

Ebook adapted from the TV series



ubongo kids

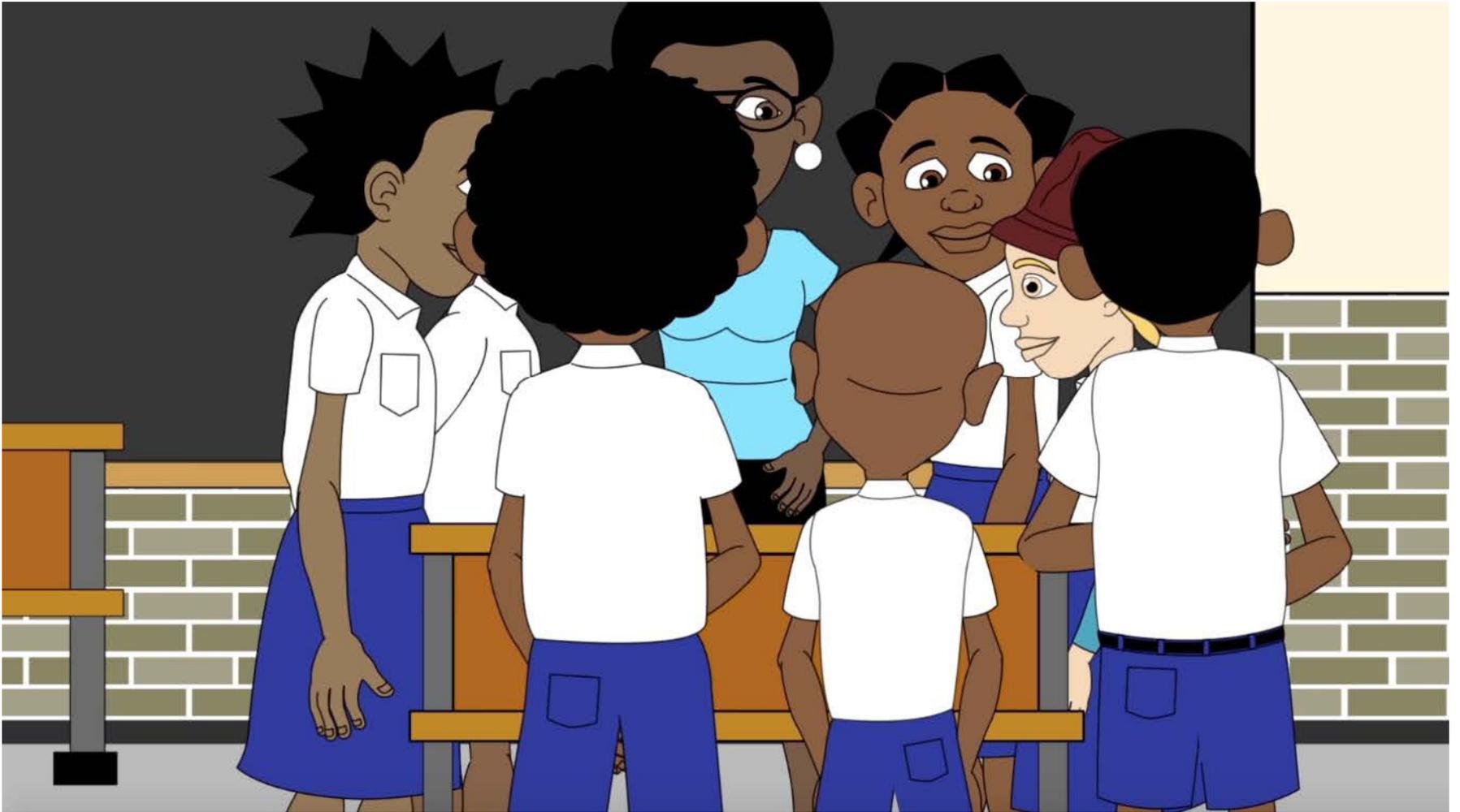
by ubongo

ubongo kids

grit

stick-to-it-ness

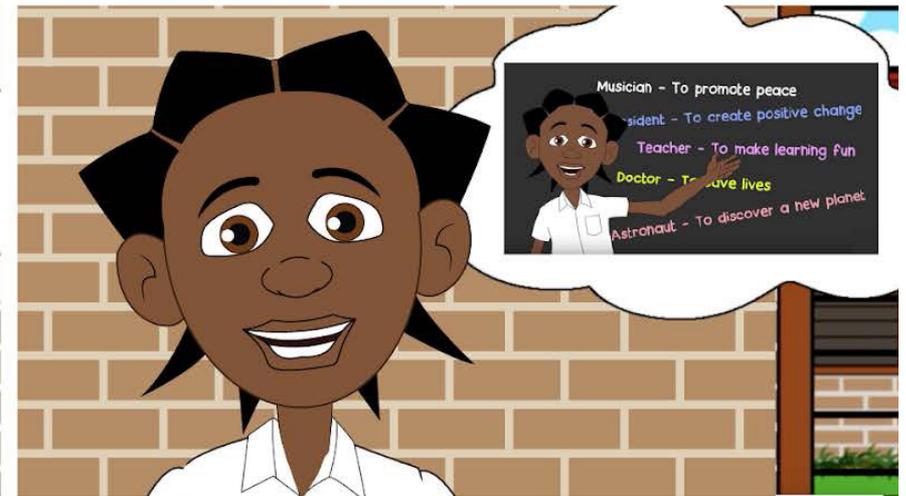
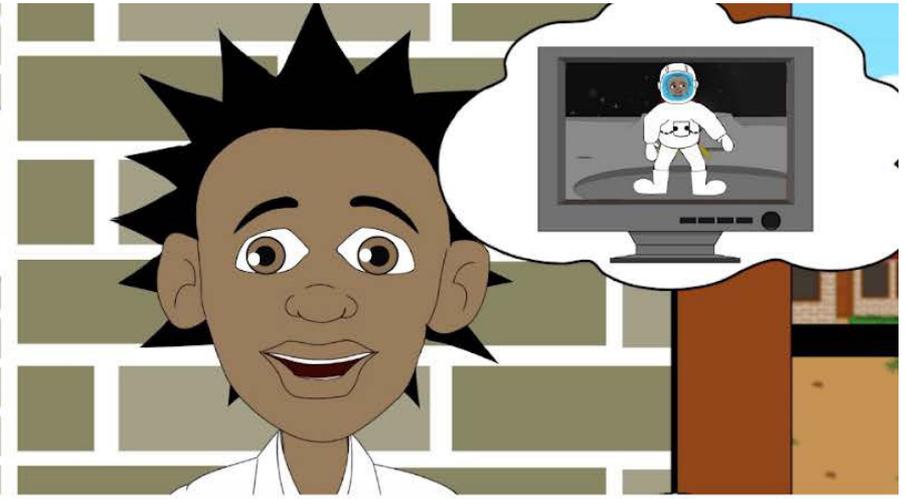
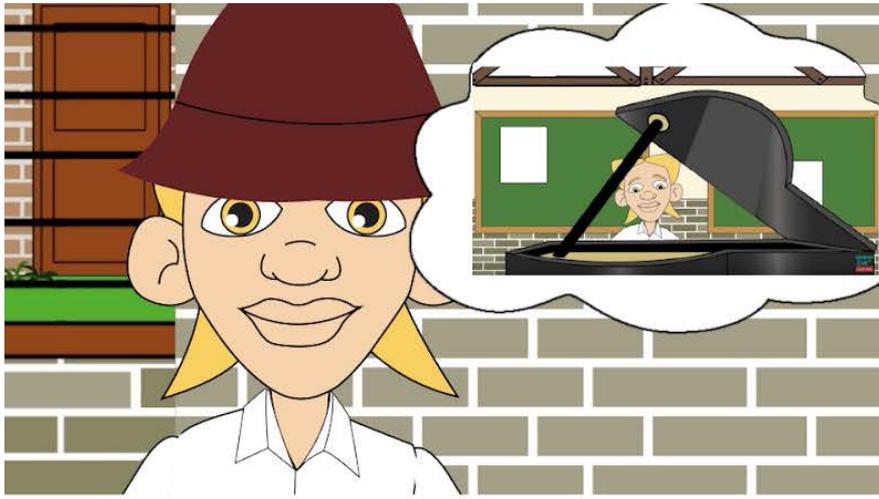




