

Fruity Fractions

fractions



Age
Umri
7+





One day Ngedere was all dressed up like a businessman. He was tired of the simple forest life. He had decided to go into business selling fruit.



He had collected so much fruit from the forest,
that he couldn't fit all of it on his truck.





Luckily Kibena and Kiduchu came upon him and offered to help. “That’s great. I’ll drive the fruit that’s already on the truck to my stall. You two can bring the rest for me. It’s not too far,” said Ngedere.



The girls agreed to bring the rest of the fruit.
Ngedere thanked them and drove off.



To save time the girls carried
two pieces of fruit each.



Kiduchu carried
a pineapple on
top of a mango.



Kibena carried
a banana on top
of a papaya.



The girls were walking so fast that Kiduchu tripped.



Da Chura was coming from the opposite direction, doing flips.



The pineapple flew out of Kiduchu's hand
and almost landed on Da Chura!



“Watch out! You almost killed me
with that giant pineapple.”




Mama Ndege arrived and asked what all the fuss was about. Da Chura pointed to Kiduchu and replied, “That girl needs to learn how to carry her fruits the proper way!”





Smaller piece on top,
bigger piece on the bottom!”



“Da Chura, you’re confusing me using words like popper... plopper...or is it proper?” said Kiduchu.

proper

“It’s proper! It means to do something correctly or in the right way.
I’m talking about
PROPER FRACTIONS!”



“A proper fraction is a fraction where the **numerator** (the number on top) is smaller than the **denominator** (the number on the bottom).”

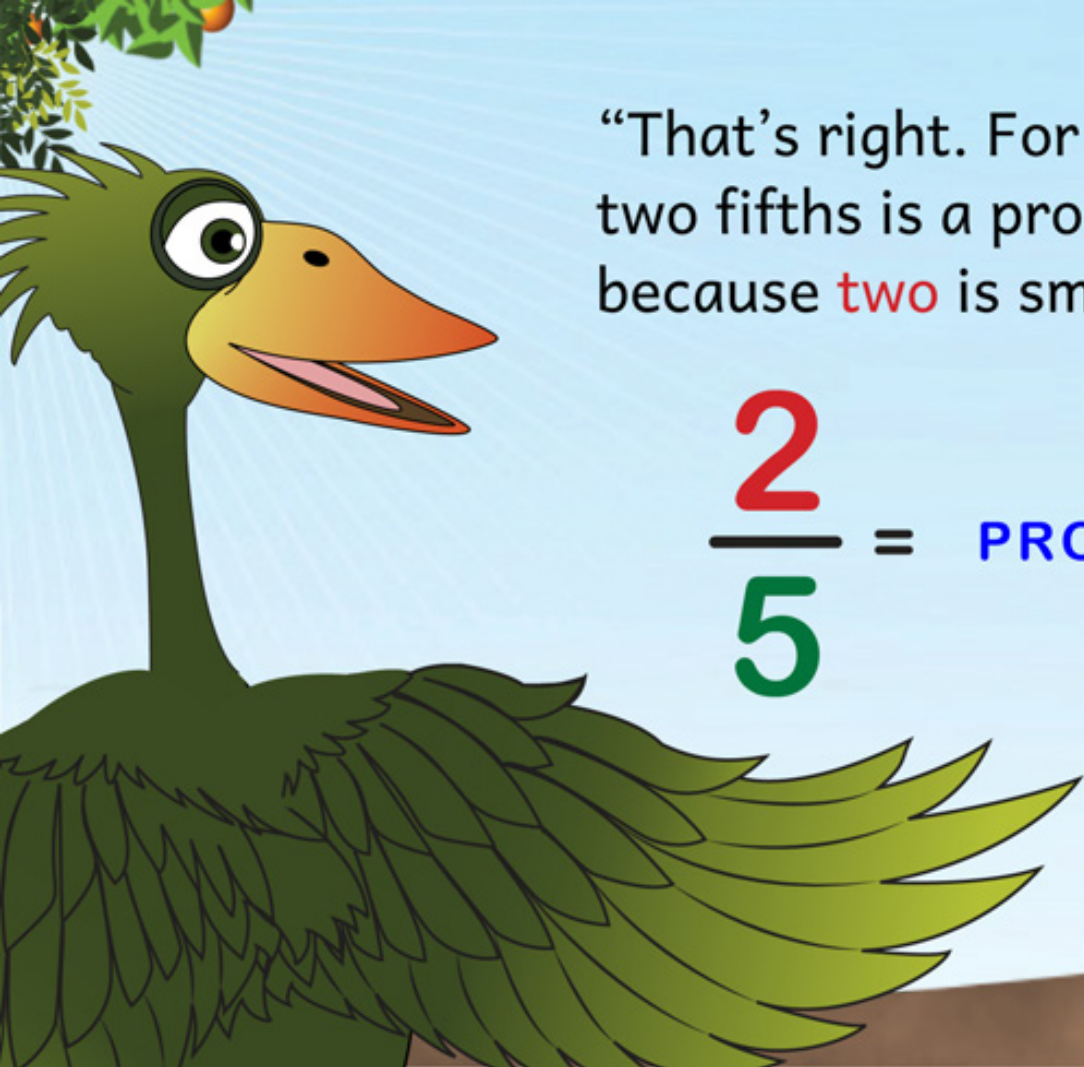
PROPER FRACTION:

$$\frac{\text{numerator}}{\text{denominator}} = \frac{\text{smaller}}{\text{bigger}}$$





“Like the way I’m carrying my banana on top of my papaya. Smaller on top, bigger on the bottom,” said Kibena.



“That’s right. For example,
two fifths is a proper fraction,
because **two** is smaller than **five**.”

$$\frac{2}{5} = \text{PROPER FRACTION}$$

But when the **numerator** is bigger than the **denominator**, we call it an **IMPROPER FRACTION**, like **five** over **two**.

$$\frac{5}{2}$$

$$\frac{\text{numerator}}{\text{denominator}} = \frac{\text{bigger}}{\text{smaller}}$$



Like the way Kiduchu was carrying the pineapple on top of the mango. It's top-heavy!"



“So five over two is an **improper fraction!**”
Da Chura added.

$$\frac{5}{2} = \text{IMPROPER FRACTION}$$



“Look again at how Kibena is holding her fruit. She has the small fruit on top and the big fruit on the bottom.”





improper

$$\frac{5}{2}$$



proper

$$\frac{2}{5}$$

“Seeee! My fruits are **PROPER**.

Yours are **IMPROPER!**”

said Kibena.



Kiduchu swapped her fruits, putting the mango on top of the pineapple and said,

“Now my fruits are **proper!**”

