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| **UNIT 2** |  |  |

# Lesson #5 (Days 10-12): Binary Basics

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| Overview *Students will be introduced to the concept of binary numbers. They will understand what the numbers are, how they are used, how to convert binary to decimal and back, as well as as ASCII conversion, and practice those conversions* Lesson Summary *Students will be introduced to the concept of binary, explore its purpose, and learn how to convert to binary and write in binary*  *Watch What are Binary Numbers (*[*https://www.youtube.com/watch?v=kcTwu6TFZ08*](https://www.youtube.com/watch?v=kcTwu6TFZ08)*)*  *Demonstrate 8-bit binary on the board with student volunteers. Use a selection of random numbers from the class to turn bits on and off. Use a few student volunteers to demonstrate as well*  *Complete the student binary number activities from CS Unplugged*  *Explore the 8-bit ASCII table (*[*http://www.sciencebuddies.org/science-fair-projects/project\_ideas/CompSci\_ASCII\_Table.shtml*](http://www.sciencebuddies.org/science-fair-projects/project_ideas/CompSci_ASCII_Table.shtml)*)*  *Write your name in binary using the ASCII table and submit via the dropbox*  *Play* [*http://forums.cisco.com/CertCom/game/binary\_game\_page.htm*](http://forums.cisco.com/CertCom/game/binary_game_page.htm) CS Content *This unit covers binary numbers, basic computer operation (binary as a computer signal), and how information that humans use is converted into data the computer can understand.* |  |  | Objectives **Students will be able to:**  Count in binary  Convert binary and decimal  Understand the relationship between binary numbers and computer science Materials and Prep <http://csunplugged.org/wp-content/uploads/2014/12/unplugged-01-binary_numbers.pdf>  http://forums.cisco.com/CertCom/game/binary\_game\_page.htm Resources **Student Documents**  [*http://csunplugged.org/binary-numbers/*](http://csunplugged.org/binary-numbers/)  [*http://csunplugged.org/wp-content/uploads/2014/12/unplugged-01-binary\_numbers.pdf*](http://csunplugged.org/wp-content/uploads/2014/12/unplugged-01-binary_numbers.pdf)  <http://www.sciencebuddies.org/science-fair-projects/project_ideas/CompSci_ASCII_Table.shtml>  <http://forums.cisco.com/CertCom/game/binary_game_page.htm>  **Video**  https://www.youtube.com/watch?v=kcTwu6TFZ08  **Assessments**  http://forums.cisco.com/CertCom/game/binary\_game\_page.htm Notes  |  | | --- | |  | |  | |  | |