Something exciting was happening at Kokotoa Primary School. Ms Molota and all the students were crowded around a desk at the front of the classroom.



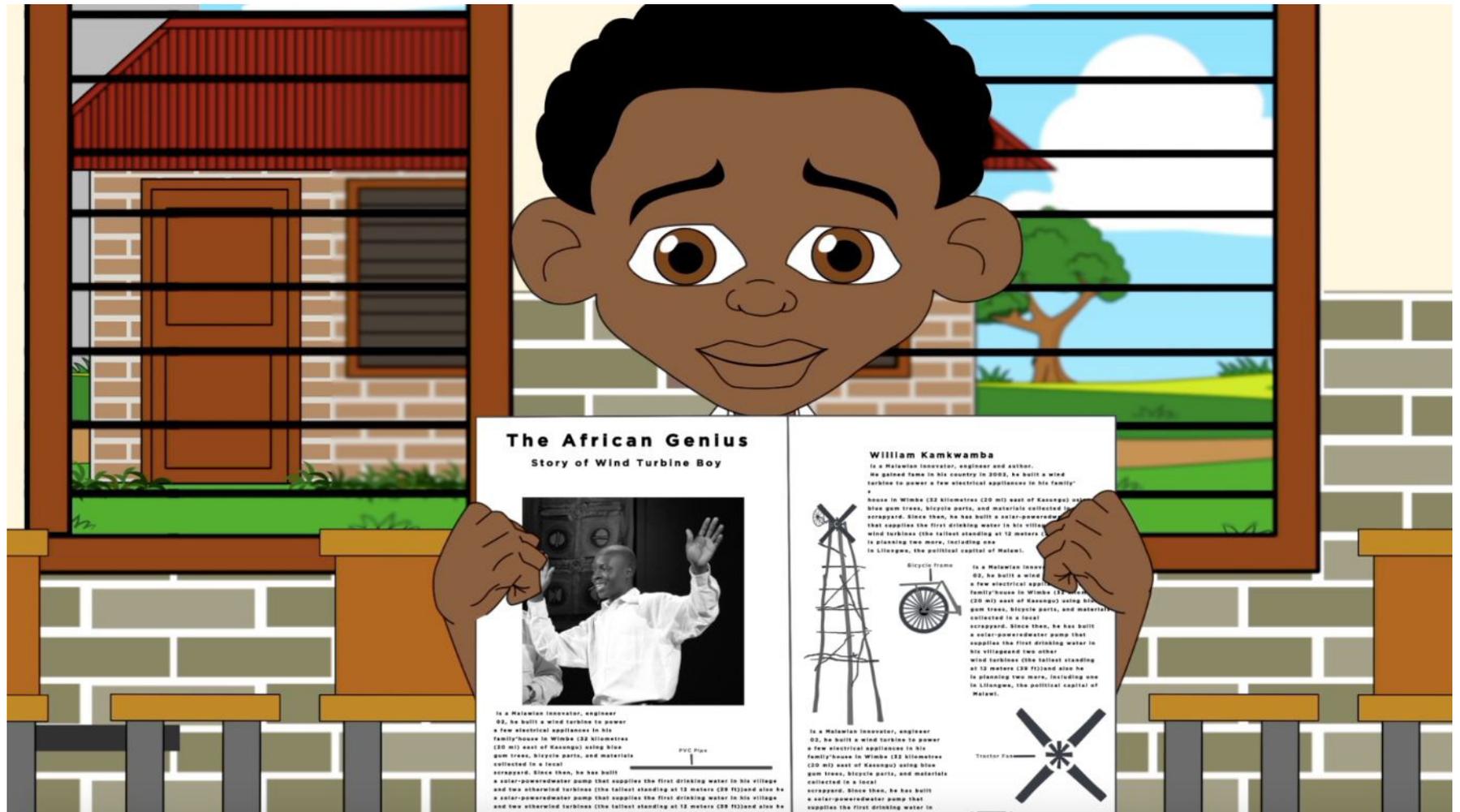
It was a new computer for the classroom! A former student had donated it.



All of the students began to imagine how they could use the new computer.



But there was a problem. The computer needed electricity to run... and the school had no electricity! The students' excitement turned to dismay.



Koba had an idea. “We can build a wind turbine!” he said. He had read in a magazine about a kid who made a wind turbine that provided electricity for his whole village. But the others were sceptical.



That evening at home in his room, Koba studied the magazine article again.



