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,

BREAK IT
SHAKE IT
CRUSH IT

→ **Decomposition**

Breaking down problems into smaller components

EAT THE CHUNKS

CHEW

FIND THE FLAVOURS

TOP NOTE

MIDDLE NOTE

BASE NOTE

→ **Pattern Recognition**

Observe Patterns and Trends in data

FOCUS ON THE GOAL
AND
AVOID IRRELEVANT DRAGS

→ **Abstraction**

Removing Aspects of a Problem That are NOT NEEDED For the solution.

YOU NEED TO LEARN

YOUR GOAL

So?
1. YOUR ROOMATE
   Sad! But Ikr SNORES
2. THE MESS FOOD IS Yuuuck.
   IDC
3. YOU DIDN'T STUDY
   LoL
4. HEADACHES AFTER WEEKEND
   Hmm
5. BLAH BLAH BLAH

PLANNING IS IMPORTANT

1. TAKE YOUR STEPS CAREFULLY
2. THINK OF EVERY POSSIBILITIES AND BE PREPARED

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.

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 0 —

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.