

Drop
Them Both!



Ben sat on the hillside with a rock in one hand and a feather in the other.

'I bet the rock hits the ground first,' he said. 'It is **bigger!** The feather will just float down like a lazy cloud.'

He held them both up, all set to drop them. But then he stopped.

'Wait. How much **bigger** is the rock? Just a little? Or a lot?'





Ben looked at the rock. It was hard. It was solid. Heat deep inside the planet had packed it tight over a long, long time. Even in the grip of a huge beast's trunk, a rock keeps its shape. On the **hottest** day, it stays cool and strong all day. Try biting one. Better not.

'A rock is a bit like a huge beast,' Ben said. 'They both have lots of mass, and they both stay put.' To test this, he tried to push the beast down the road. He pushed and pushed and pushed. His feet slid on the ground. The beast did not budge one bit. It just sat there, blinking. Ben was not a **quitter**. But the beast was the **winner**. 'Point made,' he puffed.





A feather is nothing like a rock. It is soft and light. It can float on a breeze.

Ben held them both up, one in each hand. The rock pulled his arm down. The feather tickled his fingers. 'One of you could just blow away,' he said. 'The other just sits there like a grumpy lump.'

But how much **bigger** was the rock? He had to find out the real number.

Ben lifted the rock above his head and squinted at it. Hidden in that stone was a number. A secret mass, locked away. 'Are you five kilograms?' he asked. 'Ten? A hundred?' The rock said nothing. Not one word. **Bummer.** You can't find the mass just by picking it up. The real number is like a password. You need the right tool.





'Dad!' Ben yelled. 'I need help!' Dad came up the path with a set of scales. He looked way too happy about this. 'I can help find that mass!' 'Dad, that is the right tool!' Ben's eyes went wide. He had never been **gladder**. Now they could get the real answer.

Dad held up a flask of water. 'This flask, filled to the top, has a mass of one kilogram. One flask. One kilogram.' He drew it on a pad: a flask, then a mark, then a mass block. He was the **funnest** teacher Ben had ever had. 'Now,' Dad grinned, 'we can find the mass of anything!'