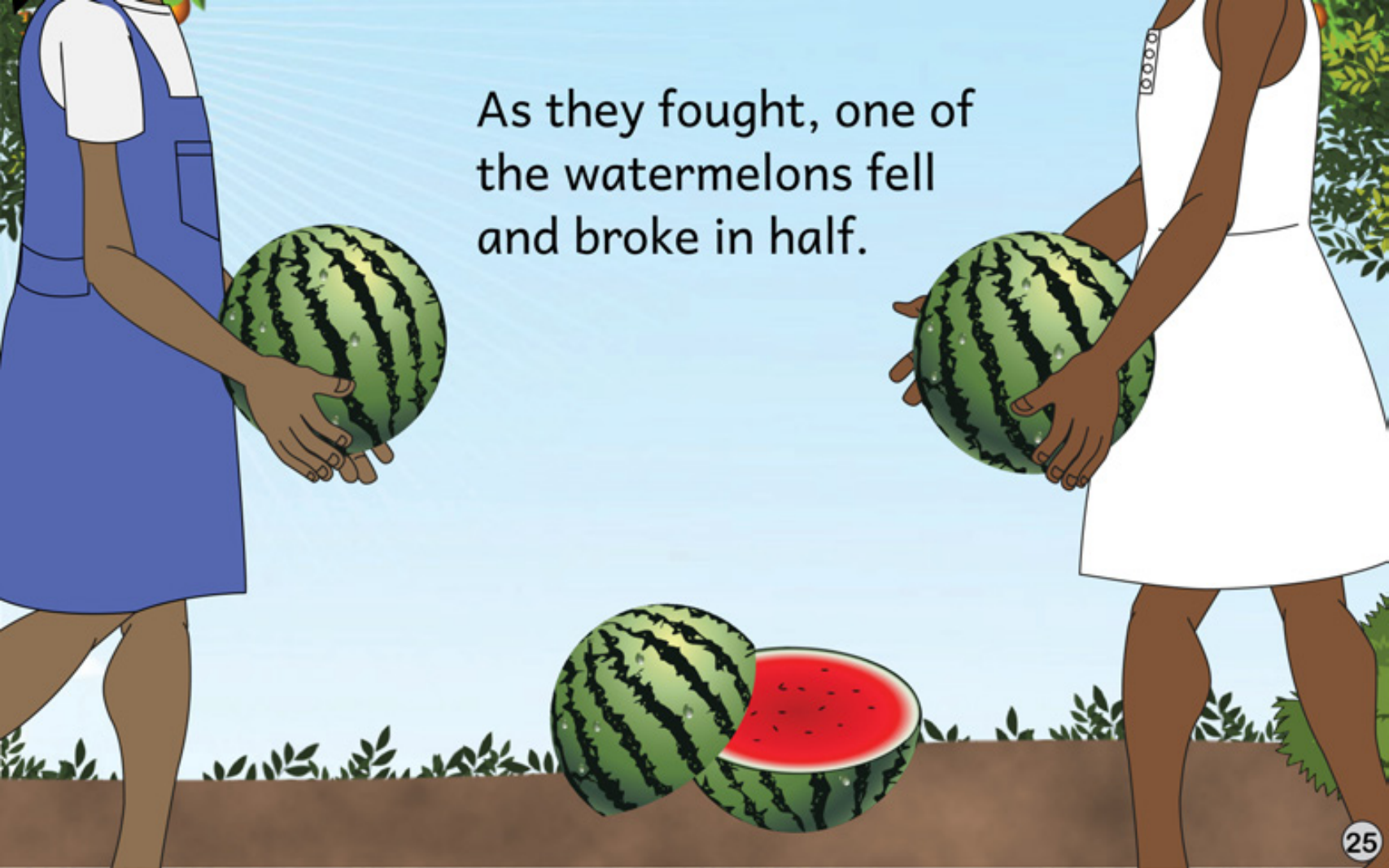


After several trips
back and forth,
the girls were tired
and still had three
watermelons
left to deliver.

They argued over who would get to carry two watermelons and who would carry one.



As they fought, one of
the watermelons fell
and broke in half.

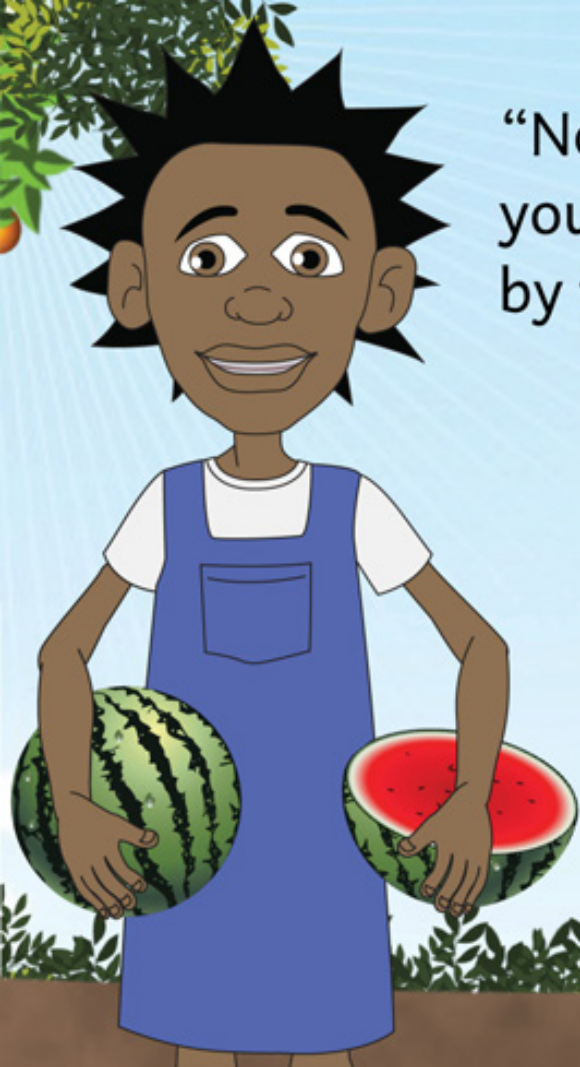




“That’s perfect,
you can carry **one**
and a half each,”
said Mama Ndege.

“No need to fight over it,
you silly girls. Three divided
by two is ONE AND A HALF!”

$$\frac{3}{2} = 1\frac{1}{2}$$



One and half is called a **mixed number**, because it combines a **whole number** and a **proper fraction** together. Just like each of you are holding one whole melon and one half melon!”

