**Lesson ~ Instructional Days 10-12: Binary Numbers**

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| **UNIT 2** |  |  |

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| Overview *Students will learn how to write their first and last names and class period in binary. Students will learn how to write in binary numbers to create and answer multiplication problems and complete a multiplication table using binary numbers (Challenge Activity).* Lesson Summary  * *Journal Entry: Explain  why  binary  numbers  are  important  in  computer science?* * *Assignment:* * *Students will write their first and last name and class period in binary.* * *Students will create and answer ten (10) multiplication problems in binary numbers.* * *Students will work in groups to complete the Challenge Activity which is to complete a Multiplication Table in binary numbers.*  CS Content *Students will use critical thinking skills (inquiry) to solve the multiplication problems; students will learn how to convert between binary and decimal numbers in the context of topics that are important in computer science (CS); and all students will have access (equity) to discussion, journal writing, handouts, videos, etc.* |  |  | Objectives **Students will be able to:**   * Use binary numbers to create and answer multiplication problems * Explain why binary numbers are important in computer science  Materials and Prep  * Instructional Days 10-12 Student Activities, Journal Writing, and Discussion * Computer Science Unplugged * Activity 1 – Count the Dots * Binary Number Cards  Resources **Student Documents**   * Multiplication Chart Handout * Binary Coding Handout * Binary Number Cards   **Code Studio**   * The Hour of Code * Computer Science Fundamentals * Play Lab * Artist   **Video**   * The Internet: Wires, Cables, & Wifi * https://www.youtube.com/watch?v=ZhEf7e4kopM&feature=youtu.be&list=PLzdnOPI1iJNfMRZm5DDxco3UdsFegvuB7&noredirect=1   **Assessment**   * Binary Numbers Multiplication Test  Notes  |  | | --- | |  | |  | |  | |