| KNOWLEDGE NUGGET: DAY 3 - LOGIC GATES | |
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| Topic | Logic and Coding |

| Learning objectives | Success criteria |
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| Students will…<br>• be introduced to logic gates as the basic building blocks of any digital system and their effect on inputs and outputs.<br>• be shown the 8 main types of logic gates, what they look like and how they work:<br>○ BUFFER ○ OR<br>○ NOT ○ NOR<br>○ AND ○ XOR<br>○ NAND ○ XNOR<br>• take part in a logic gate challenge | - Watching and understanding the video in its entirety.<br>- Participating in the logic gate challenge. |

| Resources | Suggested use of teaching time |
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| - Knowledge Nugget Video<br>- Logic Gate cheat sheet<br>- Logic Gate challenge worksheet | Video – 10 minutes<br>Logic Gate Challenge – 5 Minutes (introduced as part of the video) |

**Learning activity**

The video will introduce the eight main types of logic gates, what they look like and how they work; walking through how different inputs are affected by the type of logic gate and how this impacts the output.

This session will talk through a challenge containing multiple gates, the teacher may wish to pause the video during this phase to allow students to have a go themselves before the answer is revealed.

Students will then be provided with a challenge (see worksheet) to complete themselves. Please note that the correct answers and walkthrough for this are provided as part of the Day 5 knowledge nugget video.

**Evaluation and next steps**

Websites:

https://sciencedemos.org.uk/logic_gates.php Logic gate simulator - build your own and test them.

Why not get the students to have a go at using the simulator website linked below to build this once they've settled on their answers, or just to create their own for their friends to try out.

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https://www.ncsc.gov.uk/cyberfirst/girls-competition to register for the next CyberFirst Girls' Competition.

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