PROBLEM SOLVING AND COMPUTATIONAL THINKING

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Day 1.

① { CALCULATIVE
    SYSTEMATIC
② CONCEPTS FROM
   COMPUTER SCIENCE
   ↓
   OR ANYTHING

WHENEVER YOU HAVE
A BIG PROBLEM

→ **DECOMPOSITION**
BREAKING DOWN PROBLEMS
INTO SMALLER COMPONENTS

BREAK IT
SHAKE IT
CRUSH IT

EAT THE CHUNKS

→ **PATTERN RECOGNITION**
OBSERVE PATTERNS AND
TRENDS IN DATA

CHEW
FIND THE FLAVOURS
TOP NOTE
MIDDLE NOTE
BASE NOTE

→ **ABSTRACTION**
REMOVING ASPECTS OF A
PROBLEM
THAT ARE **NOT NEEDED**
FOR THE SOLUTION.

FOCUS ON THE GOAL
AND
AVOID IRRELEVANT DRAGS

YOU NEED TO LEARN

SO? ① YOUR ROOMATE
SAD! BUT IDC SNORES   YOUR GOAL
② THE MESS FOOD IS YUUUCK.
IDC ③ YOU DIDN'T STUDY
LOL ④ HEADACHES AFTER WEEKEND
Hmm ⑤ BLAH BLAH BLAH

ALGORITHM
DETERMINE THE STEPS
REQUIRED TO SOLVE
A PROBLEM.

A set of rules to solve a
specific problem.

A well defined and finite set
of steps/rules that, even if
followed blindly, can
solve the specified
problem it has
been designed for.

PLANNING IS IMPORTANT

① TAKE YOUR STEPS CAREFULLY

② THINK OF EVERY POSSIBILITIES
AND BE **PREPARED**

CASE STUDY:

Problem: Selecting appropriate clothing for a specific occasion or weather.

Computational Thinking Approach:

DECOMPOSITION

Determine the occasion (e.g., formal, casual, work).
Consider the weather (e.g., temperature, precipitation).
Choose appropriate clothing items.
Accessorize as needed.

PATTERN RECOGNITION

Identify patterns in clothing choices based on different occasions and weather conditions. For example, formal events often require suits or dresses, while casual outings may call for jeans and a t-shirt.

ABSTRACTION

Focus on the essential features of clothing that are relevant to the occasion and weather, such as comfort, style, and appropriateness. Ignore irrelevant details like the specific brand or color.

ALGORITHM

1. Determine the occasion and weather.
2. Choose appropriate clothing items based on the occasion and weather.
3. Consider the color scheme and overall style.
4. Accessorize as needed.
5. Ensure the clothing is clean and in good condition.

Got it?

You can think of several educational or non-educational examples like the above.

ASSIGNMENT:—

1. You and your roommate really enjoy the coffee which they serve at Rise but the problem is it tends to be occupied most of the time and it's very hard to find two empty chairs. How would you approach this problem using Computational Thinking?

2. Think of a problem, write the problem statement and Solve it using Computational Thinking.

Submit the aforementioned in a soft copy over Turnitin.