**I handed in level 1 and 2**

**Level 3: Inside the Simon Game**

**Materials & Resources**

* Simon game obtained from teacher
* Presentation Slides: Simon Vs. Light Switch

**Questions**

1. Consider a basic light switch:
   1. What are some input devices?

* Keyboard
* Microphone
* Video Cards  
    
  1. What are some output devices?
* Printers
* Speakers
* Monitor  
    
  1. How do the inputs affect the outputs?
* Input is all the information that is entered into a computer system and the output is the presented information that is created by processing the input information. So, whenever the output is changed the output changes with it and what the output would be depends on the input.

1. Consider the Simon Game:
   1. What are some input devices?

* Buttons of different shapes,sizes and colours.  
    
  1. What are some output devices?
* Different colours
* Different Sounds   
  1. How do the inputs affect the outputs?
* The output depends on the input. If we input the correct sequence that the Simon game wanted us to input then the output would be that the game will produce the next sequence and let you level up but if you input the wrong sequence then the game’s output would be an error sound and you would have to start again.

1. How is Simon similar to a light switch?

* Simon is similar to a light switch because bothe there outputs depend oth their inputs. If the user presses a certain button then the output would be different if they pressed a different button
* Both simon and a light switch uses buttons that a user presses as a way of input.

1. How is Simon different from a light switch?

* A light switch is different from a simon because unlike the simon game a light switch does not have a “right” or “wrong” to it. For example if you press a button that was not the part of the sequence in simon then the game gives you an error sound but in a light switch you either press on or off and the switch would not tell you if you are wrong.
* Unlike simon game you don’t level up in a switch. It says the same
* Light switch does not produce sounds as an output and rather uses lights.

1. Research on-line about what is physically inside the game and the components inside the package:
2. What electronics devices and components provide the logic and computer processing?

* The circuit board which includes the processing chip

1. What electronics devices and components collect physical input from the user?

* Buttons (different colours, shapes and sizes)

1. What electronics devices and components provide output (sight and sound) to the user?

* Speaker (sound)
* Bulbs with other parts of a circuit such as wires, resistors, capacitors etc( light flashed by the coloured buttons)

1. Research on-line about program logic (e.g. software) that is inside the game and recent projects to emulate (duplicate) the game on modern computers. Summarize your findings below:

PROGRAM LOGIC

* Simon game is a memory game. It is an electronic game of lights and sounds in which players must repeat random sequences of lights by pressing the colored buttons in the correct order. There are four coloured buttons(red,green,blue,yellow). If the user presses the wrong button that does not matches the sequence given by the game than the game plays an error sound and starts over from level 1
* WORKINGS OF THE GAME - Inside the game there is a circuit board which is like the brain of the game and controls all the sounds, colours everything about the game.
* There is also a speaker connected to the circuit which helps produce all the sound
* The coloured buttons are also connected to the circuit by colour coded wires. The wires have the colours of the button that they are attached to.
* The buttons also have an electric circuit connected to them which helps produce the light that the buttons produce.

Recent projects that duplicate this game:

* A mobile game for iPhones called “Circles”
* “Color Memo” for Windows 10
* “Smart Simon”- more advanced version of Simon game