Grade 6 Digital Literacy Skills - Conundrum of the Tech-Savvy Sleuth: Solving Digital Dilemmas

LEARNING OBJECTIVES:

AI is an emerging technology that is a hot topic right now. It is important for students to understand how it works and learn about how to make ethical and safe decisions about using it. In this lesson, students will learn what AI is and how it works. They will also learn how to use it safely and ethically.

This lesson is just a basic introduction to AI how it works and the ethics of it. If you or your class is interested in learning more, there are lots of lesson plans and opportunities for further learning available. Please look at the extensions for ideas to take this further.

"A digitally literate person:

- behaves appropriately and in a socially responsible way in digital environments, demonstrating awareness and knowledge of legal and ethical aspects on the use of ICT and digital content.
- considers legal and ethical principles of use and publication of information.
- has a general level of confidence to experiment with new technologies, but also to reject inappropriate technologies."

-From BC Digital Literacy Framework

TECH SKILLS:

I can

- Use technology responsibly and make safe choices.
- Understand the importance of not sharing personal information online.
- Explain responsible uses of technology and digital information and possible consequences of inappropriate use.

CURRICULAR COMPETENCIES:

ADST (Applied Design Skills and Technology):

Big Ideas	Curricular Competencies	Content
Complex tasks may require multiple tools and technologies.	**Making** • Identify and use appropriate tools, technologies, and materials for production • Elaboration: Technologies: "things that extend human capabilities" **Applied Technologies** • Select and as needed learn about appropriate tools and technologies to extend their capability to complete a task • Identify the personal, social, and environmental impacts, including unintended negative consequences, of the choices they make about technology use	**Digital Literacy (Grades 6-7)** • Internet safety; digital self-image, citizenship, relationships, and communication; legal and ethical considerations, including creative credit and copyright, and cyberbullying; search techniques, how search results are selected and ranked, and criteria for evaluating search results

	• Identify how the land, natural resources, and culture influence the development and use of tools and technologies	

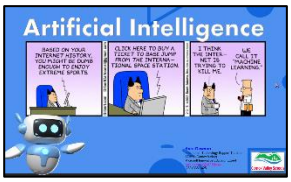
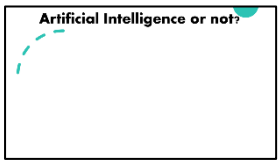
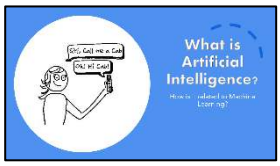
MATERIALS:

- Download or open the PowerPoint presentation for the lesson by clicking here.
- Have a copy of "Make Me Happy" instructions – you may wish to make copies for your students.

INSTRUCTIONS:

Part 1: What is AI and Machine Learning?

Bring up the slide deck on your classroom projector/TV/Brightlink/Smartboard. You can follow this script (change or add whatever you wish):

Slide 1:		Today we are going to talk about Artificial Intelligence. What do you already know about it? *Collect responses*
Slide 2:		Now we are going to play a little game. It's called AI or not AI? Click to bring up the pictures or make them disappear after your guesses: 1. Self-Driving Car – yes, this is AI 2. Microwave – No not AI although some newer ones can have AI functions 3. Alexa (Siri) – Yes AI 4. Digital Calculator – Not AI 5. Roomba- Yes, AI. The Roomba scans the room and identifies obstacles and remembers the most efficient route for cleaning. 6. Reading Progress – Yes, AI. The program listens to your reading and identified mispronunciations, missed words, expression in your voice, missed punctuation and more.
Slide 3:		Artificial Intelligence leverages computers and machines to mimic the problem solving and decision-making capabilities of the human mind. (*From Affinity IT*) Basically, it is about building smart machines that can perform tasks that typically require human intelligence. One branch of this is called Machine Learning. Watch this video which will sum this up for you.
Slide 4:		Watch this video from code.org

