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| **Lesson Title** |
| How AI influences you (AI Recommender Systems) |
| **Introduction**  |
| This unit is split into three lessons. They can be delivered all together (~2hrs) or one at a time over multiple sessions, or you may pick-and-choose from the activities. The lessons cover a particular type of AI system—a recommender system—which is used by streaming and social media services to recommend content, online shopping platforms to recommend products, and so on. These lessons will give learners a conceptual overview of how such systems work, as well as make them aware of the ethical implications of using them. **There are cross-curricular links to CfE Level 3/4 Literacy, Numeracy, Science, Social Studies, and Technology.** |
| **Materials required** |
| * Printed worksheets and pens/pencils for the paper-based activities
* Browser with internet access for the online activities
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| **Learning Outcomes** |
| * Learners will gain a conceptual understanding of how “content filtering” and “collaborative filtering” recommender systems work.
* Learners will consider the ethical implications of using recommender systems to make consequential decisions, in light of data bias and algorithmic bias.
* Learners will explore how AI recommender systems work to create individualised social media feeds.
* Finally, learners will consider the potential consequences of personalised feeds, including: echo chambers; misinformation; and exposure to increasingly extreme content.
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| **Curriculum Links** |
| * **LIT 3-08a/4-08a** To help me develop an informed view, I am learning about the techniques used to influence opinion and how to assess the value of my sources, and I can recognise persuasion.
* **MNU 3-20b** When analysing information or collecting data of my own, I can use my understanding of how bias may arise and how sample size can affect precision, to ensure that the data allows for fair conclusions to be drawn.
* **SCN 3-20b** Through research and discussion, I have contributed to evaluations of media items with regard to scientific content and ethical implications.
* **SOC 3-17b/4-17b** I can discuss the extent to which my choices and decisions are influenced by the ways in which I am informed/ I can evaluate the tole of media in a democracy, assess its importance in informing an influencing citizens, and explain decisions made by those in power.
* **TCH 3-06a** I can evaluate the implications for individuals and societies of the ethical issues rising from technological developments.
* **TCH 3-08a** I can explore the impact, contribution and use of various software applications and emerging hardware in business.
* **TCH 4-14b** I can explain the overall operation and architecture of a digitally created solution.
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| **Lesson Outline**  |
| 45 min | **Introduction to Recommender Systems and Printable ‘Movie Night’ Activity.** Use the slides and provided ‘Movie Night worksheet’ to introduce learners to the two main types of recommender systems. Your class can choose to do TV shows, music, or games instead of films if they’d rather—see alternative worksheets or edit as you see fit. Choose a topic that you think all learners will be able to think of 10 examples of. There are links to top 250 films and TV shows to help jog memories.If you have extra time, there are optional extension activities listed in the powerpoint. |
| 30 min | **Using algorithms to make decisions – Online activity:** Play the online game ‘Survival of the Best Fit’ and discuss the issues of using AI for recruiting employees. |
| 45 min | **Customise Your Feed:** This activity is printable using the provided worksheets for each learner, or there is the option to send the worksheets to learners’ devices and run it paper-free. This is best done in groups, where each group is given a few users to optimise the social media feed for. **There is also an optional alternative online activity** ([Somekone social media simulator)](https://somekone.gen-ai.fi/start) which requires learners to have their own devices with internet access. Both activities teach learners about how social media algorithms personalise content. After the activity of choice is completed, there is an optional 9 min video to watch along with discussion prompts. |

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| **Additional Resources** |
| **How Recommender Systems work:*** Explainer article about recommender systems by Nvidia: <https://www.nvidia.com/en-gb/glossary/recommendation-system/>
* Video: More detailed, mathematical explanations about recommender system model architecture (8 min) <https://www.youtube.com/watch?v=n3RKsY2H-NE&t=5s>

**Try these music, book and art recommender systems!*** Music Map: [https://www.music-map.com](https://www.music-map.com/)
* Similar Songs Finder: <https://www.chosic.com/playlist-generator/>
* An Ocean of Books: <https://artsexperiments.withgoogle.com/ocean-of-books>
* GNOD Literature map: <https://www.literature-map.com/>
* GNOD Art: <https://art.gnod.com/>

**Using AI Algorithms for decision-making:*** Short article: “The Algorithms aren’t biased, we are” <https://medium.com/mit-media-lab/the-algorithms-arent-biased-we-are-a691f5f6f6f2>
* TED Talk (17 min): Machine intelligence makes human morals more important <https://www.ted.com/talks/zeynep_tufekci_machine_intelligence_makes_human_morals_more_important>
* Video (18 min): Technology is Not Neutral - Talk by Stephanie Hare summarising her book <https://www.youtube.com/watch?v=jqyJlKkL9h0>

**Ethical issues of Social Media Recommender Systems:*** Common Sense Media’s lesson on AI Algorithms: <https://www.commonsense.org/education/digital-citizenship/lesson/ai-algorithms-how-well-do-they-know-you> (20 min lesson)
* University of Bristol’s “Thinking Science” resources on AI Recommender Systems (click on the “Information Technology and People” resource and go to page 12-13) <https://www.bristol.ac.uk/philosophy/thinking-science/resources/>
* BBC Bitesize “How algorithms and filter bubbles decide what we see on social media”: <https://www.bbc.co.uk/bitesize/articles/zd9tt39>
* AVID Open Access -10 Ways to Pop the Filter Bubble: <https://avidopenaccess.org/resource/pop-the-filter-bubble/>
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