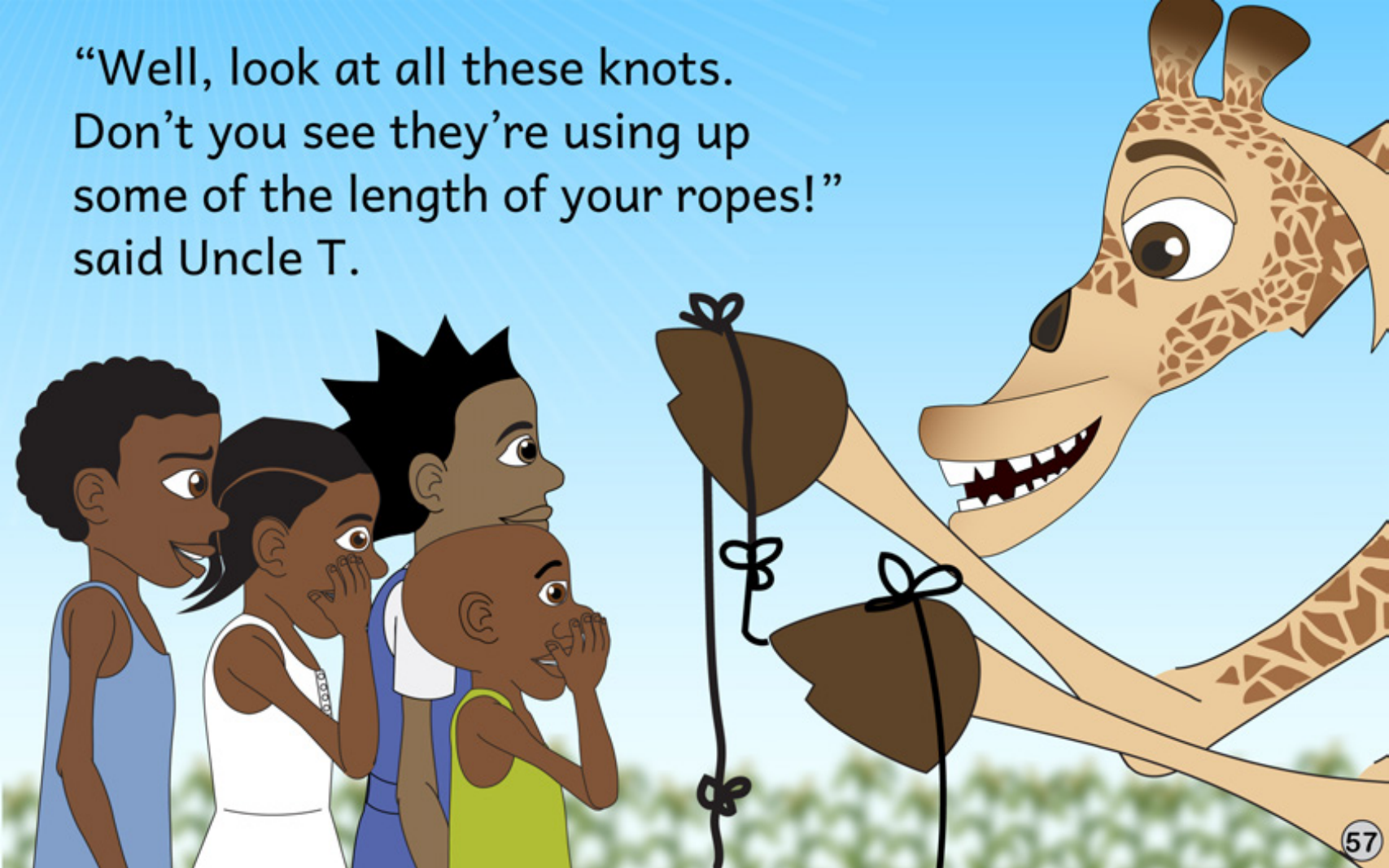
All of a sudden,
a giraffe's head
appeared in the water.

