Machine learning for kids by age: what you actually need

Peabody guide · updated 2026-10-29

What machine learning equipment a child needs at each age, from toddlers to teens, what to spend on and what to skip. Most families need nothing new.

Most children need no machine learning equipment at all: toddlers and preschoolers need none (sorting and pattern games at the kitchen table teach the idea better than any gadget), ages 6 to 10 need only a laptop or Chromebook with a webcam for free tools like Teachable Machine and Scratch, and teens need a laptop plus free cloud notebooks instead of a graphics card. The one thing worth buying for many families is a small micro:bit board, for a child who likes building. Below is the age-by-age list, what each tool costs and whether it needs an account, and what to skip.

This guide is from Peabody (peabody.kids), a free reading and learning site for kids, free through the end of 2026. None of the tools below are ours, nobody paid to be listed, and there are no affiliate links. Facts about each tool come from its maker's own pages and our software directory, checked in October 2026.

The short answer, by age

- Age: Under 3 · What they can do: Sorting, matching, naming things · What you need: Toys, socks, spoons · Cost: Nothing · Account?: None
- Age: 3 to 5 · What they can do: "Teach the robot" games, patterns, odd one out · What you need: Household objects, a printout · Cost: Nothing · Account?: None
- Age: 6 to 8 · What they can do: Quick, Draw! and Teachable Machine with a grown-up · What you need: Any laptop or Chromebook with a webcam · Cost: Nothing if you own one · Account?: None
- Age: 8 to 10 · What they can do: Scratch with Face Sensing, Machine Learning for Kids · What you need: The same computer · Cost: Nothing · Account?: None to start
- Age: 8 to 14, makers · What they can do: micro:bit CreateAI, later Arduino · What you need: A micro:bit V2 board · Cost: About $22 for a micro:bit Go pack at a US reseller (October 2026) · Account?: None
- Age: 11 to 14 · What they can do: RAISE Playground, Experience AI, Scratch games · What you need: A laptop · Cost: Nothing · Account?: None
- Age: 13 to 17 · What they can do: Python, Kaggle Learn, Colab, Godot games · What you need: A laptop; free cloud notebooks · Cost: Nothing · Account?: Yes, with a parent's consent

Toddlers and preschoolers: no AI equipment

There is no machine learning equipment for toddlers, and nothing is lost by waiting. The ideas underneath machine learning (sorting things into groups, spotting a pattern, guessing the next one, noticing a mistake) are exactly what toddlers and preschoolers practise all day with real objects.

The health advice points the same way:

- The World Health Organization's 2019 guidelines say screen time is not recommended under 1, sedentary screen time is not recommended for 1-year-olds, and for 2- to 4-year-olds it "should be no more than 1 hour; less is better."
- The American Academy of Pediatrics moved away from minute counts in its 2026 policy. Its parents' explainer (updated June 2026) says "Infants under 18 months learn best from real-world interactions," advises families to watch and play alongside their children, and to delay personal tablets.
- Common Sense Media's age guidance (updated June 2026) says no AI chatbots at 5 and under, because young children "can't fully tell AI apart from real people."

What to do instead (deep learning tips for preschoolers, honestly): play "teach the robot". You're the robot. Your child shows you toys one at a time and says "animal" or "not animal". After five, you start guessing, and get some wrong on purpose. Then swap. That's training data, a model and a mistake, with no screen. Our lists of 10 AI activities for preschoolers and 14 unplugged AI activities have more, with ages for each.

What to skip: talking "AI" plush toys. Several are chatbots in a soft body, and in independent tests some said things no small child should hear. Our list of AI toys to think twice about says why for each one, and AI toys for toddlers and preschoolers covers what to check before buying any toy with a microphone.

Ages 6 to 10: a laptop or Chromebook with a webcam

Everything a primary-school child needs to train a model is free and runs in a browser. The computer you already have is enough if it has a webcam and runs Chrome or Edge. A tablet is a weaker choice: the makers of TM2Scratch note that Google's Teachable Machine doesn't work on iPads.

- Quick, Draw! (about 6 and up): you draw, a neural network guesses. No account. Every drawing joins Google's public collection of doodles, so draw, don't write names.
- Teachable Machine (about 8 and up with a grown-up): teach the computer to tell two toys apart through the webcam. No account, and Google says training runs in the browser. Our step-by-step walkthrough has a 10-minute first project.
- Scratch (designed for 8 to 16): its Face Sensing extension is a real, pre-trained AI model. The Scratch AI extensions guide has a 15-minute hat-on-your-head project.

