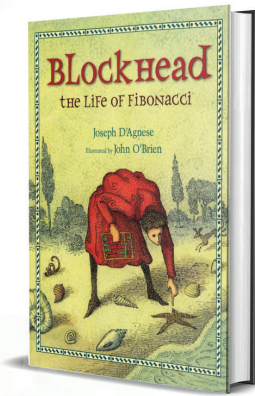# Blockhead
The Life of Fibonacci

Reviewed by Arundhati Venkatesh

Author: Joseph D'Agnese
Illustrator: John O' Brien

It is evident from the cover illustration that the book is set in a different period. A note before the story begins informs the reader that modern names have been used for places and that Hindu-Arabic numerals have been altered to appear the way they do today; they would have looked slightly different in Fibonacci's day.

Everyone calls Leonardo a blockhead, but he has always had a way with numbers. He solves math problems in seconds, much faster than the others in his class. The illustration — of Maestro timing the children with an hour-glass and the schoolchildren sprawled on the floor of the classroom dressed in medieval clothes — sets the time period of the book firmly. Once Leonardo has finished, he starts counting the birds outside the window, dreaming about numbers, coming up with questions and patterns. But thinking is prohibited in Maestro's classroom. Maestro scolds, the others laugh, Leonardo runs out of school and onto the streets of Pisa. There is a joke here about the people building the tower of Pisa getting the math wrong. Could this mislead young readers? The real reason for the tower leaning is soft ground and an unstable foundation.

Leonardo's merchant father hears of his son being called a blockhead. Humiliated and enraged, he takes Leonardo with him on his travels to Africa. Leonardo's father's adviser, Alfredo, helps lift his spirits by reminding him that people are happiest when they know what pleases them. Leonardo now knows what to do. He learns all about numbers wherever he goes. In the city of Bugia in Northern Africa, he learns the numerals the Arab merchants use, which they had borrowed from the "Hindu people of India."

However, referring to them as Hindus isn't strictly accurate. Leonardo lived in the 12th century, at which time the people who lived in the Indian subcontinent were not all Hindus.

Leonardo travels to faraway places as he grows older, learning about numbers everywhere. He begins writing a book about Hindu-Arabic numerals and includes a riddle to do with rabbits. He is invited as a guest to the palace of Frederick II, ruler of the Holy Roman Empire. Impressed by Leonardo's mathematical prowess, Frederick II calls him "one smart cookie." Neither Frederick II nor Leonardo could possibly have known the expression though, or heard of a cookie. Earlier in the book, a young Leonardo says "yuck" on learning that his father wants to make a merchant of him. Dialogues like these stick out.

On his return to Pisa, Leonardo tries to popularise the numerals from India, but faces opposition. Leonardo remembers his old friend Alfredo, thinks what he would have said, and doesn't despair. He looks around in nature and finds the same numbers everywhere — the numbers from his rabbit problem. Leonardo shows how the same numbers can be depicted in different ways, drawing squares and a spiral in the sand. Like the rabbit problem, these too are pictorially depicted for the benefit of budding mathematicians. The story ends with lines that will inspire readers to hunt for Fibonacci numbers not just in the pages of the book, but also in real life.

A note at the end tells us that the book is a bit of make-believe, and that it is based on the few things we do know about Leonardo, like his nickname, Bigollo, which translates to wanderer, traveller, but that could also mean idler or dreamer; in other words, a blockhead.

On the last page are activities that will encourage young readers to think for themselves. Why animal horns spiral as they grow, why nature prefers spiral shapes and other such interesting questions.

At just twenty-four pages, this slim book is a great classroom resource for math teachers, with some history, geography, art and nature observation thrown in.

There are little treats tucked away in the illustrations. After being introduced to Leonardo and the Fibonacci numbers, kids will enjoy re-reading the book and hunting for hidden spirals.

A few minor quibbles:

- The book is written in first person and flits between time periods, with sentences like "That's how we did our math back then." Surely, Leonardo could not have known that we do our math differently in the 21st century. Third person may have been a better choice.

- When Leonardo stares at birds, the questions he wonders about are how many legs they have, how many eyes, and how many wings, the answers to which are all the same and make him appear daft, really a blockhead! But Leonardo goes on to say they are "beautiful questions."

