




THE NATURE OF MATHEMATICS

MATHEMATICS IN OUR WORLD



WHAT IS MATHEMATICS?

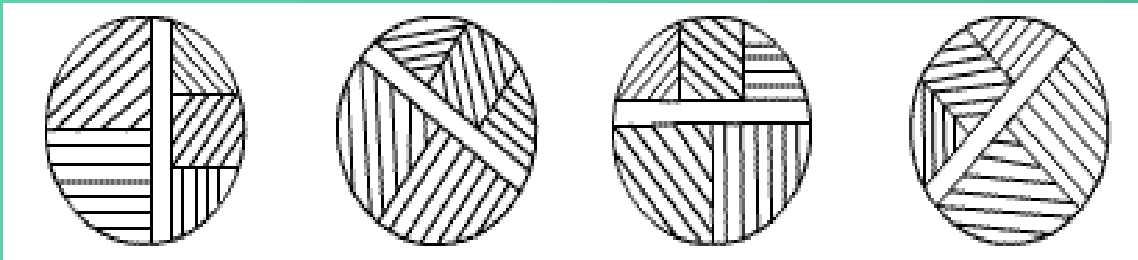
NATURE OF MATHEMATICS



manthanein – “to learn”

2, 4, 6, _____

2, 4, 7, 11, _____



PATTERNS AND NUMBERS IN NATURE



PATTERN

are regular, repeated, or recurring forms or designs.