- Machine Learning for Kids (about 8 to 16): train a model on words, pictures or sounds and use it in a Scratch game. "Try it now" needs no account. See our parent's guide.

A 6- or 7-year-old should have a grown-up running the mouse. Keep sessions short and talk more than click.

Elementary makers: micro:bit first, Arduino later

For a child who likes to build, this is the one place spending a little makes sense.

micro:bit CreateAI (about 7 to 14) is free software from the Micro:bit Educational Foundation. A child waves a micro:bit around to record movements (say, clapping and waving), trains a model, then programs the board to react. It needs a micro:bit V2 board, and a second one if the computer has no Bluetooth. Our BBC micro:bit page found a micro:bit Go pack at $21.99 from a US reseller in October 2026. There's no login.

Arduino tips for elementary students: start with a micro:bit, not an Arduino. A classic Arduino project means wiring a breadboard and typing code; in our view most children are ready for that around 11 or 12, with a grown-up, though Arduino Education sells kits aimed at younger ages too. When they're ready, Arduino Education lists its Starter Kit at $110 on its US store (October 2026). Its terms say under-18s use its site only with a parent's consent, and a parent must approve before a child's account is switched on. Teachable Machine models can be used in Arduino projects too, which makes a good bridge.

For kits that go further, our list of 15 STEM and AI kits that teach how machine learning works gives the price, age and "what else you need" for each, and best coding robots for kids covers screen-free robots for younger children.

Ages 11 to 14: a laptop and free block tools

Middle school is when building with AI gets genuinely interesting, and it still costs nothing.

- RAISE Playground (MIT): Scratch-style blocks for text classification, Teachable Machine models, hand and body tracking. No account. Our guide has a 15-minute first project.
- Experience AI (Raspberry Pi Foundation with Google DeepMind): free lessons for about 11 to 14, run by a teacher; students need no account.
- Day of AI: free lessons from pre-K to 12, from the team that started at MIT RAISE.
- TM2Scratch and TMPose2Scratch: use a Teachable Machine model, including a body-pose one, to control a Scratch game.

Teens: a laptop, not a graphics card

Deep learning equipment for teens sounds expensive, and it doesn't need to be. Free cloud notebooks run the code on someone else's computer, so an ordinary laptop or Chromebook is enough for every course a beginner will take.

- Google Colab: free Python notebooks in the browser. Its FAQ (October 2026) says Colab "is free of charge to use", that free notebooks can run for at most 12 hours, and that GPU access on the free tier is "heavily restricted". It needs a Google account, and Colab's built-in AI features need the account holder to be 18 or over.
- Kaggle Learn: free short courses (Intro to Programming, Python, Intro to Machine Learning) with exercises in cloud notebooks. Kaggle's rules are strict: no one under 13, and 13- to 16-year-olds only after Kaggle has a parent's verified consent. Our Kaggle for kids and teens post covers the rules and a first-course path.
- CS50's Introduction to AI with Python (Harvard) and Google's Machine Learning Crash Course: for strong teens of about 15 and up who already know some Python.

Buy hardware only when a teen has outgrown the free tiers and knows what they want to build. Then a Raspberry Pi or a small AI board is a better first purchase than a gaming GPU; our gifts for teens who love AI list compares them.

Game development equipment for teens: also just a laptop. Godot is a free, open-source game engine with no account. Its download page offers Windows, macOS, Linux, Android and a web editor, and lists OpenGL 3.3-compatible graphics as its minimum. Scratch and MakeCode Arcade are gentler first steps for younger game makers. Our activities for teens list adds competitions and summer programs.

For parents and families: what to spend on, and what to skip

Worth it:

- Nothing, at first. Try the free tools on the computer you have before buying anything.
- A webcam, if your computer has none. Teachable Machine and the Scratch camera blocks need one.
- A micro:bit, for a child of 8 or more who likes to build. It's the cheapest way to make AI move something in the real world.
- Your time. Every tool above works better with a grown-up nearby asking "why did it get that wrong?"

Skip:

- "AI" toys for toddlers that listen and chat. They don't teach machine learning, and a toy that talks back has to hear your child first.
- Paid "AI classes" for under-8s. The free unplugged games teach the same idea.
- A gaming PC or GPU for a beginner. Colab and Kaggle cover years of learning for free.
- A tablet as the main machine. Several of the best free tools don't run on one.

Machine learning for families: pick one weekend project you can all do together. Training Teachable Machine to recognise the family pet is a favourite; our list of 12 weekend AI projects for families has more, each with an age.

8 free things to try this month, easiest first

All of these are described above; none need new equipment beyond a laptop with a webcam (the micro:bit one needs the board).

