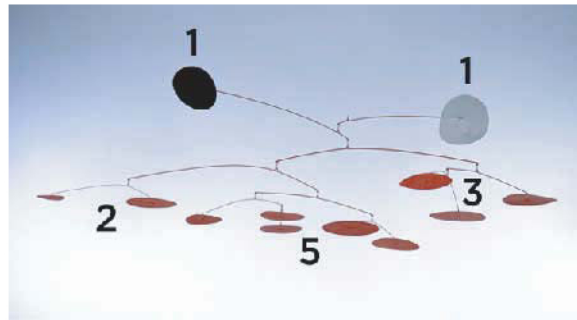


■ Spiral Patterns in Art

While Calder's sculpture is abstract, the shapes he used are "biomorphic." They recall living things from nature (like leaves, feathers, flowers) rather than hard-edged geometric or human-made things. In *Black, White, and Ten Red*, the shapes are arranged in a mathematical pattern found in nature, called the Fibonacci sequence.



Alexander Calder
Black, White, and Ten Red
1957

1, 1, 2, 3, 5...

This is the start of the Fibonacci sequence. Fill in the next 3 numbers in the sequence...

1, 1, 2, 3, 5, __, __, __ HINT: $1 + 1 =$ __

What is the "rule" behind the sequence?

If Calder had expanded his mobile to create one more "generation," how many shapes would be on the bottom layer to continue the same pattern?

The Fibonacci sequence is found in nature. Pineapples, pinecones, sunflowers, artichokes, and palm trees all have spiral patterns whose arrangements are described by the Fibonacci sequence. Here are more examples of spirals—and the Fibonacci sequence—in art and architecture:



Georgia O'Keefe
Shell No. 1
1928



Alexander Calder
Untitled
1976



Edward Steichen
Sunflower in a White Vase,
from the series Sunflowers from Seed to Seed
1920-1961

ANSWERS

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

2) Calder's mobile would have 8 shapes on the bottom layer.