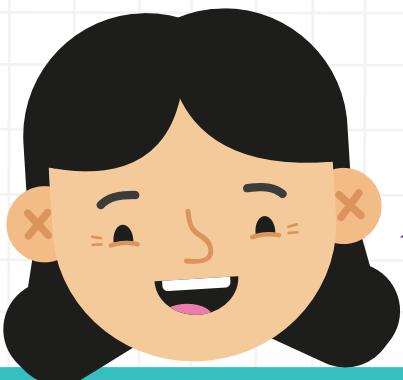


CoderDojo



CoderDojo Parents' Handbook



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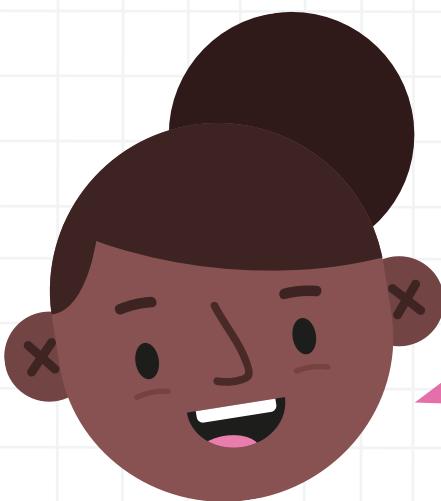
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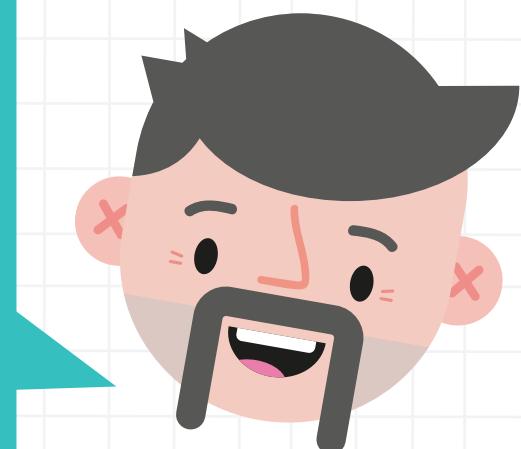
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CoderDojo Parents' Handbook

Introduction

What is CoderDojo?

CoderDojo is a global, volunteer-led movement of free, open coding clubs (Dojos) for young people aged 7 to 17!

At a Dojo, the participants, who we call Ninjas, learn how to code, develop websites, apps, programs, and games, and explore technology in a fun and creative way. Ninjas also meet like-minded peers, work on exciting team and individual projects, and learn valuable social and transferable skills for the future.

Dojos are typically set up by one lead volunteer, known as the champion. The Dojo champion is like the project manager of the club, and this is the person you will usually deal with as a parent/guardian. The champion also has a team of volunteers who help them run their club.

CoderDojo's mission is to give young people around the world the opportunity to learn to program computers within a social and safe environment. Because CoderDojo is an open-source movement, anyone anywhere can volunteer to set up a club and each Dojo is unique and operates autonomously. This means every club will differ slightly. However, all verified Dojos are committed to live by **the CoderDojo Charter** and share the CoderDojo ethos: to be inclusive, free, open, and collaborative.

One of the founding principles of CoderDojo is 'One rule, be cool.' This means, in short, that we should behave kindly towards each other! This applies to Ninjas, parents, guardians, and volunteers.



A brief history of the CoderDojo movement

The movement was founded by James Whelton and Bill Liao in Cork, Ireland, in July 2011. At the time, James was a student who was running a coding club in his school. Bill is an entrepreneur and philanthropist who recognised the potential of and need for coding clubs for young people. Together, they set up the first Dojo in response to keen interest from James' fellow students.

Seven years later, this original open-source model has enabled the movement to spread all across the globe. There are now almost 2000 Dojos in more than 100 countries, with volunteers starting new Dojos every week!



Welcome to the global community



The CoderDojo movement has reached 160 000 young people to date, and is reaching more every day. By joining CoderDojo, your child is not only getting the opportunity to meet new friends and mentors in their local Dojo, they are also welcomed into an awesome global community of Ninjas who share their interest in technology! There are Dojos all over the planet — from Ireland, the USA, and India to Samoa, Japan, and Sri Lanka. Each Dojo is working towards the same goal of bringing free coding and digital skills to young people in the community.