1. Teach the robot (ages 3 and up): you act as the robot and your child shows toys and says "animal" or "not animal". No screen.
2. Quick, Draw! (about 6 and up): draw a word and watch the guesses. Draw, don't write names.
3. Teachable Machine (about 8 and up with a grown-up): teach the webcam to tell two toys apart.
4. Scratch Face Sensing (about 8 and up): the hat-on-your-head project from our Scratch AI guide.
5. Machine Learning for Kids (about 8 to 16): train a model on words and use it in a Scratch game.
6. micro:bit CreateAI (about 7 to 14, needs the board): record movements and make the board react.
7. RAISE Playground (about 11 to 14): the kind-or-unkind message checker.
8. Kaggle Learn Intro to Programming (13 and up, with a parent's consent for 13 to 16): the first step to real Python.

6 questions to ask at any age

These work with a four-year-old and a fourteen-year-old, with the words changed.

1. Who decided what the computer should learn?
2. What examples did it see, and what did it never see?
3. When did it get something wrong, and why?
4. Would it work for someone who looks or sounds different from us?
5. Where did our pictures, voice or words go?
6. Would you trust its answer without checking?

Where Peabody fits

Peabody doesn't teach machine learning, and it isn't a coding site. It's a reading and learning site: free stories at a child's reading level in the library, and learning games where questions are made and marked by code, not AI. It pairs well with the activities above. After a "teach the robot" game, read a story together and ask who decided what the story said. For a grown-up wondering about chatbots, the quiz is your child ready for an AI chatbot? takes five minutes.

Learn more elsewhere

- WHO guidelines for children under 5: activity, sleep and screen time by age.
- AAP: helping kids thrive in a digital world: the 2026 policy, explained for parents.
- micro:bit CreateAI: the free movement-model tool for the micro:bit.
- Kaggle Learn: the free courses, for teens with a parent's consent.

For about seventy more free AI sites sorted by age, see where to learn about AI.

Questions parents ask

What equipment does my child need to learn machine learning?

For most children, nothing new. Under 5, use toys and household objects. From about 6 to 14, any laptop or Chromebook with a webcam runs the free tools: Teachable Machine, Scratch, Machine Learning for Kids and RAISE Playground. Teens need a laptop and free cloud notebooks such as Colab. A micro:bit board, about $22, is the one extra worth buying for a young maker.

Is there machine learning equipment for toddlers or preschoolers?

No, and they don't need it. The WHO advises no screen time under 1 and no more than an hour a day at 2 to 4, and Common Sense Media advises no AI chatbots at 5 and under. Sorting, matching and "teach the robot" games at home build the same ideas machine learning uses.

What age should a child start learning about AI?

The ideas can start at 3 or 4 with sorting games and no screen. Hands-on tools like Quick, Draw! and Teachable Machine work from about 6 to 8 with a grown-up. Building projects in Scratch or RAISE Playground suits about 9 to 14, and Python-based machine learning courses suit teens.

Does a teenager need a GPU for deep learning?

No. Beginners learn on free cloud notebooks. Google Colab is free, with limited GPU time on the free tier, and Kaggle's notebooks run in the cloud for teens who have their parent's consent. Buy hardware only once a teen has outgrown the free tiers and knows what they want to build.

Is Arduino good for elementary students?

It's usually better from about 11 or 12, with a grown-up, because it means wiring and typing code. For younger makers, a micro:bit is simpler and cheaper, and micro:bit CreateAI adds machine learning for free. Arduino's terms say under-18s need a parent's consent and a parent must approve a child's account.

Can my child use Kaggle?

Not under 13: Kaggle's privacy policy tells under-13s not to use it at all. From 13 to 16, Kaggle needs a parent's verified consent first, and under-18s need consent for each competition. Our Kaggle post has the full rules and a first-course path.

How much does it cost to get started with machine learning at home?

Nothing, if you already own a laptop or Chromebook with a webcam. Every tool in the age table is free, and the only purchase we suggest considering is a micro:bit for a child of 8 or more who likes to build. We saw a micro:bit Go pack for about $22 at a US reseller in October 2026.

What is the best first machine learning project for a child?

For ages 6 to 8, Quick, Draw! and then Teachable Machine with a grown-up. For 8 to 10, Scratch Face Sensing or Machine Learning for Kids. For 11 to 14, RAISE Playground. The free-things list above puts them in order.

Do kids need coding to learn machine learning?

No. Teachable Machine and Quick, Draw! need no code at all, and Scratch-style blocks come next. Python comes in the teen years, through Kaggle Learn or Colab.

Free at peabody.kids/guides/machine-learning-for-kids-by-age-what-you-need