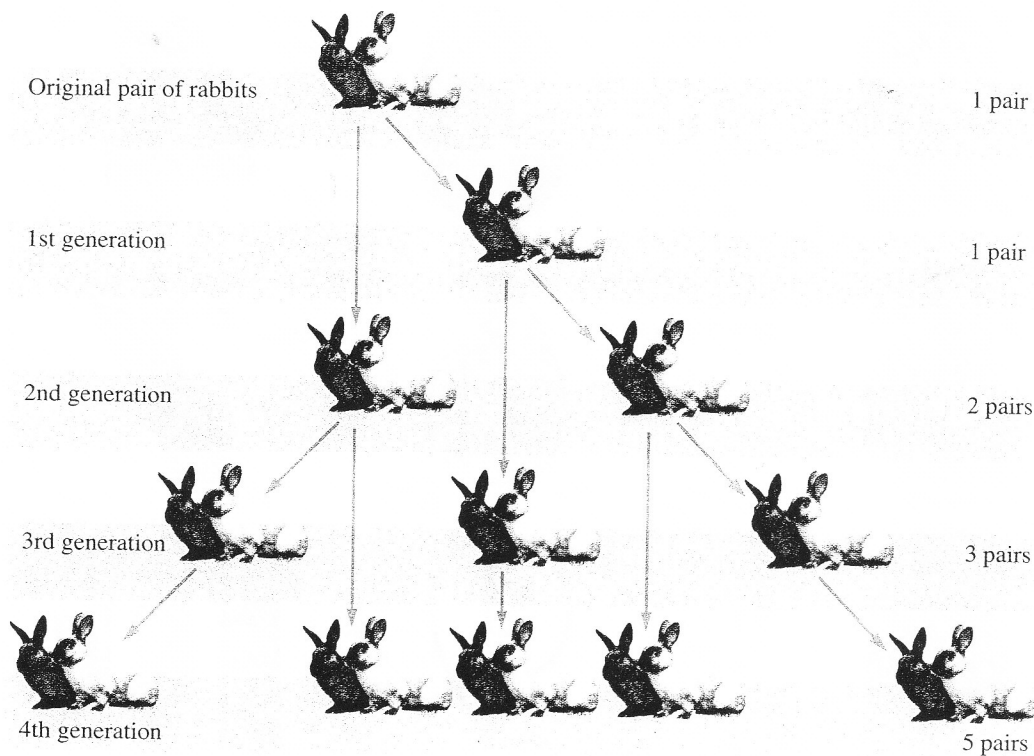


Leonardo **Fibonacci** was an Italian mathematician who lived in the early 13th century. He discovered this pattern when studying the breeding habits of rabbits:

1, 1, 2, 3, 5, 8, 13, 21, . . .



This link will take you to a list of the first 75 Fibonacci numbers.

- a How is the Fibonacci pattern formed?
- b Add five more lines to this pattern:
  - 1
  - 1
  - $1 + 1 = 2$
  - $1 + 2 = 3$
  - $2 + 3 = 5$
  - $3 + 5 = 8$
- c Write the first 20 Fibonacci numbers.
  - i Write every *third* Fibonacci number, beginning with 2. What number divides evenly into all these numbers?
  - ii Write every *fourth* Fibonacci number, beginning with 3. What number divides evenly into all these numbers?
  - iii Write every *fifth* Fibonacci number, beginning with 5. What number divides evenly into all these numbers?
- d
  - i Find any triangular numbers in the Fibonacci numbers up to 100.
  - ii Find any square numbers in the Fibonacci numbers up to 100.
- e Pairs of Fibonacci numbers are found by counting along the spirals on pine cones. (See page 70.) Where else do Fibonacci numbers occur in nature?