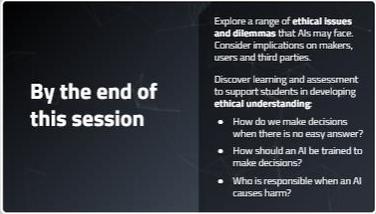
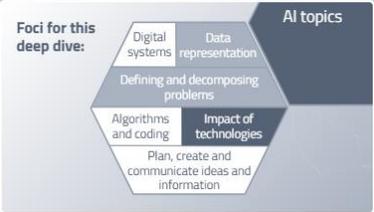


AI Professional Learning: AI and ethics (Yrs 7-10)

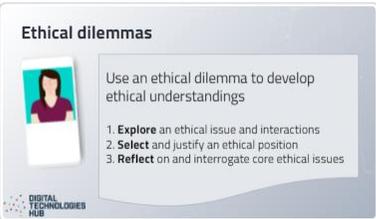
Session overview

DT Curriculum focus	Relevant slides	Covered in the session	Resources
	 <p>By the end of this session</p> <ul style="list-style-type: none">Explore a range of ethical issues and dilemmas that AIs may face. Consider implications on makers, users and third parties.Discover learning and assessment to support students in developing ethical understanding<ul style="list-style-type: none">How do we make decisions when there is no easy answer?How should an AI be trained to make decisions?Who is responsible when an AI causes harm?	<p>During this session you will:</p> <ul style="list-style-type: none">Explore a range of ethical issues and dilemmas that AIs may face. Consider the implications on makers, users and third parties.Discover learning and assessment to support students in developing ethical understanding:<ul style="list-style-type: none">How do we make decisions when there is no easy answer?How should an AI be trained to make decisions?Who is responsible when an AI causes harm?	

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<p>Impact / Defining and decomposing problems</p>	 <p>Foci for this deep dive:</p> <ul style="list-style-type: none"> Digital systems Data representation Defining and decomposing problems Algorithms and coding Impact of technologies Plan, create and communicate ideas and information <p>Achievement standards:</p> <p>By the end of Year 10, students must... By the end of Year 10, students must... By the end of Year 10, students must...</p>	<p>Curriculum connections with Digital Technologies learning area</p> <ul style="list-style-type: none"> Digital Technologies: Impact: the focus on how technologies affect us, how they can be evaluated for sustainability and innovation. <p>We also include ways of thinking, particularly:</p> <ul style="list-style-type: none"> Systems Thinking 	<p>Downloadable resources/links</p> <ul style="list-style-type: none"> Digital Technologies Learning Area at Australian Curriculum
<p>Impact</p>	<p>Topics of interest to Secondary students?</p> <p>Which topics are safe, risky, or no-go zones in your school? To what extent are issues being sensationalised?</p> <ul style="list-style-type: none"> content recommender algorithms: filter bubbles, radicalisation, politics and society employment: automation of 'white collar' work, over-monitoring or control of workers mass data collection and use: privacy, intrusive or controlling companies, totalitarian states <p>Systems Thinking for framing and understanding</p> <ul style="list-style-type: none"> Identify one or more supra systems or connected systems affected by the changes the chosen innovation has made to the chosen system (e.g. passengers and drivers using uber to open ride sharing as part of a transport supra system, including private cars, public transport and sea ferries). Write a list of known impacts from the chosen innovation on the chosen system and on the supra systems/connected systems. Consider both of these things: <ul style="list-style-type: none"> two different perspectives within the system two different perspectives from the supra system / connected systems. Write a list of any future, potential impacts you foresee as the technology continues to be used and/or developed. <p>LESSON: Habits of a Systems Thinker (Years 7-10) LESSON: Systems Thinking and AI applications (Years 7-10)</p>	<p>When it comes to ethics and impact, we broach the issue of deciding which topics are suitable and appropriate for your cohort and for your school.</p> <p>We propose the use of Systems Thinking for framing an understanding of the impact of innovative technologies, including AI.</p>	<p>Downloadable resources/links</p> <ul style="list-style-type: none"> Lesson idea: Habits of a Systems Thinker (Years 7-10) Lesson idea: Systems Thinking and AI applications (Years 7-10)

