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| **UNIT 2** |  |  |

# Lesson #5: Binary

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| Overview *Students will learn how to convert letters of the alphabet to binary numbers. They will also write and decode messages in binary.* Lesson Summary  * *Students will review how to count using decimal numbers that they are familiar with.* * *Next, I will demonstrate and students will learn to convert decimal numbers to binary numbers using the web as a resource. (*[*http://memorymentor.com/learn\_binary\_number\_system.htm*](http://memorymentor.com/learn_binary_number_system.htm)*)* * *I will show students the Octopus’s Counting video from YouTube to help explain the difference in decimal and binary counting. (*[*https://www.youtube.com/watch?v=4p-9-nK-mwY*](https://www.youtube.com/watch?v=4p-9-nK-mwY)*)* * *Then, we will view the web resource (http://www.wikihow.com/Write-Capital-and-Lowercase-Letters-in-Binary) to learn to convert letters of the alphabet to binary.* * *Students will write out their own short messages (1 sentence long). Then they will convert that message to binary. They will do this on their own, on notebook paper, and then check their accuracy using the binary translator website.* * *I will collect messages and redistribute them to other students.* * *The students who receive the message in binary will then decode the message.*  CS Content *Students are learning the binary number system and how to count in binary. They will also learn how to convert decimal numbers and letters to binary.* |  |  | Objectives **Students will be able to:**   * Convert numbers and letters to binary * Write a short sentence in binary * Decode a short sentence from binary to text  Materials and Prep  * http://memorymentor.com/learn\_binary\_number\_system.htm * http://binarytranslator.com/ * http://www.wikihow.com/Write-Capital-and-Lowercase-Letters-in-Binary  Resources **Student Documents**  **Code Studio**  **Video**   * https://www.youtube.com/watch?v=4p-9-nK-mwY   **Assessments**   * Turn in completed, decoded messages  Notes An extension of this activity   |  | | --- | | would be to teach | | students how to also | | convert to hex. | |