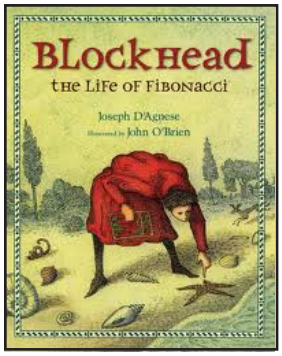
Cruchley's Collection

Diana Cruchley is an award-winning educator and author, who has taught at elementary and secondary levels. Her workshops are practical, include detailed handouts, and are always enthusiastically received.

Blockhead - The Life of Fibonacci



Fibonacci was part of the revolutionary change from Roman numerals to Arabic numerals in the 12th century. His most importantcontribu-tion to math is the Fibonacci sequence, which this book explains.

Joseph D'Agnesi, Henry Holt, 2010, ISBN 978-0-8050-6305-9

Vocabulary

The book's title is "Blockhead". Here's a chance to look at some synonyms for "stupid". Some possibilities students may brainstorm are:

- foolish
- dim
- obtuse
- brainless
- dopey
- wooden-headed
- dumb
- unintelligent
- dull
- idiotic
- dense
- imbecilic
- thick
- witless
- slow

When you have a list, ask students to list them from least insulting, to most insulting. Discuss. (Don't do this if your students are the kind that would then use them on each other to hurt each other's feelings.)

Omar Khayam's Burial Place

In Iran

Personal Writing

A springboard from a picture book to personal writing should provide at least three topics if possible. Here are some ideas:

1. Fibonacci travelled to Africa, Istanbul, Sicily, Greece, etc. - talk about trips you have taken and things you learned on that trip.
2. Fibonacci's feelings were hurt when his schoolmates called him "Blockhead" - write about times when your feelings were hurt by something someone said or did.
3. Fibonacci was passionate about numbers - what are some things that you are enthusiastic about?

Anachronism

This is a really minor point, but on page 6 the book says, "I solved it in two seconds." In this time period there were no seconds, minutes, or even hours. Time was measured by the bells for church services for matins (in the morning) and vespers (in the evening). In addition to being able to teach what an anachronism is, students could research the development of the increasingly precise measurement of time, and, indeed, the fact that Standard Time, used around the world, was invented by a Canadian to keep trains from crashing into one another.

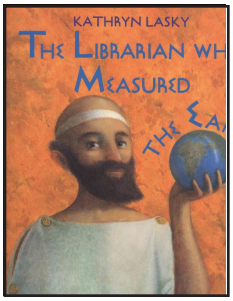
There are lots of anachronisms in books and movies. Students may be interested in a quick Google search of some of them.

The 12th Century (1100's)

Fibonacci lived at an exciting time.

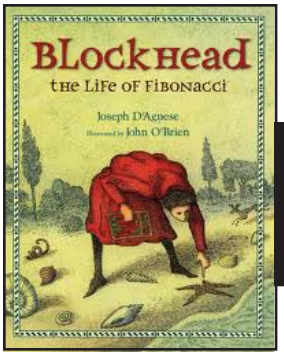
- The Great Saladin ruled Egypt and Syria.
- The first crusades were launched.
- Omar Khayam was an islamic scholar, poet (***The Rubaiyat***), and mathematician.
- Ghenghis Khan founded the Mongol Empire.
- The first windmills were created.
- China invented the blast furnace which allowed the smelting of cast iron.
- Apparently, the Leaning Tower of Pisa was under construction.

and lots more.



More Ancient Math

The Librarian Who Measured the Earth is about Eratosthenes, the Greek mathematician who used a simple theorum to measure the circumference of the Earth.



Blockhead - The Life of Fibonacci, cont.

Fibonacci Numbers

If you add any two consecutive numbers in the pattern you get the next number:

- 1 pair plus 1 pair = 2 pairs
- 1 pair plus 2 pairs = 3 pairs
- 2 pairs plus 3 pairs = 5 pairs
- 3 pairs plus 5 pairs = 8 pairs

The first numbers are 1,2,3,5,8,13,21,55,89,144,233,377.
Pages 26 and 27 explain the Fibonacci numbers...demonstrate to 8 and ask them to continue until they get to 233.

Astonishingly, nature uses these numbers all the time...in flower petals, seeds inside, starfish, 3 leaf clovers, 8 sections i a lemon, etc. Even humans have 1 head, 2 eyes, 5 fingers, etc.

The cochlea of the inner ear is a spiral.

Black-eyed Susan - 13 petals

Observation Skills

This is the perfect time to use the jeweller's loupe. If you don't have them in your school, they may be purchased from *Lee Valley Tools* where you can get a set of 3 with 2X, 5X, and 10?X magnification for $7. *The Private Eye* in Seattle sells the 5X magnifier (so every student has the same one) for $3 each...a class set of 36 in storage boxes is $130.

The book ***The Private Eye*** is an excellent source of ideas for art, science, writing, social studies, math, etc. This can be, "Observing Fibonacci in Nature."

Below is a grade 7 drawing called Designer Insects. First, students make a drawing, from life, using the loupe ofn an insect. Then they trace over, soldifying lines, and then create patterns and colour within each shape. It's a gorgeous product.

Roman Numerals

The book mentions that, in Egypt, Fibonacci encountered Arabic Numerals and thought how much simpler they were than his Roman numerals - making it a good time to introduce them. (Actually, the numbers are from India, but the west encountered them in the Arab countries and so called them Arabic numerals.) Lots of sites have activity sheets, but a good site for an explanation is greatmaths-games.com. Roman numerals, it reminds us, may be found on watches, old buildings, page numbers in a preface, as subsections in a list on Microsoft Word, titles of kings and queens, periods of Egyptian history, and at the end of Hollywood movies, comics, and games to show the year it was made.