

Crafting Your Own AI Project

60 minutes

Discovering Artificial Intelligence

WHAT THIS LESSON DOES

Unleash your creativity and knowledge in this step-by-step lesson, where you'll conceptualise, plan, and build your own AI Scratch project. From brainstorming ideas to presenting your finished project, you'll navigate through each stage of the process, refining your idea, seeking feedback, and overcoming challenges. Enjoy the journey of bringing your unique idea to life!

WHAT STUDENTS SHOULD BE ABLE TO DO

- Develop the ability to conceptualise and plan an AI project.
- Enhance brainstorming skills and generate creative AI project ideas.
- Gain proficiency in creating and refining a project proposal.
- Acquire skills in prototyping and coding an AI project using Scratch and Google Teachable Machine.
- Improve presentation skills and ability to reflect on the learning process and project outcomes.

BEFORE THE LESSON

- Open and test Scratch with the TM2Scratch extension and Google Teachable Machine on a class device, and check your school filter is not blocking either site.
- One device per pupil or per pair, logged in and ready, with sound on and headphones available for any audio projects.
- Confirm which pupils will use a Micro:bit or extra sensors and have those charged and paired in advance.
- Have paper ready for brainstorming and writing the project proposal.

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HOW THE LESSON RUNS

Introduction

Brainstorming

Project Proposal

Seeking Feedback

Refinement & Planning

Prototyping & Coding

Presentation & Demonstration

Reflection

TEACHING MOVES

- 2. Brainstorming. Push pupils to start from a real routine or annoyance in their own day before reaching for the sample ideas. Ask each to jot 3 to 5 ideas, not settle on the first.
- 3. Project Proposal. Hold pupils to the four headings, especially Components Needed. Make them decide now whether they need only a computer or a Micro:bit, so nothing surprises them mid-build.
- 4. Seeking Feedback. Pair pupils to swap proposals and give one thing they like and one question. Circulate to flag ideas that are far too big for the time left.
- 5. Refinement & Planning. Insist each pupil breaks the project into a short ordered list of tasks before opening any code. This list is what keeps them on track.
- 6. Prototyping & Coding. Steer pupils to code and test one core feature working before adding anything else. Test the Teachable Machine model and Scratch link early, not at the end.
- 7. Presentation & Demonstration. Ask each pupil to demo the project live and name one problem they hit and how they solved it, not just show the finished result.
- 8. Reflection. Run this as a short spoken discussion. Draw out what was hardest and what pupils would do differently next time; do not have them write answers.

WHAT TO WATCH FOR

- Pupils assume a Teachable Machine model that worked once will always recognise them, then it fails under different lighting or background. Remind them the model only knows the examples it was trained on. If recognition is poor, add more varied training samples rather than blaming the code.
- Pupils plan a project far larger than can be built in the time, then stall. During feedback and planning, help them cut to one core feature that works. A small finished project beats an ambitious unfinished one.
- Pupils forget to add the TM2Scratch extension and cannot find the model blocks in Scratch. Show them the extension button and check it is added before they start hunting for missing blocks.

DIFFERENTIATION

- Emerging: Point them straight to the sample ideas in the brainstorming step so they have a concrete starting point rather than a blank page. Pair them with a partner and help them pick the simplest possible feature to build first.
- Developing: Have them talk their task list back to you before coding, so the plan is clear in their own words. Prompt them to test the Teachable Machine model and Scratch link before adding more features.
- Proficient: Encourage them to add a second gesture or category, or bring in a Micro:bit if they named one in their proposal. Ask them to explain their sequence to a pupil who is stuck, which cements their own understanding.