

Intro Unit | Introduction to Responsible AI

Teachers' Guide

Preparation: • Display slide 2, with title for this unit and learning goals	
Time: 45min	
Learning Goals: • Articulate what AI is and what it is not • Evaluate the strengths and weaknesses of AI • Define ethical principles in AI (UNESCO AI Ethics Principles) • Describe ethical challenges that may arise in AI • Get excited to learn more about AI and data science	Lesson Resources: • Computer, Internet connection, and projector • Slide deck Intro Unit – Introduction to Responsible AI • Worksheet Intro Unit – General Worksheet • Case studies Intro Unit – Ethical Issue Case Studies (Basic) • Knowledge Check Intro Unit – Knowledge Check

Part 0: Opening

Total Time: 5 Min

Activity	Time	Purpose and Notes
1. Class Greeting Greet students and complete introductions (e.g., introduce yourself as the facilitator and the topic	1 min	Students will learn the name of the facilitator, and will have an understanding of the overall purpose of the course and what will be covered.

of the course). Display the name(s) of the facilitator(s) on the (virtual) board.		
2. Ask students to introduce themselves (to give their name), and share why they are interested in the course or what they hope to learn.	2 min	Students will have an opportunity to share their names with the facilitator and the rest of the class. They will reflect on what they might personally get out of the course.
3. Explain the process of working in groups. ○ The class will be divided into groups of 4. ○ Within each group, each pair of students are elbow partners. ○ When responding in writing ('journaling'), as prompted by the instructor, students will (a) write silently, (b) share with their elbow partners, (c) share with their group, and (d) share with the class.	1 min	This process will be repeated throughout the curricula whenever there are discussion questions.
4. Introduce the day's topic Read the learning objectives for the day to the students.	1 min	You can also read through the learning objectives on the board to help students know what to expect from the lesson. You can combine Intro Unit with another unit.

Part 1: Questions about AI

Total Time: 5 Min

Activity	Time	Purpose
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1. Questions about AI Introduce the ten questions. Pick ones that students seem excited to discuss a little more. Use some questions as a preview to future units. How does AI know what I want to watch on YouTube / TikTok / Netflix? These questions lead to the music recommendation algorithms in another unit. Should AI make important decisions like job offers or college admissions? This question preludes to the unit about using AI to predict student grades. Can AI solve climate change? This question leads to the water quality unit. Can AI create art or music? Who is responsible if AI makes a mistake? Is AI spying on us? Can AI do my homework? These relate to the ethical principles. Will AI replace my teachers? Can AI be smarter than humans? What's the difference between AI and robots?	5 min	Teachers can use these questions to inspire students to think about AI and motivate them to learn more. Teachers can gauge what students already know about these questions and topics in preparation for subsequent units.
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Part 2: What is AI?

Total Time: 15 min

Activity	Time	Purpose
1. Introduction to AI Play the video What Is Artificial Intelligence? Crash Course AI #1 until 4:48. Remind students that they should pay special attention to the definition of AI and they will need to write down examples of AI and examples of human activities in the knowledge check. Give students an opportunity to ask questions about what they saw on the video.	6 min	Students will have an overview of AI. They will hear what AI is, and some of the different ways it can and is being used.
2. Definition of AI Go through the definition of AI as applying algorithms to real world data in order to help people solve problems, make decisions, and do tasks faster and better than we could on our own.	2 min	Give students a framework to think about what AI is. The framework can be used in subsequent units.
3. AI or Not AI Game	7 min	Students will reinforce the learning from the video by talking about these examples,

Teachers will show the items slide by slide. Students can discuss in groups to decide whether the item is AI or not. Some items might be more ambiguous, such as remote controlled drones. One student from each side could present to share their views. Remind students they could use the AI -> data + algorithm + intelligent output to think about the question. Comments are given in the Notes section for each slide. Students may debate more on cameras, advertising and cars. They are left ambiguous deliberately for students to discuss.		particularly a few items that were not AI before but are widely enhanced by AI nowadays.
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Part 3: The Wonders of AI