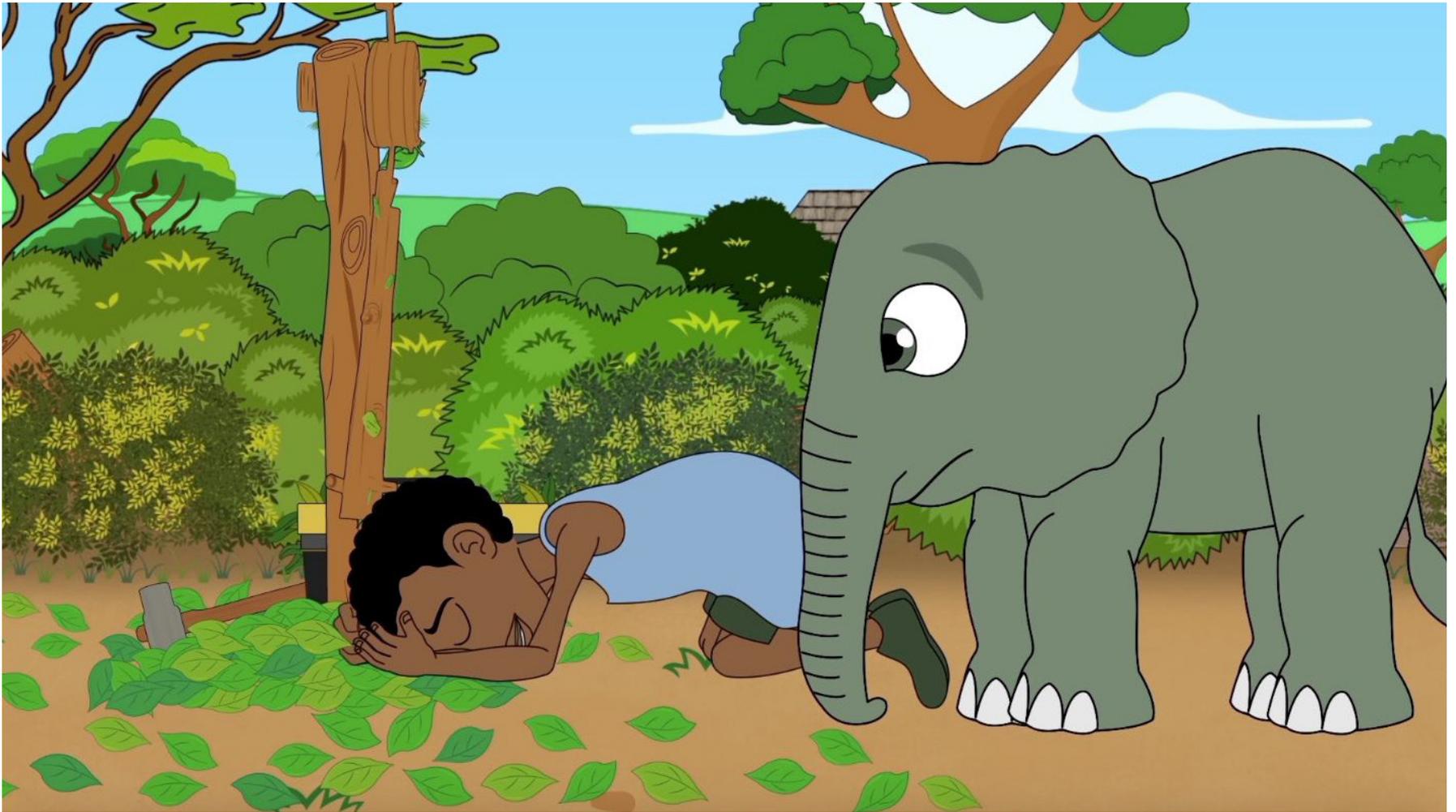
The next morning, he collected sticks and leaves. He began to bend the sticks into the shape of blades.



Then he tied the leaves to the blades, and attached the blades to his pole in the ground.



Tiny Tembo walked by. He offered to provide wind to test out the turbine. But when he blew as hard as he could through his trunk, the leaves blew away in different directions.



Koba sighed and slumped to the ground. “This is hopeless,” he said. “I spent hours and hours working on this wind turbine, and now it’s destroyed!”



Just then Mama Ndege appeared. She told him, “It takes days... weeks... months... even YEARS of failing to achieve great things. And it sounds to me as if you are trying to do a great thing here.” Koba didn’t believe Mama Ndege had ever failed, but she had a story to tell him.



Mama Ndege remembered the time, 20 bird-years ago when she tried to learn math. Mzee Kigo was young then, and he was a student in the class. Every day, Mama Ndege would sit on the windowsill and try to understand what the teacher was saying.

MATH TEST

1. $6+3=11$ ✗

2. $2+2=6$ ✗

3. $1+2=4$ ✗

4. $0+3=0$ ✗

5. $4+3=7$ ✓

Again and again she would take the tests, and again and again she would fail. Then one day, she answered a question correctly!



“I just kept trying and trying,” she told Koba. “That’s what we call GRIT!”



Mama Ndege held onto the frames of Koba's wind turbine with her legs and wings. When Tiny Tembo blew on one of Mama Ndege's wings, the turbine started to spin around.



“The blades need to be stronger - like your wings!” Koba realised. Koba examined Mama Ndege’s wings. Under her feathers, he saw her solid skin, held onto a framework of bones.



Koba and Tiny Tembo were ready to try again. They went off to fetch new material - thick curtains and stronger wood. Then, they assembled a new turbine.



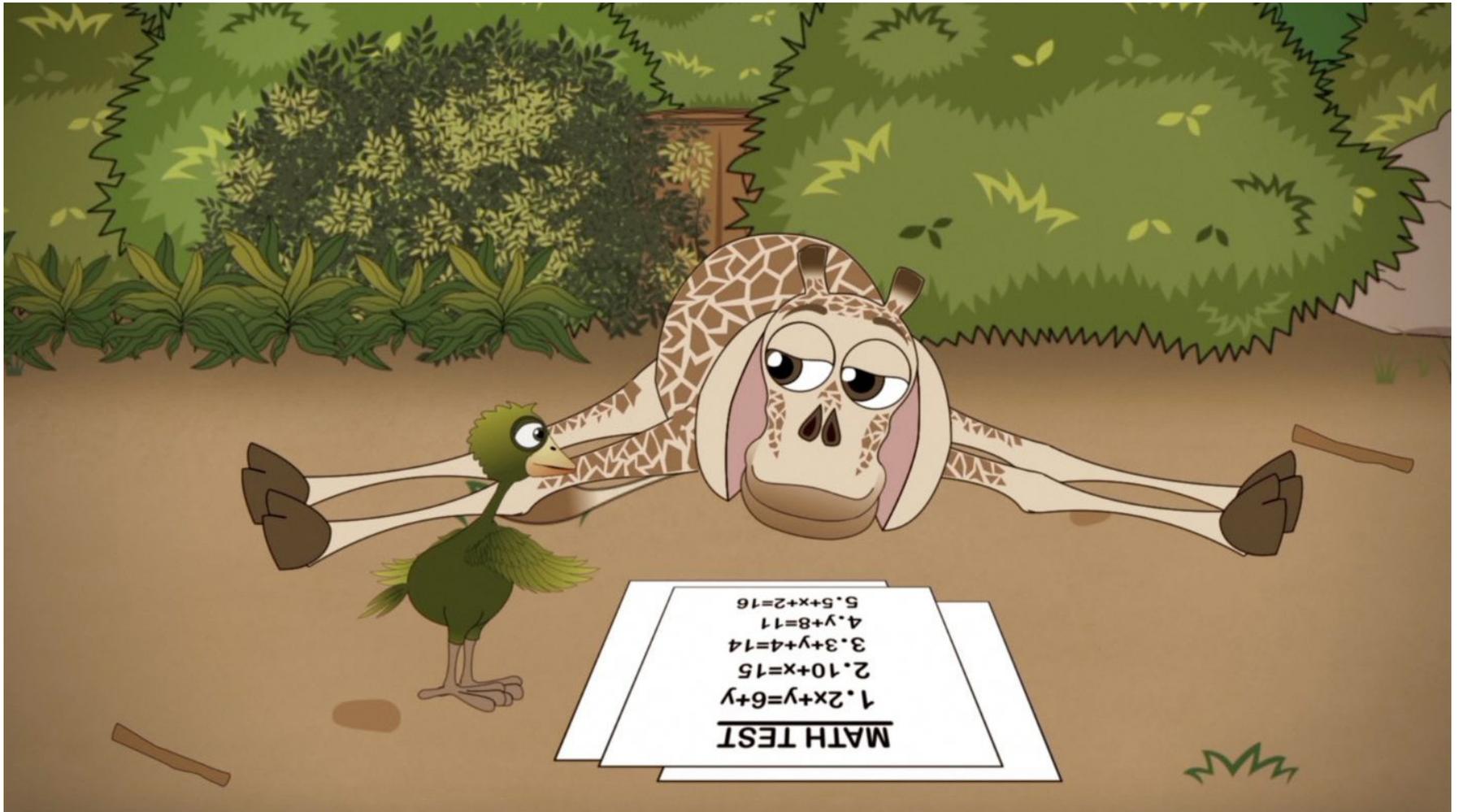
Tiny Tembo blew on the new turbine to test it. The blades began to spin...