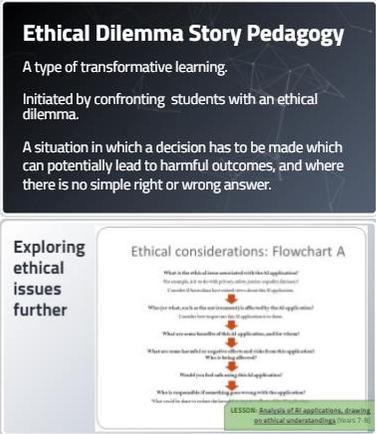
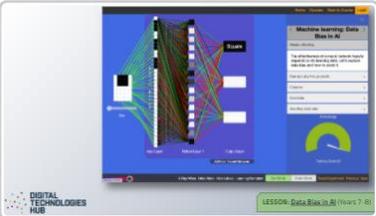
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<p>Impact / Ethical Understanding</p>	 <p>Developing ethical understanding</p> <p>Explore ethical issues and interactions:</p> <ul style="list-style-type: none"> analyse issues of contention explore diverse perspectives weigh up evidence for right and wrong explore how through frame of the options may be about <p>Explore concepts:</p> <p>justice, right and wrong, freedom, truth, identity, empathy, goodness, abuse, honesty, integrity, fairness, inclusion, equality, loyalty, courage, respect, doing no harm, openness, equity, transparency, reliability</p>  <p>What is ethics?</p> <p>Ethics is largely concerned with...</p> <ul style="list-style-type: none"> what we ought to do, how we ought to live. <p>...based on a set of values.</p> <p>openness, goodness, transparency and rightness, inclusion, harm, doing freedom, courage.</p>  <p>Can an AI make ethical decisions?</p> <p>Can we trust an AI to 'do the right thing'?</p> <p>Is an AI going to be fair?</p>	<p>We bring in the General Capability for Ethical Understanding, considering aspects and desired learning outcomes.</p> <p>We look at a three-part learning goal for approaching ethical question, drawn from a planning resource at the Victorian Curriculum and Assessment Authority (VCAA).</p> <p>We explore what "ethics" means at an introductory level, and some considerations for diving into ethical discussions in the context of a Secondary school.</p> <p>Then, we come back to the AI challenge: We are increasingly handing over ethical decision making to AI systems, leading to questions that we may not otherwise have to confront head-on.</p>	<p>Downloadable resources/links</p> <ul style="list-style-type: none"> Ethical Understanding general capability at Australian Curriculum. Ethical Understanding planning resource at the VCAA.
<p>Impact / Ethical Understanding</p>	 <p>Ethical dilemmas</p> <p>Use an ethical dilemma to develop ethical understandings</p> <ol style="list-style-type: none"> 1. Explore an ethical issue and interactions 2. Select and justify an ethical position 3. Reflect on and interrogate core ethical issues 	<p>Using the three-part learning goal introduced earlier, we begin a detailed example in the context of self-driving cars, avoiding the standard "trolley problem" scenarios.</p>	<p>Downloadable resources/links</p> <ul style="list-style-type: none"> YouTube video: The ethical dilemma of self-driving cars - Patrick Lin

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	 <p>Ethical dilemma of self-driving cars</p> <p>A: Swerve and hit the SUV</p> <p>B: Slam on the brakes</p> <p>C: Swerve and hit the motorbike</p> <p>D: Sacrifice car passengers</p> <p><small>The ethical dilemma of self-driving cars - Patrick Lin</small></p> <p>Reflection</p>  <p>People react. Machines are purposely trained.</p> <p><small>DIGITAL TECHNOLOGIES HUB</small></p>	<p>Thinking further, we show how it is possible for ethical rules to lead to antithetical outcomes.</p>	
<p>Impact / Ethical Understanding</p>	<p>Scenarios: Facial recognition</p>  <p>A company is behind schedule and over budget in building an AI application. The AI uses face recognition to unlock a smartphone. Through testing, the company found that the AI worked with most people's faces.</p> <p><small>DIGITAL TECHNOLOGIES HUB</small> <small>LESSON: AI Quiz (Years 7-8)</small></p> <p>Scenarios: hacking</p> <p>Should the company...</p> <p>A: Do as they are told in case they might lose their job.</p> <p>B: Try and come up with a fix that might work.</p> <p>C: Inform someone higher up in the company such as the Managing Director.</p> <p>D: Wait until the product is in use and if there is a problem tell the project manager 'I told you so'.</p> <p><small>DIGITAL TECHNOLOGIES HUB</small> <small>LESSON: AI Quiz (Years 7-8)</small></p>	<p>We demonstrate some scenarios from the AI Quiz lesson idea, including the contexts of:</p> <ul style="list-style-type: none"> • facial recognition • hacking • self-driving cars <p>Along with introductory material to help structure the lesson, these quiz scenarios help you to engage students in discussions of how companies, their employees, governments and the general public are affected by AI systems.</p> <p>For example, a programmer developing an AI system has responsibility to adhere to</p>	<p>Downloadable resources/links</p> <ul style="list-style-type: none"> • Lesson idea: AI Quiz (Years 7-8)