Total Time: 5 min

Activity	Time	Purpose
1. Three things you like about AI	5 min	AI is an important part of our life. Despite the challenges we will discuss later, there are many

Ask students to discuss in pairs about three things they like about AI and share with the class. Students can contribute to an online word cloud such as Mentimeter. Teachers can go through the list.		wonderful benefits of AI, making it more imperative for students to understand it to use it well.
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Part 4: The Problems with AI

Total Time: 5 min

Activity	Time	Purpose
1. Three things you concern about AI Ask students to discuss in pairs about three things they concern about AI and share with the class. Students can contribute to an online word cloud such as Mentimeter in a similar format as before. The wonders and concerns could be juxtaposed. Teachers can go through the list provided in the slide and add to the students' ideas.	5 min	Despite the wonders of AI, the challenges are also pressing. The discussion leads to thoughts about what students can do to make good use of AI.

Part 5: Ethical Principles of AI

Total Time: 60 min

Activity	Time	Purpose
1. Introduce the four core values of UNESCO Before we talk about the ethical principles of AI, we can talk about some core values first. Show students that these are human rights and human dignity, living in peaceful, just and interconnected societies, ensuring diversity and inclusiveness and a flourishing environment and ecosystem.	3 min	We bring the background of the ethical principles to students. The core values guide the ethical principles.
2. Introduce ethical principles Show the “Ethical Principles” slide and introduce the five key principles we will cover in this course: Fairness and non-discrimination, privacy, security, transparency, and explainability. Tell students that these principles are important to consider in AI use and development. Tell students that these are not all of the UN’s AI principles, but that this course acts as an introduction. They can learn more from the UN’s Recommendation on the Ethics of AI.	2 min	Flash these terms in front of the students. They may not fully understand what they mean. Students will use the subsequent case studies to gain a deeper understanding of these ethical principles.

3. Jigsaw Activity – Part 1 Reading and Writing We have given a basic set and an advanced set for this activity. Teachers can choose the basic set or the advanced set depending on students' reading and comprehension speed and skills. In the advanced set, real case studies with real news articles are used. In the basic set, fictional cases are used with one-page reading materials for each case. The cases mostly involve young students. Have students form six groups. Each group will be given an article from the set. Each student should have their own e-copy of the worksheet of this unit Unit 2 – Worksheet. Students read the article and answer the following together in their own words: a. What was the AI in the article supposed to do?	20 min	There will be six groups of students, each group reads a different article and discusses the questions posed. Each student will be very familiar with one of the six examples. Basic set – Case #1 – I know what you want! (Privacy) The AI-powered smart speaker was supposed to assist with tasks like playing music and answering factual questions. The AI device listened to private conversations and likely used this data to push targeted ads to the user who was unaware that conversational data could be used this way. If this AI continues to be used, privacy will be eroded, home surveillance may be normalized and there will be manipulative marketing targeting children. Case #2 – Frustrated Photo Upload (Transparency / explainability, biased) AI tool is used to verify whether an uploaded passport photo met biometric standards. But the AI rejected photos without giving feedback or reasons, leaving the user confused and

