

UNDERSTANDING ARTIFICIAL INTELLIGENCE (AI)



WHAT IS AI?

Artificial Intelligence, or AI, is the ability of a computer or machine to mimic human-like thinking and decision-making. This means that AI can learn from experiences, understand language, solve problems, and even recognize patterns. Imagine having a smart robot that can help you with your homework or play games with you — that's a simple example of AI!

WHAT IS MACHINE LEARNING?

Machine learning is a big part of modern AI. It allows computers to learn without being explicitly programmed for every single task. Here's how it works:

- **Data:** Machines are fed large amounts of data (like pictures, text, or numbers).
- **Patterns:** The machine analyzes the data to find patterns or trends.
- **Predictions:** After learning from the data, the machine can make predictions or decisions based on new information.

For instance, when you use a voice assistant like Siri or Alexa, it learns from your questions to understand you better over time!

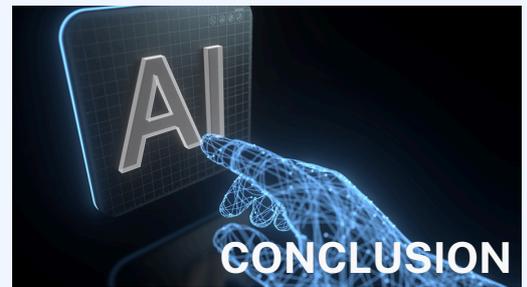
A BRIEF HISTORY OF AI

- **1950s - The Beginning:** The term "Artificial Intelligence" was first used in 1956 during a conference at Dartmouth College. Researchers wanted to explore whether machines could think like humans.
- **1960s - Early Programs:** The first AI programs were created, including one called ELIZA, which could mimic conversations. It was like chatting with a very simple robot!
- **1980s - Expert Systems:** During this decade, AI started to become more useful with "expert systems." These were computer programs designed to solve specific problems, like diagnosing medical conditions.
- **1990s - A Major Leap:** AI began to improve quickly, especially with the introduction of faster computers. One famous event was in 1997 when IBM's Deep Blue chess computer beat world champion Garry Kasparov.
- **2000s - Machine Learning:** This is a type of AI that allows computers to learn from data. Instead of being programmed with specific rules, machines can analyze large amounts of information and improve their performance over time. For example, Netflix uses machine learning to suggest movies you might like based on what you've watched before.

THE FUTURE OF AI

AI is evolving rapidly, and the future looks exciting! Here are some predictions for what might come next:

- **More Personalization:** AI will get better at tailoring experiences just for you. This means video games, shopping, and even learning platforms could adapt to your preferences.
- **Advanced Robotics:** Robots might become even more capable, helping in areas like healthcare, construction, and even space exploration.
- **Improved Communication:** Language translation tools will become more accurate, allowing people from different countries to communicate easily.
- **AI Ethics:** As AI becomes more powerful, discussions about ethics—what’s right and wrong—will be very important. How do we ensure AI is used responsibly and fairly?
- **Job Changes:** Some jobs might change because of AI, while new jobs will be created. It’s important for future workers to adapt and learn new skills.



Artificial Intelligence is a fascinating and ever-evolving field that is already a part of our lives. From simple tasks to complex decision-making, AI is shaping the future in many ways. Understanding how it works, especially concepts like machine learning, helps us appreciate its potential and the challenges it presents. As we look ahead, it’s exciting to think about what AI can achieve—and how it will change the world!

UNDERSTANDING ARTIFICIAL INTELLIGENCE (AI) CROSS CURRICULAR EXTENSIONS

Research Written Response:

Choose one of the examples of Artificial Intelligence advancements from the section, “A Brief History of AI”. Research the event to learn more about it. Write a paragraph summarizing the event. Be sure to include answers to the key detail questions - who, what, where, when, why, and how.

Vocabulary Exploration: (time needed: approximately 1 hour)

In the section, “The Future of AI”- #4 AI Ethics”, the following question is asked:

- “How will AI developers prevent **bias** in AI operations?”

Code.org defines **bias** as “when a decision favors some things and deprioritizes or excludes others”.

Click the link to view the short video clips and complete the online code.org activity “AI for Oceans” to simulate machine learning and **bias**. Then respond to the prompts below.

Activity Link: [AI for Oceans](https://hourofcode.com/ai-oceans) (https://hourofcode.com/ai-oceans)

1. How did you help train the AI Ocean Bot to learn the difference between fish and garbage?
2. Describe a time in the simulation when the AI Ocean Bot made a mistake. What happened?
3. Describe a time in your simulation when the AI Ocean Bot showed bias. How do you think bias can be minimized or eliminated in machine learning?