What are Patterns?

Patterns are sequences or designs that are orderly or that repeats

Types of Patterns:

Symmetry	It is when different sides are alike. A reflection of a mirror is one of symmetry.
Fractals	These are 'never-ending' patterns that repeat indefinitely as the pattern is iterated on an infinitely smaller scale.
Spirals	A pattern that spirals, examples are seashells, hurricanes, and galaxies.
Fibonacci Patterns	The least understood pattern in nature, it is a pattern that increases its sequence exponentially. (i.e. 1,2,4,8,16,32,etc.)
Tessellations	A pattern formed of cubes or tiles, can occur in both living and non-living things.

The Use of Mathematics

Technology	This aspect depends on basic research to advance. Its value is determined on by math and experimentation using statistics
	Examples: Predicting the Weather, Navigation, Computer Circuits.

The Use of Mathematics (cont)

Engineering	Math is used to design components and products, maintain operating components, model real-life situations for testing and learning purposes as well build and maintain structures.
	Examples: Robotics, Construction, Microwaves, Rockets and Satellites, Automotive Design.
Media	Math can be found in Media. Using camera lens or convincing nature of numbers for advertising.
	Examples: Digital Music, Movie Graphics, Polling and Voting.
Medicine and Health	Advanced medical studies rely on statistics .
	Examples: Crowd People: Population Dynamics, Pharmacy and Medicine, MRI and Tomography.
Finance and Business	Businesses require skill in product making and providing service. Overseeing finances is key to survival and success.
	Examples: Insurance, Loans and Mortgages, Fraud Detection, Pricing Strategies, Game Theory.

Language of Mathematics

What is Language?

It is a complex system of words and symbols, either spoken or written, used by a particular community as a means of communication.

Characteristics of Language

Precise	Able to make very fine distinctions.
Concise	Able to say things briefly.
Powerful	Able to express complex thoughts with relative ease.

English Language of Mathematics

	English	Mathematics
Name given to an object of interest:	Noun.	Expression.
	Example: Carol, Manila, book	Example: 5, 2+3, 1/2
A complete thought:	Sentence.	Sentence.
	Example: Dash likes guinea pigs.	Example: 3+4=7, 3+4=8

Sets, Functions, and Relations

The word "is" has three distinct meanings.	Example: "5 is the square root of 25." "5 is less than 10." "5 is a prime number."

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Elementary Logic

Logical Connective	It is a symbol or a word used to connect 2 or more sentences. Each logical connective can be expressed as a truth function.
Negation "-~"	Opposite of the statement, usually employing the word *not*.
Original Statement:	Negation of Statement:
"p" Today is Monday	"~p" Today is not monday.
Conjun-ction "∧"	It is formed by using the word "and" to join two sentences.
	"p∧q" Sister likes dogs and Mother likes cats.
Disjunction "∨"	It is formed by using the word "or" to join two simple sentences.
	"p∨q" The clock is slow or the time is correct.
Implication "⇒"	It is a type of relationship between 2 statements or sentences. It is formed using the word "if" to create implic-ation.
	"p⇒q" If my heart stops, then I will die.