**Independent Home Learning**

Whilst you are unable to be learning in school, please complete the following online lessons provided by the Oak National Academy to all you to continue learning and making progress, provided you are well enough to do so. Completed work can be emailed to your class teacher for feedback.

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| Year Group: | 10 | Subject | Computing |

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| Lesson | Description and link |
| 1 | **What is representation?**  In this lesson, you will consider two-state systems such as bulbs and switches, and investigate how combining these in groups gives you more combinations. Finally, you will learn how this relates to computers, and will be introduced to binary.  <https://classroom.thenational.academy/lessons/what-is-representation-ccrpar>  Other tasks: [OCR A Level and GCSE (9-1) Computer Science Coding Challenges booklet](https://www.ocr.org.uk/Images/260930-coding-challenges-booklet.pdf) |
| 2 | **Number bases**  In this lesson, you will use decimal representation to explore the concept of place values in number bases and the values of digits. Then, you will explore the representation of binary values, and converting these back to decimal.  <https://classroom.thenational.academy/lessons/number-bases-c4rkac>  Other tasks: [OCR A Level and GCSE (9-1) Computer Science Coding Challenges booklet](https://www.ocr.org.uk/Images/260930-coding-challenges-booklet.pdf) |
| 3 | **Binary maths**  In this lesson you will discover how to perform binary shifts, binary addition and develop an understanding of the term ‘overflow’.  <https://classroom.thenational.academy/lessons/binary-maths-68rkae>  Other tasks: [OCR A Level and GCSE (9-1) Computer Science Coding Challenges booklet](https://www.ocr.org.uk/Images/260930-coding-challenges-booklet.pdf) |
| 4 | **Hexadecimal**  In this lesson, you will be introduced to the hexadecimal number system and learn how to convert between hexadecimal and decimal numbers. You will also learn why hexadecimal is used.  <https://classroom.thenational.academy/lessons/hexadecimal-75gkcr>  Other tasks: [OCR A Level and GCSE (9-1) Computer Science Coding Challenges booklet](https://www.ocr.org.uk/Images/260930-coding-challenges-booklet.pdf) |
| 5 | **What can you remember?**  In this lesson, we will recap all of the things covered in this first half of this unit to see how much you can remember.  <https://classroom.thenational.academy/lessons/what-can-you-remember-cmv3at>  Other tasks: [OCR A Level and GCSE (9-1) Computer Science Coding Challenges booklet](https://www.ocr.org.uk/Images/260930-coding-challenges-booklet.pdf) |
| 6 | **Representing text**  In this lesson, you will look at character coding systems. First, you will consider character coding systems that you might have come across before, such as semaphore and Morse code, then you will be introduced to ASCII, a standard coding system for representing text. Next, you will learn about the need for Unicode to extend ASCII. Finally, you will learn how to work out the size of a plain text file.  <https://classroom.thenational.academy/lessons/representing-text-chk66t>  Other tasks: [OCR A Level and GCSE (9-1) Computer Science Coding Challenges booklet](https://www.ocr.org.uk/Images/260930-coding-challenges-booklet.pdf) |

Equipment required:

* Laptop;
* Pen, pencil and paper;
* Calculator;
* Dictionary;
* Highlighter.

If you have any questions, please email your class teacher.

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