$$1\frac{1}{2} = 1 + \frac{1}{2}$$



**whole
number**



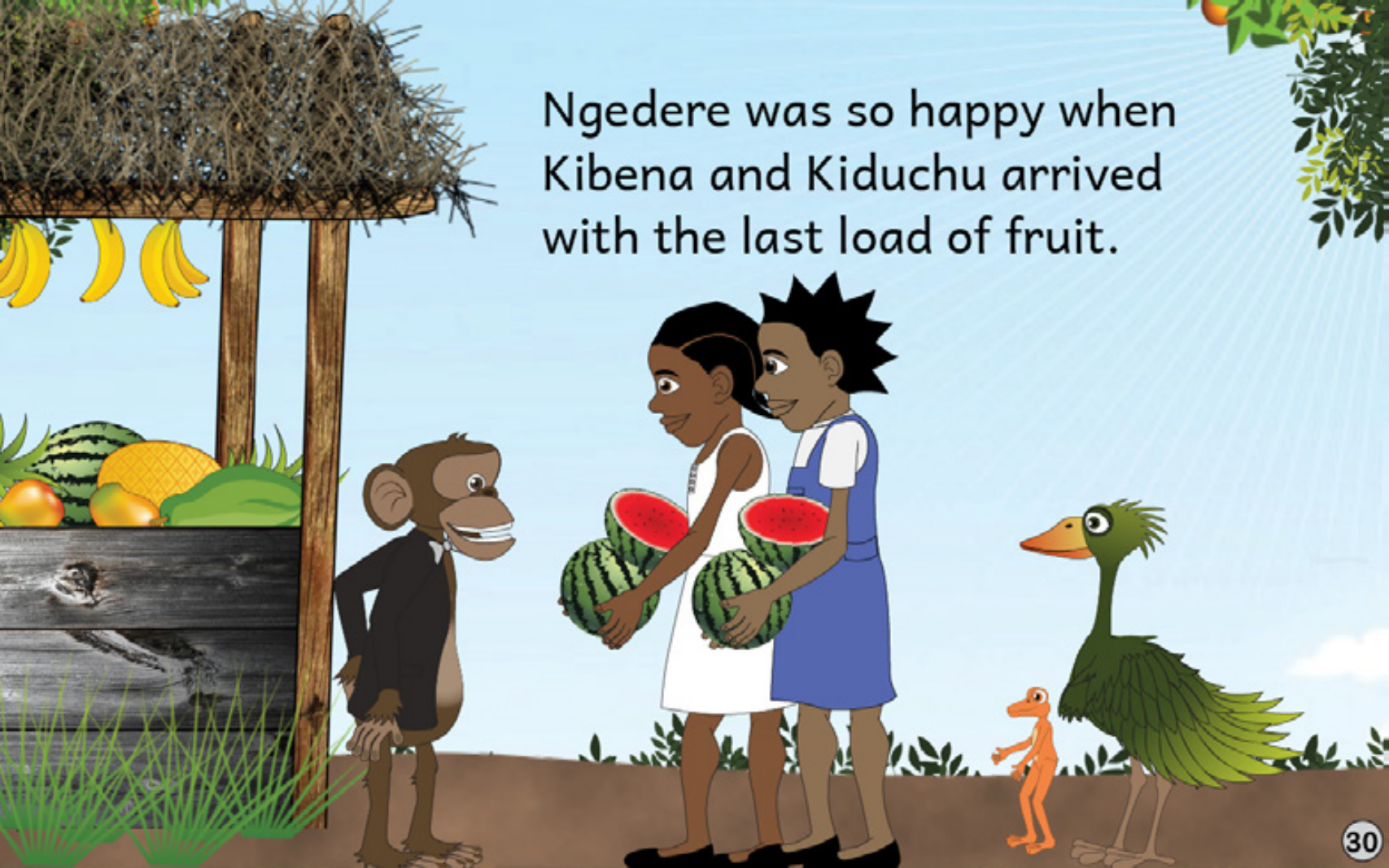
**proper
fraction**

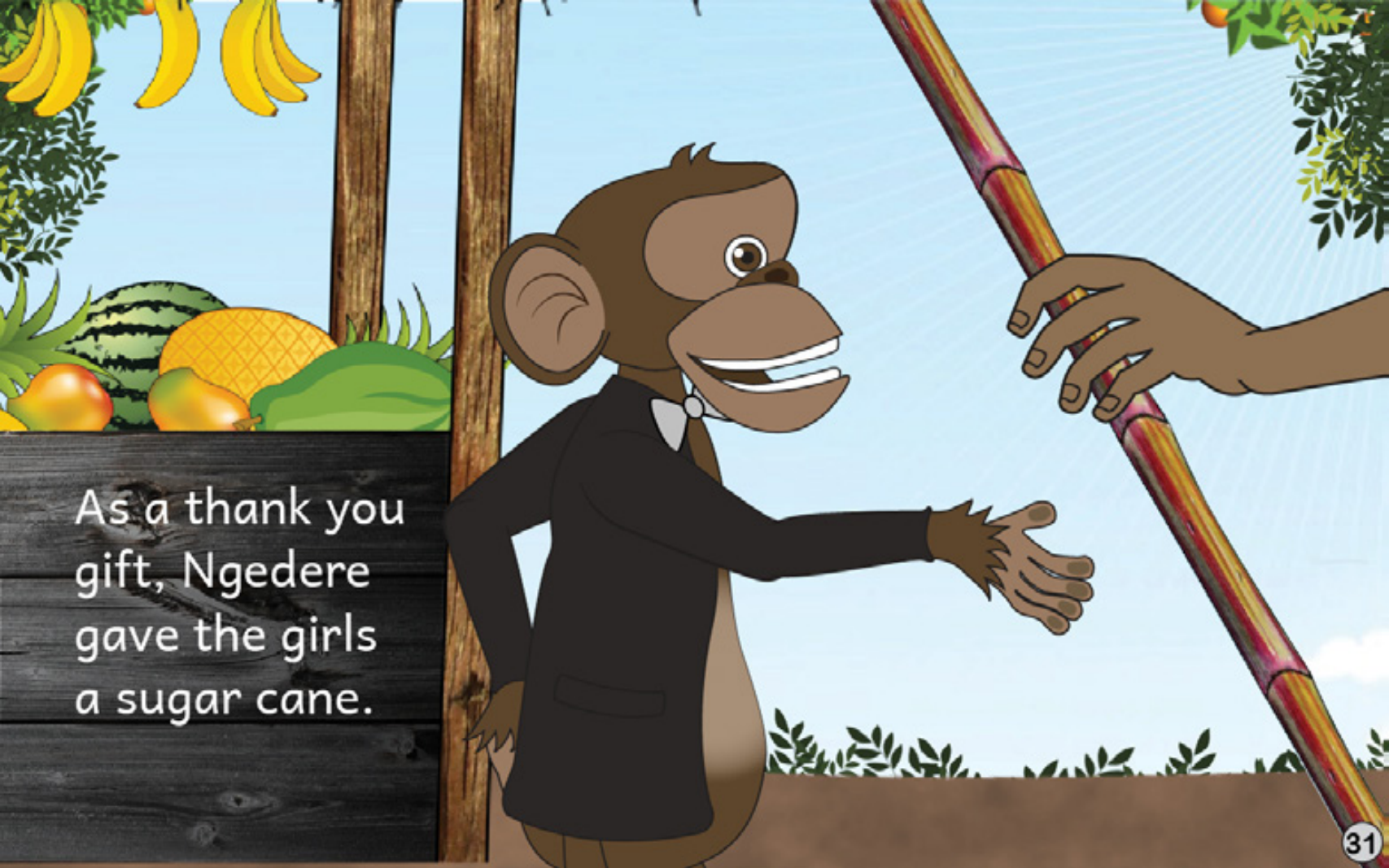
**mixed
number**

To make sure the girls didn't fight, Mama Ndege and Da Chura followed them as they carried one and a half watermelons each to Ngedere's fruit stand.



Ngedere was so happy when Kibena and Kiduchu arrived with the last load of fruit.



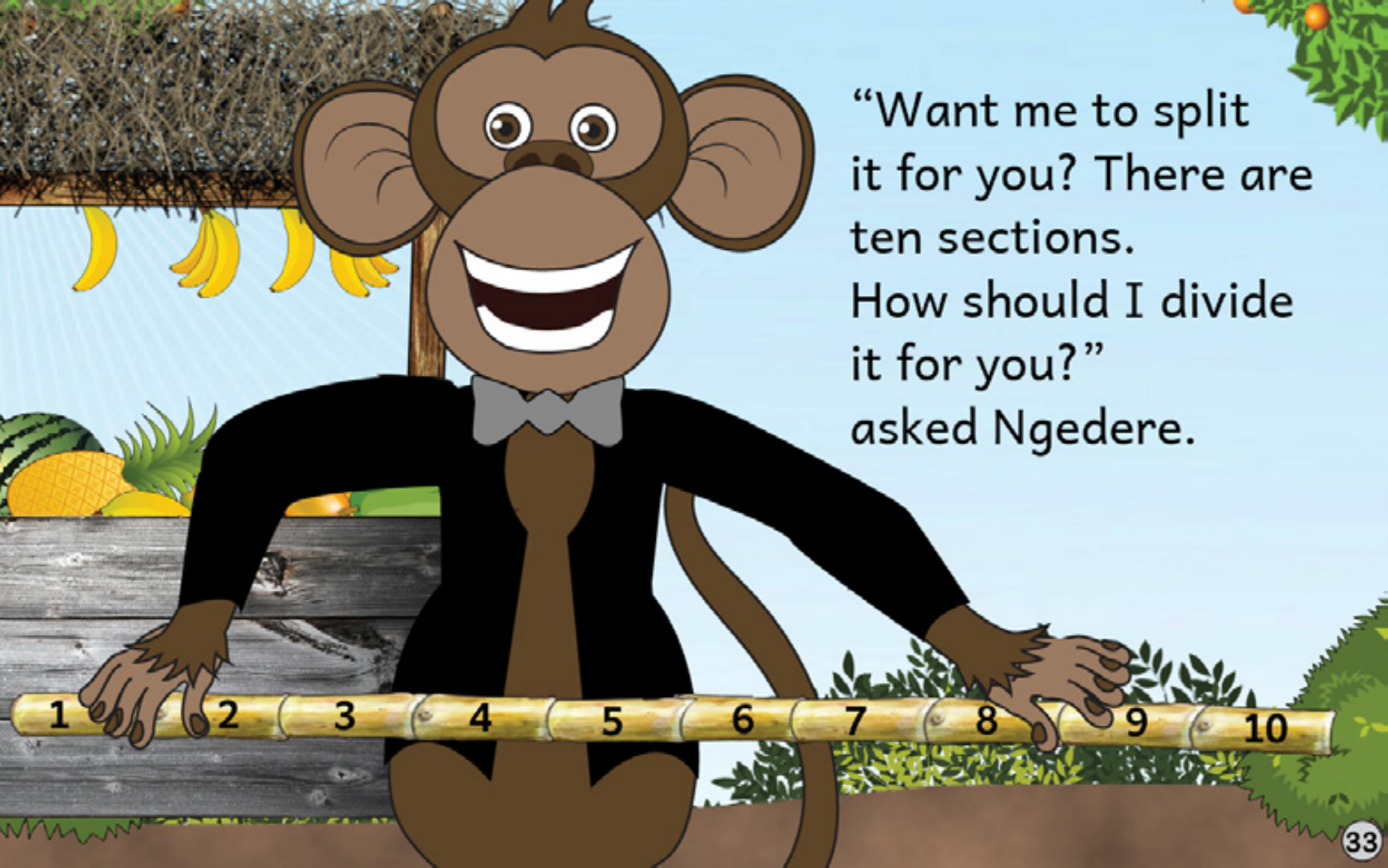


As a thank you
gift, Ngedere
gave the girls
a sugar cane.



