



# TECHNOLOGY

MONTESSORI CURRICULUM

# INTRODUCTION

## Montessori Methods in a Technology Curriculum

Maria Montessori believed that education should nurture the **whole child**—intellectually, socially, emotionally, and physically. While traditional technology education often focuses on rigid skill acquisition, a **Montessori-aligned approach** integrates technology in a way that respects **child-led exploration, purposeful work, and real-world connections**.

### Key Montessori Principles in Technology Education

#### 1. Prepared Environment

- Technology tools (e.g., tactile coding robots, child-friendly apps) are **accessible, age-appropriate, and purposeful**.
- Materials progress from **concrete (physical Bee-Bots) to abstract (block-based coding, then text-based programming)**.

#### 2. Freedom Within Limits

- Children choose **from structured tech activities** (e.g., "Would you like to design a digital story or program a robot?").
- No forced screen time—tech is **a tool, not a babysitter**.

#### 3. Hands-On, Experiential Learning

- Coding is taught through **physical movement first** (e.g., kids act out algorithms before programming them).
- Robotics and circuitry use **tangible manipulatives** (e.g., Snap Circuits, LEGO WeDo).

#### 4. Mixed-Age Collaboration

- Older students mentor younger ones (e.g., a 10-year-old helps a 6-year-old debug a Scratch project).
- Tech projects often involve **teamwork**, not just solo screen work.

#### 5. Connection to Practical Life & Cosmic Education

- Technology is linked to **real-world problem-solving** (e.g., using a digital camera for nature documentation).

- For ages 9–12, tech lessons integrate **ethics, sustainability, and social impact** (e.g., "How can AI help the environment?").

## 6. Observation-Based Assessment

- Progress is measured through **project portfolios, peer feedback, and self-reflection**—not just quizzes.
- Focus on **process over product** (e.g., "How did you troubleshoot your code?" vs. "Did your game work?").

## Why It Works

A Montessori technology curriculum avoids **passive consumption** and instead fosters:

- **Creativity** (digital storytelling, 3D design).
- **Logical Thinking** (coding, robotics).
- **Digital Citizenship** (safe online habits, ethical discussions).
- **Interdisciplinary Connections** (linking tech to science, art, and culture).

By embedding these principles, technology becomes **a natural extension of the child's curiosity**—not a separate, isolated subject.

## Suggested Additions for Your Curriculum

- **Nature + Tech:** Use apps for bird identification or weather tracking.
- **Minimalist Tech:** Avoid overloading young children with screens; prioritize **hands-on tech** (e.g., circuits, unplugged coding games).
- **Parent Involvement:** Workshops on **balancing tech at home** in line with Montessori values



# TECHNOLOGY CURRICULUM BY AGE RANGE

**Montessori Technology Curriculum** for ages **3–6**, **6–9**, and **9–12**, structured across **27 terms** (9 terms per age group). Each term includes **age-appropriate activities**, **learning outcomes**, **assessment methods**, and **key vocabulary**.

At the end, a **comparison table** aligns this curriculum with the **UK National Curriculum (Computing)**.

## Montessori Technology Curriculum (Ages 3–12)

Age Group	Term	Technology Activities	Learning Outcomes	Assessment Methods	Key Vocabulary
3–6 Years	Term 1	Using child-friendly tablets for simple puzzles	Develops basic touch-screen interaction	Observation, Participation tracking	Tap, Swipe, Puzzle, Screen
	Term 2	Digital storytelling (listening to audiobooks)	Enhances listening & sequencing skills	Verbal recall, Engagement level	Listen, Story, Play, Stop
	Term 3	Interactive shape/color matching apps	Reinforces shape/color recognition	Accuracy checks, Self-correction	Match, Circle, Red, Blue
	Term 4	Using a digital camera to take photos	Introduces basic photography & framing	Photo review, Peer sharing	Camera, Click, Zoom, Picture
	Term 5	Simple coding games (e.g., Bee-Bot)	Introduces directional logic	Observation of command sequences	Forward, Backward, Left, Right
	Term 6	Voice-recording devices (recording sounds)	Encourages auditory awareness & expression	Playback & discussion	Record, Sound, Play, Speak
	Term 7	Sorting games on interactive whiteboards	Improves categorization skills	Group participation, Accuracy	Sort, Group, Same, Different