But then it wobbled and fell over. This time, Koba didn't want to give up. "Let's show that we have grit and keep working on it in the morning," he said. "I feel so optimistic!"



The next day was swimming day, but Koba stayed behind to work on his wind turbine with Tiny Tembo. They tried thicker and thicker posts, but each time it fell over! Baraka walked passed and looked curious, but Koba sent him away; he didn't want anyone to see the wind turbine until it was perfect.



Mama Ndege returned and told them they needed FEEDBACK. She explained how much trouble she had had with algebra. She thought she was stuck, but then met a friend who also loved learning math. It was Cousin T!



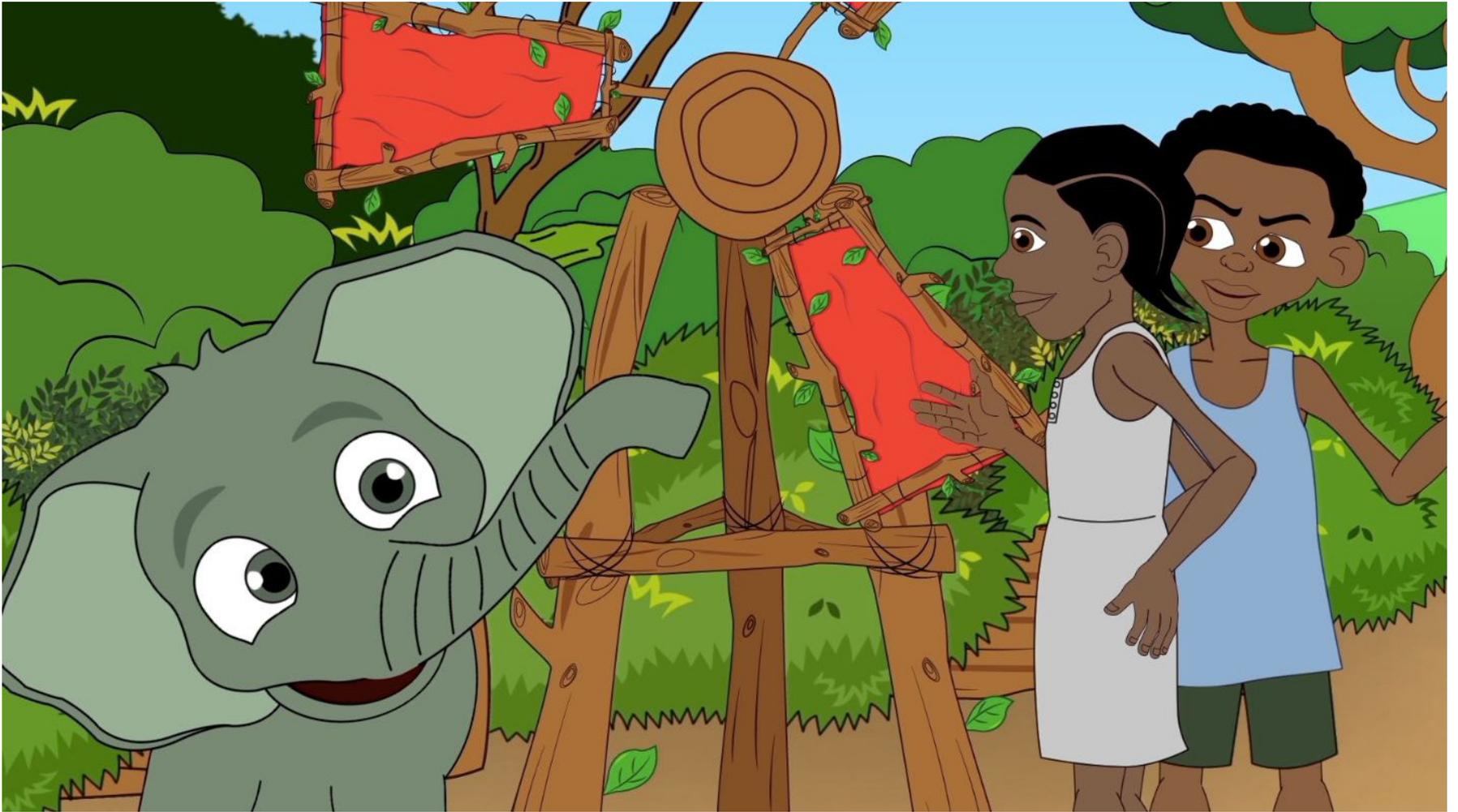
They helped each other with the math problems, giving each other clear and specific feedback. That's what Koba needed to improve his wind turbine!



As Mama Ndege flew off, she called to Koba, “You need better balance... just like you have for your camera when you are filming.”



That was just the feedback Koba needed! He remembered the tripod he used to hold his camera steady. Koba and Tiny Tembo set to work to make a solid tripod for their turbine.