- What I also found problematic are references to "Mother Nature." While this personification of nature and the assigning of gender may have been prevalent in medieval Rome (was it?) it could perhaps have been avoided here.

The Fly on the Ceiling
A Math Myth

Reviewed by Arundhati Venkatesh
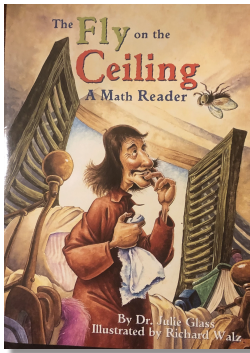
Author: Dr. Julie Glass
Illustrator: Richard Walz

The book starts off with a lovely note to parents from a primary grades mathematics teacher about developing mathematical thinking and a lifelong love for math by not seeing math as an isolated phenomenon, but by connecting math to familiar experiences and by supporting children's natural affinity.

We are introduced to the philosopher René Descartes (and his poodle, who resembles him and can be seen in all the visuals; kids will enjoy the poodle-spotting). René is portrayed in the book as messy and rather absent-minded. He has a problem but does not even realise it! Until he begins to lose things…

Heavily illustrated, with sparse text, the book can be read and enjoyed even by a very young audience. Both the text and the illustrations are infused with humour, always a hit with children. The wry, tongue-in-cheek humour is done really well too. Sample this: When René realises he has a problem (finding things) he decides to put an end to it.

'This must stop!' René said to himself. He decided to take a walk and think of a solution to his problem. It took him a moment to find his coat, his hat, and the front door.'

The character and the situation provide plenty of opportunity, and the illustrator makes good use of it, adding to the humour quotient.

We also get a glimpse of 17th century France, with its cobbled streets and bakeries, the river Seine… The absent-minded philosopher soon finds himself at the bottom of the river. The visual depiction of the mishap and the rescue operation are sure to draw giggles from young readers and chuckles from older ones. René ends up as wet as the bread he had been eating while walking.

The next morning, René is still looking for things — his handkerchief, an extra blanket, logs to make a fire, his soggy bread. René lies in bed, staring at the ceiling, the only part of the room that isn't messy. He sees a fly landing in different places. That gets him thinking. He finds a way to record where the fly lands: drawing criss-crossing lines on the ceiling using charcoal, numbering two of them, and using the grid thus formed to come up with 'coordinates'. Amazingly, the pictures and the words are amusing even while going into this explanation of Cartesian Coordinates. Oh, and we now have a fly, in addition to the poodle!

Next, René paints the floor of his room. Now, he knows where every object is located. He comes up with a chart that indicates (using Cartesian Coordinates) where everything is kept. The system becomes popular around the world, and is named after him — the Cartesian Coordinate System.

The author's note helps separate fact from fiction. Not much is known about René, except that he was a philosopher and that he helped popularise the Cartesian Coordinate System. The rest is made up. When it comes to historical fiction, a common problem is that character traits and events in the story have been wildly imagined and have no basis in history. That isn't a complaint I have here. Historical fiction is fiction based on fact, and does entail intelligent deduction. Something like this could well have happened. Maybe there is some truth to it, and even if there isn't, it is a delightful book, and a wonderful way to learn about Cartesian Coordinates. My only grouse is that in the first page of the book, Descartes is referred to as a "guy", which is a tad too casual for my taste.

The story would lend itself well to a stage enactment. The author does a splendid job of converting what could otherwise have been a dull lesson into a fun experience, and something children will never forget. Books like this one can get students thinking about how we know what we know, who came up with the systems and inventions we use, what triggers innovation, and how what is learnt can be applied. While the book is targeted at grades two and three, it can be used when introducing graph theory to higher grades too.

Both the books deal with topics that require visual learning, and hence the picture book format is ideal.

ARUNDHATI VENKATESH is the author of *Bookasura* and the *Petu Pumpkin* series (for children 6 to 9 years old). Her books have won several awards, including the SCBWI Crystal Kite Award 2015 for India, Middle East and Asia and the Comic Con India 2015 Best Publication for Children award.