Chapter-11

PATTERNS

STUDY NOTES

*** Patterns with a unit of repeat**

*** Rules of patterns**

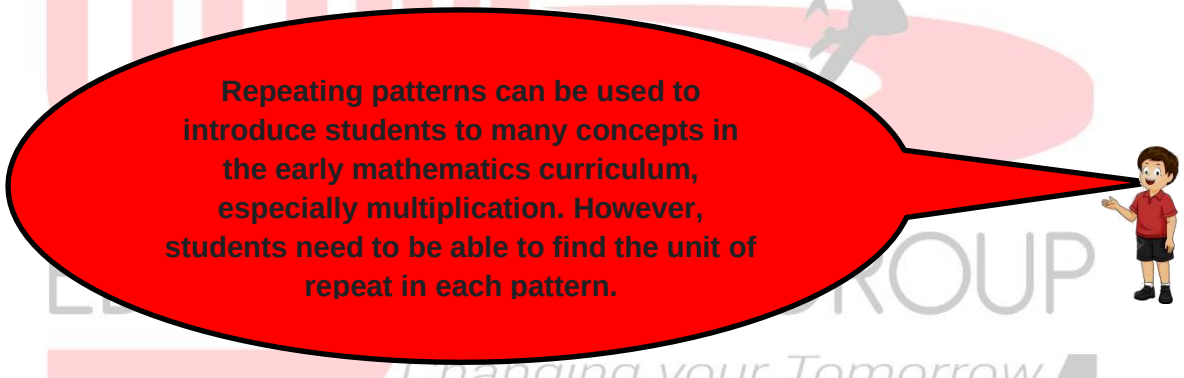
*** Number patterns**

*** Letter patterns**

*** Shape patterns**

1. Patterns with a unit of repeat

- **EXPLANATION**

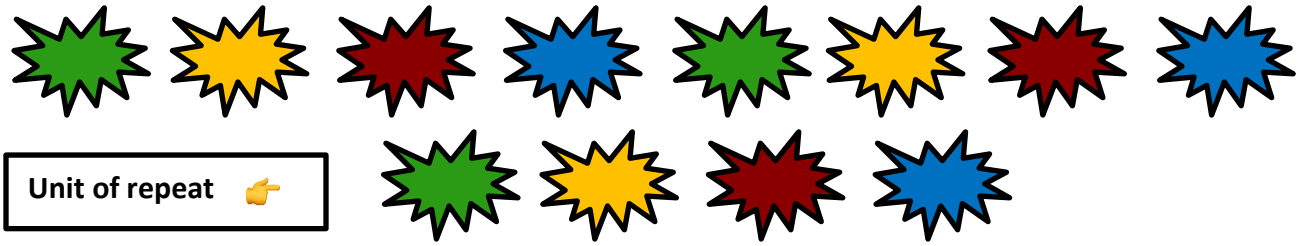


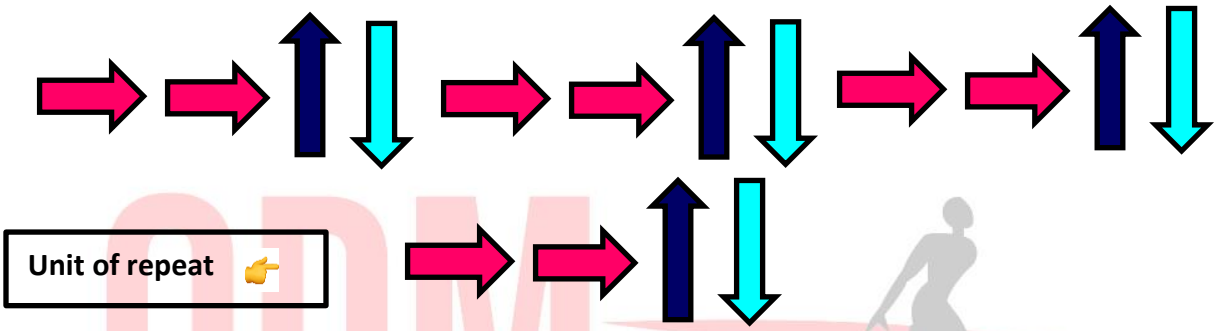
When you create a pattern, you arrange them according to a rule. A rule tells you how the pattern is repeated. One type of pattern is the repeating pattern.