He also gave Mama Ndege
and Da Chura one.





“Want me to split it for you? There are ten sections. How should I divide it for you?” asked Ngedere.

Mama Ndege told him to split it in half.
She would get **five tenths**,
and Da Chura would get **five tenths**.

$$\frac{5}{10}$$



$$\frac{5}{10}$$



Meanwhile Kiduchu counted the sections on her sugar cane and got only eight.



She broke her piece in half and said,



“I get four and Kibena gets four.
That is **four eighths** each.

$$\frac{4}{8}$$



$$\frac{4}{8}$$





Hold on! Why did they each get **five tenths**, and we only got **four eighths**, Kibena?

$$\frac{5}{10}$$



$$\frac{5}{10}$$



$$\frac{4}{8}$$

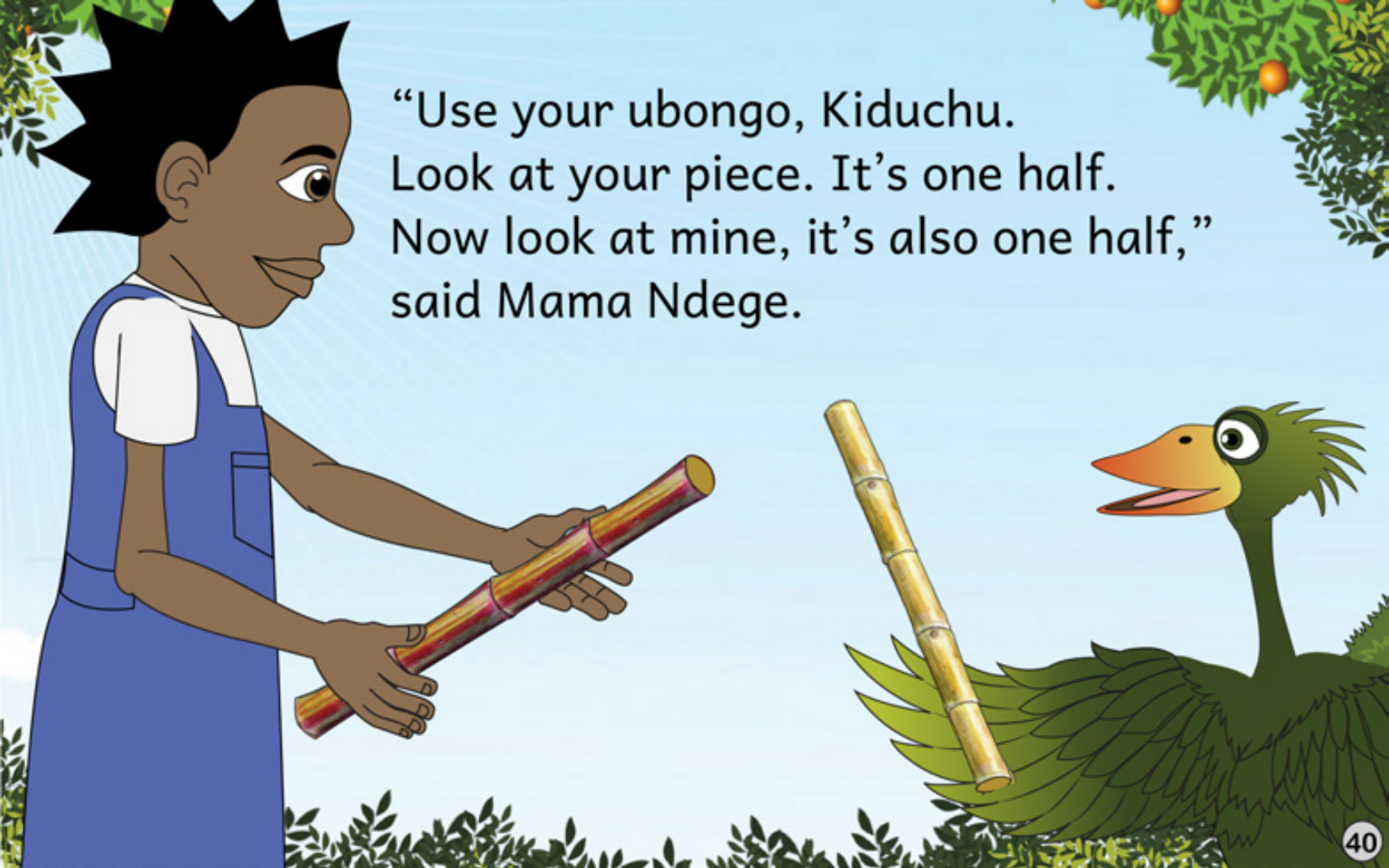


$$\frac{4}{8}$$





We did all the hard
work carrying the fruit,
but they got more than us?
That's not fair!"

An illustration of a young boy with spiky black hair, wearing a white t-shirt and blue overalls, holding a long, colorful bamboo stick. He is looking towards a green duck on the right. The duck has a long neck, a large orange beak, and is holding a plain bamboo stick in its beak. The background is a light blue sky with green foliage and orange fruits at the top right.

“Use your ubongo, Kiduchu.
Look at your piece. It’s one half.
Now look at mine, it’s also one half,”
said Mama Ndege.

Mama Ndege put both pieces side by side to show that the sugar canes were really the same length.



“Wait, how did that happen?” asked Kiduchu.

“It’s because
four eighths and
five tenths are
equivalent
fractions,”
said Mama Ndege.

$$\frac{4}{8}$$

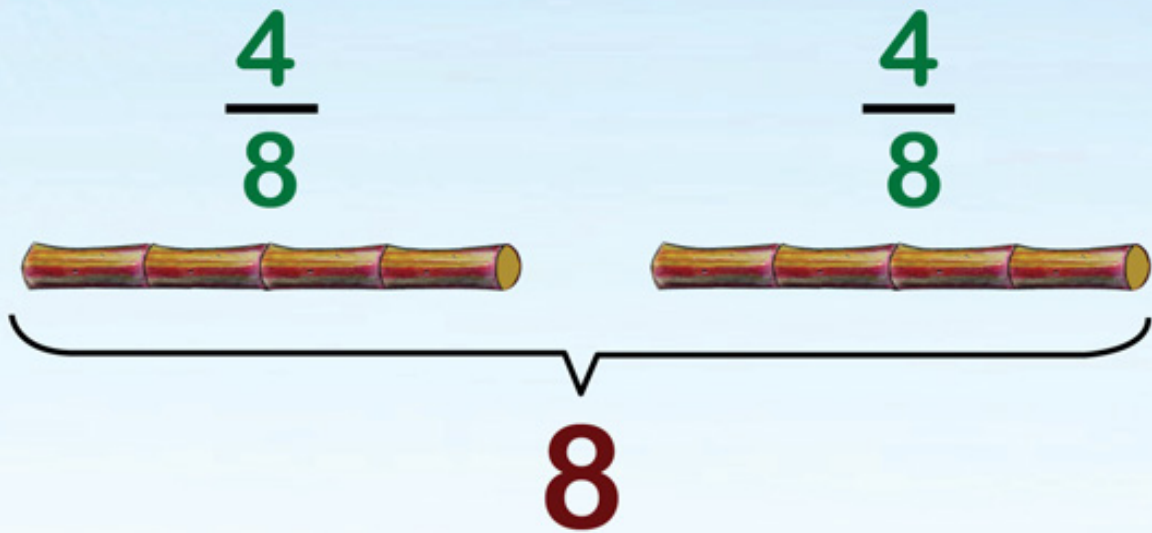
$$\frac{5}{10}$$





Equiva-what?

