ERASMUS+

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Qualified Generations with STEAM Education
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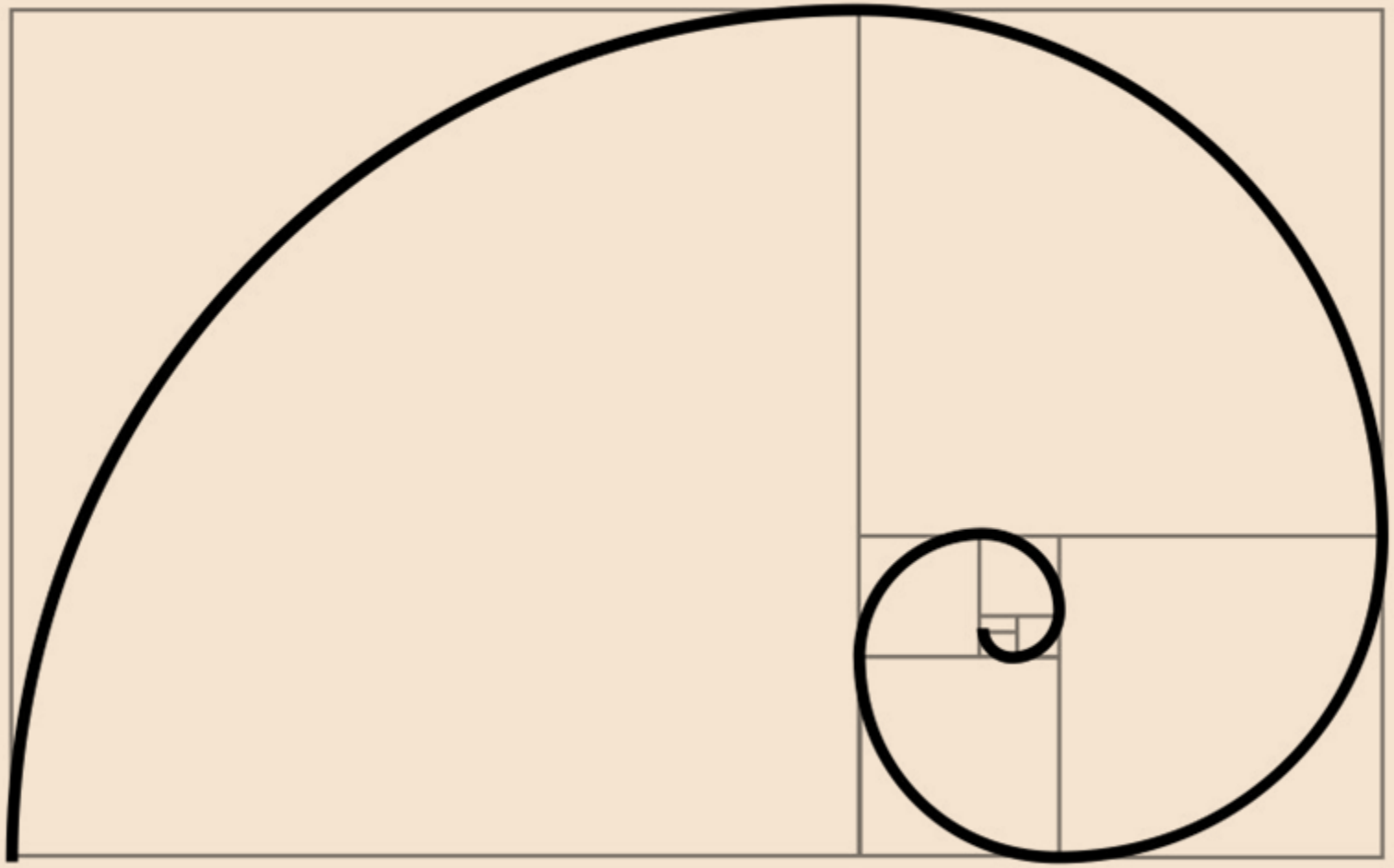
Mgr. Tímea Peťkovská



Who was Fibonacci?
Where and when was he born?