EXAMPLE

The part (or section) that is repeated is the unit of pattern.

Some examples are tiles, pavers, windows, zebra crossings and railway lines.

1. 

2. 

2. Rules of patterns

➢ **EXPLANATION**

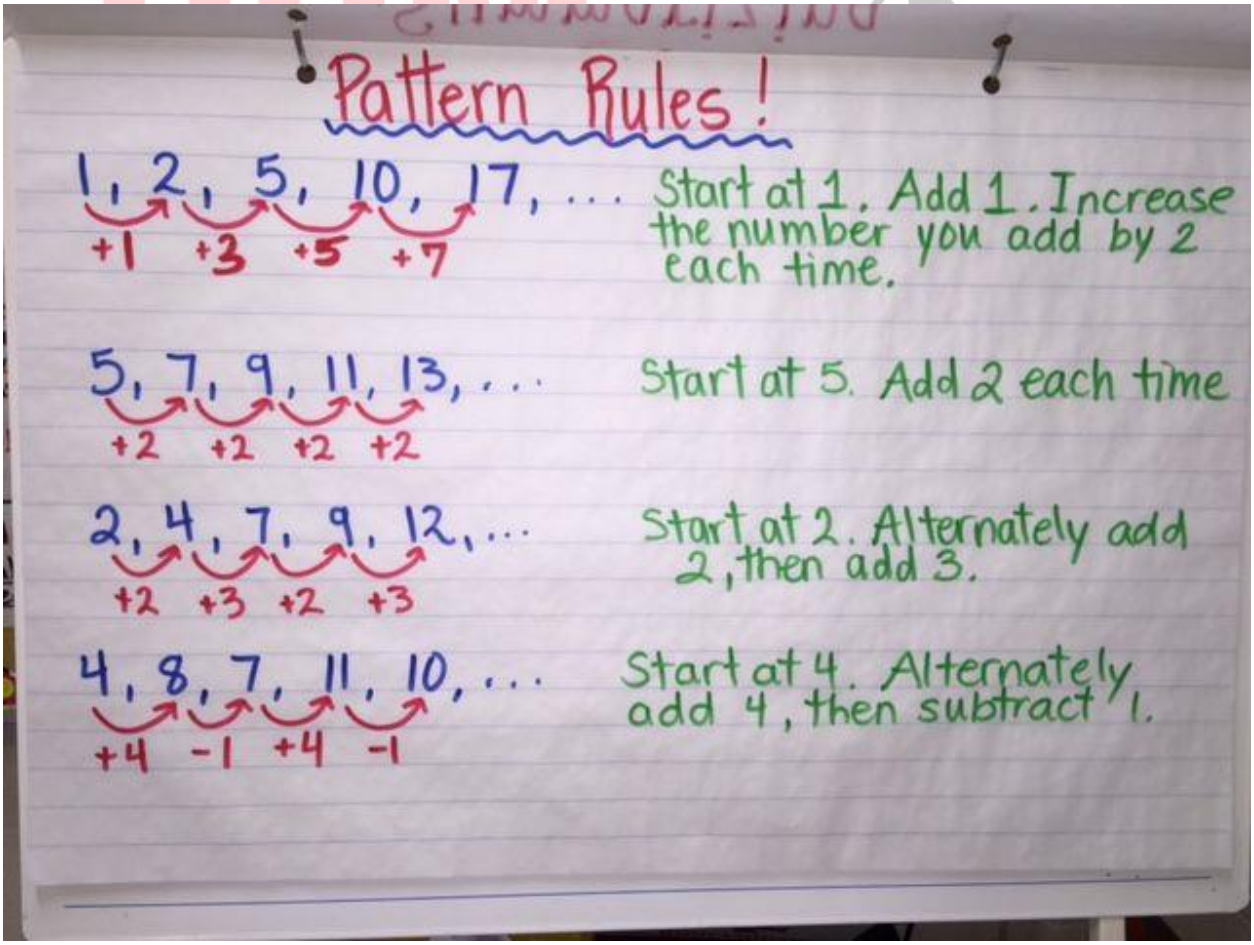
- When numbers in a pattern get larger as the sequence continues, they are in an ascending pattern. Ascending patterns often involve multiplication or addition.
- When numbers in a pattern get smaller as the sequence continues, they are in a descending pattern.

