

ENGINEERING

Engineering at Macademia Daytime Academy introduces younger learners to how things work, how they are built, and how problems can be solved through creativity and practical thinking. Students explore key ideas such as structures, forces, materials, and simple systems through hands-on activities, building, testing, and experimenting.

The course is designed as flexible learning blocks to suit home-educated children, with 2-hour sessions that are semi-structured and project-based. Children are encouraged to explore, make mistakes, and learn through doing, while being supported in a calm and engaging studio environment.

Through practical challenges and creative projects, students design, build, and test their own ideas, developing confidence, teamwork, and problem-solving skills while gaining an early understanding of engineering in the real world.

Introduction to Engineering

1. What engineers do
2. Engineering in everyday life
3. Solving problems step by step
4. Exploring forces (push, pull, balance)
5. Simple team challenges
6. Sharing and reviewing ideas

Engineering Design

1. From idea to model
2. Sketching simple ideas
3. Building and testing
4. Improving designs
5. Explaining how things work
6. Presenting solutions

Structures & Materials

1. Strong vs weak structures
2. Exploring materials (paper, card, wood)
3. Stability and balance
4. Building bridges and towers
5. Testing and improving
6. Presenting structures

Robotics & Automation

1. What is a robot?
2. Movement and mechanisms
3. Simple control ideas
4. Cause and effect systems
5. Building moving models
6. Showcasing projects

Energy & Systems

1. What is energy?
2. Simple mechanical systems
3. Basic electrical ideas (safe introduction)
4. Renewable energy concepts
5. Combining systems
6. Demonstration and review

Future Engineering

1. How cities might change
2. Transport and movement
3. Technology in everyday life
4. Designing for the future
5. Creative problem solving
6. Final idea presentation

