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PEA project

From binary numbers to statistics, we have seen a lot of things in maths this year. What I learned this year will most likely serve me for the rest of my life in computer science. Though, I cannot say that everything was new for me. My father taught me hexadecimals before the course even started and that’s exactly what I’ll talk about in this text.

Hexadecimal is a base 16 number system. Why is it called Hexadecimal? Well it’s pretty simple to answer. Hex means 6 in Greek (think of a hexagon) and decimal means 10. When we add 6 and 10 I gives us 16. Pretty simple, right? Rather than having a base of ten (like in a decimal number system), hexadecimal uses a base of 16. How is that possible? We replace the values of 10 to 15 by letters of the alphabet. 10 is A, 11 is B, 12 is C, 13 is D, 14 is E and 15 is F. For the example of a typical problem: If we want to convert a hexadecimal number to a decimal number, we have to multiply each digits by a base 16. For example: I have the number 15C in hexadecimal and I want to convert it in decimal. To start, I would take the first digit (C or 12) and multiply it by 16 to the power of 0 (to the power of 0 because it will take the place of the units.) After that, we take the 5 and multiply it by 16 to the power of 1. We then take the one and multiply it by 16 to the power of two and all all the numbers we have calculated.

15C in hex = ((C or 12)\*(16^0))+ ((5)\*(16^1))+ ((1)\*(16^2))=348 in decimal

The field in computer science I will be talking about is the use of Hex in CSS to define a color on a web page. To add styles and make a site prettier, we use the coding language named CSS. This language allows to style their website however they want. To do this we have to link an html file to a CSS file. After that you can change the elements in the html page you made. You can change the formatting of the page, characteristics of the font, display and of course, one of the most important aspect to make a good page, the color. The primary colors (red, green and blue) are characterised by two hexadecimal digits. To change the color of the page, we use a certain color code: #RRGGBB whereas R is red, G is green, B is blue. Each of those letters are replaced by a number in hex (max is FF, that means there is 255 shades of the color that is available. The colors go from darkest to palest) So if I were to enter #ff0000 in my CSS, that would mean that I would want my page to be the palest red.

Source: [Uses of Hexadecimal | Hexadecimal & Character Sets | Computer Science (teachcomputerscience.com)](https://teachcomputerscience.com/uses-of-hexadecimal/#:~:text=Hexadecimals%20are%20used%20in%20the%20following%3A%201%20To,error%20messages.%20Hexadecimals%20are%20used%20to%20define%20)