**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: | 8 | Subject | IT/Computing |

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| Lesson | Description and link |
| 1 | **Get in gear**  In this first lesson about computing systems, you will focus on what sets these devices apart from other purpose-built machinery: it is their ability to execute programs that allows them to modify their operation and perform different tasks, and thus become our most versatile ‘tool for thought’.  <https://classroom.thenational.academy/lessons/get-in-gear-6wuket> |
| 2 | **Under the hood**  Learners will discover how all computing systems, regardless of form or capabilities, make use of the same components: a processor, memory, storage, input and output devices, and communication components. They will form a simple, concise picture of what each of these ‘universal’ components does, and how they work together in order to execute programs.  <https://classroom.thenational.academy/lessons/under-the-hood-60t36r> |
| 3 | **Orchestra Conductor**  This lesson will introduce the operating system, which is responsible for managing the complexity of modern computing devices. Here, operating systems will serve as an additional bridge between theory and practice.  <https://classroom.thenational.academy/lessons/orchestra-conductor-74tkac> |
| 4 | **It's only logical**  The goal of the lesson: to bridge the gap between logic and circuits, and make the direct link between them explicit. This is the last step in the learners’ journey through the hierarchy of a computing system, from programs, to the hardware responsible for executing the programs, and now, to the fundamental components that comprise this hardware.  <https://classroom.thenational.academy/lessons/its-only-logical-6xgpac> |
| 5 | **Thinking machines**  In this lesson, learners will attempt to define the term ‘artificial intelligence’, and explore the kinds of problems that it has traditionally dealt with. They will also focus on machine learning, and investigate its relationship with conventional programming. Learners will move on to use Google Teachable Machine, to gain an insight into what training a model involves, and the ethical considerations that are tied into building any system that makes decisions.  <https://classroom.thenational.academy/lessons/thinking-machines-75j3er> |
| 6 | **Sharing**  Learners will move away from the technical aspects of software and hardware that have been the focus of the unit and learn some of the key concepts of open source software. They will explore this through a discussion about some common Scratch practices that they are already familiar with ( sharing, ‘seeing inside’ projects, and ‘remixing’), and a reflection on the implications of these practices.  <https://classroom.thenational.academy/lessons/sharing-cdh66d> |

Equipment required:

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

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

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