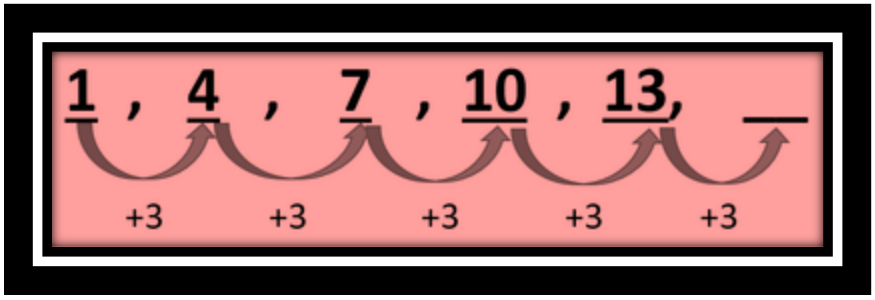
A pattern rule tells how to make the pattern and can be used to extend a pattern.

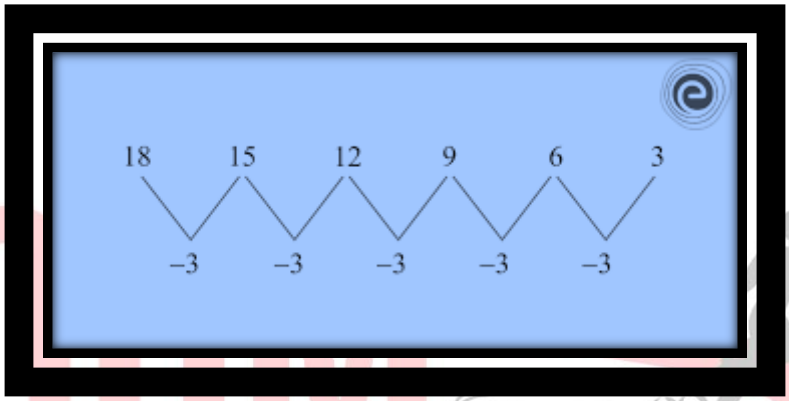
RULES TO REMEMBER

1) **The fixed order in which a growing pattern increases is called its rule.**
2) **A pattern in math is a repeating sequence based on a rule.**
3) **To find the rule of a pattern, observe how the pattern increases as it moves from one sequence to the next.**

EXAMPLE



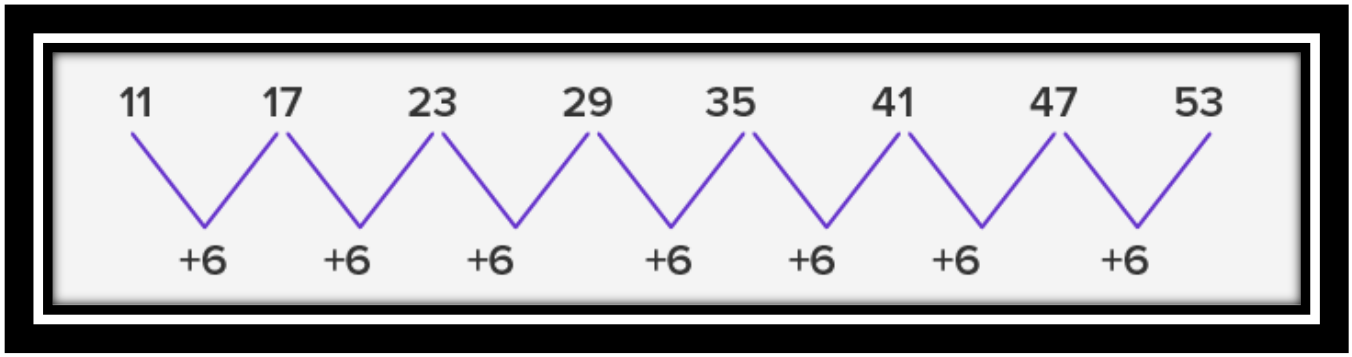




3. Number patterns

- **EXPLANATION**

Number pattern is a pattern or sequence in a series of numbers. This pattern generally establishes a common relationship between all numbers.



There are two common types of number patterns:

- Arithmetic Sequences.
- Geometric Sequences.

Arithmetic Sequence

Arithmetic sequences are sequences of numbers with constant differences between consecutive terms.