- Born in Pisa, Italy in 1175 AD
- Full name Leonardo Pisano
- "Bonaccio" was his father's nickname, which means "brave man" in Italian. Eventually, the name Fibonacci, which means "son of Bonacci", became widespread.

- Which is the most famous building in Pisa?

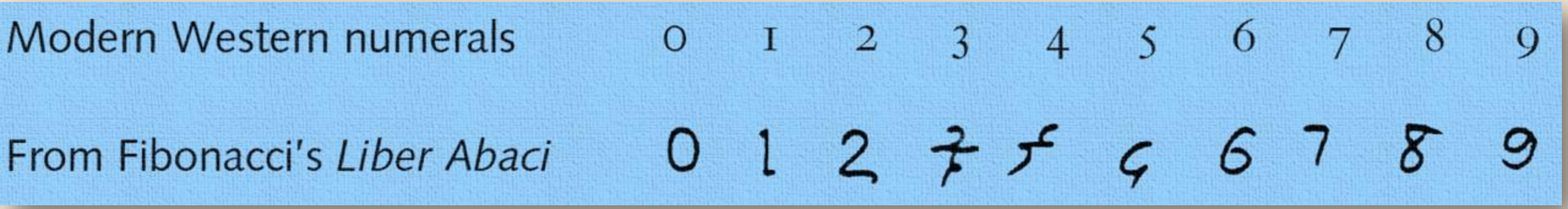
Could Fibonacci have seen this tower and the building complex located next to it?

- Yes, the construction of the cathedral and the chapel started before he was born, the construction of the tower started in his childhood, but it took 200 years to complete.

Where did Fibonacci spend a significant part of his youth?

Fibonacci was introduced to Arabic mathematics right here in North Africa. Later he travelled along the Mediterranean coast and deepened his knowledge of the area. He met many merchants and learned their system of arithmetic. He realized the advantages of the Hindu-Arabic system. In Europe, only Roman numerals were used until the 13th century.

Fibonacci's greatest merit was that he spread the Hindu-Arabic numeral system in Europe.

