



RUNNING SUCCESSFUL COMPUTING CLUBS

Alan O'Donohoe shares practical tips for running computing clubs, with case studies from clubs around the world to help you follow in their footsteps

In your teaching, have you ever found yourself experiencing any of the following feelings:

- Frustrated that an interesting and important topic is not included in the curriculum?
- Disappointed at the amount of curriculum time timetabled for your subject?
- Worn down by the requirement to measure and report progress?
- Dispirited by teaching topics your students don't value or appreciate?
- Exhausted searching for solutions to increase participation levels?
- Worried about risking something new with a class that won't be a success?
- Regretful that enthusiastic students are being held back in lessons?
- Guilty that some students lack access to the resources that others take for granted?

If you have experienced any of these sensations, you'll perhaps appreciate how an extracurricular club offers a sandbox environment to mitigate against these issues. A computing club can be a flexible vehicle to test and try out the resources, projects, and programmes that you are not yet ready to incorporate into your regular everyday teaching. As you're reading this, you're probably thinking that a club is low down on your list of priorities right now — however, it might just be the thing that brings back that sense of joy and reward that inspired you to teach in the first place. Clubs can provide teachers with an enormous amount of fulfilment and offer freedom that is harder to orchestrate within your regular teaching.

In this guide, I provide advice and share case studies of successful examples, to help ensure that you reap the fruits of your efforts.

Tips for running a successful club

1. Put your own needs first. I've spoken to many teachers who, like me, have organised clubs for different reasons. Some teachers have apologised for having selfish motives for running a club —



but I don't think anyone running a club could be described as selfish. A club can be a massive drain on a teacher's time, energy, and availability, especially if not managed well.

2. Do it for the right reason. This is the single best piece of advice I can offer to any teacher considering running a club. No teacher should consider doing so unless they are absolutely clear on their reason and confident that the reason is compelling enough. Start by deciding exactly what your primary goal is for organising a club.

CLUBS CAN PROVIDE AN ENORMOUS AMOUNT OF FULFILMENT AND FREEDOM

Once you have decided why you are doing it, everything else will fall into place. Consider what the consequences would be if there were no club; weigh up the positives and negatives. Some teachers have asked me for advice on starting a club after a colleague suggested it to them, which makes me wonder — if it was such a great idea, why did the colleague not start the club themselves?





RESOURCES

- Virtual visit to a club at Caroline Chisholm School, Northamptonshire in the UK, recorded in 2017: helloworld.cc/chisholm
- A tour of Preston Raspberry Jam in 2019: helloworld.cc/rjam
- Amanda Haughs' virtual coding club blog post: helloworld.cc/mshaughs
- Digital Schoolhouse Tournament, engaging students to develop digital skills and soft skills: helloworld.cc/digitalschoolhouse
- British Esports Championships, competitive video gaming tournaments for students aged 12+ in the UK: helloworld.cc/BritishEsports
- National STEM Clubs, practical STEM activities to support learning in a club-style environment, for primary and secondary: helloworld.cc/STEMclub
- iDEA, a free programme that helps develop digital, enterprise, and employability skills: helloworld.cc/idea
- Code Club, a free club for young people aged 9-13 organised by teachers and volunteers: codeclub.org
- Pi Wars, an annual robotics competition for schools, clubs, and individuals: piwars.org
- Astro Pi, an annual programme giving young people the chance to run their computer programs in space: astro-pi.org
- Tim Bateup's Geek Tutorials, which students in a club can follow for GameMaker, Scratch, and Python: helloworld.cc/geektutorials
- Joanna Wakefield's resources to support a micro-bit robot club for lower secondary (you must be a CAS member to view): helloworld.cc/microbitresources
- CAS Community Discussion Forums on clubs (you must be a CAS member to view): helloworld.cc/clubdiscussion
- Learn about historical computer clubs Amateur Computer Club (helloworld.cc/amateur) and Homebrew Computer Club (helloworld.cc/homebrew)

➤ The list of questions at the start of this article provides some suggestions, but here are the most popular reasons teachers organise clubs:

- To raise the profile of the subject in school and increase interest levels
- To offer experiences and opportunities that can't easily be included in lessons
- To try out new resources and ideas before using them in lessons with large groups

"We've run a computing club aimed at pupil premium children [more disadvantaged pupils] to help boost their confidence and self-esteem. The club was open to children in all year groups and ran for six-week blocks." — Dawn Jones, digital skills officer, Education Scotland.