Age Group	Term	Technology Activities	Learning Outcomes	Assessment Methods	Key Vocabulary
6–9 Years	Term 8	Using magnifying apps to explore nature digitally	Connects tech to real-world observation	Nature journal entries	Zoom, Observe, Insect, Leaf
	Term 9	Digital musical instruments (touch-screen piano)	Introduces cause-effect in sound creation	Rhythm imitation, Creativity	Press, Sound, High, Low
	Term 1	Basic block coding (Scratch Jr)	Introduces sequencing & loops	Project completion, Debugging attempts	Code, Block, Repeat, Start
	Term 2	Typing practice (child-friendly programs)	Develops keyboard familiarity	Speed/accuracy tracking	Type, Keyboard, Space, Enter
	Term 3	Creating digital art (e.g., MS Paint, Tux Paint)	Encourages creativity & tool use	Art showcase, Peer feedback	Draw, Color, Erase, Save
	Term 4	Researching simple topics (supervised internet use)	Teaches safe online information gathering	Summary presentation	Search, Website, Fact, Source
	Term 5	Building simple circuits (Snap Circuits)	Introduces electronics basics	Circuit functionality test	Wire, Battery, Light, Connect
	Term 6	Stop-motion animation (iPad + clay/figures)	Teaches frame-by-frame storytelling	Short animation playback	Frame, Move, Capture, Play
	Term 7	Email etiquette (writing & sending supervised emails)	Develops digital communication skills	Email drafting practice	Send, Receive, Subject, Attach
	Term 8	Basic robotics (LEGO WeDo)	Introduces mechanical problem-solving	Robot function demonstration	Build, Motor, Sensor, Program

Age Group	Term	Technology Activities	Learning Outcomes	Assessment Methods	Key Vocabulary
9–12 Years	Term 9	Digital citizenship (safe online behavior)	Teaches internet safety & privacy	Scenario role-play	Private, Share, Password, Safe
	Term 1	Advanced Scratch coding (games/stories)	Develops logical thinking & creativity	Code review, Debugging	Variable, Sprite, Event, Debug
	Term 2	3D design (Tinkercad basics)	Introduces spatial modeling	Printed 3D object assessment	Design, Rotate, Layer, Print
	Term 3	Website creation (Google Sites/Wix for kids)	Teaches digital publishing	Website navigation test	Page, Link, Publish, Header
	Term 4	Python/JavaScript basics (Code.org)	Introduces text-based coding	Small program execution	Function, Loop, Syntax, Run
	Term 5	AI exploration (chatbots, image recognition)	Demystifies artificial intelligence	Discussion on AI ethics	AI, Chatbot, Recognize, Train
	Term 6	Video editing (iMovie/CapCut for kids)	Teaches sequencing & storytelling	Edited video showcase	Clip, Trim, Transition, Export
	Term 7	Cybersecurity basics (password creation, phishing)	Reinforces safe online habits	Quiz on safety practices	Hack, Secure, Phishing, Encrypt
	Term 8	Arduino projects (LED blink, sensors)	Combines coding & electronics	Functional prototype test	Sketch, Upload, Sensor, Output
	Term 9	Tech for social good (digital presentations on global issues)	Encourages ethical tech use	Presentation & peer Q&A	Impact, Solution, Present, Data

## Alignment with UK National Curriculum (Computing)

UK National Curriculum Area	Montessori Technology Activities	Overlap
<b>Computer Science</b> (Algorithms, Programming)	Bee-Bot, Scratch, Python, Robotics	✓ Strong (Sequencing, Debugging, Loops)
<b>Digital Literacy</b> (Safe Internet Use, Communication)	Email, Digital Citizenship, Research Skills	✓ Strong (Privacy, Online Safety, Etiquette)
<b>IT &amp; Creativity</b> (Multimedia, Data Handling)	Digital Art, Video Editing, 3D Design	✓ Strong (Creative Tools, Presentation Skills)
<b>Technology &amp; Society</b> (AI, Ethics)	AI Exploration, Tech for Social Good	✓ Developing (Critical Thinking, Real-World Impact)

### Key Notes:

- **Montessori Focus:** Less on standardized testing, more on **exploration, creativity, and ethical use**.
- **UK Curriculum Alignment:** Covers all key areas (CS, IT, Digital Literacy) but with a **child-led, hands-on approach**.
- **Progression:** Starts with tactile tech (3–6), moves to coding/robotics (6–9), and advances to real-world applications (9–12).