Computational Thinking for Students: Day Two

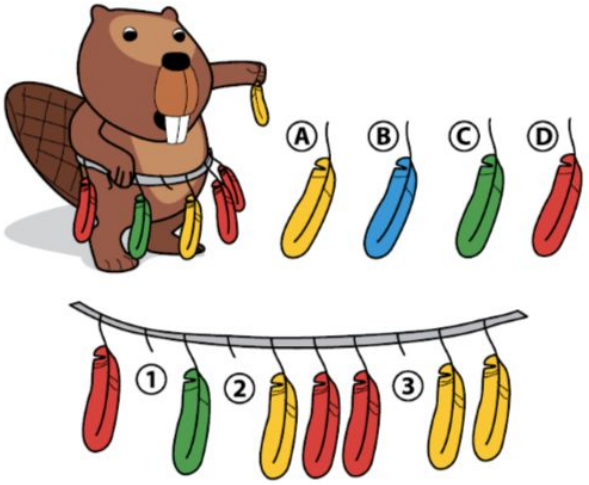
Complete the following questions and submit the answer sheet.

Question One:

Patterns

Feathers 12

Beaver's patterned feather belt has lost three feathers.



Which feathers should be on the belt?

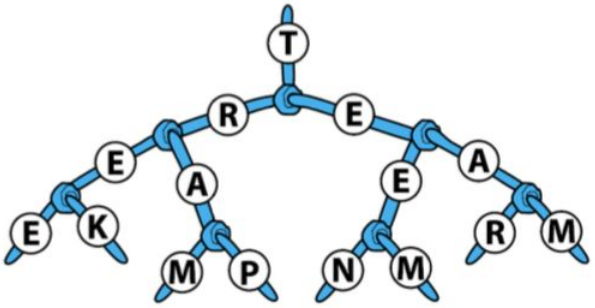
Question Two:

Algorithms

Read the words 20

Read these words by using the tree of possibilities:

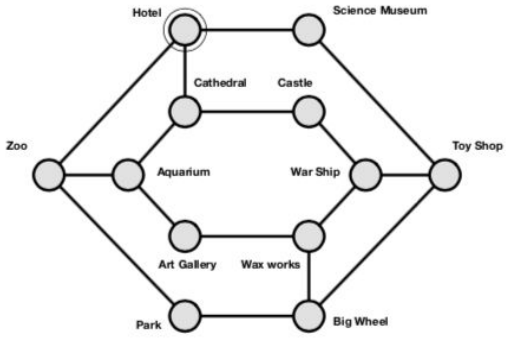
Tree, trek, tram, trap, teen, teem, team.



One word is missing from the list. What is it?

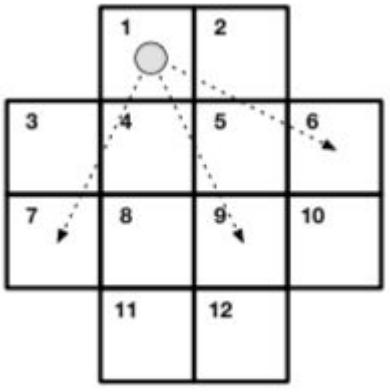
Question Three:

You are a hotel tour guide. Tourists staying in your hotel expect to be taken on a tour visiting all the city's attractions. You have been given an underground map that shows all the locations of the attractions and how you can get from one to another using the underground network. You must work out a route that starts from the hotel and takes your tour group to every tourist site. The tourists will be unhappy if they pass through the same place twice. They also want to end up back at their hotel that evening.



Question Four:

A single chess Knight is able to move on the small cross shaped board below. A Knight can move two spaces in one direction and then move one square at right angles, or vice versa, as shown. It jumps to the new square without visiting any in between, and must always land on a square on the board. Find a sequence of moves that starts from Square 1, visits every square exactly once by making such knight's moves and finishes where it started.



Question Five:

Pages of a book are numbered sequentially starting with 1. If the total number of decimal digits used is equal to 1578, how many pages are there in the book?

An **algorithm** is a step by step method of solving a problem. It is commonly used for data processing, calculation and other related computer and mathematical operations.

Computational Thinking for Students:

Answer Sheet: Day Two

Take a photo or scan this page

File format: Name - Day Two

Name:	
School:	
Question:	**Answer:**
One	
Two	
Three	
Four	
Five	
Rating	☆ ☆ ☆ ☆ ☆

Computational Thinking for Students:

Previous Days Answer Sheet: Day One

Question One

Answer: Flag 1 (triangle).

Explanation: Programmers have to prioritise the execution of tasks, or actions. The concept of priority is important in a lot of fields, especially when we need to create new components.

Question Two

Answer: Pile A.

Explanation: Computers follow a list of commands to carry out a particular task, this is called a program. The order of commands matters in programming and it is important to understand which actions take place first. A robot, a computer or any other automatic machine performs actions in an exact way in the order they are given.

Question Three

That answer is 3: Babs and Yabu eat at Quonk
Why?
We know Alice and Zach eat together at Quonk. That means that EITHER

- the woman who likes to eat there is Alice OR
- the man who likes to eat there is Zach.

It is not BOTH Alice and Zach who like to eat there as then they would have eaten somewhere else.
This means that the woman and man in question is EITHER

- Alice and Yabu OR
- it is Babs and Zach.

We cannot tell which though. Luckily, that does not matter, we have enough information. In both cases we get the same conclusion.
If it is Alice and Yabu that like Quonk, then:

- Babs and Yabu would eat there because of Yabu.
- Alice and Yabu wouldn't because both are there.
- Babs and Zach wouldn't because neither Babs nor Zach eat there.

If it is Babs and Zach that like Quonk then:

- Babs and Yabu would eat there because of Babs.
- Alice and Yabu wouldn't because neither Babs or Zach are there.
- Babs and Zach wouldn't because both are there.

So whichever the pair is:

- Babs and Yabu would eat there.
- Alice and Yabu wouldn't eat there.
- Babs and Zach wouldn't eat there.

Question Four

Answer:

0 0 0
0 0 1
0 1 1
0 1 0
1 1 0
1 1 1
1 0 1
1 0 0

Question Five

Answer: The answer is 499 moves.
Any move decreases the number of remaining sections by 1. Therefore, after *k* moves, the total number of remaining sections will be 500 − *k* irrespective of an order in which the sections are assembled. Hence 499 moves will be made before the entire puzzle is assembled.