Ex. - 1, 4, 7, 10, 13, 16, ... is an arithmetic sequence because the difference between consecutive terms is 3.

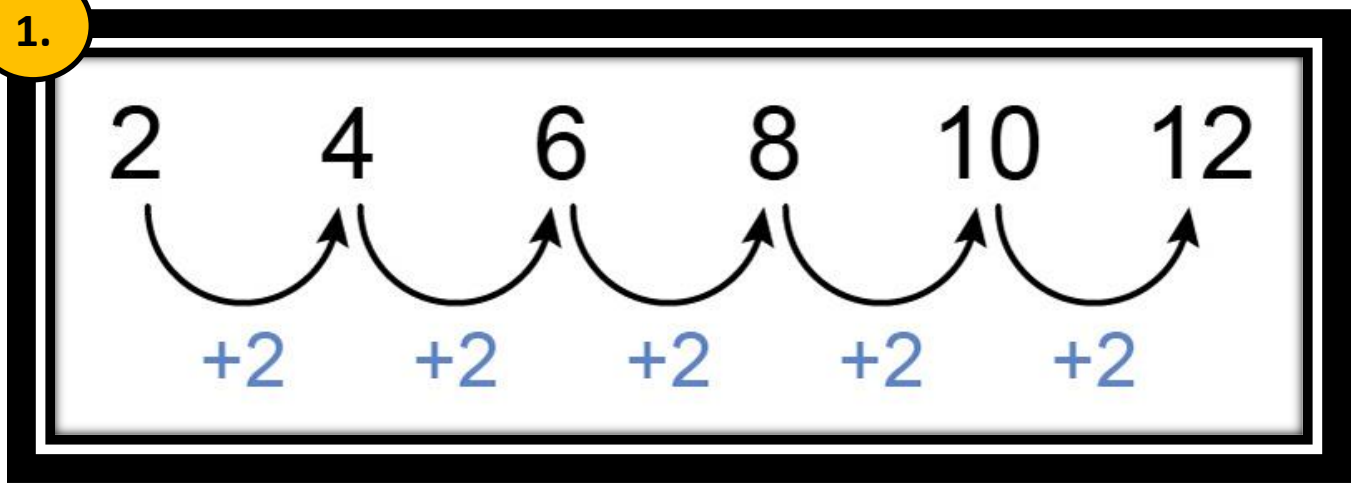
Geometric Sequences

The geometric progression is a relation between two non-zero numbers in which, the difference between consecutive terms is not a constant.

Ex. - 1, 4, 8, 11, 15, 18, ...is a Geometric sequence because the difference between consecutive terms is not even.

EXAMPLE

1.



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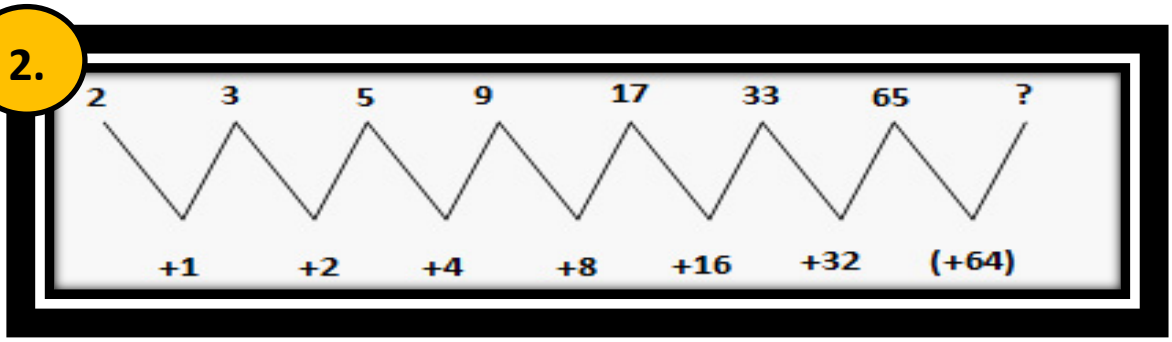