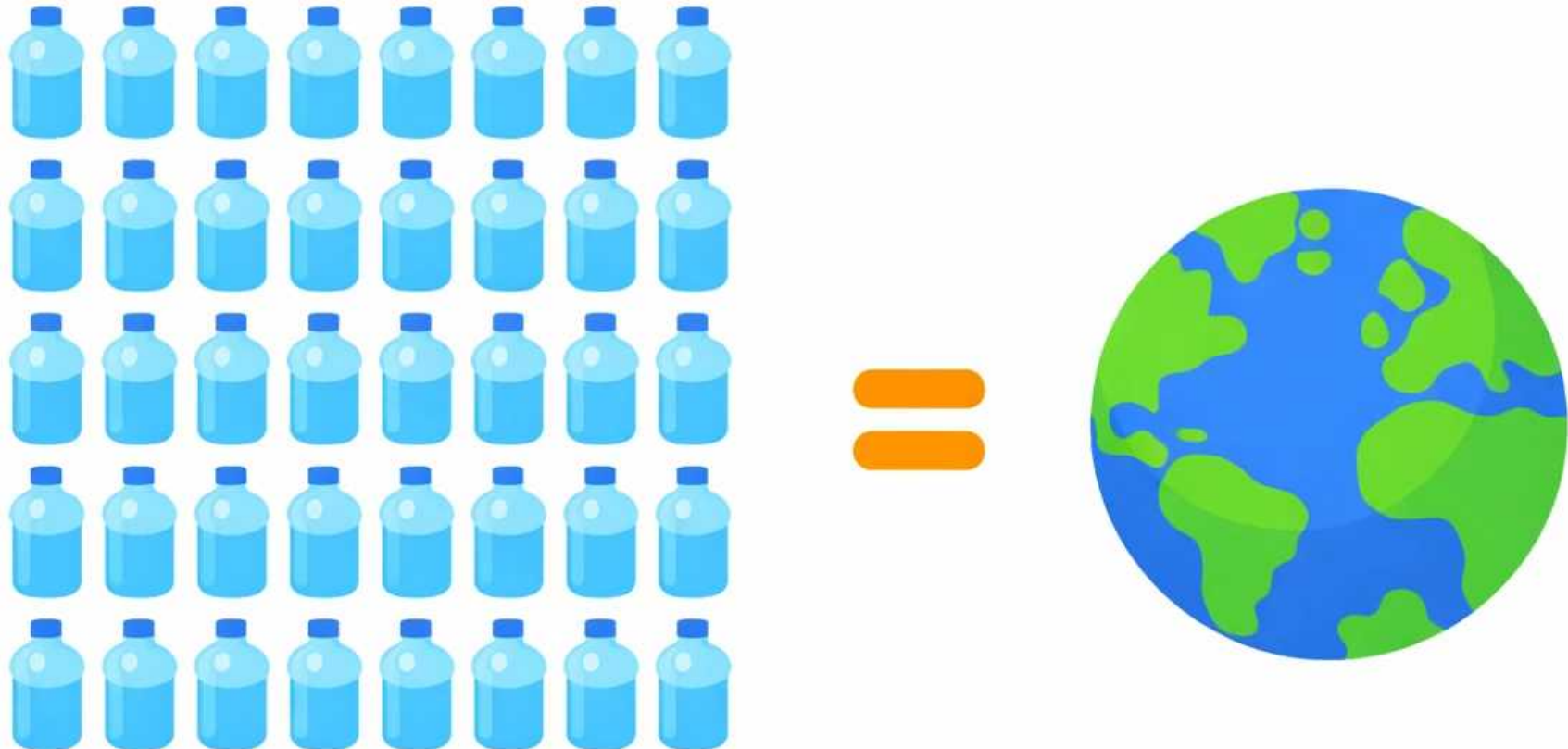


'But Dad, does more always mean more mass?' 'Nope!' Dad said. 'Ten cows on one side of the scale. Two hundred dogs on the other. Who is the **winner?**' 'Two hundred dogs!' Ben yelled. 'There are loads more of them!' 'Wrong! The cows win. Ten cows have more mass than two hundred dogs. Mass is not about how many. It is about how much stuff is packed inside.'

Ben looked at the hills, the sky, and the planet under his feet. 'Can we work out the mass of the planet?' he whispered. Dad grinned. 'Not even the **biggest** scale can do that! But we can use maths to work it out.' Ben stared. You could find the mass of a planet with just maths?



'The planet has the same mass as a vast sum of water jugs,' Dad said. Ben tried to think of that many jugs. He could not. Nobody can. The number is the **biggest** thing you will ever see. 5,974,000,000,000,000,000,000 kilograms. Just try saying that out loud.



'OK, but what about my feather?' Ben asked. 'How many feathers match one kilogram?'

Dad set up the scales. On one side, the flask. On the other side, feathers. They piled and piled them up, higher and higher, until the stack was as tall as a tower.

Then the scales matched. Same mass. But one side was tiny and the other was the **biggest** pile Ben had ever seen.



The background of the page is a solid teal color. On the left side, there are several stylized white clouds of varying sizes. Scattered across the teal background are several blue raindrops of different sizes, each with a small white highlight to give them a 3D appearance. The text is positioned on the right side of the page, starting from the top and moving down.

Dad headed home. Rain began to fall, and Ben got **wetter** and **wetter**. One raindrop hit his hand. He could not feel it at all. It had next to no mass. 'But a vast sum of raindrops made all the sea,' he said softly. Small things add up. Light things can be heavy. The world is full of tricks like that.

Ben sat on the scale himself. Thirty kilograms! More than a watermelon. Way less than a huge beast, the **biggest** of all. He picked up the rock. He picked up the feather. He held them both out, side by side, just like before. 'I know all about you now,' he grinned. 'Ready? Three, two, one...' Drop! Which one do you think hit the ground first? Go find out.





Drop Them Both!

A boy is sure a rock will fall faster than a feather, but before he drops them, he wants to know exactly how much bigger the rock's weight really is. His dad shows up with a set of scales, ready to help him find the real number. Is a bigger thing always the winner when it comes to weight? Created to align with the UFLI Foundations scope and sequence (Lesson 108: Doubling Rule -er, -est), this book practises words like 'bigger', 'biggest', 'wetter', 'hottest', 'gladder'.

Phonics Focus: Doubling Rule -er/-est

bigger, biggest, bummer, funnest, gladder, hottest, quitter, wetter, winner

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