b. What ethical problems came up when this AI application was used? Define the ethical problems raised. c. What will it mean for the community if this AI continues to be used? d. What are the alternatives to using this AI? Show the ethical principles list so that students could be reminded while reading the cases.	stressed. It could cause delays and exclude people unfairly due to poor system design. For instance, perhaps the AI upload tool has more difficulty recognizing people based on different skin colors or eye sizes. To improve, one could include a support channel for assistance and the AI could provide more explanations as feedback. Case #3 – I Tried My Best (Transparency / explainability) The AI is used to score students’ writing samples in a contest. However, there is a lack of explainability and transparency, making it impossible for students to learn or improve. The AI may demotivate young learners and limit meaningful educational growth if continues to be used. It may give an illusion of fairness but lacks substance. AI could make suggestions but should leave final evaluation to human educators. Case #4 – Why Can’t I Be an Engineer? (Fairness and discrimination) The AI tool is supposed to suggest suitable careers to students based on interests and personality. However, the AI used biased
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	historical data, leading to gendered career recommendations. This AI could reinforce existing inequalities, discourage underrepresented groups from pursuing certain fields and limit diversity in STEM. Case #5 - Homework helper sharing too much (security, privacy) The AI in Jayden's smartwatch was designed to act as a virtual assistant. But the AI has a weak unlocking method which leads to security issues. It lacks a safeguarding method to detect inappropriate messages when minors are involved. Students' privacy and cyberbullying may increase. Security of the AI system should increase and perhaps better parental control should be implemented. Case #6 - Homework helper sharing too much (Privacy) The AI-powered homework assistant (EduBot) was designed to help students with organizing tasks, improving writing, and answering academic questions. But a student's deeply personal writing was exposed to other students without his clear knowledge or consent. Other students may have their private work shared
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	without realizing it, risking further emotional harm or online bullying. Trust in school-provided technology could decrease among students, parents, and teachers. Students may avoid expressing themselves honestly or writing about personal experiences, out of fear of being exposed. There should be better consent prompts and transparent privacy policies, and the default setting needs to be “private”. Advanced set - AI created by Amazon to help select the best candidates for working there favored men over women: https://www.reuters.com/article/idUSKCN1MK0AG/ AI in healthcare has disadvantaged black minority patients: https://www.reuters.com/article/idUSKBNIX32H7L/ Targeted recommendation algorithms on social media sites and shopping apps (such as YouTube, Facebook, Instagram, TikTok, Amazon, Alibaba, etc.). In at least one case, this information has been sold and used to try to
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		affect the outcome of a national election: https://en.wikipedia.org/wiki/Facebook%E2%80%9393Cambridge_Analytica_data_scandal Generative AI can even use someone's likeness, in some cases without their permission: https://variety.com/2023/digital/news/scarlett-johansson-legal-action-ai-app-ad-likeness-1235773489/ Facial recognition has led to social consequences for some people in China: https://www.techinasia.com/businesswoman-china-caught-jaywalking-face-bus There are big questions about how people should be able to use AI. For example, there are debates around the use of AI and facial recognition for policing, and the police are sometimes not very forthcoming about the extent or how these technologies are used: https://www.reuters.com/article/idUSL8N3500IE/
4. Jigsaw Part 2 Sharing Tell students that now we are going to form new groups, so that each member of the group has read a different article. We are going to use the	20 min	In the previous part, students were in six groups and each group had a different article. Now, the groups will be remixed. Each group will have one person who has read a different

combined knowledge of the group to evaluate all the six AI Applications.

Display the table, which is also in [Unit 2 – Worksheet](#):

Example of AI	Ethical Challenges	How Challenges could be Solved

Each of you will give the others a brief summary of the article you read, so that you can answer the questions about it as a group.

article. Each person will summarize their case study for the whole group.

For instance, one group will have a student who knows the Amazon recruitment example, a student who knows the healthcare bias, a student who knows the Facebook–Cambridge Analytica data scandal, one person who knows the Scarlett Johansson example, one person who knows the Chinese business woman example and who person who has read the safety or privacy debate.

By having each person present their case in the group, everyone quickly grasps the ethical challenge of the six examples.

