Ethical Usage of Artificial Intelligence

Target Grade: 8th–12th grade, STEM

Time Required: 70 minutes

Standards

Common Core Standards

- CCSS.ELA-LITERACY.SL.8.1 / 9-10.1 – Engage effectively in a range of collaborative discussions.
- CCSS.ELA-LITERACY.RI.8.1 / 9-10.1 – Cite textual evidence to support analysis of informational texts.

ISTE Standards for Students

- 1.2 Digital Citizen: Students recognize the rights, responsibilities, and opportunities of living, learning, and working in an interconnected digital world.
- 1.3 Knowledge Constructor: Students critically curate a variety of resources using digital tools.
- 1.7 Global Collaborator: Students use digital tools to broaden their perspectives and enrich their learning by collaborating with others.

Lesson Objectives

Students will

1. Research current AI technologies related to future career opportunities.
2. Explore the benefits of AI tools in a variety of fields.
3. Investigate one of four ethical issues related to AI: intellectual property, environment, privacy, or autonomous decision-making.
4. Collaborate to analyze resources and develop their own viewpoint on AI-related dilemmas.
5. Present findings and engage in peer dialogue about their topic.
6. Reflect on the role of human values in AI decision-making.

Central Focus

The central focus of this lesson is to engage students in critically exploring the benefits of Artificial Intelligence (AI) in a future career field as well as the ethical implications of AI in society. Students will investigate AI's effect on key issues like intellectual property, the environment, privacy, and autonomous decision-making by examining real-world case studies and research materials and engaging

in group discussions to analyze the benefits and risks of AI technologies. They will address complex ethical questions such as ownership of AI-generated content, the environmental cost of AI, privacy concerns raised by AI tools, and the ethical dilemmas surrounding AI in decision-making. The lesson encourages critical thinking and ethical reasoning, helping students understand the societal consequences of AI. It also prepares them to make informed, responsible decisions about technology in the future.

Key terms: STEM, computer science, digital citizenship

Digital Citizenship Note

As students use AI tools to explore ethical dilemmas, it's important to also discuss what it means to be responsible digital citizens. This includes understanding the limits of AI, protecting personal privacy, and recognizing that not all outputs from AI are accurate or appropriate. Teachers should remind students to:

- Avoid entering personal or identifying information into AI tools.
- Think critically about the answers AI gives. AI is a helpful tool but is not always right.
- Acknowledge when they've used AI in their work and treat it as a support, not a shortcut.

Talking to students about responsible use sets the tone for thoughtful exploration and encourages students to use technology with care and awareness.

Materials

- Printed group-specific resource packets: https://docs.google.com/document/d/1sWr1yQZkabM8gq2yzBrhLsJ17WpUwGVZsZq6d0raOxE/copy
- Access to devices with internet for research, video viewing, and AI tools (ChatGPT, Canva)
- Sticky notes for the exit ticket

Instruction

Day 1

Introduction (5 minutes)

- Begin class by asking: "Where do you see AI being used in your life right now?"
- Give students 1–2 minutes to think, then ask a few volunteers to share their examples aloud.
- Explain to students that today they will work in small groups to investigate how AI is being used in different career fields, such as healthcare, engineering, computer science, education, and construction.
- Divide the class into groups of 3–4 students. You can assign each group a specific career field or let groups choose one based on their interest.

Research (25 minutes)

- Instruct groups to research a real-world AI system used in their assigned or chosen career field.
- Each group will create a short "About the AI" document that explains the tool and how it helps in that career. Students should also include the name f the AI system if it has one.
    - The format of the document is flexible. It can be a slide, infographic, short Word doc, or any visual format that clearly communicates their findings.
    - The "About the AI" document should answer the following:
        - What problem is the AI solving?
        - How does the AI work?
        - Who benefits from this use of AI?

Presentation (20 minutes)

- Give each group 3–4 minutes to present their AI tool and it's benefits to the class.
- Encourage classmates to ask follow-up questions after each presentation.

Closure (10 minutes)

- As an exit ticket, ask students to respond to these questions:
    - List 3 benefits of AI that you've learned today.
    - What concerns do you have about AI?
        - Optional: Use students' responses to the concerns question to form new discussion groups or case study topics for Day 2.