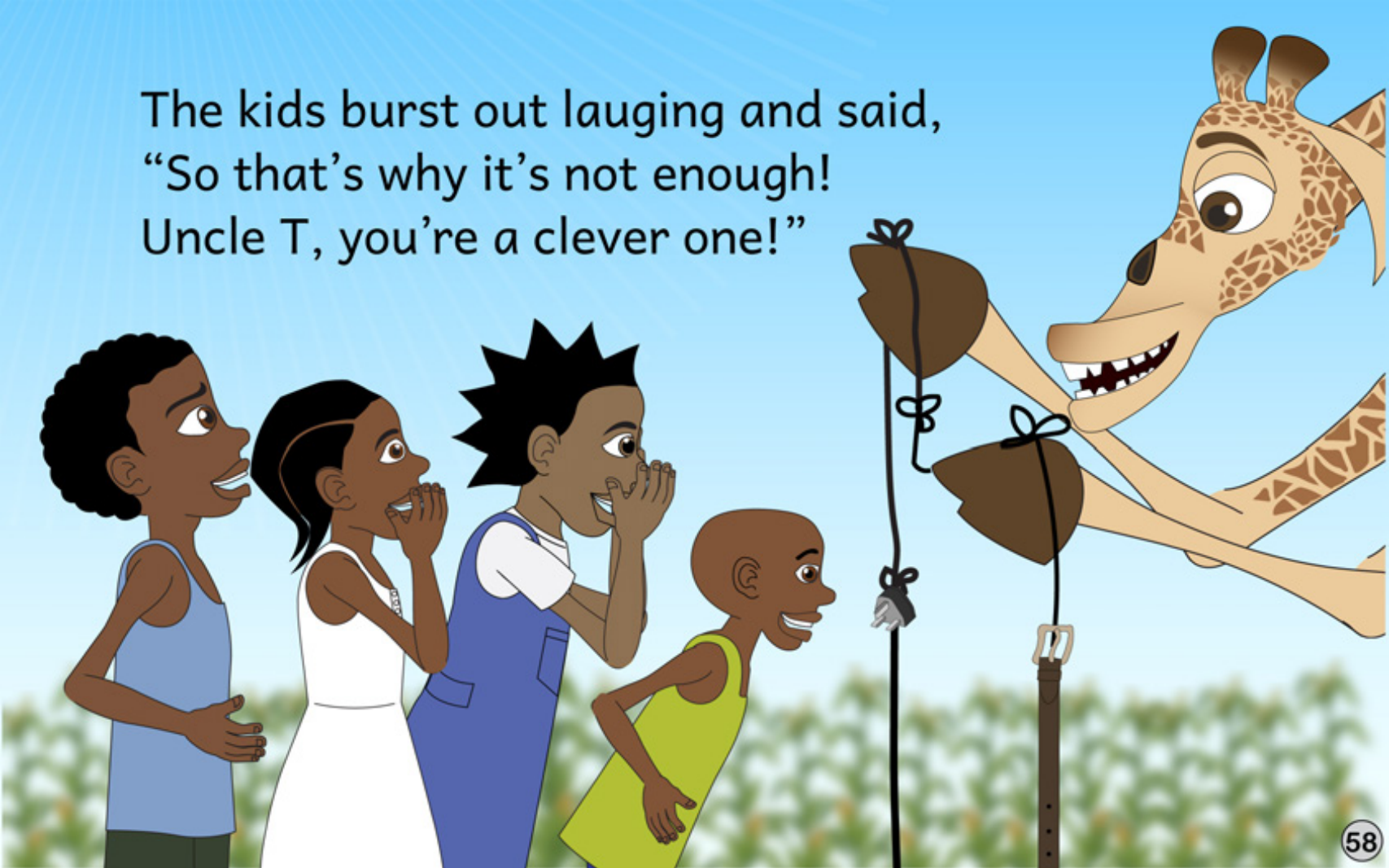
The kids looked up in surprise and saw Uncle T and Baraka, who said, “I didn’t find any rope, but I brought a friend from the forest!”

“Welcome, Uncle T,” said Kibena. “Can you help us? We’re trying to get our ball out of the well. The well is five point eight metres deep. The length of these ropes tied together are also five point eight metres. But somehow it’s not enough. I don’t know what we did wrong.”

“Did you measure your pieces
before you tied them together?”
“Yes,” replied the kids.

