

# Artificial Intelligence Lesson Plans Collection 2023

## Key Stage Four

### Identifiers

Phase	14-18
Year	Y10/11/12/13

### Curriculum links

England: National Curriculum for Computing – KS4	Understand how changes in technology affect safety, including new ways to protect their online privacy and identity, and how to identify and report a range of concerns.
Wales: Digital Competence Framework	<p>Digital rights, licensing and ownership:</p> <p>I can understand copyright and can explain the legal and ethical dimensions of respecting creative work.</p>
Scotland: Curriculum for Excellence	<p>Technologies: Computing Science</p> <p>I can informally compare algorithms for correctness and efficiency.</p> <p>Technologies: Technological Developments in Society and Business</p> <p>I can select and use appropriate hardware and software which supports evolving business activities.</p>

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## Activity Guidance

<p><b>Outcome Criteria</b></p> <p>Child(ren) will be able to...</p>	<p>Understand the biases that may exist in AI systems and how these impact the outputs</p> <p>Explore the issue of copyright and debate an ethical dilemma in AI.</p>
<p><b>Questions to ask</b></p>	<p><b>Starter:</b> What do all these items have in common?</p> <p><b>Barbie video:</b> What stereotypes can you see in the Barbie video? Do you think this is right? Does bias happen in other AI systems? Should creators of AI consider bias when training their systems?</p> <p><b>Debate:</b> What makes a good debate? How are we going to ensure both sides get to speak equally? Who owns the output from Artificial Intelligence? Why do you think that? What evidence can you provide to support your opinion? Why is it important for people to debate issues such as these?</p> <p><b>Wrap-Up:</b> What are the dangers of bias and inaccurate inputs in machine learning and AI? What are the benefits of AI? Do the pros outweigh the cons? How do you think we can make AI unbiased &amp; accurate? Is it possible?</p>
<p><b>Activity Descriptor</b></p>	<p><b>System, creator, user?</b></p> <p><b>Starter:</b> Show images/list of various AI-based products/items and ask what they all have in common. Discuss how AI is used widely in the modern world – give examples pupils can relate to, i.e., Alexa, Siri, Netflix recommendations etc.</p> <p>Explain that AI is underpinned by machine learning and explain that is what the lesson will be focusing on. Highlight that AI is a generally misused term, that covers a wide range of systems using large amounts of data to provide a simulation of human thinking.</p> <p>Explain that these systems need data in order to provide responses to prompts. Data comes in many forms</p>

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and is 'fed' into the machine to provide a dataset for the machine to use. The more data the machine has on a topic, the more accurate the responses are likely to be for that topic. But the data the machine is trained on can also have an impact on the outputs the system produces.

Play the [Barbie](#) video. In this video the producers explain how AI systems produced stereotypical images when asked to create Barbies from different countries. Take some time to ensure that the students understand the stereotypes displayed and allow time for them to discuss this as a group. Do they think this is right? Do they think this happens in other AI systems?" Should creators of AI systems consider bias when training their systems?

You may wish to refer to the work of [David Rozado](#) who has explored (US) political bias in ChatGPT and Google Bard. Whilst this does also document positive changes that the AI creators have made, it is important to note that these changes were only made in response to work such as David's.

**Main:**

Prepare for a debate entitled "Who owns the output from artificial intelligence?"

Arguably there are three standpoints: The creators of the system, the system and the user.

The slides will help you successfully host the debate, but you may find these guides helpful to refer to:

[What is Debating? Twinkle.](#)

[Five steps for preparing a debate with a class – Noisy Classroom](#)

[Debating and presenting information – BBC Bitesize Year 6](#)

NOTE: You may wish to set a homework pre-activity before this and invite students to carry out their own research into the ownership of AI output. This may enhance the session as students will already have formed an opinion and a standpoint to take. To introduce more challenge, ask pupils to argue the opposing standpoint to their own opinion.

Share [this story](#) about how two stock image libraries have approached the issue of AI systems potentially infringing copyright. Discuss the approaches of the companies, particularly in the context of ownership of the

	<p>output.</p> <p><b>Wrap-up:</b> Share <a href="#">this story</a> about AI detecting rulers, not cancer when being trained. This dates back to a <a href="#">2018 study</a> this further demonstrates the development that has been invested into AI system much further back than the recent hype around them. The issues around bias, output ownership and incorrect machine learning have been highlighted throughout the lesson, but what are the benefits of AI? Students to discuss in pairs and come up with some of the positives (there are many, including time-saving!) Do the pros outweigh the cons? Questions to take away: How do you think we can make AI unbiased and accurate? Is it possible?</p> <p><b>Extension Activity:</b> Read I, Robot by Isaac Asimov or watch the film and discuss the issues it raises</p>
Activity Resource	<p>Slide Deck</p> <p>Articles – could be printed out or opened on pupil laptops/tablets if more suitable than sharing on whiteboard.</p> <p>Optional pre-session homework notes</p>

Suggested adjustments for those with additional needs	
<p>Provide the video, online articles and debate question prior to the lesson so pupils have time to prepare beforehand.</p> <p>Provide some arguments for each side in the debate so pupils can choose which side they relate to more.</p> <p>Give pupils numbered cards so they know when it will be their turn to speak during the debate.</p> <p>Provide sentence starter prompts for debate.</p>	