Mama Ndege explained, “Your sugar cane had eight sections. So you each got four sections or **four eighths.**”





“And if we simplify four eighths, we get one half,” added Da Chura.

$$\frac{\overset{1}{\cancel{4}}}{\underset{2}{\cancel{8}}} = \frac{1}{2}$$

“Now look at my sugar cane.
I got five out of ten sections.
Da Chura also got five out of ten.”

$$\frac{5}{10}$$

$$\frac{5}{10}$$



10



When you simplify, you can see that both your four eighths and my five tenths are **ONE HALF**. We all got exactly the same amount.”

$$\frac{\overset{1}{\cancel{4}}}{\underset{2}{\cancel{8}}} = \frac{\overset{1}{\cancel{5}}}{\underset{2}{\cancel{10}}} = \frac{1}{2}$$

“I get it now! Since the two canes were the same length but had different numbers of sections, **four eighths** of mine is the same as **five tenths** of yours. They are all one half.



$$\frac{5}{10}$$



$$\frac{5}{10}$$



$$\frac{4}{8}$$



$$\frac{4}{8}$$



Five tenths and four eighths are equivalent fractions, am I right?"

$$\frac{5}{10}$$



$$\frac{4}{8}$$



“Yes you’re right. Well done.”

EQUIVALENT FRACTIONS

$$\frac{1}{2}$$

$$\frac{2}{4}$$

$$\frac{3}{6}$$

$$\frac{4}{8}$$

$$\frac{5}{10}$$



“One outta two,
Two outta four,
Three outta six,
Four outta eight,
Five outta ten,
In the end they’re all
the same. They’re **one half!**”



Mama Ndege and
Da Chura then
thanked Ngedere
for the canes
and went home.



A little while later Baraka came
to the fruit stand.
He wanted to buy an orange.

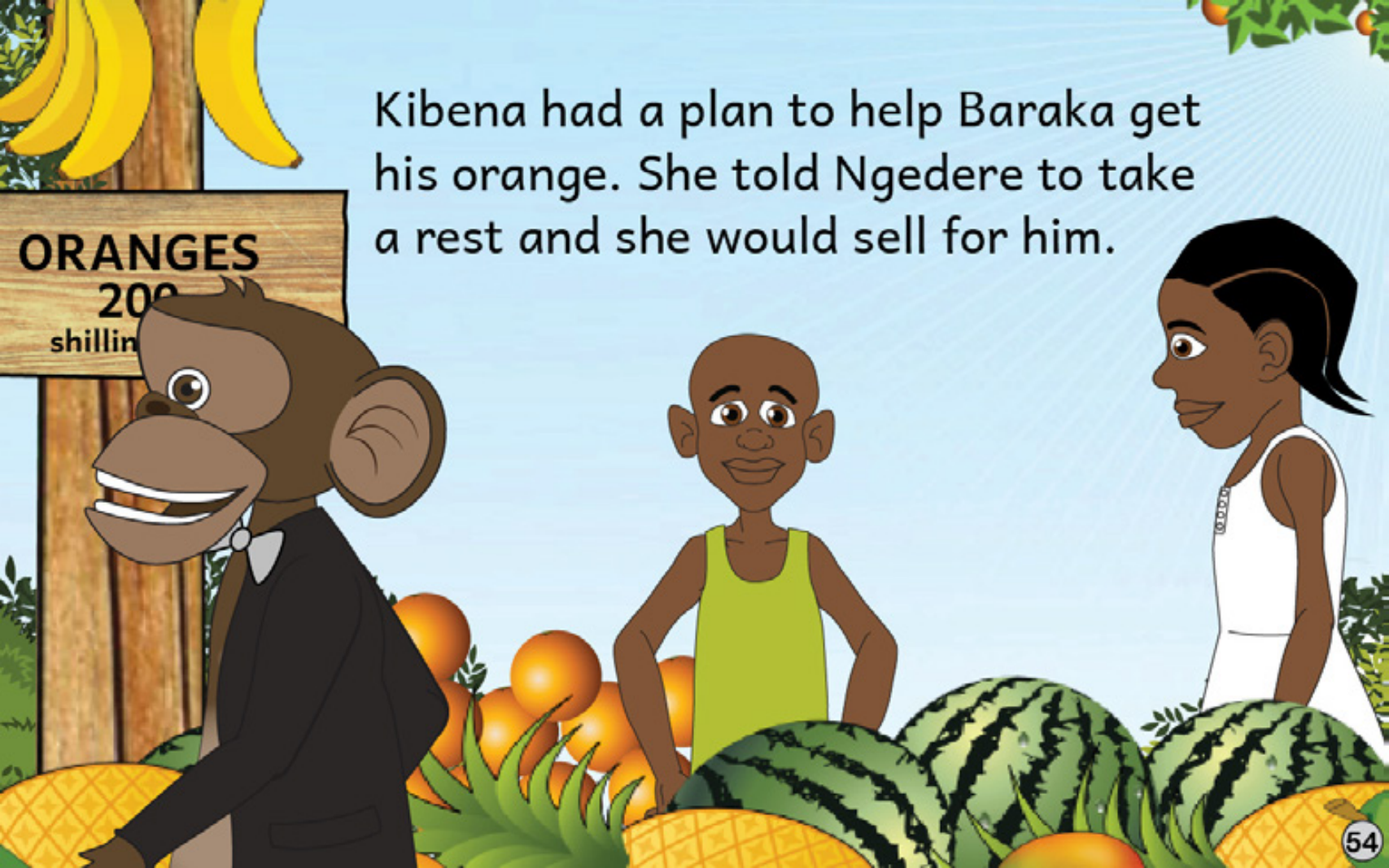




ORANGES
200
shillings each

Ngedere told him that an orange costs two hundred shillings. Baraka had only fifty shillings, not enough to buy a whole orange.





Kibena had a plan to help Baraka get his orange. She told Ngedere to take a rest and she would sell for him.

She asked Baraka, “You want an orange, but you’ve only got fifty shillings, right?”



Baraka replied, “Yeah, I really want an orange.”

“Here’s how you can get your orange. Listen well.
Each orange costs two hundred shillings.



= 200

If I cut an orange into four pieces,
I can sell one piece to you for fifty shillings,



$$50 + 50 + 50 + 50 = 200$$

because fifty is a **quarter**
of two hundred.”

Simplify:

Divide top & bottom by 10

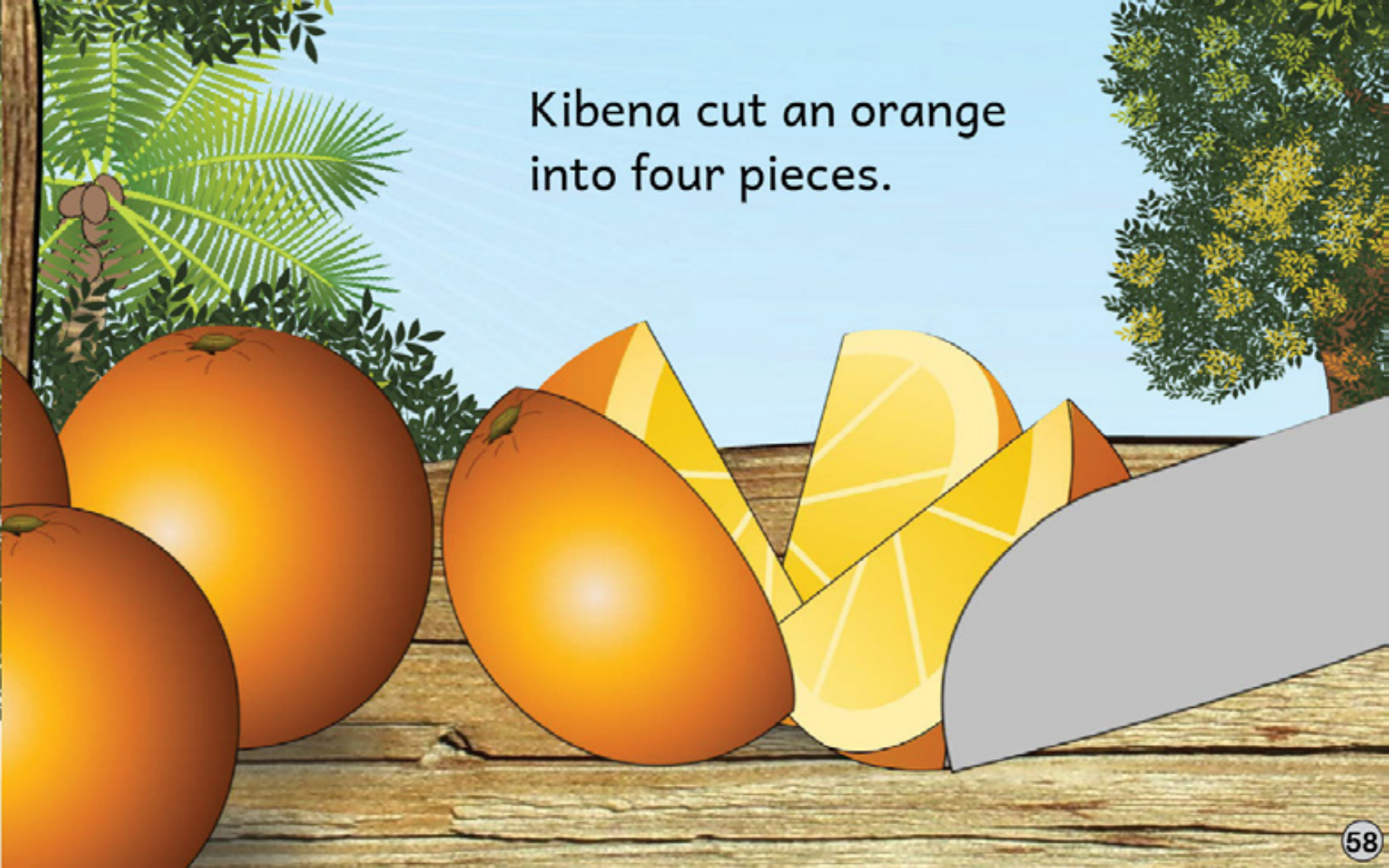
$$\frac{\overset{5}{50}}{\underset{20}{200}} = \frac{5}{20}$$

Divide top & bottom by 5

$$\frac{\overset{1}{5}}{\underset{4}{20}} = \frac{1}{4}$$

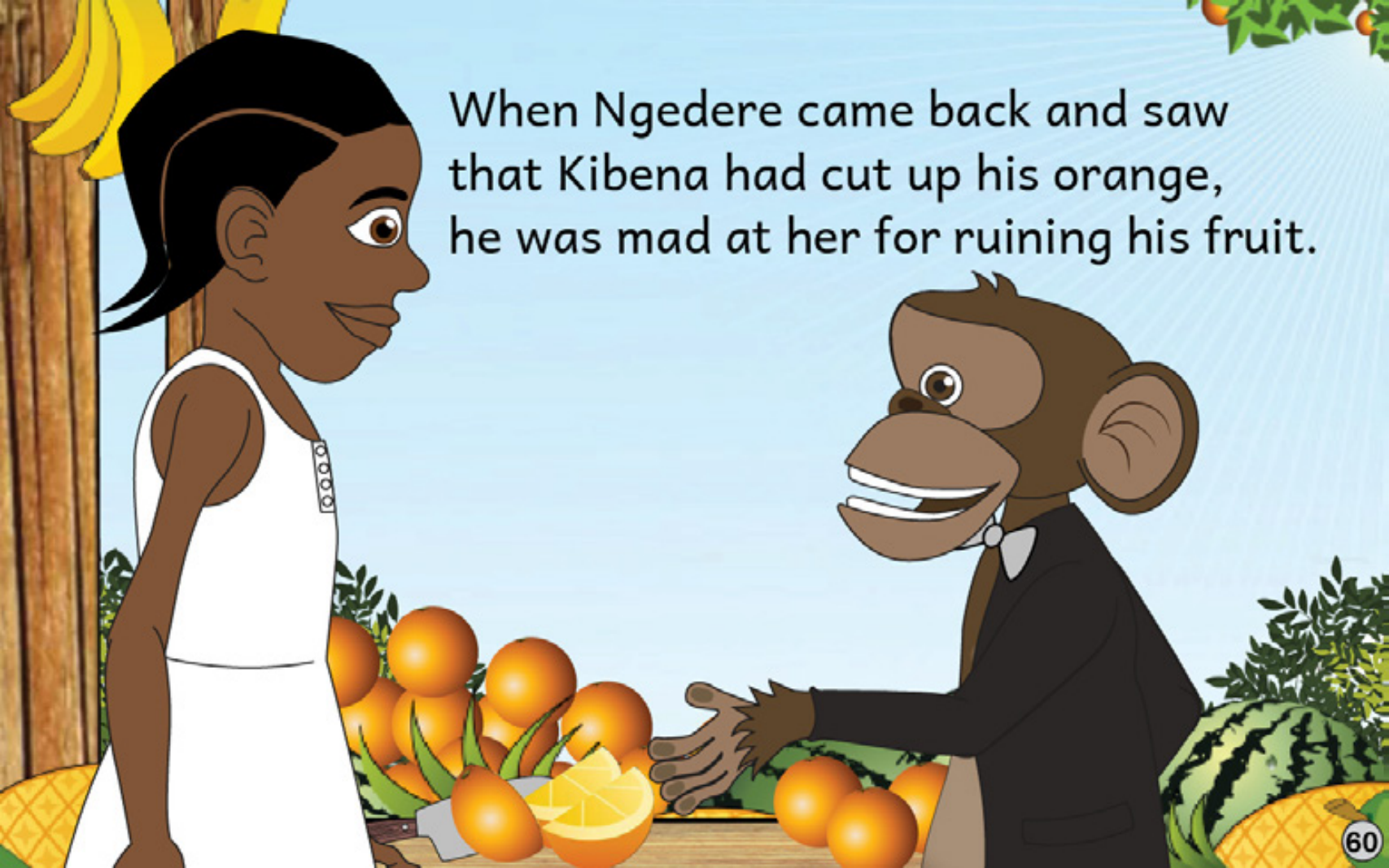


Kibena cut an orange
into four pieces.



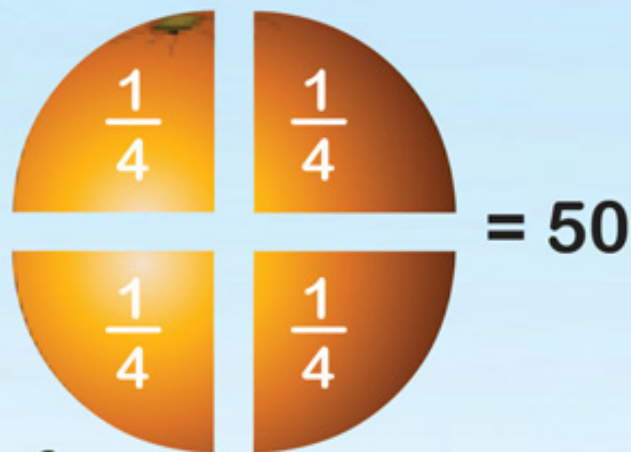
She gave Baraka one piece and took fifty shillings from him.