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Slide 5:		Now that you have learned about how machine learning works and how to train machines, we are going to do a couple of experiments that are about training machines. The first one is called "Quick Draw" which is designed by people working at Google: This is a game built with machine learning. You draw, and a neural network tries to guess what you're drawing. Of course, it doesn't always work. But the more you play with it, the more it will learn. So far we have trained it on a few hundred concepts, and we hope to add more over time. We made this as an example of how you can use machine learning in fun ways. Quick, Draw! *Have students get computers and go to Quick Draw (quickdraw.withgoogle.com). Let them play with it for a while (they will enjoy it). After they have played with it for a while, stop and show them the whole dataset by clicking on "World's largest doodling data set" on the front page.* world's largest doodling data set *If they are interested, click on the pink question mark in the top left corner on the front page and you will find the info I posted above plus a short video about how the doodle data set works-it is super interesting.*
Slide 6:		Now we are going to do some more computer training and we are going to teach the computer to play a game. This activity was designed by IBM. *Have students search in a web browser for this by typing in "IBM machine learning kids". It should be the first link that comes up.* *Now you will switch to the instruction sheet called "Make Me Happy". This is actually a student copy so you can hand it out to them and they can just follow the instructions or you can lead them through it step by step (recommended). The instructions can be found by clicking on worksheets at the top left of the IBM page or visiting here:* Machine Learning for Kids (machinelearningforkids.co.uk/#!/worksheets) *You can choose if you would like to do the part where you create the Scratch game or just skip that part and complete up to the end of page 5.* *After you can completed this activity, have a class discussion using the following questions:* 1. Now that you have trained a machine what did you learn? What did you think about it? 2. How could machine learning lead to bias in AI? (You may need to talk about what bias is first. You want to lead them to talking about how AI takes all the information that is found on the internet and that becomes

		part of its dataset. This means that all the misinformation and bias on the internet is part of the dataset.) 3. If AI is trained this way, what problems could this lead to if you are using AI? (You want to lead them to talking about not putting in their personal information because it becomes part of the data set.)

Part 2: The Ethics of Using AI

Materials Needed:

- Projector and computer
- Handouts with scenarios

1. Introduction (5 minutes)

- **Greeting and Objective:** Welcome students and explain the objective of the lesson.
  - "Today, we're going to talk about the ethics of using AI. We'll discuss what it means to use AI responsibly and why it's important."
- **Quick Review:** Briefly review what AI is and how it works to ensure everyone is on the same page.

2. Discussion: What is Ethics? (10 minutes)

- **Definition:** Explain what ethics means.
  - "Ethics are the rules that help us decide what is right and wrong. When we talk about the ethics of AI, we're thinking about how to use AI in a way that is fair and respectful to everyone."
- **Examples:** Provide simple examples of ethical and unethical behavior in everyday life.

- **Connection:** Now watch this video to connect the idea of ethics and the use of AI: https://youtu.be/tJQSyzBUAew?si=Hp40GXmgtO2He9qB

4. Group Activity: Ethical Scenarios (20 minutes)

- **Divide the Class:** Split students into small groups and give each group a handout with different scenarios involving AI use in schools.
- **Discussion:** Ask each group to discuss their scenario and decide whether the AI use is ethical or not, and why.
- **Share:** Have each group share their scenario and conclusions with the class.

5. Class Discussion: Key Ethical Principles (5 minutes)

- **Fairness:** Discuss the importance of fairness in AI.
    - "AI should treat everyone equally and not be biased."
- **Privacy:** Talk about the importance of privacy.
    - "AI should respect people's personal information and not share it without permission."
- **Transparency:** Explain why transparency is important.
    - "We should know how AI makes decisions and be able to understand its processes."

6. Group Activity: AI Guidelines for School (15 minutes)

- **Discussion:** Have students return to their groups. Ask each group to flip over their scenario handout and look at the question at the top of the page "What rules and guidelines should we have our classroom to ensure that AI is used responsibly and ethically by everyone?"
- **Share:** Have each group share what their guidelines are.

7. Reflection and Wrap-Up (5 minutes)

- **Reflection:** Ask students to share what they learned about AI and Ethics.
- **Wrap-Up:** Summarize the key points discussed and answer any remaining questions.
    - "Remember, using AI responsibly means thinking about fairness, privacy, and transparency. It's important to use AI in a way that is respectful and fair to everyone."
- **Exit Ticket:** Have students fill out the Exit Ticket Activity

Extensions:

- Ask students to write a list of guidelines that they personally feel would be best for using AI Ethically at school. Have them explain why they feel that these are the best guidelines.
- If your students enjoyed the machine learning activity created by IBM, there are many more activities available all with step-by-step instruction on their site that can be found by clicking on **Worksheets** at the top: Machine Learning for Kids (https://machinelearningforkids.co.uk/?lang=en#!/worksheets)
- Code.org has many different courses to use to teach AI all ready to go for you: Learn about Artificial Intelligence (AI) | Code.org (https://code.org/ai)
- Common Sense Education has some excellent lessons for teaching students about AI: AI Literacy Lessons for Grades 6–12 | Common Sense Education (https://www.commonsense.org/education/collections/ai-literacy-lessons-for-grades-6-12?j=9530278&sfmc_sub=170691327&l=2048712_HTML&u=228146581&mid=6409703&jb=84&utm_source=edu_nl_2023.12.5+-+A&utm_medium=email)
- There are more lessons online available and you can find a continuously updated collection of them here: How to Teach About AI – Learn71 (https://learn71.ca/integrating-technology/ai-in-education/howtoteachai/)

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