Strong friendships have been formed between Ninjas, both locally and internationally, and there is tremendous support and respect evident across the worldwide CoderDojo network. CoderDojo is also part of the Raspberry Pi Foundation family, a UK-based charity that has the mission to put the power of computing and digital making into the hands of people all over the world. Together with Raspberry Pi, we represent one of the largest sustained, global efforts to help young people learn computing and digital making.

Community members from around the globe come together regularly for major events such as Coolest Projects, DojoCon, and MegaDojos. These events are perfect opportunities to meet fellow Ninjas and parents/guardians, share ideas, showcase projects, and have fun! CoderDojo is a truly international movement.

“CoderDojo is a great social activity [...]. The kids look forward to it every week, and have made a ton of new friends as part of the CoderDojo community. Where else would they make a new friend from Japan if it wasn't at CoderDojo's annual international showcase Coolest Projects in the RDS this year?”

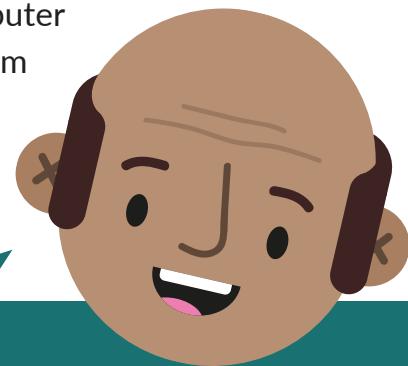
**Alan, parent
of Aisling who attends CoderDojo Dublin @ Zalando, Ireland**



Young people and coding

What is coding?

Coding, or computer programming, is the skill of taking a problem and creating a set of instructions — which we call a computer program — for a computer to solve that problem. Computer programs can be anything from simple ones that add two numbers together, all the way up to complex websites, video games, or apps.



Why learn to code?

Learning to code teaches young people to think logically to build programs and solve complex issues. And because writing and debugging code involves learning through trial and error, it also helps young people develop independence, perseverance, and resilience.

Coding is also a fantastic outlet for creativity: Ninjas are free to use their imagination to develop projects that are relevant to their unique interests. The project-based approach to learning at CoderDojo allows Ninjas to draw, design, animate, and build in order to make their own ideas a reality. At a Dojo, you are just as likely to find a Ninja who is creating a handmade robot programmed using Scratch, as you are to find one who's designing a mobile app about healthy eating.

“CoderDojo has enabled Sara not only to enhance her maths, logic, and problem-solving capabilities, it has given her the opportunity to develop other important skills such as confident presentation of her projects, brainstorming, project management, group participation, and to explore her creativity in a relaxed and fun environment.”

**Teresa, parent
of Sara who attends Dublin Docklands @ CHQ, Ireland**

Skills for the future

Since we live in a world where digital technologies are becoming increasingly prevalent, the importance of learning to code cannot be overestimated. Coding skills are already relevant in many industries, and are becoming relevant in even more; not all young people with an interest in coding will necessarily become web developers and programmers, but they will be able to use their programming knowledge in almost any future career. Technology is being integrated into nearly every industry and sector, from agriculture to healthcare, or even legal compliance. Undoubtedly, a knowledge of coding helps young people to prepare for careers in a variety of fields.

We are currently preparing students for jobs that don't exist yet, using technologies that haven't been invented, in order to solve problems we don't even know are problems yet.