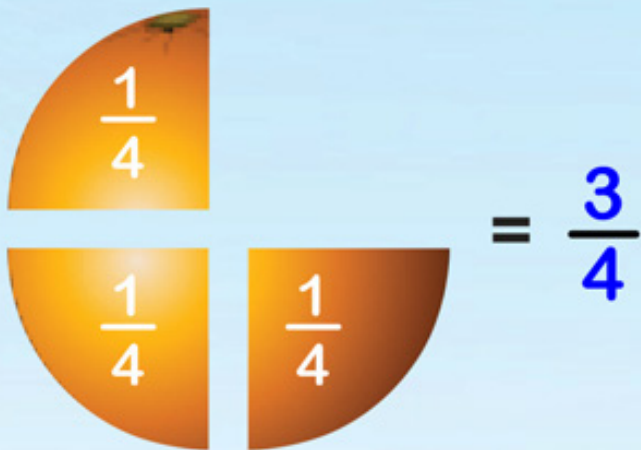
An illustration of a woman with dark skin and hair, wearing a white sleeveless top, looking towards a monkey. The monkey is brown, wearing a black suit jacket and a white bow tie, and is smiling broadly. They are standing in front of a table laden with various fruits, including several whole oranges, one sliced orange, a watermelon, and a pineapple. The background is a light blue sky with some green foliage and a bunch of bananas hanging from a tree on the left.

When Ngedere came back and saw that Kibena had cut up his orange, he was mad at her for ruining his fruit.

Kibena smiled and said, "I just sold a quarter of an orange and made you fifty shillings!"



You still have **three quarters** left, which you can sell for another **one hundred and fifty** shillings.



$$50 + 50 + 50 = 150$$

Fifty shillings from the slice I sold Baraka plus one hundred and fifty for the other three slices will get you two hundred.



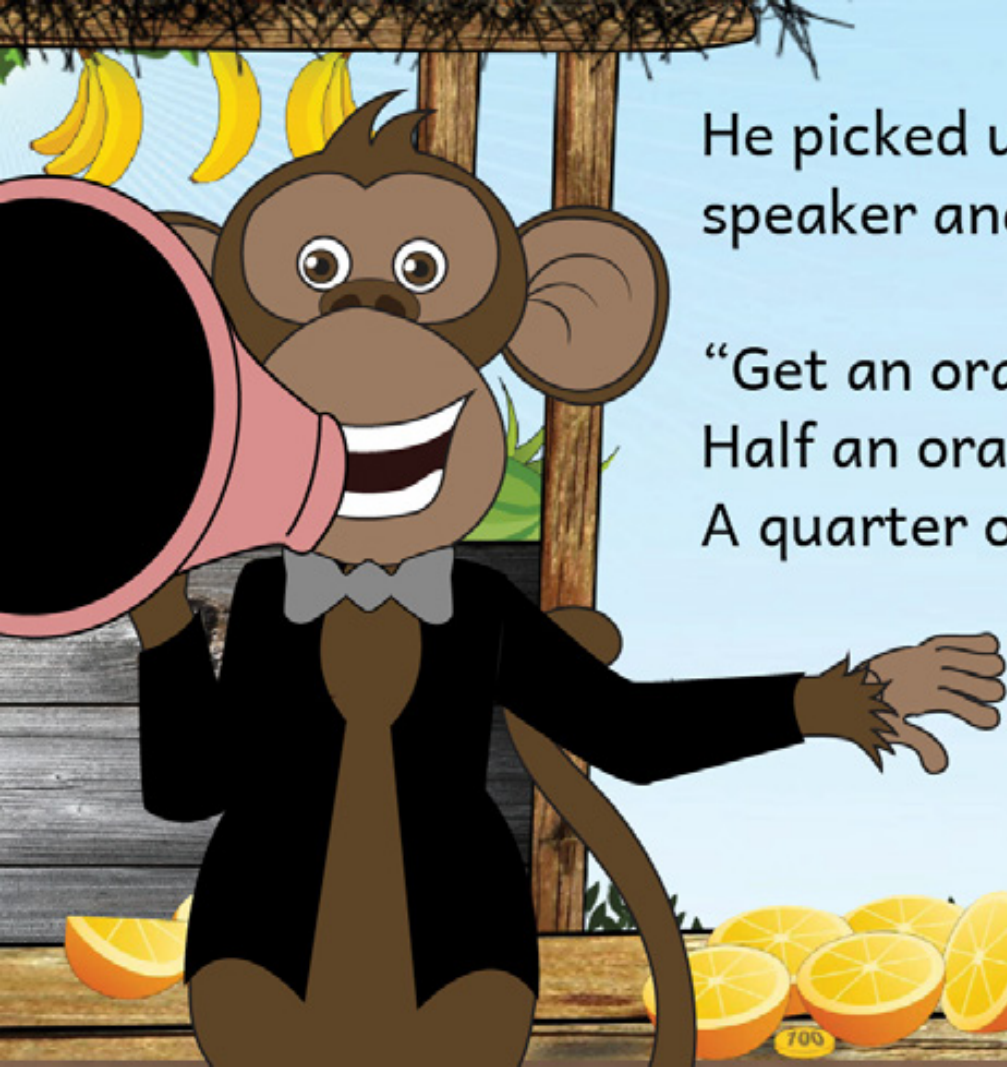
$$\begin{array}{r} \text{Quarter slice} = 50 \\ + \\ \text{Three quarter slices} = 150 \\ \hline \text{Total} = 200 \end{array}$$

Selling four quarter slices gets you the same money as selling one whole orange.”



“That’s a great idea, Kibena. I turned away business because Baraka only had fifty shillings, not enough to buy a whole orange. Thanks for showing me how to make money by selling quarter slices,” said Ngedere.



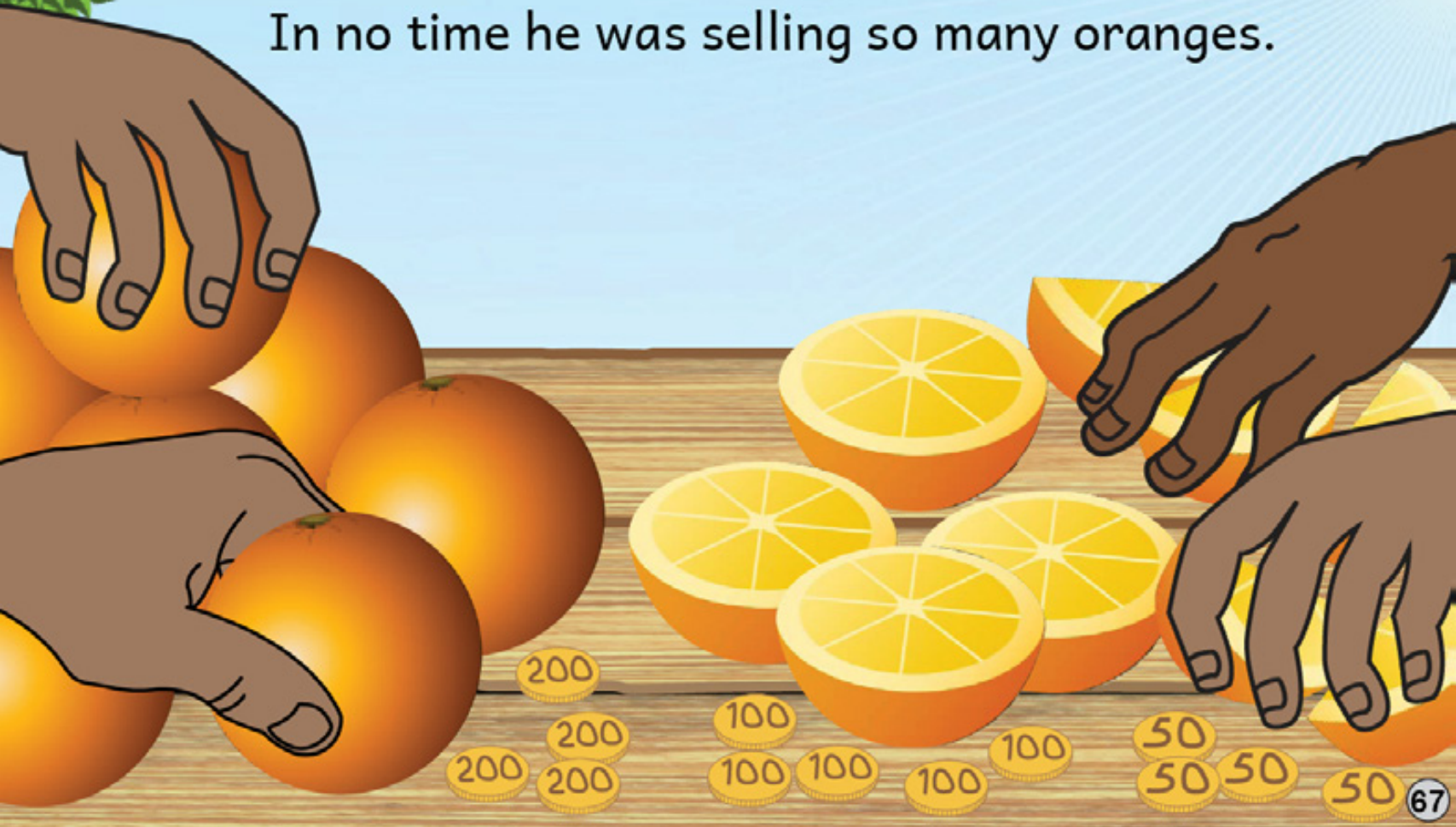


He picked up his loud
speaker and advertised,

“Get an orange for two hundred!
Half an orange for one hundred!
A quarter orange for just fifty!”