<u>Day 2</u>

Introduction (5 minutes)

- Begin the class by having a short discussion on the question, "What does it mean for technology to be 'ethical'?"
- Briefly remind students of how AI makes decisions and the importance of human oversight.
    - AI makes decisions by looking at patterns in data and using rules or examples it has learned during training, but it can make mistakes if the data it learns from is incomplete or biased. People need to supervise AI to make sure it works fairly, follows ethical guidelines, and doesn't lead to unintended consequences or harm.
- Explain to students they will be placed in groups to investigate one of the common ethical issues in relation to AI: AI and Intellectual Property; AI and the Environment; Privacy; or Autonomous Decision-Making.
    - The teacher can choose to place students in certain groups or let students choose the topic they would like to explore. You can assign Group 1 and Group 2 based on class size or allow students to pick based on interest or comfort level with the tools.

Activity (30 minutes)

- Once students are placed in their groups, provide them with their resource packet about their topic. Monitor student groups as they work through their packet.
    - Students will be given an ethical scenario and will discuss with their group ethical questions on the given topic. They will then record 5 bullet points summarizing what they discussed to share with the class.
    - Optional: About halfway through the group work time, circulate and ask each group to summarize their dilemma and key points so far. This helps students clarify thinking and stay on track.
    - Optional Extensions (for Early Finishers):
        - Create a second scenario about your topic and write your own discussion questions.
        - Use AI to design a short 'public service' ad or poster on your topic using Canva.

AI and Intellectual Property Group 1

- By using the resource packet, *AI and Intellectual Property Group 1,* students will be instructed to go to ChatGPT and ask to write a song about AI using the songwriting style of their favorite artist.
    - Example prompt: Write me a song about AI using the songwriting style of Taylor Swift.
- Students will be told that their song went viral! As they are starting to make money on the song, they are faced with some difficult things to decide.
- Students will then discuss the following questions within their group:
    - Should the artist you styled the lyrics from get a share of the profit? Why or why not?
    - Should an AI training company use an artist's work without permission?
    - Who owns the AI-generated song: you, the company, or the AI?
    - Is it ethical, legal, both, or neither to generate work based on someone else's style?

AI and Intellectual Property Group 2

- By using the resource packet, *AI and Intellectual Property Group 2,* students will be instructed to go to Canva and use the app Magic Media to create an image of students in a science classroom.
    - Students can also create an image on ChatGPT if they are using the pro version.
- Next students will read a short summary about the Getty Images vs. Stability AI (2023) case.
    - Getty Images sued Stability AI for using copyrighted images from Getty's stock library without permission to train its AI.
- Next students will discuss and answer the following questions:
    - Is it ethical for AI companies to train models using copyrighted content without permission?
    - Do companies owe compensation to creators like Getty Images?
    - Should your AI-generated image be considered "original"? Why or why not?

AI and the Environment Group 1

- By using the resource packet, *AI and the Environment Group 1,* students will be instructed to watch the video *AI and the energy required to power it to fuel new climate concerns.*
    - https://www.youtube.com/watch?v=VOezW-b_mD8
    - This video discusses the energy consumption used to store data and train AI.
- The group will discuss and answer the following questions:
    - Should tech companies be required to report the environmental impact of AI?
    - Who is responsible for reducing AI's carbon footprint?
    - Can AI's environmental cost be justified?
    - Should energy limits be set for AI models?

AI and the Environment Group 2

- By using the resource packet, *AI and the Environment Group 2,* students will be instructed to read the article *Explained: Generative AI's environmental impact.*
    - https://news.mit.edu/2025/explained-generative-ai-environmental-impact-0117
    - This article provides an explanation of AI data centers and energy consumption concerns.
- The group will discuss and answer the following questions:
    - Should energy-intensive AI models be used for non-essential applications like entertainment or marketing?
    - Should there be limitations on developing larger energy-consuming AI models?
    - How can AI help mitigate climate issues? Do those benefits outweigh the cost?

Privacy Group 1

- By using the resource packet, *Privacy Group 1,* students will take a short quiz to determine how much data their social media might know about them.
- Students will read a short article about OpenAI partnering with Reddit, a popular social media site, to train ChatGPT.
    - https://qz.com/openai-reddit-chatgpt-chatbot-training-ai-1851484007
- The students will then discuss and answer the following questions:
    - Should companies need your permission to train AI on your social media data (written posts, bio info, images)?
    - Is there a difference between public and private information shared on social media?
    - Should AI be trained with social media content?

Privacy Group 2

- By using the resource packet, *Privacy Group 2,* students will read an article that highlights owners of GM vehicles discovered that detailed driving information was being shared with data broker LexisNexis, which provided reports to auto insurers.