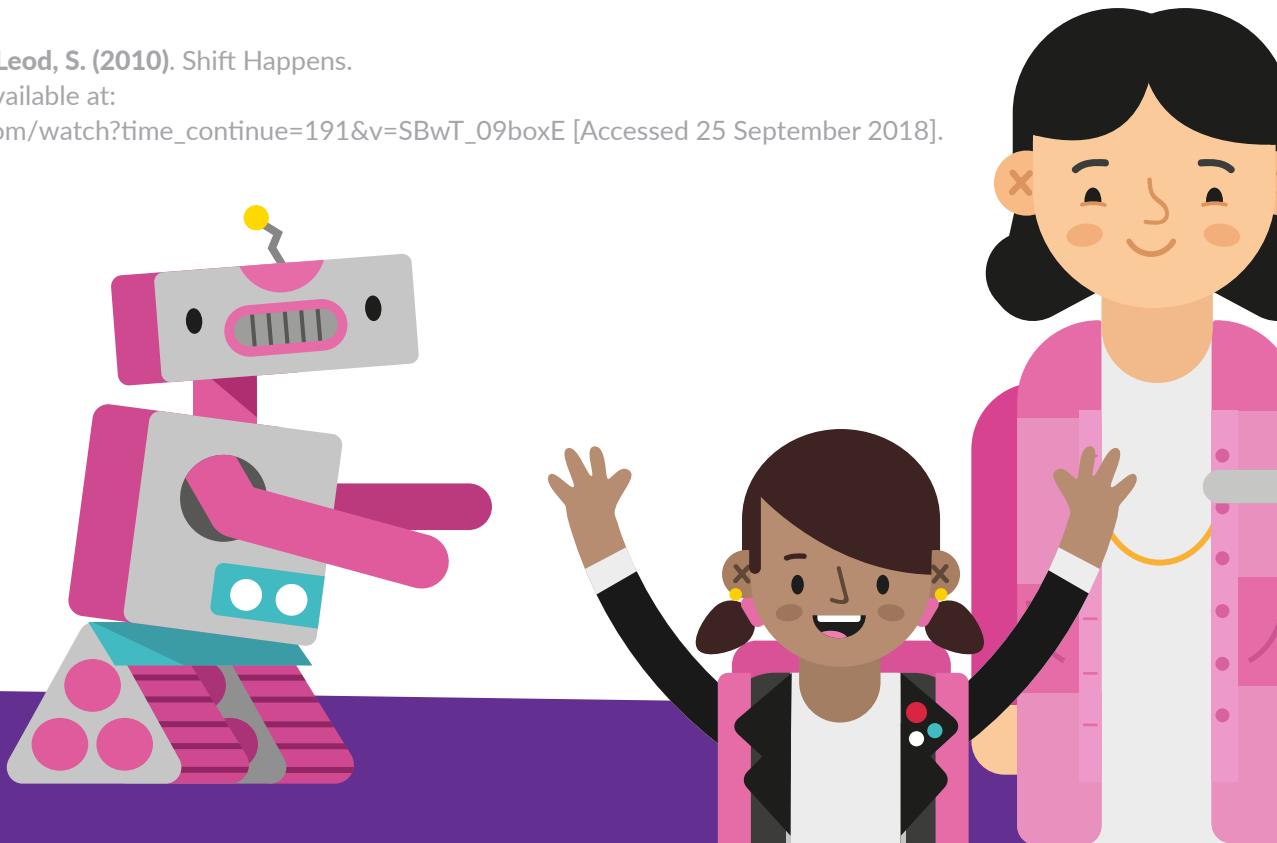
(Fisch, McLeod, 2010)¹

At Dojos, young people are also supported in developing a growth mindset, a favourable stance for adapting to a rapidly changing world. In Dojo sessions, Ninjas learn through determination, innovation, and discovery. CoderDojo mentors encourage a 'trial and error' approach to creating code, and the Ninjas in each Dojo are a group with diverse abilities they can build and interests they can follow, so everyone is actively engaged, constantly developing new skills, and helping each other succeed.

¹ Fisch, K and McLeod, S. (2010). Shift Happens.

[presentation] Available at:

www.youtube.com/watch?time_continue=191&v=SBwT_09boxE [Accessed 25 September 2018].





A word on screen time

Technology permeates many aspects of young people's lives and daily interactions, and some parents may be concerned about the amount of time for which their children are exposed to computer, phone, or TV screens each day. Their apprehension may extend to young people attending Dojos, as this inevitably involves engaging with a screen. Allow us to alleviate these concerns.

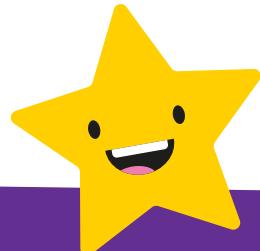
Active versus passive engagement with technology

There is a big difference between a relatively passive undertaking such as scrolling through a social media newsfeed or watching videos, and the active task of creating something new using code. At a Dojo, young people have the opportunity to be imaginative with using technology and to switch roles from being a consumer to being a creator. This might involve building their own website, inventing an app, or brainstorming a new, interactive game. Many Ninjas even take their projects a step further, creating hardware designs using household items, LEGO, wheels, LED lights, or anything else they can think of!