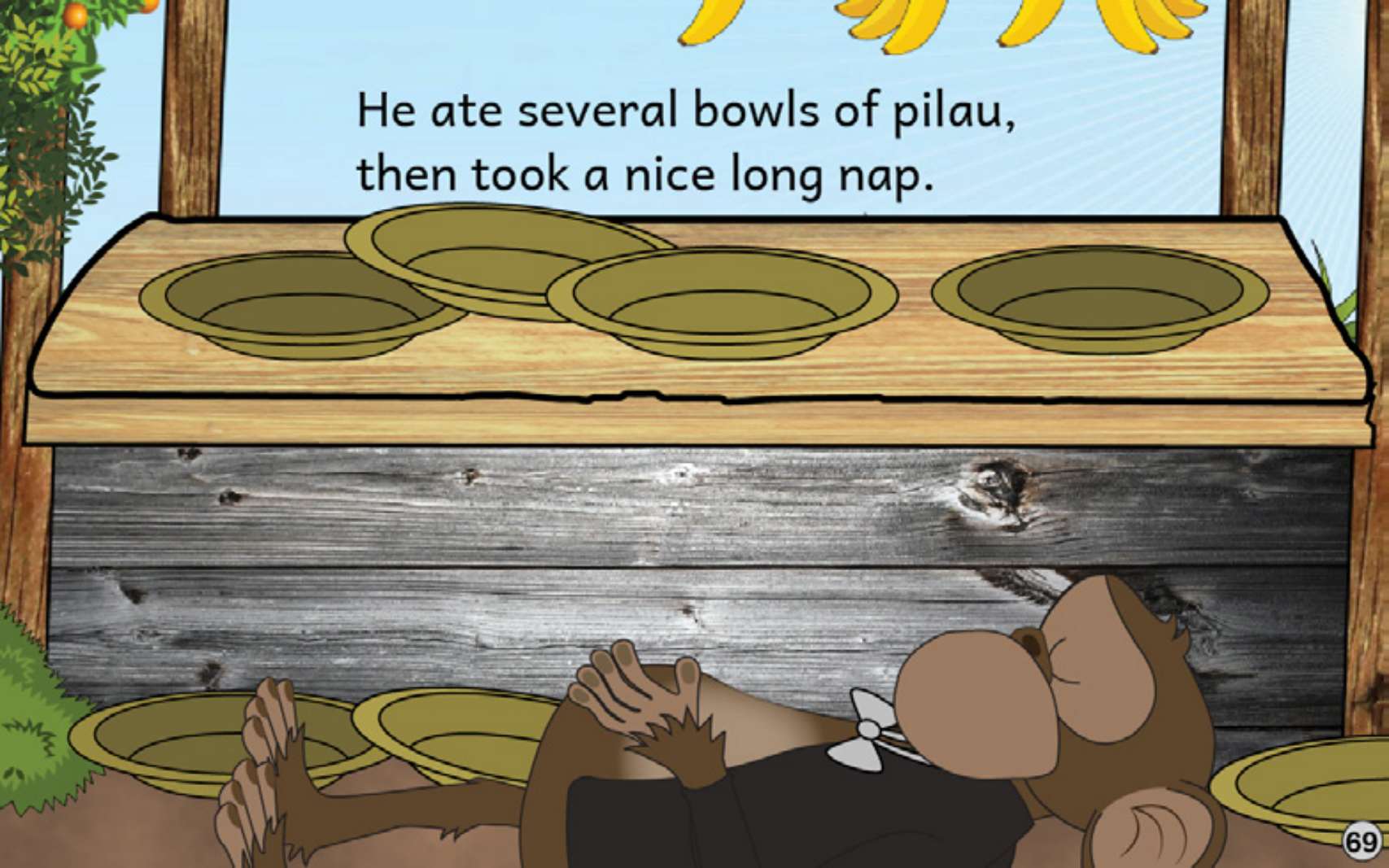
In no time he was selling so many oranges.





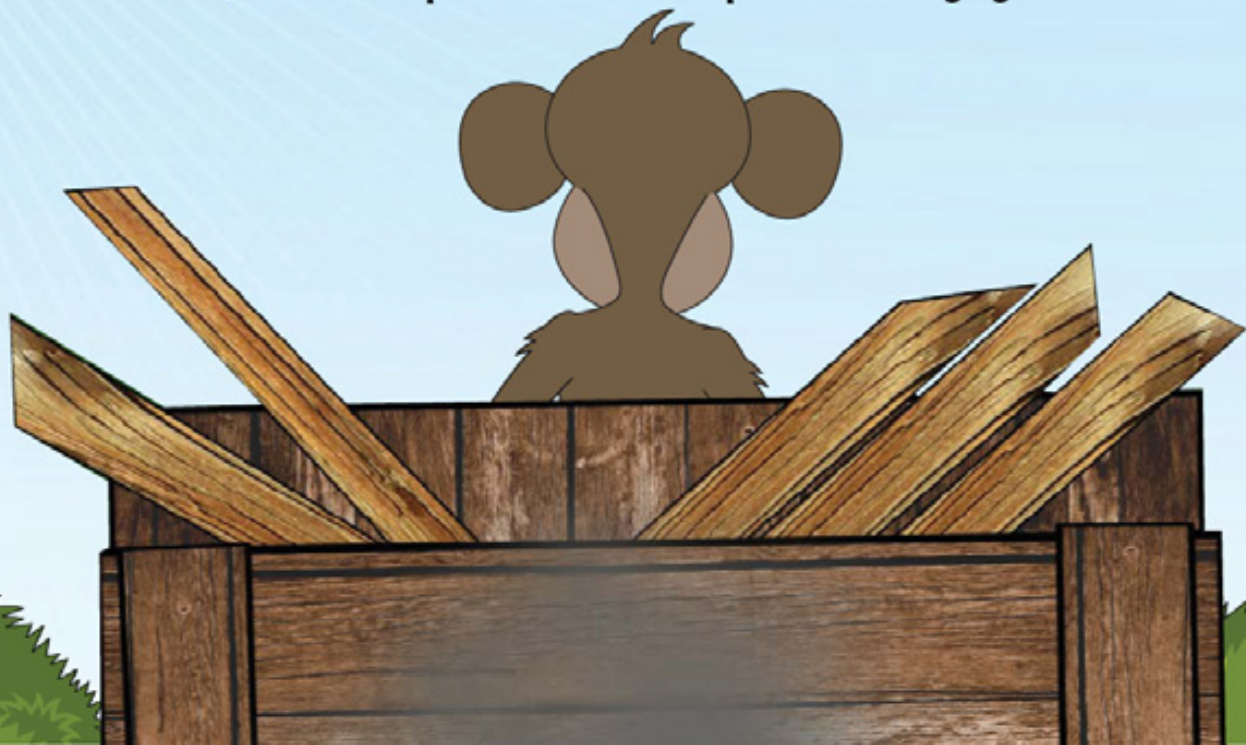
Not long after
he was completely
sold out and made
a lot of money.





He ate several bowls of pilau,
then took a nice long nap.

When he woke up, he closed up his stall
and drove home, listening to FM 102.5 blaring,
“Remember, it’s important to put away your savings!”





The End

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