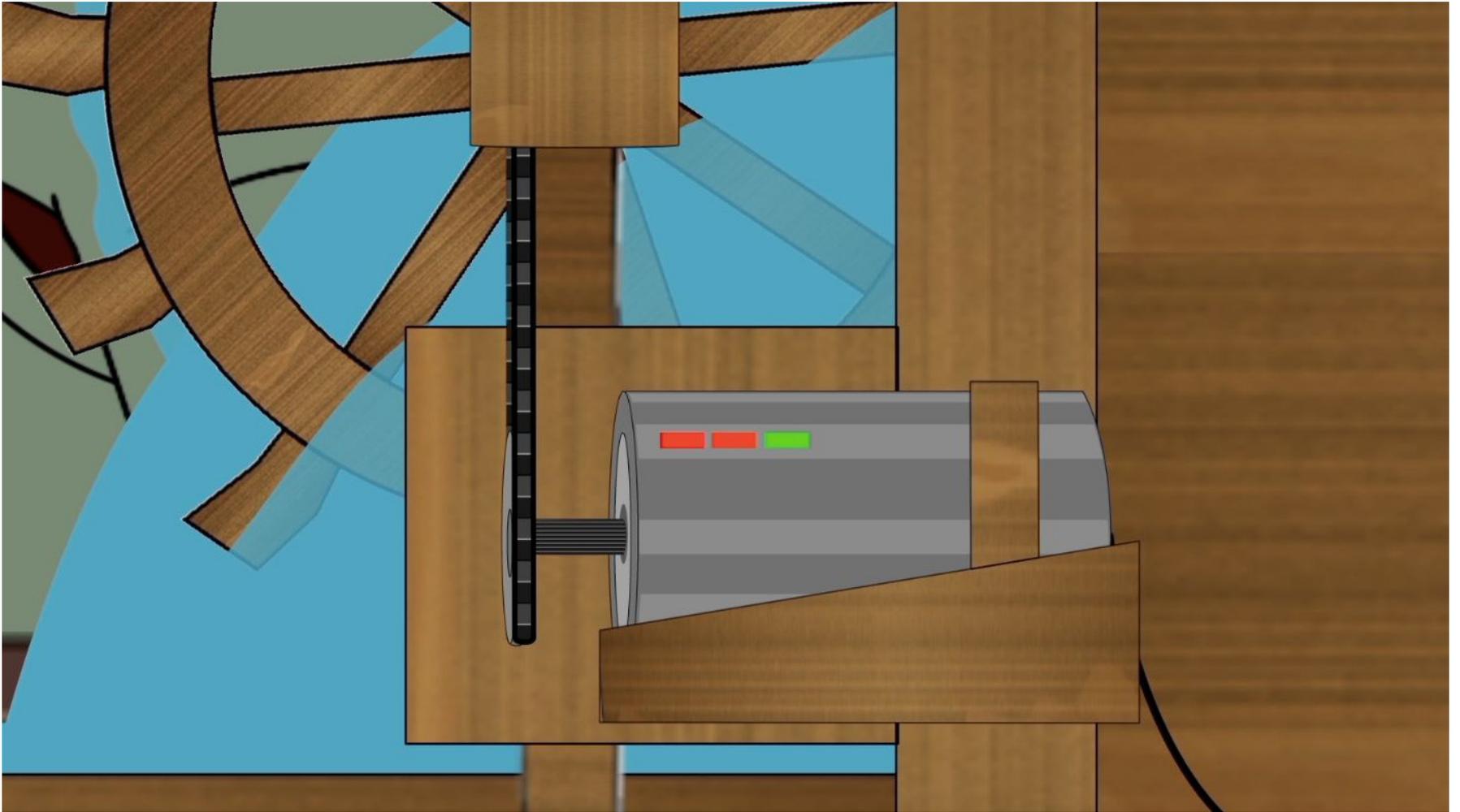
When the tripod was finished, the blades of the wind turbine spun slowly. Kibena walked up and congratulated them. This time Koba was ready to show the turbine to his friends and get more feedback. “Where does the electricity come out?” Kibena asked.



They needed help in converting the energy of the spinning blades into electricity. Kiduchu suggested they ask her father. He was working on a project to build a dam for generating electricity.



At Kiduchu's house, her father explained the dam project using a model he had in the backyard. "As the water flows from top to bottom, it turns the wheels.



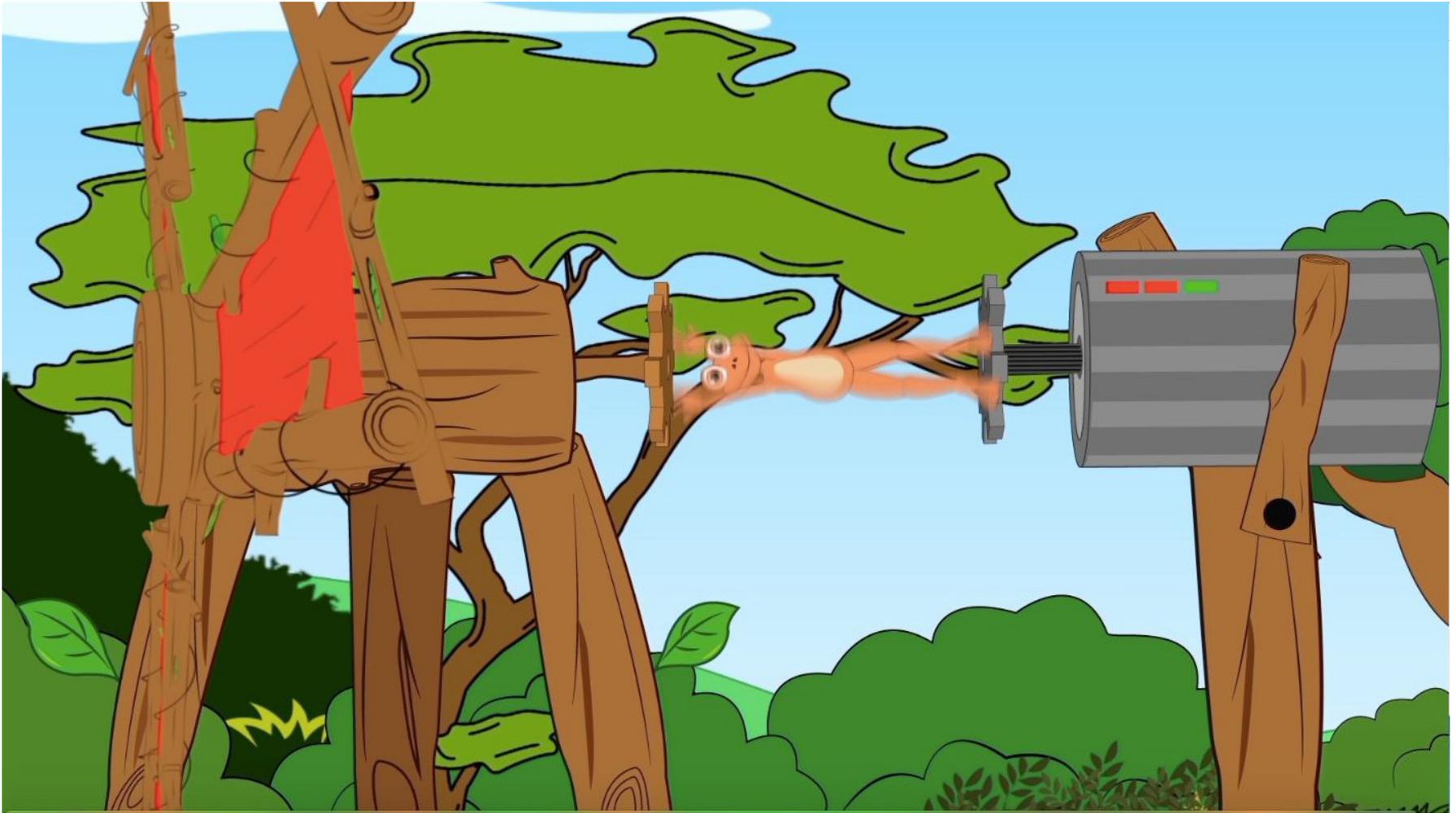
Then the GENERATOR converts the energy from the motion into electrical energy,” he explained.