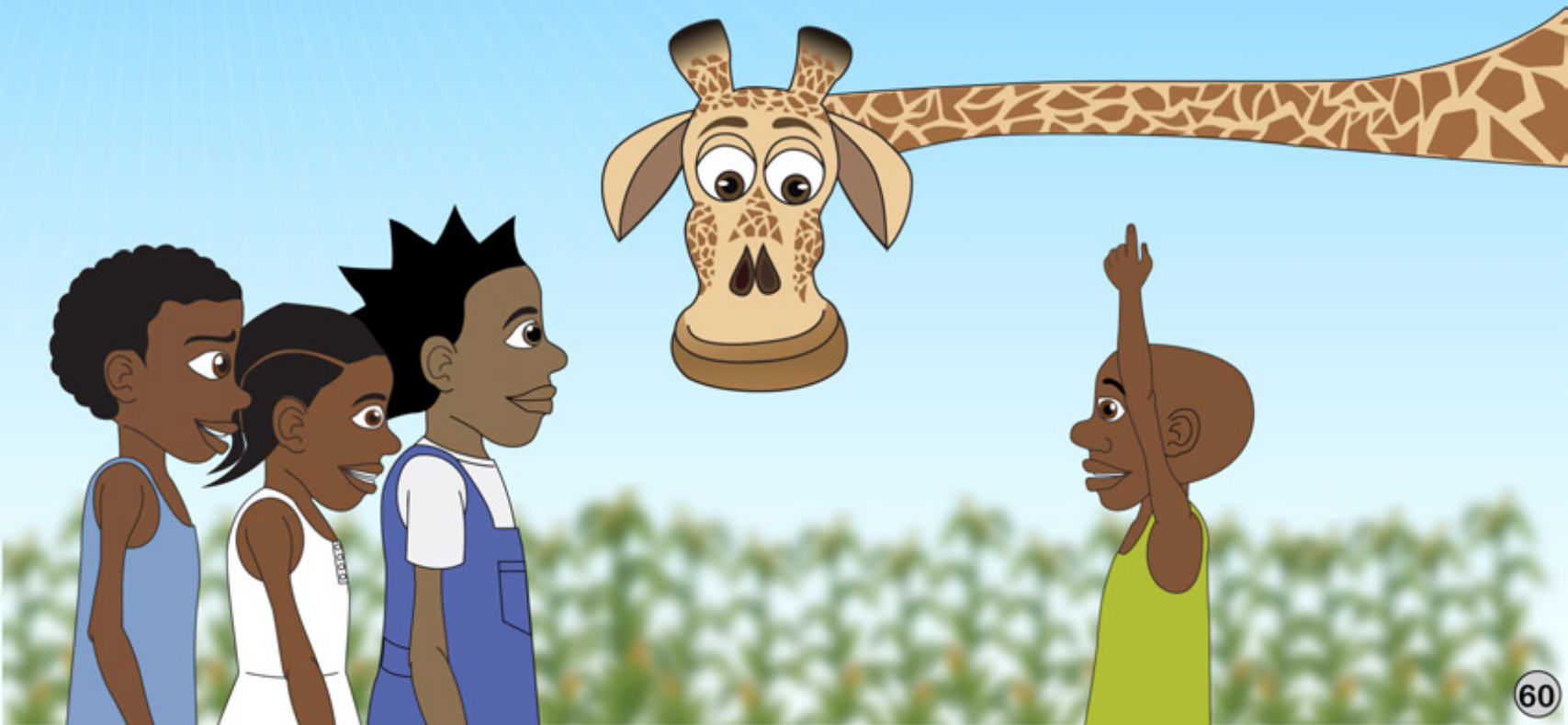
“Well, look at all these knots.
Don’t you see they’re using up
some of the length of your ropes!”
said Uncle T.




The kids burst out lauging and said,
“So that’s why it’s not enough!
Uncle T, you’re a clever one!”

Uncle T hinted that he knew of something really long close by that they could use.
The kids looked around for a while.

“Hmmm... something long...something really, really long. Like your neck, Uncle T?” said Baraka.
“You’ve figured it out,” said Uncle T.



Kiduchu held up the measuring stick against the giraffe's neck. His neck was even longer than the stick.

Uncle T grabbed the handle of the bucket
and lowered his head and neck down into the well.

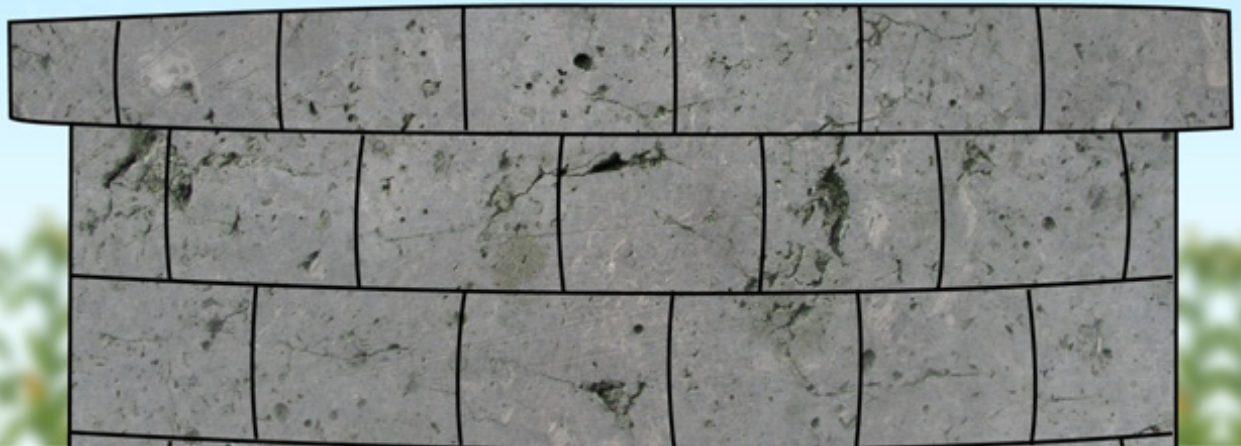
He pulled the bucket up.
Kiduchu grabbed the ball out of the bucket.

To everyone's surprise, Da Chura jumped out and hopped away. The kids laughed and ran back to the football pitch with their ball.

Uncle T volunteered to be the ref.
He blew the whistle to start the game.

Baraka kicked the ball.

It flew over the wall and fell into the well again!



The End

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