4. Letter patterns

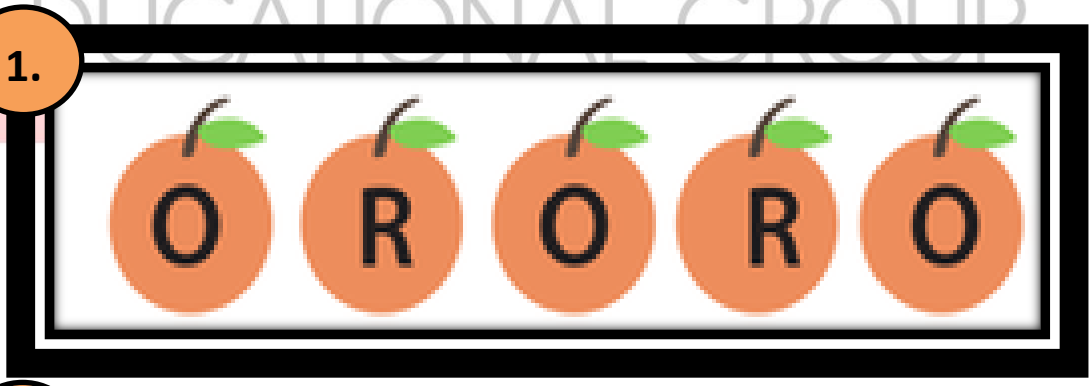
➢ EXPLANATION

Letter pattern is a pattern or sequence in a series of letters or English alphabets. This pattern generally establishes a common relationship between all the letters.

Example: A, D, G, J, M, P.

EXAMPLE

1.



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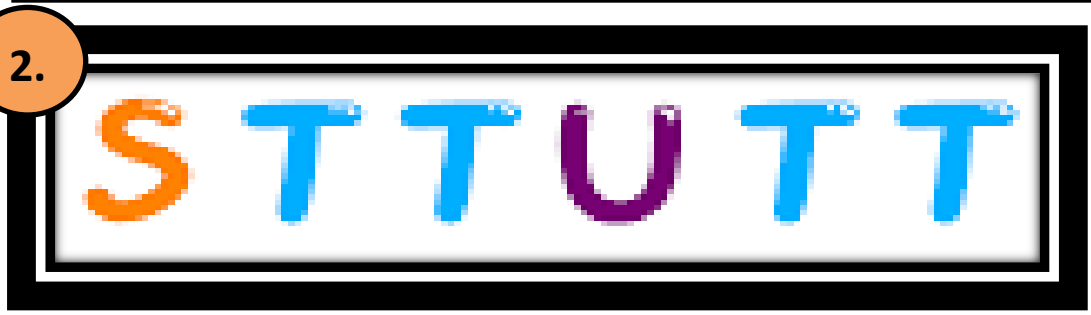
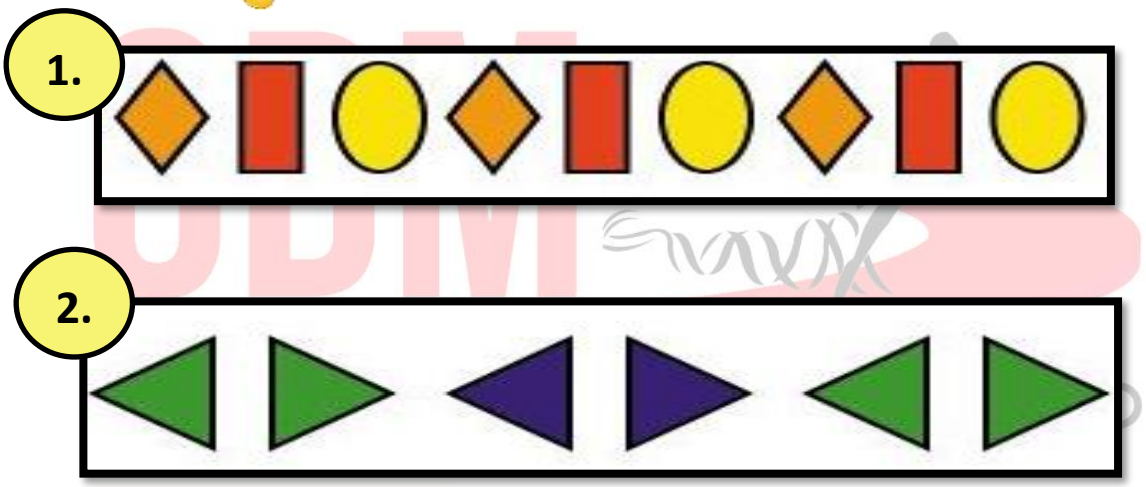