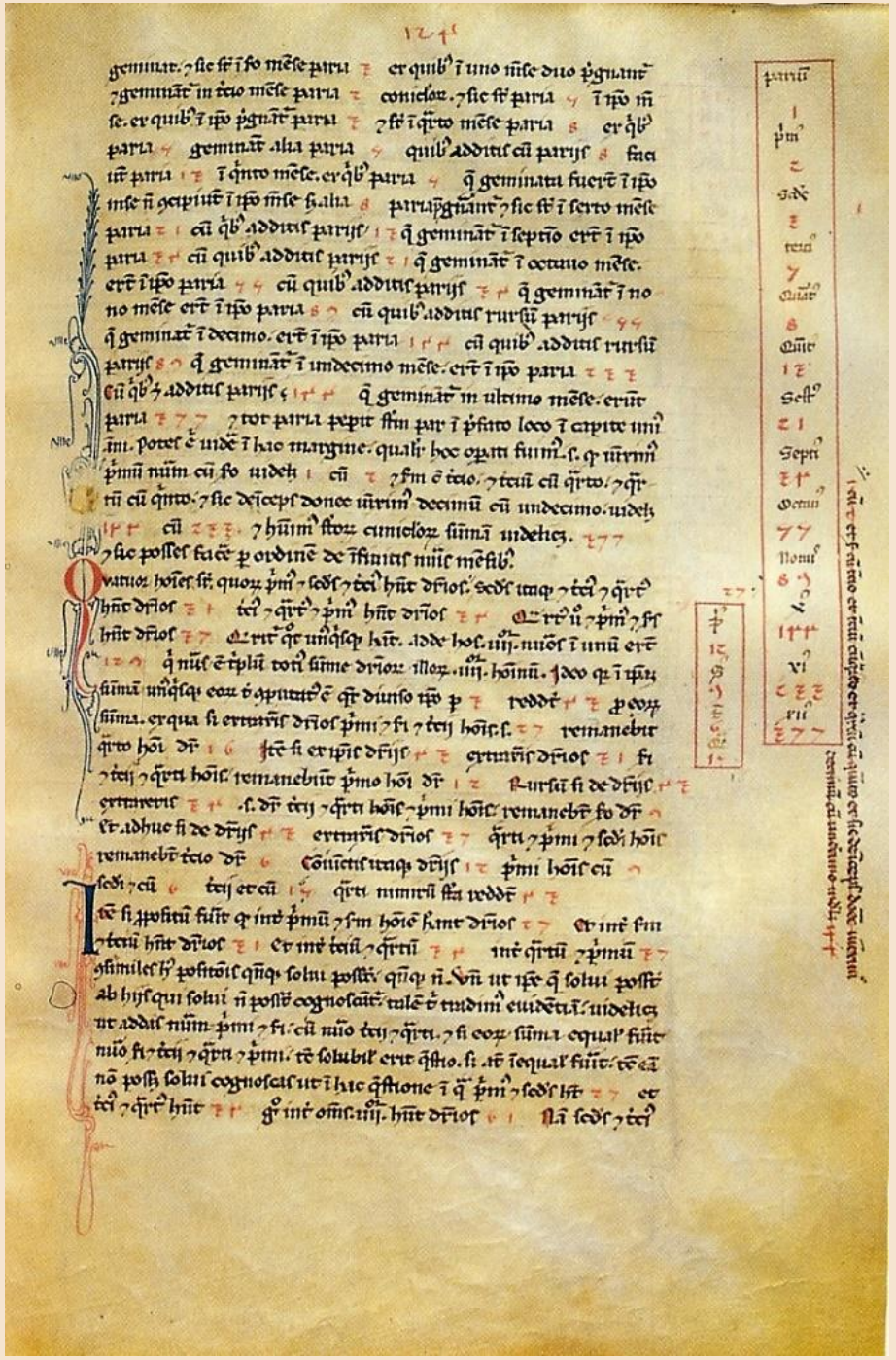


Although the Hindu-Arabic system has almost completely replaced Roman numerals, they are still used in some cases. Where could you find them?

With the flowering of commerce in medieval Europe, fast and accurate counting became essential. Fibonacci's work was a great help to the merchants and bankers of the time.

