**Reading (VIPERS FORM)**

Use this form to record key ideas from reading to prepare for the lessons.  make sure you upload the completed form in TEAMS (Reading section)

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| Topic you prepared: | Links used: |
| Logic circuits - |  |

Terms: Write any new technical term and their meaning, add more rows if needed.

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| **Terms** | **Meaning** |
| equivalence tester | test whether two inputs are the same if so output is 1 |
| **binary half adder** | adds two single-bit binary numbers together.  0+0 = 0  0+1 = 1  1+0 = 1  1+1 = 10 🡪 (1+1 = 0 carry 1) |
| Binary full adder | Normal Binary addition  Carrying 1s when 1 +1  Using XOR , AND and OR gates. |
| **Combination circuits** | Outputs depend entirely on the inputs |
| **sequential circuits** | where the outputs depend not only on the current inputs, but also on the sequence of past inputs |
| **volatile** | Memory that does not retain their state when the power is switched off. |
| Asynchronous | In an asynchronous circuit, the inputs will be processed as they arrive. |
| Synchronous | In a synchronous circuit, the operations are controlled by a clock. |
| D-type flip-flop | synchronous sequential circuit that can be used to store the value of a single binary digit. |

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| **What can we understand from the topic?** |
| We can make an equivalence tester by using a XOR gate and NOT gate to give the inverse result.  Futhermore, multiple circuits equate to different uses such as a clock using the D flip flop or a Binary adder which can calculate the addition of large binary number |

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| **How this topic linked to other previous topics ? What conclusions can we draw from this topic?** |
| The uses of gates, binary operation as well as Boolean operations. |

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| **What are the strengths / applications of this topic? (e.g. accuracy, steps of calculations, time or space complexity, used when …., hardware and software needs, ethical or legal issues, ….etc.)** |
| Binary full adders can help when adding large binary numbers, a D flip flop can allow us to be able to create a clock where we can use the alternating signals to a certain point before changing the time on a clock. |

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| **What are the limitations / drawbacks of this this topic (e.g. problems, limited accuracy, too many steps, too complex, cannot be used when, hardware requirements, ethical and legal issues, ….. etc.)** |
| One of the problems with this flip-flop is that if there are changes in the data during the period when the clock signal is, the output at *Q* will change in line with *D* (data signal). |

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| **Write a summary of the topic in 50 words** |
| There are different circuits that can be used to manipulate numbers. We can add numbers check if they are opposite, |