3. Establish a time-limited programme. One practical suggestion is to limit the club to an initial six-week programme, for example, after which there will be a planned break and a period of review. This exit strategy helps protect you from committing yourself to give up every Thursday afternoon for the next 33 weeks! It also gives you the option of either starting anew six weeks later with a fresh group of students, or resuming with the previous group. Building in breaks every few weeks provides opportunities to reflect, review, and evaluate how successful the club has been in meeting your primary goal. As teachers, we already have so many demands on our precious



time and resources that we need to be clear that anything else we volunteer for is making a positive difference. If the club is no longer meeting the intended purpose, one option is to cancel any future plans, but the review period gives you an opportunity to modify it instead, to match the planned outcome more closely.

4. Choose your audience carefully and start small. This will probably determine the success of your club far more than any other factor (other than yourself, of course!). No matter how well planned and well resourced the club may be, if the same children do not attend the club week after week, if you have different faces showing up every week, how will you be able to move the group forward?

I would go so far as to suggest that in the first instance you invite those students you think will enjoy and benefit from the club the most, before opening it up more publicly later on. The purpose of your club may have already determined who the target audience will be, but there are advantages in starting with a small, mature, enthusiastic group of learners that you already know well, before opening participation up to a wider, unknown audience. This will help ensure things go to plan, with the positive attitudes and behaviours of these highly motivated students spreading to others when you eventually open the club up.

“ DON'T TREAT THE CLUB LIKE LESSONS, WITH OBJECTIVES AND ASSESSMENTS

5. Get your students to run the club, and place more emphasis on fun and exploration than learning and achievement.

Practically, if you only have to do a small amount of work to get the club up and running, this will make it easier for you to commit to running it in the longer term. This does rely on you relinquishing the reins somewhat, but providing you have invited reliable and passionate students in the first place, it should be easier to trust them with the responsibility. Even if the students make some mistakes early on in running the club, these are great life lessons for them to learn from, providing they are encouraged to reflect on what worked well and how it could be even better. In your first club meeting you could make it clear that this is their club, and it will only succeed if they are prepared to make it succeed.

Don't fall into the mistake of treating it like a series of lessons, with learning objectives and assessments. This defeats the point of having a club in the first place. ➤



➤ *"Clubs are part and parcel of the school I worked in. As computing lead, I was asked to run a computing club in the infant school. I wish I had given less structure. I did the club almost like a series of lessons, and I should have given more time for children to explore, tinker, and unpick ready-made programmes." — Rhian Roberts, Stanbridge Primary School, UK.*

6. Follow in the footsteps of others. Find out from other schools and teachers what has worked well, and try replicating their example. There are national programmes that could provide a good basis on which to start or a template to follow. CoderDojo, Code Club, TeenTech, STEM Learning, Digital Schoolhouse, and the British Esports Association all provide support materials, structure, case studies, and content that can help reduce your workload. In theory, you could work your way through this list until you find the one that best helps you meet your primary goal. The Resources section of this guide includes links to their various sites and the case studies that follow should help give you inspiration and ideas. (HW)



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CASE STUDIES

Raspberry Jam. Around the time that the Raspberry Pi computer was first released in 2012, I was looking for a way for me and my students to learn more about the potential of this low-cost, single-board computer. After I announced our plans to organise monthly meetings with the aim of creating a safe space for people of all ages to meet, share, and support each other, news quickly spread around the world. I was amazed to receive messages from groups in places like Silicon Valley, Tokyo, and Melbourne who were inspired to start their own local jams. My wife suggested calling these clubs Raspberry Jam.

Nearly ten years on, we're still holding our monthly events: in 2020 we celebrated our 100th Preston Raspberry Jam. Each month our community of children, their parents, teachers, and enthusiasts share news of their projects and their interests in affordable technologies; and in that time, we've seen our community grow. Covid forced us to change our event format, and now our events continue online, with live video presentations that are recorded. Schools use recordings from our jams to support their clubs, and we've had presenters join us from clubs around the UK and beyond. Each month, girls from Essex Steamettes have presented projects they've developed, and Sean Raser, a teacher at California High School, organised students from his club to record presentations for one of our jams. Sean told me, "The students are all very excited to showcase their work!"