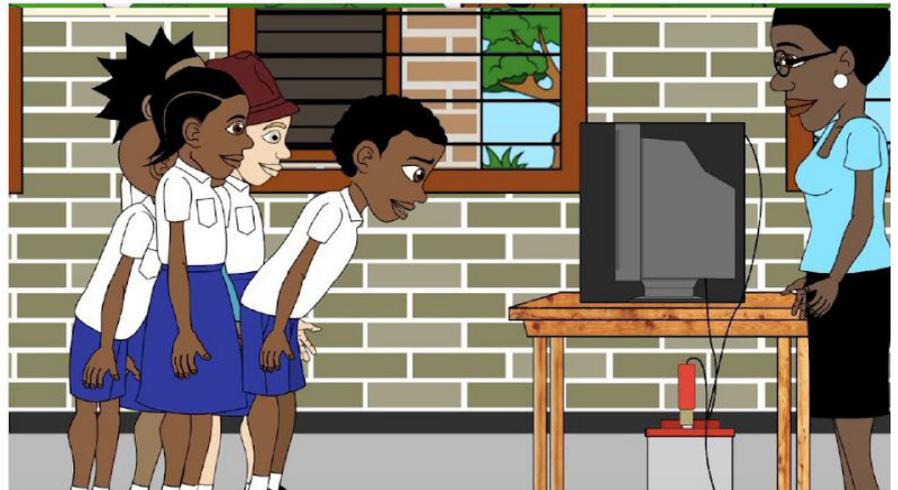
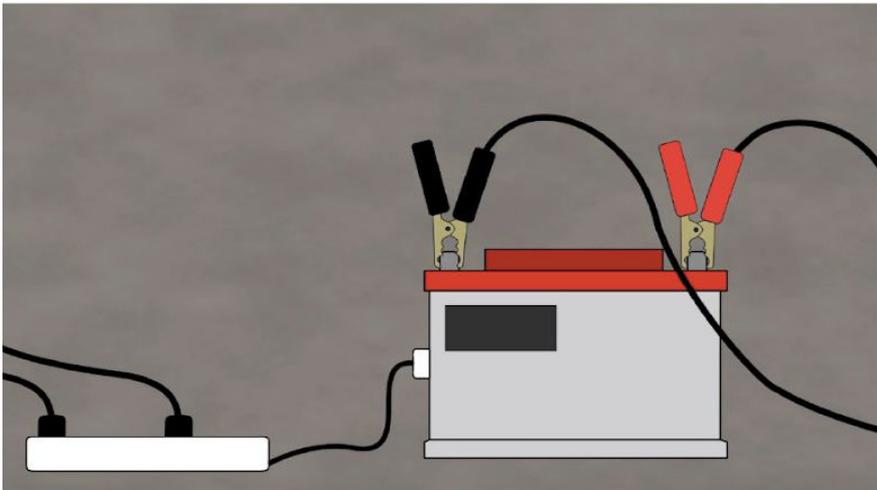
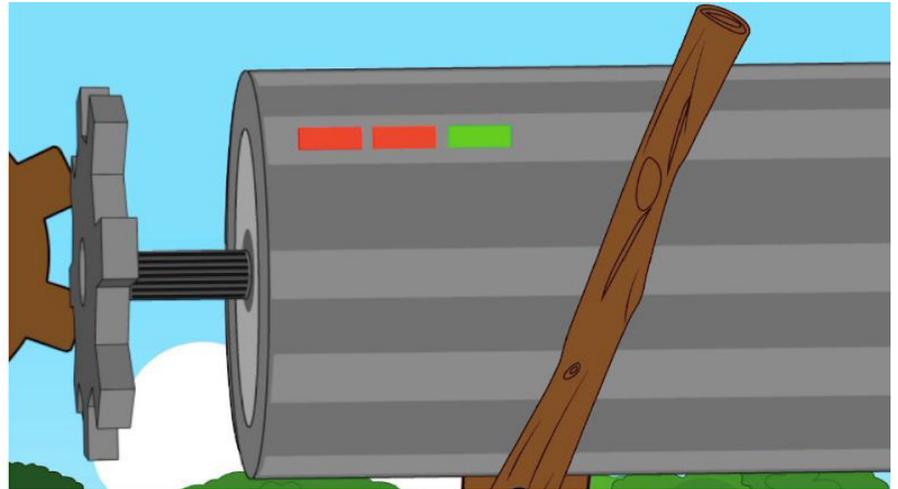
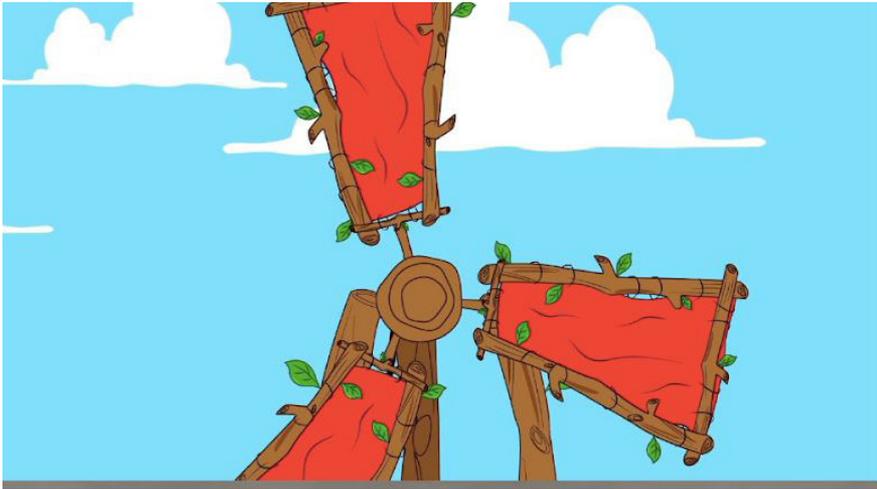
“We need a generator!” Koba realised. He was delighted when Kiduchu’s father gave him the generator from the model of the dam.



Koba attached the generator to the stand, but it still didn't work. "It doesn't work YET," Koba assured his friends, "but we can't give up now!"