"Chloë usually tries to take part in a micro:bit robotics activity, because she loves the combination of crafting and coding, but she'll do another activity if that's not available. On one such occasion she learnt to solder, putting LEDs on a snowman before connecting it to Raspberry Pi and taking her first steps in Python."

**Nick, parent
of Chloë who attends CoderDojo Ham, UK**

This means that at Dojos, the screen is really only a means to an end: an outlet for young people's imaginations. And their creative coding endeavours will help them understand how the technologies they interact with on a regular basis actually work.



A Dojo session: more than just screen time

Being involved in a Dojo is a holistic experience for a young person, because the social, collaborative skills they learn are just as important as the coding skills! Typically, Dojo sessions last for around one to two hours, and not all this time is spent in front of a screen: many Dojos sessions begin with icebreaker activities so Ninjas can get to know new participants; Ninjas have the chance to work on projects together, and there is time at the session's end to discuss projects as a group; they are also highly encouraged to share their skills and knowledge to teach and learn from each other. And it's of course always OK to take a break from the screen!



Reasons to get involved with CoderDojo

The CoderDojo approach to learning

In Dojos, sessions are not like school classes with a curriculum and an instructor at the front of the room. Instead, Ninjas are introduced to coding resources and materials, and given the tools to create and explore through project work. They get support from mentors to follow their individual interests by building their own projects, at their own pace. And while mentors are always available to facilitate a Ninja's learning by helping them understand a new concept, the emphasis in CoderDojo is very much on peer mentoring and collaboration: the atmosphere in a Dojo is fun and social, and Ninjas can chat and work together; they are encouraged to provide support to younger children or beginners, and this builds positive relationships, communication skills, and confidence.

"The kids can choose which activities they would like to join in (for example robots, game development, HTML and web, to name a few), and they can take charge of their own projects. The mentors are awesome and always on hand to guide, advise, and troubleshoot any problems that arise."

**Alan, parent
of Aisling who attends CoderDojo Dublin @ Zalando, Ireland**

Ask three, then me

This motto means that when you need an answer, you should ask yourself first, then ask the internet using a search engine, then ask your peers...and only then ask a mentor! It's used in Dojos to encourage young people to be self-motivated in their learning, and to help each other, instead of being overly reliant on mentor support.

