AI Foundations

Understand AI. Use it wisely. • Grades 6–8

LTL Robotics' full-year programme gives learners guided practice in using AI effectively, checking its work and making their own decisions. Across 36 core sessions of 90 minutes, they progress from comparing AI answers to training a model and delivering a tested project.

Why learn this now?

Many learners already know how to ask AI a question. This programme teaches them what to do next: turn an idea into a brief, compare the options AI suggests, check them against evidence and decide what to use. They practise that process in schoolwork, software and product design.

The tools learners will encounter

Learners compare the same task across AI assistants, then judge the quality of each response against evidence and the needs of the task.

ChatGPT, Gemini and Claude
Classroom examples include turning notes into practice questions, comparing explanations against a source and asking for feedback on a draft. Learners compare what each assistant does well on the task and where its answer needs a check.

Code.org AI Lab and App Lab
Train a classifier, test its predictions and use it inside a small app. See how a prediction changes when the examples or inputs change.

Orange Data Mining and LibreOffice Calc
Use Orange, a visual machine-learning tool, in a guided extension to compare classifiers on the same test data. Use Calc to organise data, chart measurements and count errors.

Game Lab, micro:bit and Maker Lab
Apply AI suggestions in a JavaScript project, in testing a sensor explanation and in revising a design prototype. Check results against code tests, measurements and user feedback.

How classroom access works

Learners explore ChatGPT, Gemini and Claude through teacher-led comparisons or prepared responses. Any direct use follows the provider's age, account and permission rules. Claude examples are teacher-prepared. LTL provides classroom activities that can be completed without a personal account for those three services.

From prompt to prediction

Modules 1 and 2

Learners first develop judgement about AI-generated answers. Then they investigate why a model makes the predictions it does by training and testing one themselves.

01 / Think critically about AI

Learners use AI for a defined purpose, evaluate the response and decide what to do next.

Direct the tool
Write a prompt with a goal, audience and constraints. Change one detail, compare outcomes and refine the request. Give a chatbot a defined role and test a question outside that role.

Check its work
Examine generated text and images for errors or assumptions. Check an important claim against a reliable source, calculation or observation.

Use feedback responsibly
Compare AI feedback with peer feedback. Decide what to keep, protect personal information and follow school rules on AI assistance.

Learner evidence / A responsible AI use guide with revised prompts, verified claims and reasons for accepting or rejecting suggestions.

02 / Train and test a model

A classifier is a model that sorts examples into categories. Learners see how the examples and labels it learns from affect the decisions it makes.

Prepare the data
Label examples, identify useful characteristics and look for missing information or inconsistencies.

Build and compare
Train a classifier in Code.org AI Lab. Compare it with a simple sorting rule and test both against examples held back from training.

Investigate errors
Change one part of the training setup, retest and explain which errors remain. Use a starter app to demonstrate the model. In the Orange extension, compare models visually using the same test set.

Learner evidence / A working classifier, a results table and a short model card explaining what it was designed to do and where it can fail.

From suggestion to solution

Modules 3 and 4

Learners use AI to support real work, then keep, change or reject its contributions based on what they can verify.

03 / Apply AI in projects

Learners practise three ways to use AI effectively and test each against how the project actually behaves.

Programming
Ask for a debugging hint or improvement to a Game Lab project. Run the code, test different inputs and explain the fix.

Design
Use AI to brainstorm or critique a Maker Lab design. Check its suggestions against dimensions, materials and feedback from someone who tries the prototype.

Physical computing
Ask AI for possible explanations for different micro:bit sensor readings. Repeat the measurements and decide which explanation the evidence supports.

Learner evidence / A tested coding improvement, a prototype revision and a sensor investigation.

04 / Build, revise and demonstrate with AI

Every capstone includes a purposeful AI contribution and a check of its value. Learners can use an AI assistant during development, embed a trained model in the solution, or combine both.

Plan and build
Set a measurable goal. Use AI to compare approaches, critique the prototype or generate test ideas. If the project uses a classifier, compare its predictions with a simple rule.

Test, revise and explain
Run typical and unexpected cases, compare AI output with what actually happens, revise and retest. Show what AI contributed and what the learner accepted, changed or rejected.

Learner evidence / A working prototype, before-and-after test evidence and a demonstration explaining one limitation that still needs human judgement.

What the final project shows

The learner can explain the problem, show how they used AI, prove what works with test results, and identify what still needs a human decision.

What learners can do next

Practical skills for school, projects and further study

A learner may arrive knowing how to ask AI for an answer. By the end, they should be able to turn an open-ended task into a clear brief, compare options, test the result against evidence and explain their own decision.

Take an idea from brief to test

The same process applies across different types of work.

Product development
For a desk organiser, define who it is for and what must fit. Ask AI for alternative designs, compare them against dimensions and materials, then build a simple prototype and revise it after a fit test.

Creative problem-solving
For a school project, ask AI to propose several approaches within a time or materials limit. Identify a promising idea, test the riskiest assumption and explain what the evidence changed.

Programming and software
For a scoring app, specify what should happen for normal, invalid and boundary inputs. Ask AI for a debugging hint or test cases, run those cases and explain which change fixed the problem.

Schoolwork and research
Turn class notes into practice questions, check an AI-generated explanation against a reliable source, and use feedback to revise work while keeping ownership of the reasoning.

Where this leads at LTL

Learners can carry the same methods into Python programming, Maker Lab and robotics as they progress through the LTL Learning Pathways.

Python progression
Python Level 1 develops core programming skills. In Python Level 2, learners can apply their AI Foundations habits to debugging, comparing approaches and checking suggestions with test cases.

2027 / Nova, the LTL AI coach
Nova will be introduced as a guided classroom companion. During projects, it will help learners refine questions, explore options and plan checks while they make and explain their own decisions.

2028 / Advanced LTL AI programme
A next-level programme will explore advanced uses of large language models (LLMs) and AI tools such as ChatGPT, Gemini, Claude and Perplexity, alongside tools for computer-aided design (CAD), graphic design and other creative and technical work. Students will apply these tools to build and test solutions and explore entrepreneurial ideas, from a customer need to a prototype.