    - https://www.insurancebusinessmag.com/us/news/technology/gm-lexisnexis-face-class-action-over-telematics-insurance-data-collection-481325.aspx
- The students will then discuss and answer the following questions:
    - Should cars be allowed to record and report driver behavior?
    - Should drivers have the right to delete or view all data collected about them?
    - Do passengers have privacy rights in AI-equipped vehicles?
    - Who should have access to this data?

Autonomous Decision-Making Group 1

- By using the resource packet, *Autonomous Decision-Making Group 1,* students will ask ChatGPT the following prompts:
    - Should I go to the doctor if I have a fever and shortness of breath?
    - My throat hurts, and I have a headache. What would you prescribe for me to feel better?
    - I am experiencing the following symptoms: fever, chills, cough, sore throat, muscle aches, headaches, and fatigue. What is my diagnosis?
- Students will then read the abstract of the paper, *Artificial Intelligence and Decision-Making in Healthcare: A Thematic Analysis of a Systematic Review of Reviews,* which discusses the increase in popularity of AI usage in healthcare decision making.
    - https://pubmed.ncbi.nlm.nih.gov/38449840/
- The students will then discuss and answer the following questions:
    - If an AI chatbot makes a medical error that harms a patient, who should be held responsible? The doctor, the AI developer, or someone else?
    - Should patients be told when AI is involved in their diagnosis or treatment?
    - Should AI be allowed to make final medical decisions, or should a human doctor always have the last word?
    - Should AI technologies be used to perform surgeries?
    - Should AI be used to prioritize which patients get treatment first in emergencies or during shortages?

Autonomous Decision-Making Group 2

- By using the resource packet, *Autonomous Decision-Making Group 2,* students will play the game Survival of the Best Fit to determine if they have a bias when selecting someone for a job.
    - https://www.survivalofthebestfit.com/game/
- Next, students will discuss the following questions:
    - Is it fair to let AI make hiring decisions?
    - Should AI be used to analyze facial expressions, voice, or body language during interviews to rate candidates?
    - How transparent should companies be about AI use in hiring?
    - Should candidates be able to appeal AI-made hiring decisions?

Conversation Reflection (30 minutes)

- Allow each group to take turns presenting their topic and what they talked about in their group. Allow other students to ask questions.
- Ask students to consider not just the issue, but also what responsibility people have when designing or using these tools.

Exit ticket (5 minutes)

- Ask students to answer the following question on a sticky note, "Would you support using AI more in the future? Why or why not?"
- Next, ask students to place their sticky notes on a classroom wall.
- Leave sticky notes on the wall for a day to allow students to read responses.

Differentiation

Grouping: Mix reading levels and comfort with technology in each group.
Scaffolding: Provide sentence starters or graphic organizers for groups who need support in organizing discussion.
Choice: Let students select from a set of ethical dilemmas if appropriate.
Tech Flexibility: Offer print versions of materials for students with limited device access.
Language Support: Provide simplified summaries or vocabulary guides for English Language Learners (ELLs).

Formative Assessments:

- Group discussion observations
- Notes on resource packet worksheets
- Peer questions and engagement during group presentations
- Exit ticket: "What is one rule or principle you think others should follow when using AI to make decisions?"

Summative Assessments:

- Completion and depth of group resource packet
- Quality and clarity of group presentation
- Individual reflection questions at the end of the lesson

Background Information for the Teacher

As a teacher leading a lesson on the ethics of Artificial Intelligence (AI), you will need to have a broad understanding of AI technologies, their potential benefits, and their ethical concerns. Here is an overview of key areas to familiarize yourself with:

Overview of AI:

- AI refers to technologies that allow machines or systems to perform tasks that would typically require human intelligence, such as decision-making, problem-solving, and pattern recognition. AI can adjust based on data, improve over time (machine learning), and be applied in various fields including healthcare, business, entertainment, and government.
- AI systems rely on large datasets, algorithms, and significant computing resources. They are designed to improve efficiency, accuracy, and decision-making, but also pose ethical challenges related to privacy, bias, and accountability.