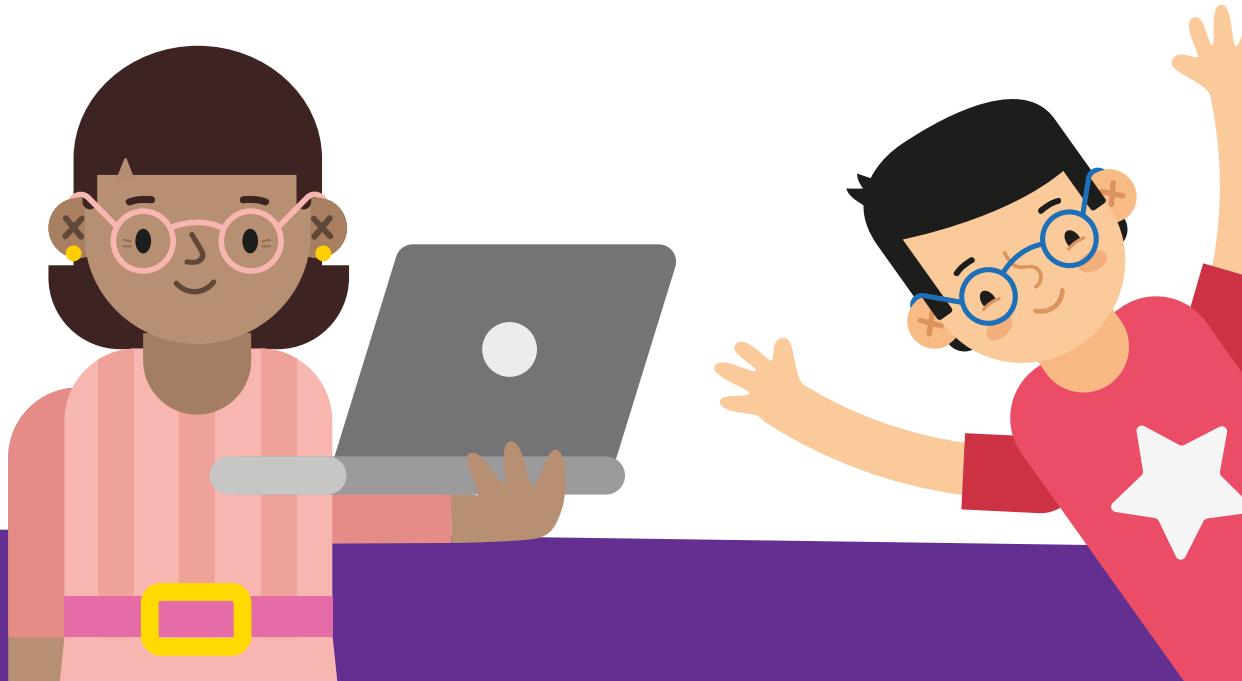
Benefits to attending a Dojo

Young people attend Dojos for a variety of reasons, and there are many benefits to getting involved. While each Ninja is unique, there are few things many Ninjas say when you ask them why they enjoy CoderDojo:

- **It's fun:** Ninjas get the opportunity to create awesome projects with code and share their creations with their friends in the process.
- **Making friends:** Dojos are social environments, where young people meet peers with similar interests.
- **Making cool things they care about:** Ninjas can work on highly creative projects based on topics that interest them.

For you as a parent, there are also other reasons to encourage your child to attend a Dojo:

- **Opportunities:** CoderDojo exposes young people to computing and technology early in life, giving them the chance to consider STEM careers and pathways for the future.
- **Education:** CoderDojo is a fun, informal learning environment for young people. Ninjas not only learn coding at a Dojo – working on projects also helps them develop skills in literacy, mathematics, and creativity.
- **Equality and accessibility:** Dojos are inclusive environments where all young people are given an equal opportunity to learn and develop skills. Everyone is welcome at a Dojo and can attend free of charge.



CoderDojo for girls

We are working towards equality

As an inclusive movement, CoderDojo is committed to supporting more girls to get involved in computing and technology. While the tech industry is growing rapidly, women continue to be in the minority in university courses and organisations in this field. Reasons for this include a lack of role models, structural challenges, the role of peers, and societal perceptions. These decrease opportunities for girls and women and maintain existing barriers, making it challenging for them to start and progress in tech-related careers.



Our goal at CoderDojo is to narrow the gender gap within the movement by 2020, increasing female participation from 29% (figure from our Annual Survey 2017) to at least 40%. To do this, the CoderDojo Foundation team is focusing on three initiatives:

- **Encouraging and showcasing** female role models
- **Creating support materials**, including the *Empowering the Future* guide for Dojo champions, available as a free download at dojo.soy/etf
- **Researching** how to best encourage girls to attend and keep returning to Dojo sessions

Supporting your daughter's learning journey

The first and most important thing is realising the importance of learning coding and technology skills, and encouraging your daughter to join a local group. The CoderDojo community is full of awesome and inspiring female Ninjas. It is useful to chat with your local Dojo's champion about how you can work together to support your daughter's involvement. Here are some suggestions that are known to work:

- **Invite your daughter's friends**
Girls in particular can be strongly influenced by their peers. Having a peer attend the Dojo with them encourages regular participation. If your daughter has a friend at the Dojo, encourage them to sit near one another; consider speaking with other parents/guardians in advance, along with the champion, in order to facilitate this.
- **Learn with your daughter**
Many parents stay during a Dojo, often learning in tandem with their children. This creates a supportive learning atmosphere. Young girls who see their guardians helping out and learning too are often more engaged in their own projects.



"Watching my daughter drag and drop, type instructions into a program, and see what she wanted to happen actually happen made me realise how easy coding actually is once you understand the basics. Through watching her, I learned to shake my fear of 'breaking technology'. I learned that I could create and improve projects, brainstorm my own, and put my own stamp on things. It is very empowering to not have to ask your ten-year-old daughter to help you fix the TV!"

**Rachel, parent
of Lexi who attends Dublin @ Riot Games, Ireland**

- **Support a growth mindset**

For someone with a growth mindset, failures become part of the learning journey. Support your daughter to be able to make mistakes without viewing them in a negative light, and to ask questions without worrying how others will perceive her. A proven approach for helping her do this is to have a experience-based Dojo session layout (e.g. beginners' tables) where less experienced coders can work without feeling intimidated by more advanced learners.