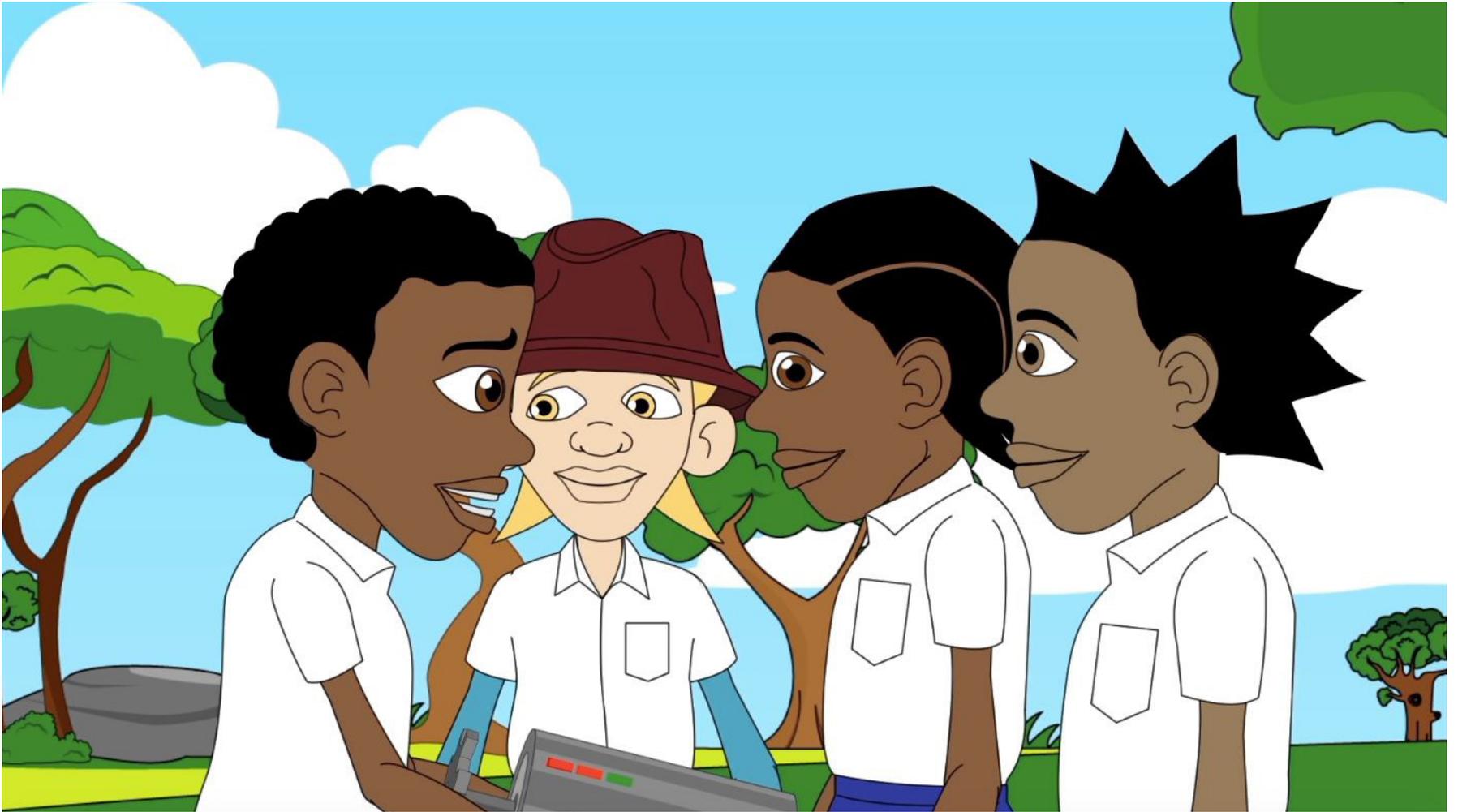
Da Chura offered to help. She grabbed the turbine blades with her arms and the generator gears with her toes. The blades began to spin, and Da Chura turned, and the generator began to whir! But Da Chura flew off when she spun too fast. They realised that they needed gears to connect the turbine blades to the generator.



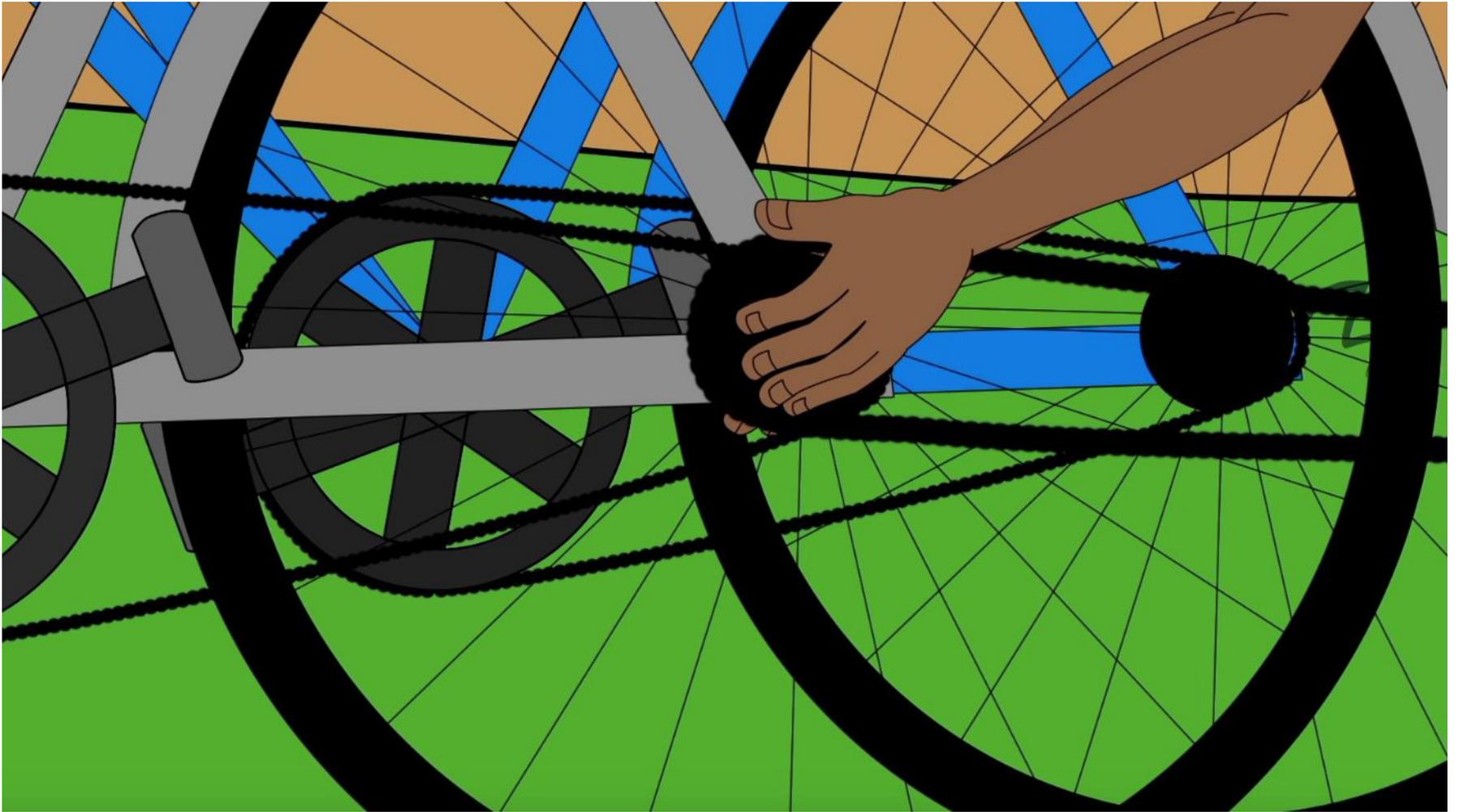
Amani pointed out that they also needed wires to run from the turbine to the computer's battery. When the turbine was finished, they carried it to the top of the hill and connected it to the computer. They left the battery to charge overnight.



