# AI Learning Roadmap for 7th Graders (Beginner with Computers)

This roadmap is designed to introduce middle school students (around 7th grade) to the fascinating world of Artificial Intelligence, Machine Learning, Deep Learning, and Generative AI in a fun, interactive, and age-appropriate way. It breaks down complex concepts into relatable activities and uses visual tools to spark curiosity.

## Stage 1: Computer & Programming Basics

Goal: Build comfort with computers, logic, and simple coding using visual tools.

Tools & Activities:  
- Scratch: Create games and animations using drag-and-drop coding  
- Code.org: Play interactive coding puzzles  
- Python with Turtle: Draw shapes and patterns visually

Resources:  
- <https://scratch.mit.edu>   
- <https://code.org>   
- <https://trinket.io> (Python Turtle online editor)

# Stage 2: Understanding AI Concepts (No Coding Yet)

Goal: Understand AI, ML, and Generative AI through relatable and fun tools.

Tools & Activities:  
- Teachable Machine: Train AI to recognize poses, sounds, or images  
- QuickDraw: See how AI guesses your doodles  
- DALL-E / Craiyon: Create AI-generated images from text prompts

Resources:  
- https://teachablemachine.withgoogle.com  
- https://quickdraw.withgoogle.com  
- https://www.craiyon.com

# Stage 3: Fun Projects Using AI Tools

Goal: Build simple creative projects using no-code or low-code AI tools.

Sample Projects:  
- Train AI to recognize cats vs. dogs using Teachable Machine  
- Create music with Magenta Studio  
- Write a story or comic using ChatGPT and illustrate it with Canva  
- Build a digital art gallery using AI-generated images

Resources:  
- https://magenta.tensorflow.org/studio  
- https://chat.openai.com  
- https://www.canva.com

# Stage 4: Transition to Python for AI (Optional, Age 13+)

Goal: Slowly introduce Python coding and AI libraries in a fun and guided manner.

Beginner Python Topics:  
- Variables, loops, and functions using games  
- Using pre-built models from Hugging Face Transformers  
- Running simple chatbot or text generation code

Project Ideas:  
- Build a chatbot using Python  
- Generate jokes, poems, or stories with GPT models