CoderDojo for young people on the autistic spectrum

We found it difficult to get Ethan involved in activities, so CoderDojo has been brilliant for him. He loves technology and especially games, and he gets a chance to meet children with similar interests every week. We have started meeting more families at CoderDojo where some of the children are on the autism spectrum, and the environment seems to really be very welcoming for these children.

(Kenneth Whelan, cited in As I Am, 2014)¹

CoderDojo is an inclusive movement that welcomes young people at all levels of ability, no matter what their requirements are. Dojos have proven popular amongst young people with Autism Spectrum Disorders (ASD), as the quote below shows:

It's not a given that children with ASD will automatically take to coding, but the CoderDojo clubs cater for children with a range of requirements, allowing them to try out the hobby free of charge and progress further if they find an aptitude for it.

(O'Brien, 2013)²

Each young person with ASD is different, but some common characteristics they have are attention to detail and highly focused interests, which may be "**channelled into studying, paid work, volunteering, or other meaningful occupation**". (www.autism.org.uk)³

These traits are highly conducive to many aspects of coding, such as and creating and developing projects, and problem-solving. You can work with your Dojo's champion and mentors to ensure that your child with ASD is fully supported at the club.



Here are some tips for parents (and Dojo volunteers) who would like to facilitate the Dojo attendance of young people with ASD:

- **Establish a routine:** Most Dojos follow a set routine for each session, and this can help the young person to feel comfortable. Ask the Dojo champion to let you know of any potential changes to the routine in advance, so you can prepare your child.
- **Communicate clearly and allow time for processing information:** At a Dojo, Ninjas learn at their own pace and should never feel under pressure. Ask mentors to remember to keep instructions simple and clear.
- **Consider the Dojo environment:** Dojos can be busy and sometimes noisy places. If a young person is sensitive to noise, they may need to take breaks or wear noise-cancelling headphones. Check with the champion if there is a quiet space nearby where you can accompany your child for breaks.

¹ Whelan, K. (2014) Kenneth Whelan: "Why don't you take Ethan to this CoderDojo thing?" Asiam.ie [online]. Available at: asiam.ie/kenneth-whelan-dont-take-ethan-coderdojo-thing/ [Accessed 13 August 2018].

² O'Brien, C. (2013). Children on autism spectrum crack the Dojo code. The Irish Times, [online]. Available at: [irishtimes.com/business/technology/children-on-autism-spectrum-crack-the-dojo-code-1.1386453](http://www.irishtimes.com/business/technology/children-on-autism-spectrum-crack-the-dojo-code-1.1386453) [Accessed 13 August 2018].

³ The National Autistic Society, (n.d). Obsessions, repetitive behaviour and routines. [online] Available at: autism.org.uk/about/behaviour/obsessions-repetitive-routines.aspx [Accessed 14 September 2018].



Attending a Dojo

How to find a Dojo near you

There are Dojos in towns, cities, and communities all over the world – take a look at dojo.soy/find_a_doj for info on finding a Dojo near you. Dojos that are marked as 'public' are open to the general public, whereas those marked as 'private' are usually only open to the students of a particular school or the members of one organisation.

What happens at a Dojo session?

As described in the section [The CoderDojo approach to learning](#), attendees learn to code by working on projects in an informal atmosphere, talking amongst themselves, and collaborating. Chatting and making friends is encouraged!

Watch this short video to witness a Dojo in action: dojo.soy/inside_a_doj



Members of a Dojo

It is important to keep in mind that Dojos are volunteer-led clubs that take place thanks to the generosity of these individuals, who foster the learning of young digital creators and explorers.

- **Champions:** A Dojo organiser, either the original founder or someone who has subsequently taken on that role. The Dojo champion is usually your first point of contact.
- **Mentors:** Volunteers who provide support, guidance, and encouragement to the Ninjas while these completing their projects and developing their skills. Mentors are not like teachers – rather they support Ninjas by scaffolding their learning.
- **Other volunteers:** People helping out with the Dojo without taking on a champion or mentor role. Their work may involve setting up the room, managing social media for the Dojo, or holding fundraisers.
- **Ninjas:** Young people aged 7 to 17 attending the Dojo. Ninjas are the reason we run CoderDojos!
- **Youth mentors:** Ninjas who are also mentors! Once a Ninja has gained some experience at a Dojo, they are encouraged to share their knowledge by supporting other Ninjas. This gives the youth mentor an excellent opportunity for growth and development, and fosters peer learning.
- **Parents and guardians:** Many Dojos require parents or guardians to stay for the duration of the Dojo session, particularly if their Ninja is under 13. Parents and guardians are also welcome to contribute their time and skills to the Dojo. As CoderDojo co-founder Bill Liao says, “**CoderDojo is free, but it's not a free ride!**”



What do Ninjas learn at a Dojo?