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		<p>the Code of Conduct of the company for which they work.</p>	
<p>Impact / Ethical Understanding</p>	 <p>Ethical Dilemma Story Pedagogy A type of transformative learning. Initiated by confronting students with an ethical dilemma. A situation in which a decision has to be made which can potentially lead to harmful outcomes, and where there is no simple right or wrong answer.</p> <p>Exploring ethical issues further</p> <p>Ethical considerations: Flowchart A</p> <p>What is the ethical issue associated with the AI application? For example, is it to only provide cancer-related disease? Consider of benefits for people who are not the target audience.</p> <p>Who is/are what, such as the environment, affected by the AI application? Consider how important the AI application is to them.</p> <p>What are some benefits of the AI application, and for whom?</p> <p>What are some harmful or negative impacts and risks from this application? What is being changed?</p> <p>Would you feel safe using this AI application?</p> <p>Who is responsible if something goes wrong with the application? What are the consequences for them?</p> <p>LESSON: Analysis of AI applications, drawing on ethical understandings (Years 7-10)</p>	<p>We introduce other pedagogies for Ethical Understanding in the classroom, including ethical dilemma stories (also referred to as moral dilemma stories) and an adaptation of Plus-Minus-Interesting.</p> <p>The lesson idea Analysis of AI applications, drawing on ethical understandings provides tools and diagrams to help students work through ethical considerations, with example scenarios like a smartphone app using AI to potentially detect skin cancers.</p>	<p>Downloadable resources/links</p> <ul style="list-style-type: none"> Lesson idea: Analysis of AI applications, drawing on ethical understandings (Years 7-8)
<p>Data representation / Impact / Ethical Understanding</p>	 <p>DIGITAL TECHNOLOGIES HUB</p> <p>LESSON: Data Bias in AI (Years 7-10)</p>	<p>Our final machine learning visualisation shows how bias can creep into an AI system.</p>	<p>Downloadable resources/links</p> <ul style="list-style-type: none"> Simulation at My Computer Brain Lesson idea: Data Bias in AI (Years 7-8)

AI Professional Learning: AI and ethics (Yrs 7-10)

<p>Impact / Ethical Understanding</p>	<div data-bbox="479 217 855 427"><p>Assessment of students' ethical understanding</p><p>Self-reflection</p><ul style="list-style-type: none">• How did they respond to the AI quiz?• What did they learn?<p>Analysis</p><ul style="list-style-type: none">• Analyse a dilemma• Discuss criteria used in a rubric</div> <div data-bbox="479 437 855 651"><p>Assessment</p><p>To what extent did a student:</p><ul style="list-style-type: none">• identify and describe an ethical issue• weigh up multiple perspectives to make informed decisions• respond to a problem fairly, justly and responsibly?<p><i>The issue here is that as AI cannot know and it is difficult to see who is responsible. We show C. You can't blame the driver as they were not in control. The AI had no choice to swerve and hit the cyclist. I feel sorry for the cyclist. Before AI was on the road we had to work out these issues. Names not given SS</i></p><p><small>DIGITAL TECHNOLOGIES HUB</small></p></div>	<p>We conclude with a look at how students' ethical understanding might be assessed:</p> <ul style="list-style-type: none">• identify and describe an ethical issue• weigh up multiple perspectives to make informed decisions• respond to a problem fairly, justly and responsibly? <p>The AI Quiz lesson provides a brief rubric.</p>	<p>Downloadable resources/links</p> <ul style="list-style-type: none">• Lesson idea: AI Quiz (Years 7-8)
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