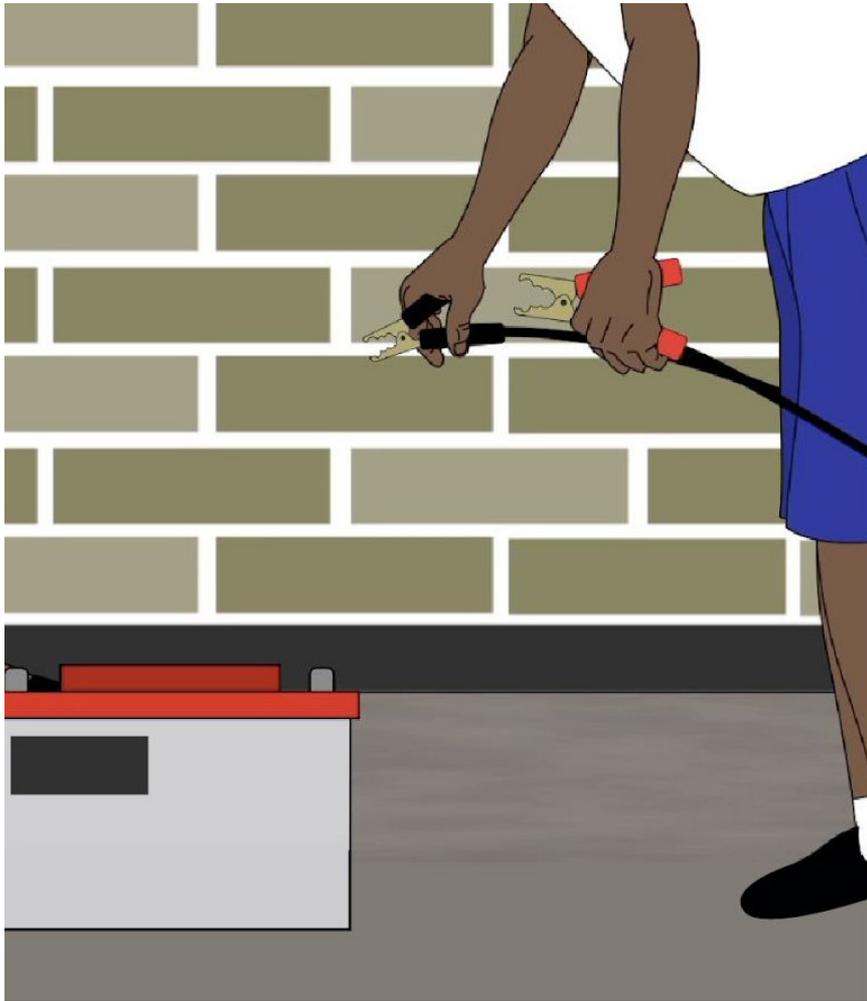
That night, a storm raged and destroyed the wind turbine!



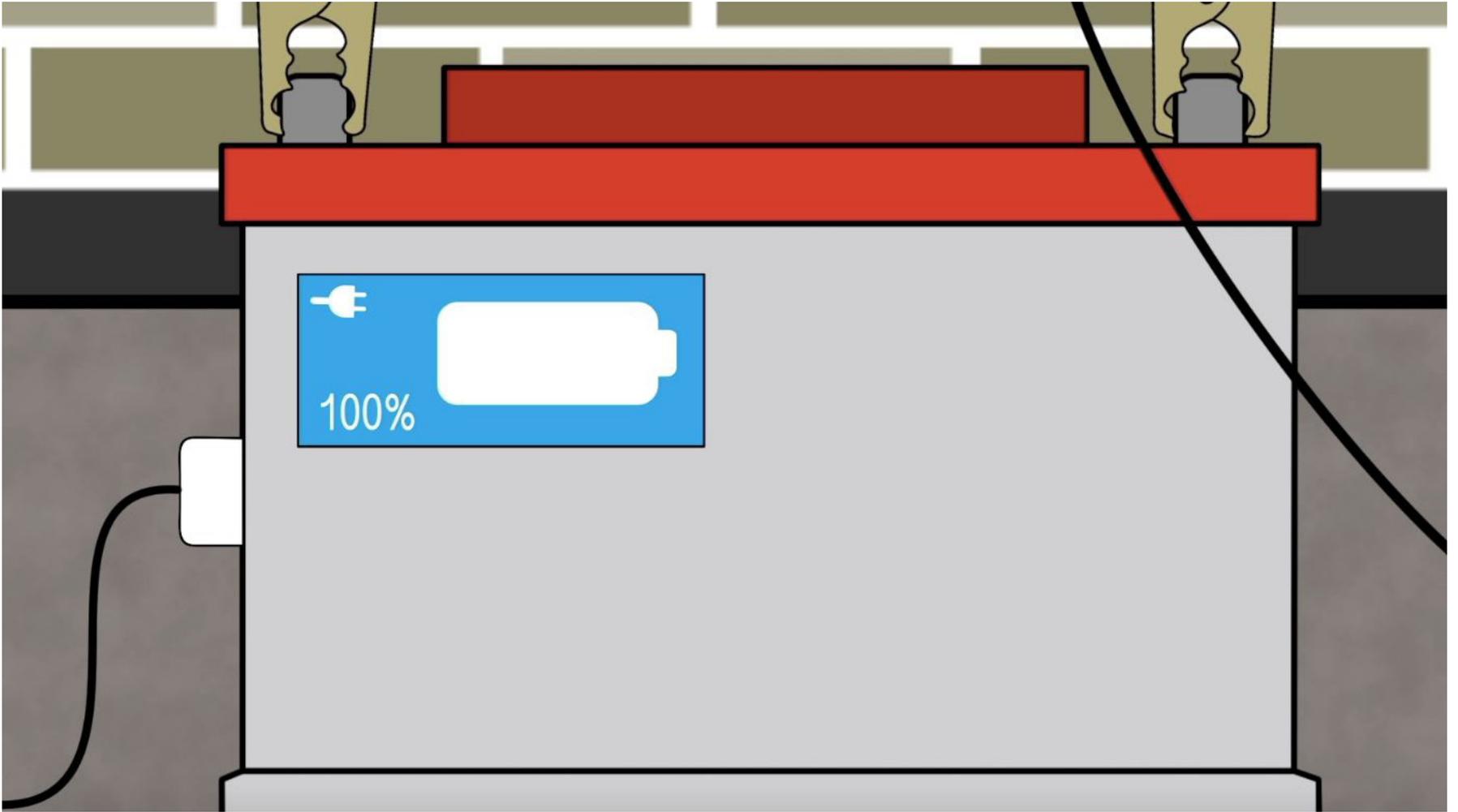
“We can’t give up... We need to have grit!” Koba cried when they found the broken turbine the next morning.



Baraka rode up to the turbine on his bicycle to survey the damage. This gave Koba an idea!



They all brought their bicycles and hooked the wheels up to a gear, and attached it to the generator. They pedalled furiously as the generator battery charged.



The charge reached 100 per cent.



Koba pressed the power button, and the computer came on! They had not given up, and their grit had paid off!



The End

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