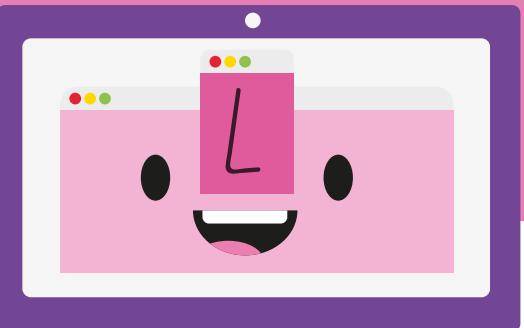
Programming languages

Common programming languages used in Dojos include:

- **Scratch:** A simple graphical programming language that covers many of the key principles of coding and therefore is an excellent starting point for beginners.
- **Python:** A popular and easy-to-learn text-based programming language used by professional coders for everything from websites to data science.
- **HTML/CSS:** The core languages used to build websites.
- **JavaScript:** This language is key for making interactive websites, and it's a good topic for Ninjas who have some experience with both Scratch and HTML/CSS.
- **App Inventor:** Another graphical tool, which Ninjas can use to build apps for Android devices.
- **Unity:** A professional-level games development tool capable of creating detailed 3D games using pre-made models and textures. It is not suitable for beginners, but Ninjas who know some Python or JavaScript would be able to progress to it.

Educational resources

Most Dojos make use of educational resources during their sessions. The Raspberry Pi Foundation and the CoderDojo Foundation both produce freely available educational project resources that are specifically designed for use in coding clubs. You can find these at coderdojo.com/resources and projects.raspberrypi.org. Each project has an objective (e.g. learning how to make a memory game using Scratch) and consists of step-by-step instructions for the Ninja to work through. There are projects available for all skill levels, and Ninjas usually progress quite quickly!



Project examples

Above all, Dojos are spaces to be creative and to have fun with code. Children are inherently imaginative, and there is no limit to what a Ninja can create at their Dojo: from a simple and colourful Scratch game, to a more complex hardware creation combining motion and LEDs, or a mobile app they can submit to Apple's or Google's app store. The beauty of attending a Dojo is that young people are not put under pressure, and are given space to explore and create with technology at their own place, following their own interests.

Over the years, thousands of Ninjas have showcased their projects at our annual Coolest Projects events — you can find some of them here: dojo.soy/project_examples

"CoderDojo has provided Kaia an opportunity to grow by exposing her to fun, kid-friendly, but challenging coding practices. She is nine years old and has always been creative, but with coding, she wants to continue learning about this new technology and explore what's possible, which is what it's all about!"

**Brandon, parent
of Kaia who attends CoderDojo Greenwood IN, USA**



FAQs

Below are some examples of frequently asked questions of parents and guardians.

For more, visit our Help Centre at: dojo.soy/parent_questions

Does CoderDojo cost anything to attend?

No, all Dojos are absolutely free to attend. Young people and their parents/guardians should never have to pay to attend a Dojo, and this is ingrained in the CoderDojo ethos. However, it is worth remembering that Dojos are volunteer-led and do not receive external funding. Parents can help out in other ways, as outlined in the next section. As co-founder Bill Liao has said, “**CoderDojo is free, but it's not a free ride!**”

What should we bring to a Dojo?

If possible, please bring a laptop for your child to work on. If you cannot, let the Dojo champion know, as there may be spare laptops or other devices available. It is also a good idea to bring a bottle of water and a snack for your child.

Do parents need to stay for the duration of the Dojo?

If your child is under the age of 13, then you will need to stay with them for the Dojo session. For children over the age of 13, it is recommended that a parent/guardian remains nearby and can be easily reached by phone.



How parents can help

Let your child follow their interests!

