Binary Numbers
Lesson Plan: Class 05 / P / 03

Overall goal of the lesson: Children will learn further on the concept of Binary numbers

Prior knowledge required: Basic understanding of the Binary system.

MODULE 1:
Module time: 35 minutes
Goal: For students to be able to understand more on the Binary system. This lesson is a continuation of what the kids learnt in P2
Description: Students will continue to learn more about the Binary system. They will start off from where they left in P2

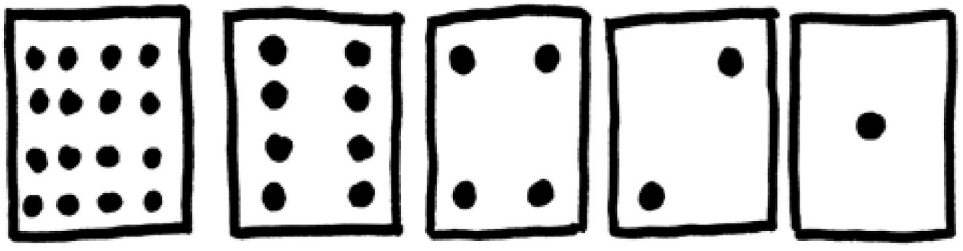
Material required:
Physical:
One copy of the Binary Worksheet (05-P-03-WS) per child
Electronic:
PPT Presentation as reference to help with further learning of Binary(05-P03-PPT)

Procedure Summary:

1. Go over the PowerPoint presentation (05-P-03-PPT) with the kids
2. Distribute the worksheet (05-P-03-WS) to see how much the kids have understood the concept

Procedure Details:

1. 1.Revise what kids have learnt the previous class
   Difference between Decimal and Binary system.
   Computers use the Binary system to understand what you type and store information
   Binary system uses the symbol 0 or 1. So, basically the computer stores and reads everything as combination of 1s and 0s
   Binary system uses base 2, successive numbers to the left of a number will be a multiple of 2
2. Ask them if they remember the flash dot cards that they used last class and show them once the master dot cards and the way the cards are arranged.



3. Go over just 1 or 2 examples of writing numbers (till 31) in Binary
4. Ask them, how many dots will the next card have (answer is 32), what's next? (64)
5. Ask them, if they know the rule they had followed to get the next number in a card
6. Explain that with a few cards they can count big numbers
7. Show them how a pattern forms when you start adding the numbers in the sequence
   1, 2, 4, 8, 16…
   Try adding: 1 + 2 + 4 = ? What does it come to?
   Now try 1 + 2 + 4 + 8 = ?
   What happens if you add all the numbers up from the beginning?

8. Show them how their fingers can do the counting in Binary with the help of the ppt

9. Explain to them about adding “0” to the right of the number with examples
10. Ask them if they figured the rule? (ans: number doubles)
11. Ask them if they know the reason for it (ans: Binary system is Base 2)
12. Introduce “Bit” (short for ***Bi***nary Digi***t)***. Relate a Bit with a card. Each card is a bit
13. So far, we have seen only 5 bits (with the 5 cards), but the computer has a lot more alphabets (upper case, lower case), special characters, numbers and for the computer to understand all of that, it will need lot of bits.
14. In order to bring some uniformity around the world, the *American Standard Code for Information Interchange (*ASCII, pronounced as as-kee) came up with a table of characters for computers. It is binary code used by electronic equipment to handle text using the English alphabet, numbers, and other common symbols
15. Summarize the class about Binary numbers beyond 31 and about bits.
16. Distribute the worksheet for them to solve few problems

Assessment:
Continuation of Binary system

Information Broadcast:
In Computer Science, the children learnt the basics of Binary system