

**Intended Audience:**

Grades 6-8, 9-12

**Learning Standards**

CSTA – Level 2

2-CS-02

2-DA-08

2-DA-09

2-IC-20

**Lesson Objectives**

Participants will:

Students will understand what text summarization is and why it is a useful skill.

Students will be introduced to the concept of AI and its role in text summarization.

Students will learn how to use a specific AI tool to summarize text.

Students will be able to evaluate the effectiveness of AI-generated summaries.

**Time Needed** - 30 - 45 minutes; 45 – 60 minutes

**Equipment and Supplies**

Computers or tablets with internet access (one per student or pair)

Projector or interactive whiteboard

Example texts of varying lengths and difficulties (news articles, short stories, informational passages)

Access to a free, user-friendly AI text summarizer tool (examples below)

Whiteboard or chart paper

Markers

**Prepared by: (Authors)**

Rachel Haselby – Purdue University

**From Fluff to Facts: Mastering AI Summaries**

**Background**

This lesson on using AI to summarize text is vital for middle schoolers because it addresses the challenges of information overload in today's digital age. By learning to effectively summarize, students develop crucial critical literacy skills, including identifying main ideas and synthesizing information – skills essential for academic success and beyond. Furthermore, this lesson introduces them to AI in a practical, relevant way, preparing them for a future where AI literacy will be increasingly important in the workplace. It empowers them with efficient study techniques, enhances their ability to manage complex information, and promotes responsible digital citizenship by encouraging critical evaluation of AI-generated content. Ultimately, this lesson equips students with valuable tools and skills to navigate the information-rich world and become informed, discerning users of technology.

**What to Do**

Before starting, familiarize yourself with one or all of these free summarizer tools:

**Summarizer:** [https://www.summarizer.org/](https://www.google.com/url?sa=E&source=gmail&q=https://www.summarizer.org/) (Simple interface, adjustable summary length)

**Quillbot Summarizer:** [https://quillbot.com/summarize](https://www.google.com/url?sa=E&source=gmail&q=https://quillbot.com/summarize) (Offers paragraph or bullet point summaries)

**NotebookLM:** <https://notebooklm.google.com/> - more in-depth summary that can compare and contrast and summarize multiple articles

*Continue to page 4 if needed, delete text box/page if not needed.*

**lesson: Introducing the Activity**

* **Engage:** Begin with a short, interesting text. Read it aloud or display it.
* **Discuss:** Ask:
* "What was the main idea?"
* "Can you retell it in just 1-2 sentences?"
* "Why might it be useful to summarize information quickly?"
* **Introduce:** Explain that summarizing is finding the most important information and putting it into your own words. Today, we'll learn how AI can help us do this using different tools.
* **What is AI?** Briefly explain AI (Artificial Intelligence) as making computers smart, able to understand language and solve problems.

**lesson: Explaining the Challenge/Activity**

* **Simple Explanation:** AI summarizers work by "reading" the text, identifying important sentences, and putting them together in a shorter version.
* **Analogy:** Compare it to a detective finding the most important "clues" (sentences) to understand the main idea.
* **Introduce NotebookLM:** Explain that NotebookLM is a special type of AI tool that you can "teach" by giving it specific documents to read. It's like giving the detective a set of specific case files to study.**Step 1:**

**Step 1 title**

**Demonstration - NotebookLM:**

* Open your pre-loaded NotebookLM project with the source texts.
* Show students how to select a document you have already uploaded.
* Demonstrate how to ask NotebookLM to summarize the text using a question like, "Can you summarize the main points of this document?" or "What is a 3-sentence summary of this text?"
* Read the summary aloud.
* Discuss: "How does this summary compare to the one from the other AI tool?"

**Guided Practice:**

* Provide a slightly longer or more complex text. This should be uploaded to NotebookLM ahead of time.
* Have students work individually or in pairs.
* Let them choose either the general AI tool or NotebookLM to summarize the text. This allows them to select a tool, or if time allows, to compare the tools.
* Guide them through the process of copying, pasting, generating, and getting a summary.
* Circulate and assist as needed.

**Scaffolding (Differentiation):**

* **Struggling learners:** Provide a shorter, simpler text. Pre-highlight key sentences.
* **Advanced learners:** Encourage them to experiment with different summary lengths, compare summaries from both AI tools, or summarize on their own first and then compare.

**(IV) Activity: "Summary Showdown - AI Edition" (10 minutes)**

1. **Preparation:** Divide the class into small groups (3-4 students). Give each group a different text (uploaded to NotebookLM beforehand).
2. **Task:** Each group will use **either or both** AI tools to create a summary.
3. **Summary Showdown:** Groups read their AI-generated summaries (without revealing the original text).
4. **Guess and Discuss:** The other groups try to guess:
	* What was the main idea of the original text?
	* What kind of text was it (news, story, etc.)?
5. **Reflection:** After each summary, discuss:
	* "How effective was the summary?"
	* "What important information did it capture? What did it miss?"
	* "If the group used both AI tools, which one provided a better summary and why?"