5. Shapes patterns

➢ EXPLANATION

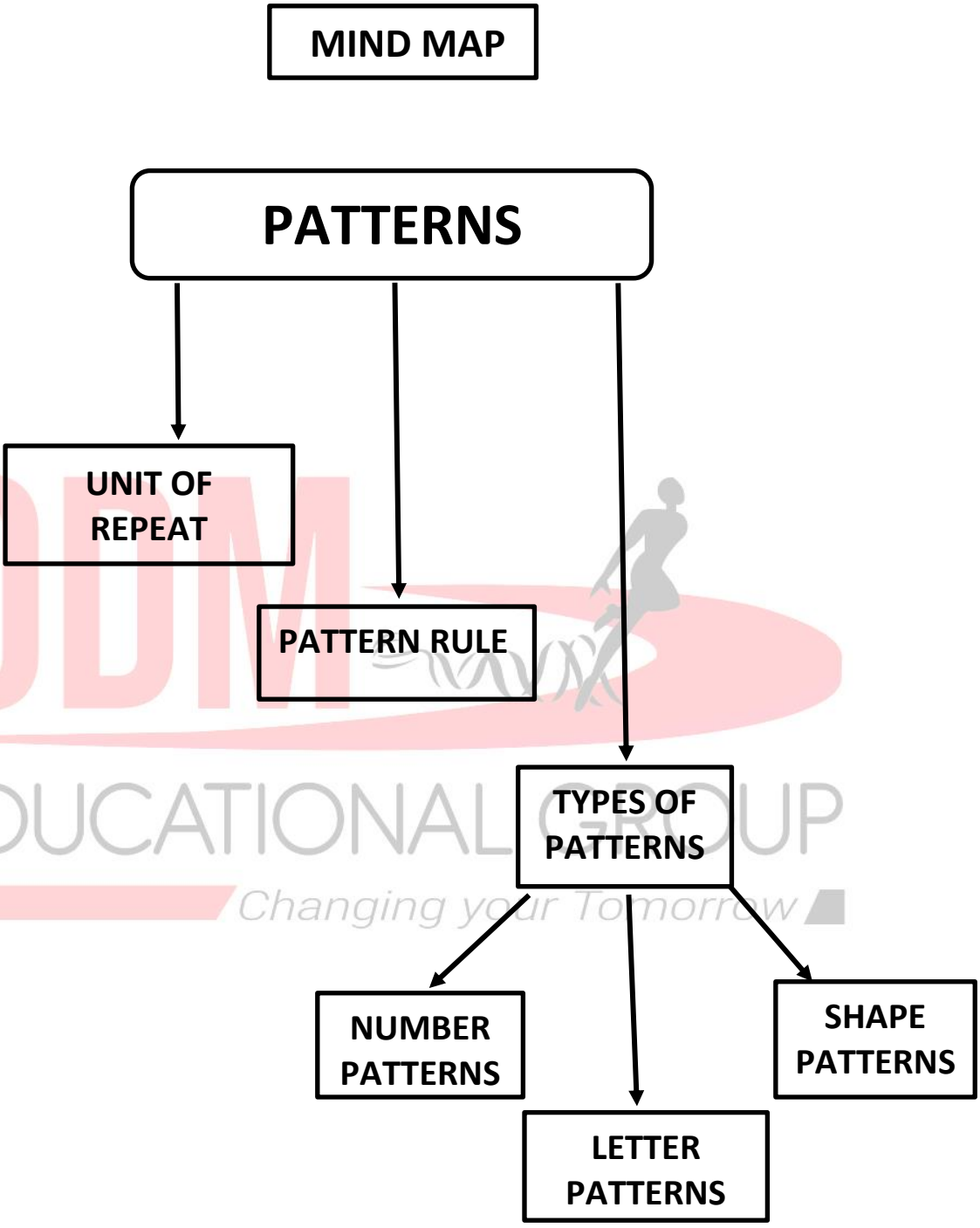
Shape patterns occur when a group of shapes are repeated over and over again. These patterns follow a certain sequence, or order, of shapes that is then repeated at least two times. The shapes can be simple shapes like circles or squares, or other objects such as arrows, flowers, moons, and stars.

EXAMPLE



COMMON ERROR

Children often overlooks the pattern rule and make conceptual errors.



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