As we've said before, Dojos are informal learning environments where young people are free to work on any projects that inspire them. The projects are often primarily led by the topic that Ninjas wish to explore (e.g. unicorns, outer space, bullying, nature, music, etc.), with gaining knowledge of programming emerging through this exploration. So encourage your child to let their imagination run wild :)

Show them you're still learning too

It helps Ninjas to see that you're still learning as well. If you can code already, they'll see what they might achieve, while also realising that there is no all-knowing, 'finished' expert. If you can't code, learning and making mistakes alongside your child will encourage them to be comfortable with, and learn from, their own mistakes.

- **Work through projects** with your child and solve problems as a team
- **Help them** find the answer by asking leading questions and allowing them to figure things out by themselves as much as possible
- **Show them** that it's OK to make mistakes to encourage learning through trial-and-error
- **Resist the temptation to correct errors** for your child, touching the keyboard as little as possible

There is a CoderDojo motto for adults that says, **"Be hands-on, but keep your hands off the keyboard!"**



Help out at your child's Dojo

Many parents and guardians would like to help out at their child's Dojo, but are not always sure how. You can help in lots of different ways, for example by becoming a mentor yourself, or by taking on organisational tasks for the Dojo. Talk to the champion at your child's Dojo and they will let you know how best to apply your skills.

Becoming a mentor

Particularly if you have technical knowledge or skills, you may wish to get involved as a mentor! As a mentor, you will usually need to undertake a background check as per your country's regulations; the champion will be able to tell you more about this.

If you would like to become a mentor but don't have technical knowledge yet, you can simply practice some coding exercises along with your child until you are comfortable with mentoring at beginner-level. Attending a Dojo is a learning process for everyone!

Volunteering your other skills

There are many jobs involved in running a Dojo, from administration and registration to keeping websites and social media pages up to date. Dojos benefit from having volunteers with a wide array of skills, and you can help out in lots of ways. Below are some examples; for more, see page 17 of the *Champions' Handbook* (dojo.soy/chb).

- Leading icebreaker activities
- Designing fliers, posters, and other promotional material
- Building or maintaining the Dojo's website
- Managing social media pages
- Helping to set up the venue space for sessions
- Fundraising and sponsorship
- Welcoming and signing in Ninjas
- Reaching out to recruit new mentors and Ninjas
- Leading parents' orientation sessions for newcomers – share this guide with them!



"What we both recognise and appreciate is the amount of preparation put in by the mentors, and their warmth and enthusiasm during the sessions. So when the call came for some parental support to help with the signing in, providing feedback, and the like, it was a welcome opportunity to put a little back and show that appreciation of all the efforts of those mentors and the champion."

**Nick, parent
of Chloë who attends CoderDojo Ham, UK**

Start a Dojo

Many parents/guardians progress to setting up their own Dojo. This may be because there is no Dojo their child can easily get to, or because the local Dojo is over-subscribed, or simply because they are inspired to do it! Whatever the reason, a new Dojo helps to provide more local young people with brand-new, social, creative learning opportunities, and the CoderDojo Foundation is there to support you with a wealth of resources for setting up and running your club.

If you are considering starting a Dojo, we recommend starting out with this material:

- **The Champions' Handbook**

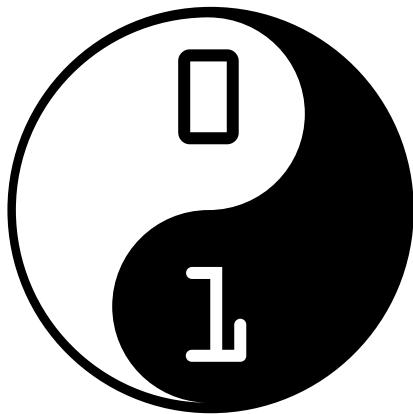
This is our essential guide and reference for anyone who wants to set up a Dojo or is already running one. You can find it at dojo.soy/chb

- **The online course**

We run a free, easy-to-join Start a CoderDojo club course on the Futurelearn web platform. The course runs for about two hours per week for three weeks. It is an excellent introduction for all new champions into the world of CoderDojo! You can access it at dojo.soy/DojoCourse

Once you are ready to start your Dojo, you can fill out the form at dojo.soy/start-a-dojo-form and have your Dojo verified as an official CoderDojo club!





CoderDojo



CoderDojo

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@CoderDojo