5. Define key principles Show the five ethical principles. For each ethical principle, ask students which cases they read are related and briefly talk about how. Show the definition for each ethical principle.	12 min	Fairness and non-discrimination Definition - Avoiding unfair discrimination or preference in favor of or against one thing, person, or group compared with another. Freedom from unfair bias. Application to AI - AI depends on the data and datasets that are used in training and validation. Depending on how and where these datasets come from, they can create bias in the AI outputs. AI can even amplify these biases in some cases. AI algorithms can be biased based on the opinions of the creator. Privacy Definition - The right to be free from publicity, except in cases where it is of concern to the public (for example, if you commit a crime you may expect that to be made public). This is the right to have your personal information kept private from the general public. Application to AI - Personal data is routinely collected on the internet, including information such as your location, gender, name and so on but also information such as what videos you watch, what websites you click on, what you share. This information may be collected
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	without your explicit consent and used for the purpose of developing AI. Transparency Definition – Transparency is the ability to see through something. Applications to AI – Transparency deals with the right people have to know when they are interacting with AI, or when AI is being used to make a decision. It is also important they they have and know about avenues of <i>redress</i>. For example, if a college uses AI to decide who is admitted, applicants should know that AI is used, what AI is used, how applications were evaluated, and how they can challenge the decision if they think the AI's determination was unfair. Explainability Definition – Explainability comes from 'explain' – it is the ability to accurately describe an event or phenomenon, with a rationale for how and why it happens. For example, we can explain lighting as a giant spark of electricity that occurs between clouds, or between clouds and the ground.
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		Applications to AI - When an algorithm is created, it is important that third parties (and ideally even consumers) can review the inputs, processes and outputs of AI. This can help identify some sources of bias or flaws in the algorithm that might make the AI not work properly. However, this can be a challenge because companies and AI developers often want to protect their <i>intellectual property</i> - they want to make sure no one else can duplicate their tool or product easily. Security Definition - Students may know security as in a 'security force' like the police or private guards that keep neighborhoods or areas safe. It is important to introduce them to the idea of 'virtual security' and 'data security', or the need for their online personas and data to also be protected from bad actors and criminals. Applications to AI - The personal data collected by AI and huge datasets created from this information need to be protected. This is where <i>cybersecurity</i> comes into play.
6. Class Debrief	3 min	If the first student responds that it was difficult, ask if there are any students who found it to be

Ask whether they found the exercise to be difficult or easy. Ask one or two students to share their reflections with the class. Students should start to recognize that they have different strengths and weaknesses, and that some find it easy to share with a group and others more difficult. Describe how different students came to the group with different knowledge and experiences to share. Point out to students that it is important to work together and use the different strengths and knowledge in the classroom to achieve goals.		easy and ask one of these students to share. If the first student found it easy, ask for a student who found it difficult. If time is running short, alternatively ask students for a show of hands of who found this exercise to be easy, and who found it to be difficult. Then explain how students have different strengths and come with different knowledge and information, and point out to students that it is important to work together as they will achieve more if they use those different strengths and knowledge.
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Part 6: Reflections

Total Time: 7 min

1. Your role Conclude that there are many benefits and challenges that AI brings. Emphasize that everyone, including students, teachers and all the other adults, should learn about AI and data	1 min	Students will understand their responsibility to learn about AI and be motivated to learn and discuss with others.
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science, and understand why and how they work and the ethical issues that they present.		
2. AI Competencies This slide is taken from the UNESCO's framework of AI competencies. Key focus areas in this course is highlighted in green. The rows are key topics. We emphasize human-centred mindset, as everything we do shall serve the people and the community around us. The ethics are very important but sometimes overlooked topic. The next two rows are more technical and going into the specific technology behind AI applications and AI itself. The columns go from Understand, to Apply and to Create because students shall understand the concepts, apply these concepts in real situations and ultimately be able to create rules, policies or artefacts.	1 min	Give students a sense of what they will learn and achieve in the grand roadmap of learning AI.

The highlighted guiding principles are the core focus of this course.		
3. Knowledge Check Ask students to write down their answers in the Google form.	5 min	A check to get students ready for the next units.

Part 7: Closing - Introducing further units

Total Time: 3 min

Activity	Time	Purpose
1. Close the class or lead into the next unit Quick recap on the lesson, which also serves as a review of the knowledge check. Share what will happen in the next section.	3 min	Recap and lead to the subsequent unit.