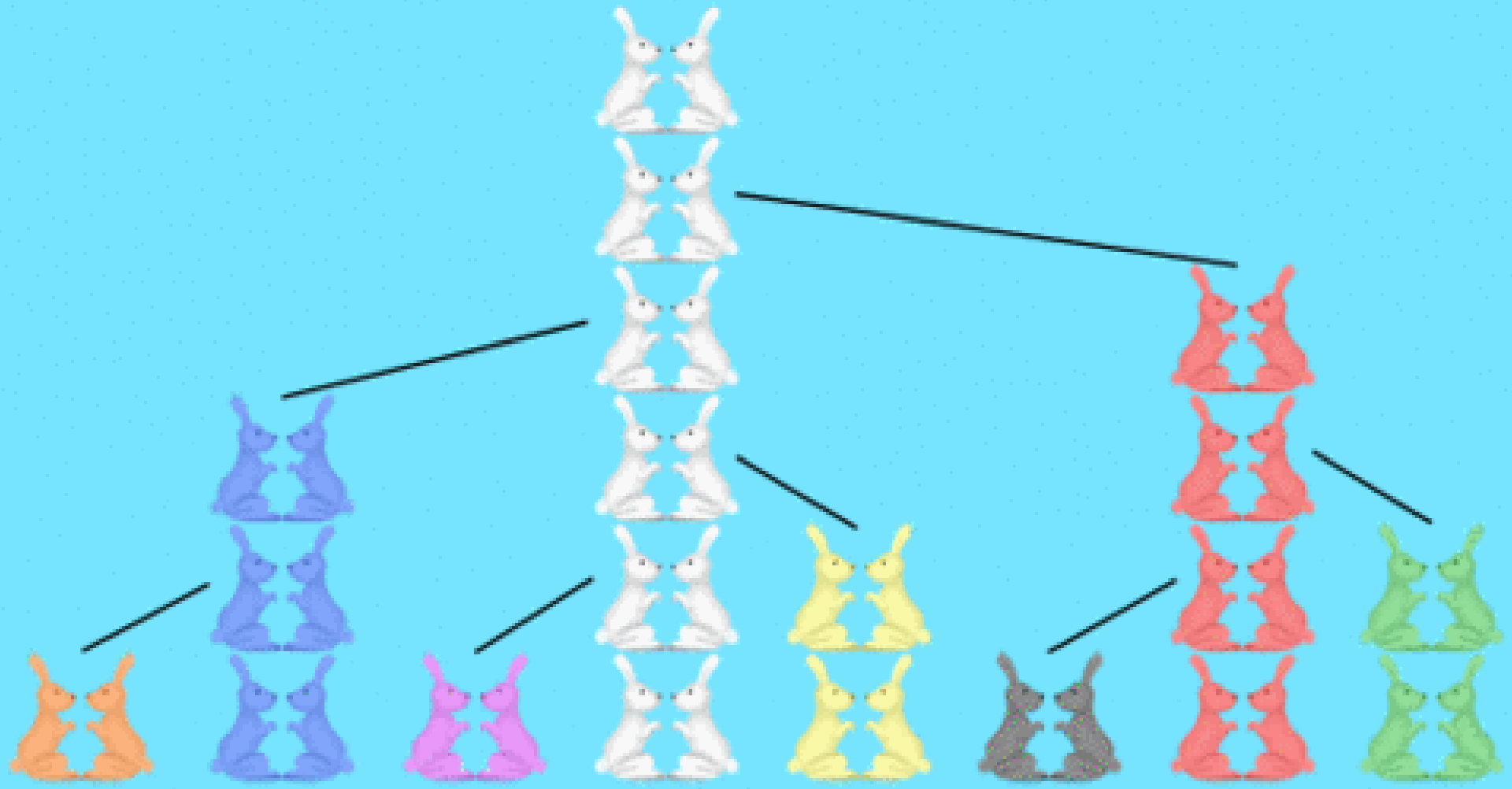
After returning home, in 1202 he published a book called Liber Abaci. The book quickly became popular throughout Europe.

In his book, Fibonacci published a problem whose solution later became known as the Fibonacci Sequence.The problem in question was originally about rabbits.



Imagine a rabbit breeder who originally has 2 rabbits, one male and one female. The rabbits become sexually mature when they reach the age of 1 month and another month passes before the new rabbits are born. After the second month of their lives, the females bring one male and one female into the world each month, i.e. a new pair of rabbits.Let's just say that the breeder's rabbits live forever!How many pairs of rabbits will the breeder have at the end of 12 months?