PATTERNS AND NUMBERS IN NATURE

SYMMETRY



PATTERNS AND NUMBERS IN NATURE

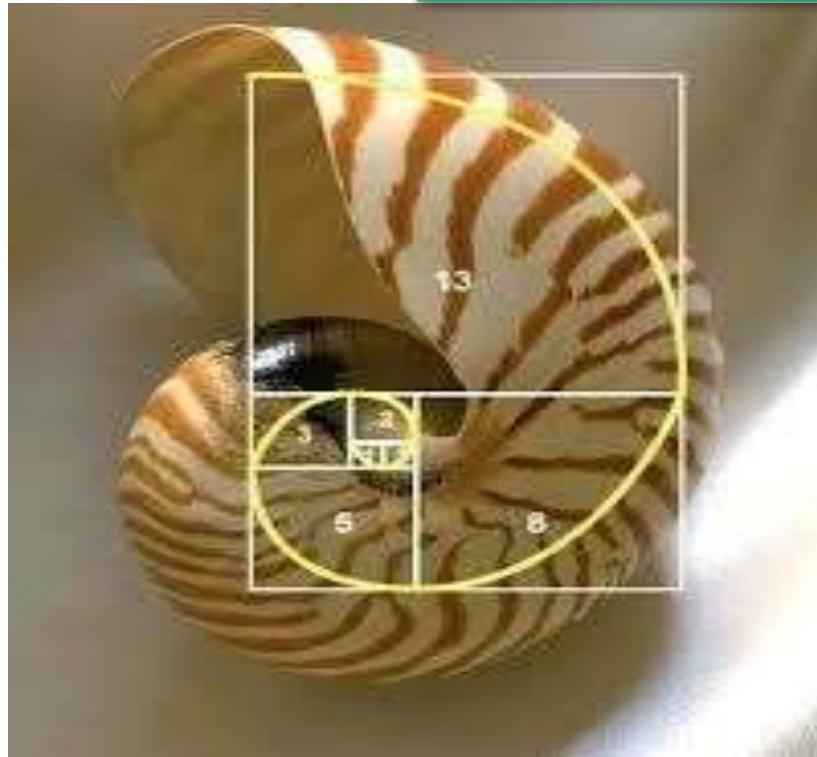
ROTATIONAL



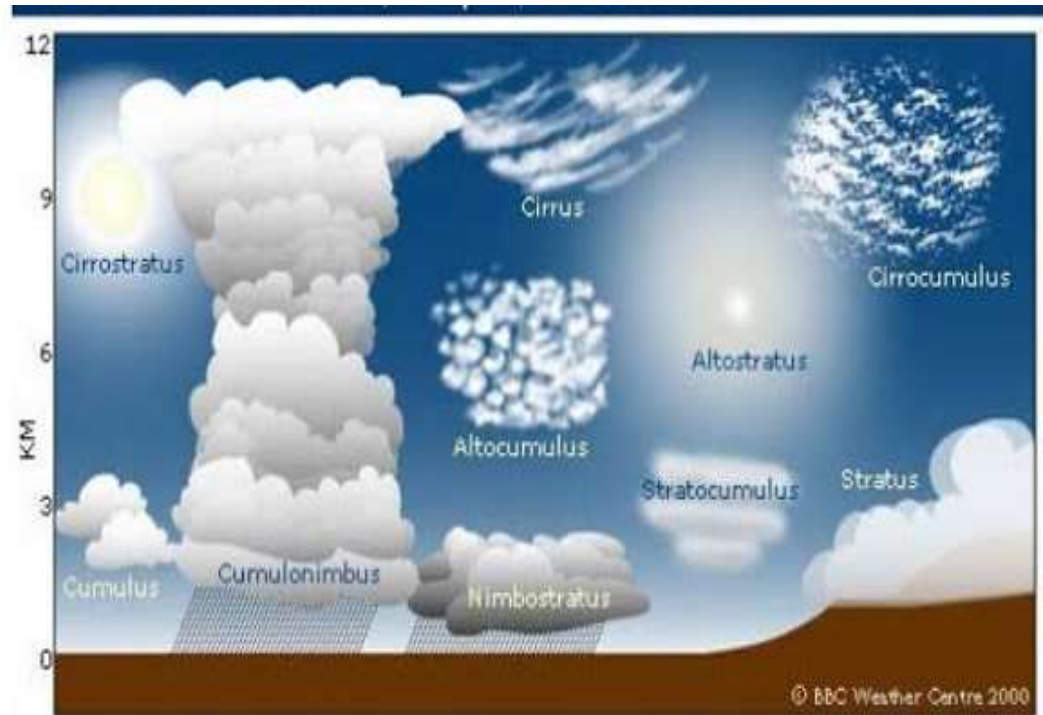
BILATERAL

PATTERNS AND NUMBERS IN NATURE

SPIRAL



PATTERNS AND NUMBERS IN NATURE



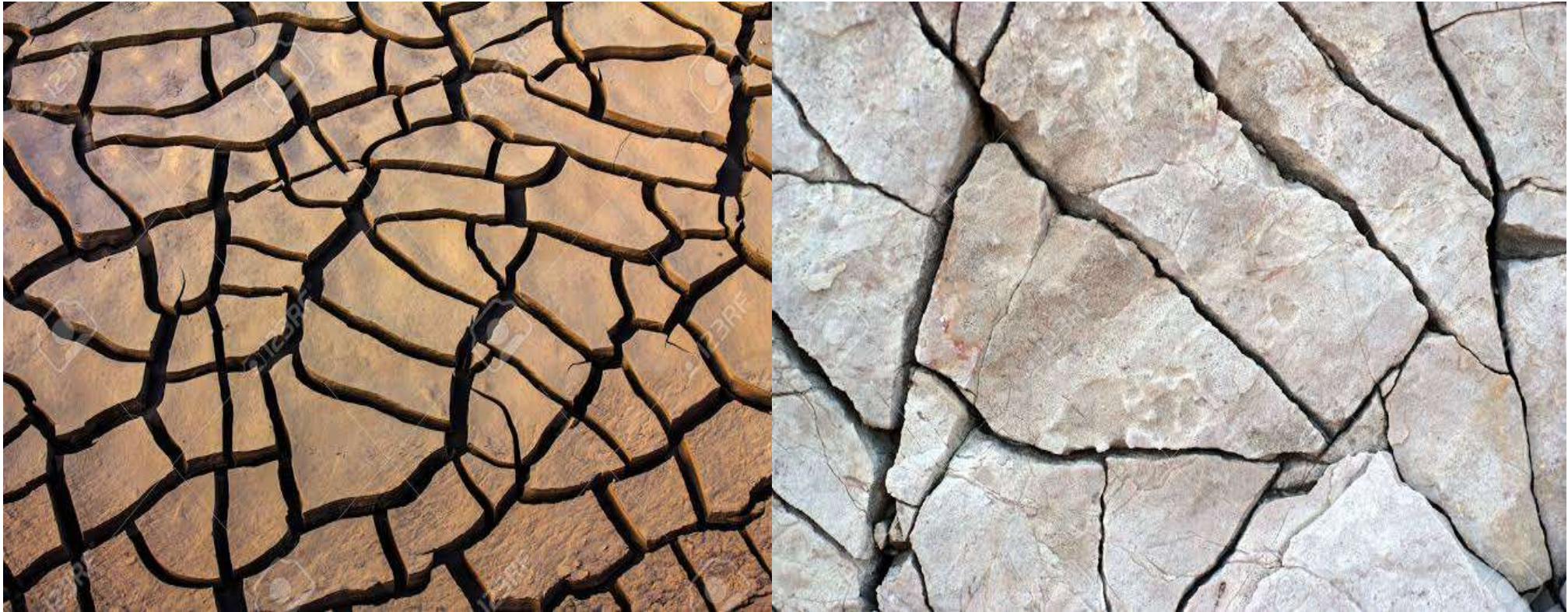
PATTERNS AND NUMBERS IN NATURE



PATTERNS AND NUMBERS IN NATURE



PATTERNS AND NUMBERS IN NATURE



PATTERNS AND NUMBERS IN NATURE

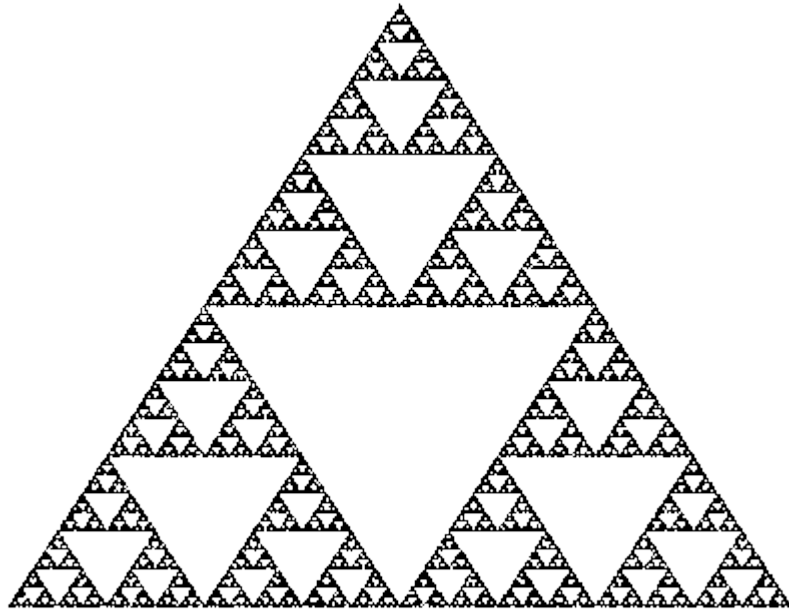


FRACTALS

A never ending pattern.

Are infinitely complex patterns that are self-similar across different scales. They are created by repeating a simple process over and over in an ongoing feedback loop.

PATTERNS AND NUMBERS IN NATURE



PATTERNS AND NUMBERS IN NATURE



Affine Transformation

These are the processes of rotation, reflection, and scaling. Many plant forms utilize these processes to generate their structure.

PATTERNS AND NUMBERS IN NATURE



PATTERNS AND NUMBERS IN NATURE



Meander

PATTERNS AND NUMBERS IN NATURE



Waves

PATTERNS AND NUMBERS IN NATURE



Foams

PATTERNS AND NUMBERS IN NATURE



Tessellations

PATTERNS AND NUMBERS IN NATURE

Watch the “Nature by Numbers”
by Cristobal Vila

<https://youtu.be/kkGeOWYOoA>