**(V) Conclusion (5 minutes)**

1. **Review:** Recap the main points:
	* Summarizing is a valuable skill.
	* AI can be a helpful tool for summarizing, and different AI tools may provide different results.
	* Critically evaluate AI summaries and compare outputs from different tools.
2. **Real-World Connection:** Discuss how students can use AI summarizers (both types) in their own lives.
3. **Limitations of AI:** Briefly mention that AI isn't perfect and can make mistakes.

**Assessment:**

* Observe participation in discussions.
* Monitor students' ability to use the AI tools.
* Evaluate the quality of summaries and discussions during the "Summary Showdown."

**lesson: Facilitator notes:**

* **Account Setup:** You'll need a Google account to use NotebookLM.
* **Uploading Sources:** You need to upload the texts you want students to use beforehand. Choose a variety of texts to keep things interesting.
* **Prompting:** Experiment with different ways of asking NotebookLM for summaries. "What are the key takeaways?" or "Summarize this in 3 bullet points" might yield different results.
* **NotebookLM is still in the experimental phase:** Be prepared for potential glitches or unexpected results. Frame it as a learning experience for both you and the students.

**Digging Deeper**

* **Compare and Contrast:** Have students write a paragraph comparing the summaries generated by the different AI tools.
* **Create Your Own:** Have students write their own summaries and compare them to the AI's.
* **Debate:** Discuss the pros and cons of using AI for summarization.

**Expand and Explore**

* **"When Would You Use This?"** Throughout the lesson, pause and ask students to brainstorm situations where AI summarization would be useful in different professions.
* **Career Spotlights:** Briefly showcase one or two of the careers mentioned above. You could show a short video clip or share a brief description of what these professionals do.
* **Guest Speaker:** If possible, invite a professional who uses AI or relies on strong summarization skills to talk to your class (even a brief virtual visit can be impactful).
* **Real-World Examples:** When discussing the limitations of AI, connect it to the importance of human oversight in professions like journalism, law, and medicine.

**Career Connection**

**1. Careers Directly Using AI and Text Summarization:**

* **Data Scientist/Analyst:** These professionals use AI tools, including natural language processing (NLP) techniques, to analyze large datasets, extract insights, and create summaries for reports and presentations. They need to understand how to use AI tools effectively and interpret their output critically.
* **AI/Machine Learning Engineer:** These engineers develop, train, and deploy AI models, including those used for text summarization. They need a deep understanding of how AI algorithms work and how to optimize them for specific tasks.
* **Computational Linguist:** These specialists combine linguistics and computer science to develop algorithms that can understand and process human language. They might work on improving AI summarization tools, making them more accurate and nuanced.
* **Technical Writer:** Technical writers often need to condense complex technical information into clear, concise documentation. They might use AI summarization tools as a starting point and then refine the output to ensure accuracy and clarity.
* **Content Strategist/Editor:** These professionals manage and curate online content. They might use AI summarization to quickly grasp the main points of articles, identify relevant content, and create engaging summaries for social media or newsletters.
* **Market Research Analyst:** These analysts use AI tools to summarize market research reports, identify trends, and understand consumer sentiment from large volumes of text data.
* **Business Intelligence Analyst:** Similar to market research analysts, they use AI to summarize business data, financial reports, and other documents to inform business decisions.

**2. Careers Benefiting from Strong Summarization Skills:**

* **Journalist/Reporter:** Journalists need to quickly process information from various sources, identify the most important facts, and write concise, informative news articles. The ability to summarize effectively is crucial.
* **Lawyer/Paralegal:** Legal professionals deal with vast amounts of text in legal documents, case files, and research materials. Summarizing skills are essential for understanding complex cases and preparing legal briefs.
* **Doctor/Medical Researcher:** The medical field generates a huge amount of research literature. Doctors and researchers need to be able to quickly grasp the main findings of studies to stay up-to-date and make informed decisions.
* **Project Manager:** Project managers need to synthesize information from various sources, track progress, and communicate updates to stakeholders. Strong summarization skills help them keep projects on track.
* **Educator:** Teachers constantly process information from textbooks, research articles, and student work. The ability to summarize effectively helps them plan lessons, provide feedback, and communicate with parents.
* **Librarian/Information Specialist** Librarians and information specialists need to synthesize information and be able to find patterns in order to provide insight into user problems.

**3. Careers Related to the Ethical and Societal Implications of AI:**

* **AI Ethicist:** These professionals work on the ethical implications of AI, including issues like bias, fairness, and transparency in AI algorithms. Understanding how AI tools like summarizers work is crucial for this role.
* **Policy Analyst/Advisor:** Governments and organizations need experts who can analyze the impact of AI on society and develop policies related to its use.
* **Technology Critic/Journalist:** These individuals analyze and write about the social and cultural impact of new technologies like AI, helping the public understand the potential benefits and risks.