Key Ethical Issues in AI:

- **Intellectual Property**: One of the most debated ethical issues is whether AI can "create" intellectual property, such as art, music, or literature, and who owns these creations. Can an AI system that produces a song or an image based on existing works be considered a true creator, or is it just a tool? This issue also touches on how AI models are trained using existing content and whether artists should be compensated if their work is used without consent.
- **AI and the Environment**: AI models, particularly large language models and image generation models, require significant computing power to process and analyze data. The energy used by data centers to store and run these AI models has an environmental impact, contributing to the carbon footprint. Ethical questions include whether the benefits of AI justify the environmental cost and whether AI companies should be required to mitigate this impact.
- **Privacy**: Ethical issues surrounding AI and privacy are significant as technologies like ChatGPT and smart cars become more integrated into daily life. AI systems like ChatGPT, often trained on public data from platforms like Reddit, raise concerns about consent, transparency, and the potential exposure of sensitive or identifiable information. Many users are unaware their posts are used for training, and the lack of data transparency heightens privacy risks. Similarly, smart cars collect vast amounts of data from drivers, including location, driving habits, and biometric information, which raises questions about data ownership, surveillance, and vulnerability to hacking. Both cases highlight broader concerns such as informed consent, accountability, and regulatory gaps.
- **Autonomous Decision-Making**: In fields like healthcare, self-driving cars, and criminal justice, AI systems are making decisions that can have life-changing or life-ending consequences. Ethical issues include whether AI should be trusted to make decisions without human oversight, how much responsibility humans (e.g., doctors, drivers, or AI developers) should bear for AI errors, and the transparency required in AI decision-making processes.

Facilitating Discussion and Debate:

- As students investigate their assigned ethical dilemmas, you will need to foster an environment where critical thinking, respect for diverse opinions, and deep analysis are encouraged. The goal is not necessarily to arrive at one "right" answer but to explore and discuss the complexities of AI's impact on society.
- Use guiding questions that help students think about who benefits from AI, who might be harmed, and the moral obligations of developers, users, and policymakers.

- Be prepared to introduce additional real-world examples, such as current court cases or corporate practices, to ground discussions in tangible issues.

Using AI Tools in the Classroom:

- You will also be guiding students on how to use AI tools like ChatGPT for research and ideation. While ChatGPT can generate ideas and responses, ensure that students critically assess the accuracy and appropriateness of its output. Remind them that AI tools are just one part of the research process and must be used responsibly.

Background Information for Students

Before the lesson, students should have a basic understanding of AI and its implications in modern society. Here's what they need to know to engage in the lesson:

What is Artificial Intelligence?

- AI is a type of computer program or system that can perform tasks that usually require human intelligence, such as recognizing speech, understanding language, or solving problems. There are different types of AI, ranging from narrow AI (designed to perform specific tasks like voice assistants) to general AI (which can perform a wide range of activities and potentially even think like humans).
- In our daily lives, AI is already part of many technologies like smartphones, social media platforms, search engines, recommendation algorithms, and even self-driving cars.

How does AI work?

- **Machine Learning**: One of the key methods by which AI works is machine learning, where the system learns patterns in large datasets and improves its predictions or actions over time. This can include everything from recommending videos on YouTube to detecting fraud in financial transactions.
- **Data**: AI needs data to function, and often the data it uses comes from human activities. This raises important ethical issues about who controls this data and how it is used.

How does bias occur in AI?

- Bias in AI refers to systematic errors or prejudices in its outputs that may unfairly favor or disadvantage certain groups or perspectives. This bias can arise from several factors, including the use of biased or incomplete training data, unbalanced datasets, the design of algorithms, human influence during development, and feedback loops that reinforce biased patterns. For example, AI-powered search engines may rank results in ways that reflect societal stereotypes or facial recognition systems may perform less accurately for certain racial or gender groups due to biased training data.

How is ethics related to AI?

- **Ethics** means thinking about what is right or wrong, good or bad, fair or unfair. In the context of AI, ethical issues arise because AI systems can affect people's lives in profound ways. AI can make decisions that affect people's privacy, jobs, rights, and freedoms. Thinking about these issues helps us make more thoughtful choices about how AI should be designed and used.

- As you dive into your group topics, think about how AI affects individuals, communities, and societies. Consider questions like: Who benefits from AI? Who might be harmed? Is the technology being used responsibly?

Working with AI tools in the classroom:

- You will be using AI tools like ChatGPT to explore these ethical questions. While these tools can help you generate ideas and information, it's important to think critically about what they produce. AI is a tool, not a replacement for your thinking and research. Always check the information and make sure it's accurate before including it in your work.
- While this lesson references ChatGPT, similar AI tools like Gemini, Claude, or Microsoft CoPilot may be used depending on school policy and access.