Month	*Number of Pairs*
January	1
February	1
March	2
April	3
May	5
June	8

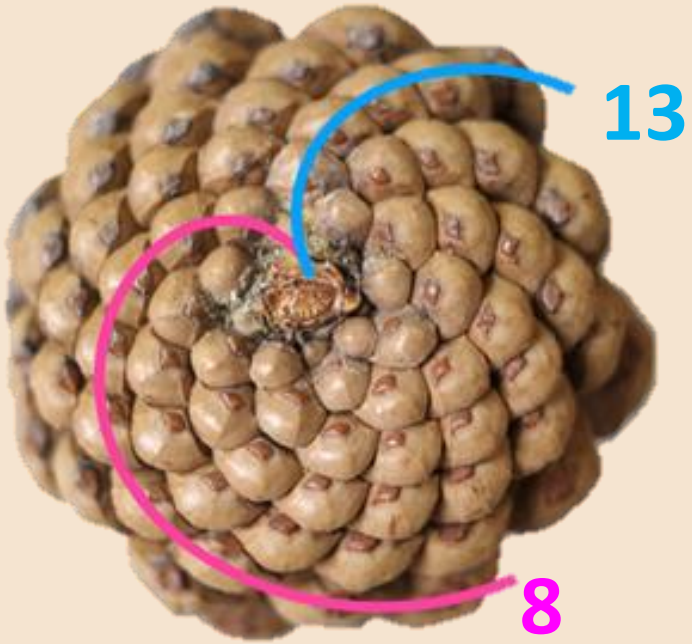


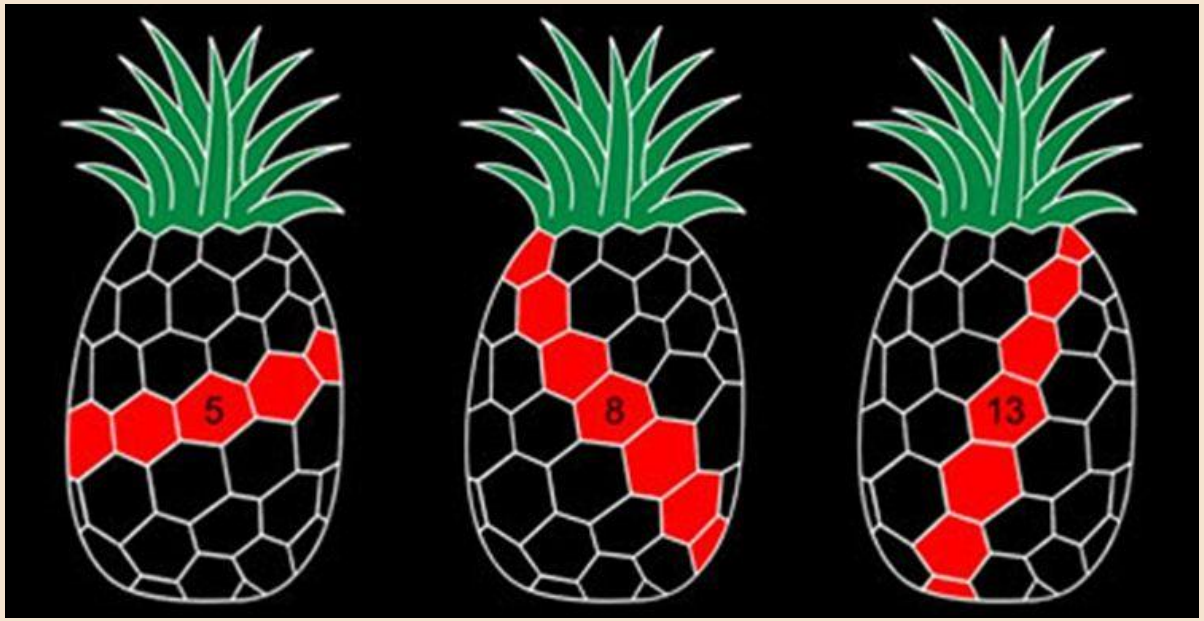
Fibonacci sequence

1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89, 144,.....

The Fibonacci sequence wouldn't be so well known if it were only about rabbits.An example is the number of petals on most plants, which is equal to one of the numbers in the Fibonacci sequence. For example, such a daisy has 13,21,34 or 55 petals.

If you look at pine cones, pineapples or sunflowers, you will see that they are arranged in clockwise and counterclockwise spirals in pine cones and sunflowers, with the pineapple adding a third spiral. Have you ever tried to count these spirals? Given what we're trying to suggest, you probably won't be surprised when the result is again numbers from the Fibonacci sequence. The sunflower has 34 in the direction and 55 against the direction, the pine cones have 8 and 13, and the pineapple has 5, 8, and 13.





Graphical representation of the Fibonacci sequence 1, 1,2, 3, 5, 8, 13, 21, 34, 55, 89, ...

Fibonacci spiral