Amanda Haughs is a primary teacher in San Jose, California, USA. "I've run a few different Code Clubs in our district in the past several years. With the first lunchtime and after-school clubs we started, our goal was to provide a space for interested students to play, experiment, and learn more. We hoped that starting up a Code Club would provide more coding exposure to our students, and additional opportunities for them to learn.

I teamed up with a few other educators at my site to launch the after-school Code Club online in the spring, soon after our campuses closed due to Covid and we shifted to distance learning. The goal of last year's club was really about socialising around a shared passion and having a creative outlet during a stressful time.

I knew for sure that last year's virtual club was a success when I received an email from a student wanting to know when we were launching the next club! We had a great turnout last year. We opened the club up to second- to fifth-graders and promoted the club as a place to play and learn together, and prefaced that there would be no explicit teaching. Something like 40 students signed up and attended our regular weekly session!

While the 'teach yourself' model worked for many, there were a couple of students in the club who showed up with very little experience and really wanted to learn. Thinking more about different learning styles, just giving them a project manual to read wasn't working for them. Luckily, we had a few students offer to teach small groups. Moving forward, I think I would plan for both models in our club: a self-directed path, and a more directed instructional path, still led by other students, but planned in advance.

There are a lot of great resources out there for educators who want to start a club but don't have time to design their own materials. Code Club International resources have been my go-to. I like that I can find everything from teaching materials, to project guides, to student name tags, to sign-up sheets, as well as coaching on how to run a club, all in one place."



Jayne Oakley has been running a Minecraft Club at an after-school centre in Westhoughton, UK. Jayne had originally used Minecraft in her classroom teaching, but felt constrained by time in lessons. She spotted opportunities to educate children through the medium of Minecraft, so took the bold move of setting up an out-of-school club in a centre where there's a strong sense of a community and other activities on offer. Children attending the club learnt how to get the most out of the platform: programming, networking, and safety.

One challenge Jayne faced was resourcing hardware powerful enough to meet their needs. She managed to source funding for low-priced PCs and licences from the local council and a housing developer, but as the sessions were not in a listed school, she couldn't use lower-priced education licences, which significantly increased her costs.

Jayne recommends that other teachers be clear about the aims of the club and set reasonable expectations, especially with parents. She found parents' expectations varied dramatically in terms of what they wanted their children to achieve. Jayne advises, "Decide what the goals are, whether that is giving back to the community or even financial reward. I was fortunate with both. Most important was that it worked around me and my family."

Lorne Pearcey, a computing teacher and author in the West Midlands, UK, advocates that any club should have a clear purpose. She loves art, she says, but "If someone said 'come to Art Club and paint', but there was no purpose or guidance, I probably wouldn't stay for long." She believes that competitions like First Lego League and VEX Robotics are marvellous at getting groups of pupils working together to problem-solve and program their robots. She thinks the concept of a code club immediately suggests one thing, though, and might be off-putting for some.

Tim Bateup, a computing teacher on Australia's Sunshine Coast, suggests that teachers consider organising an e-sports club. Tim says, "If you're ready to be bombed with students, an e-sports club will be very popular. Sure, the children don't really learn anything academic as such, but it's a huge industry and it helps with all sorts of things, like respectful relationships and cyberbullying. This worked a treat at my school." The club, which took place twice weekly at lunchtimes, had been paused due to Covid, but has just started again as restrictions have eased in Australia.

Ben Goodwin, a computing teacher at a girls' school in Kent, UK, has organised a variety of clubs including: iDea award, Girls Who Code, BAFTA game design, Game creation with Construct 3, a Python programming club for keen students, virtual-reality game development, AWS GetIT, CyberFirst Girls, and a motor sport club.

Covid has recently impacted the running of these clubs, but previously they helped to increase uptake at GCSE level. Ben's future plans include e-sports, a streaming and video games club, and a 3D design and print club in collaboration with colleagues teaching design technology and media studies.

Shane McVeigh, a computing teacher in County Tyrone, Northern Ireland, had previously organised a FIFA e-sports tournament in his school, but really wanted to expand this to other schools. The Digital Schoolhouse programme enabled Shane's students to compete with other schools using Super Smash Bros on the Nintendo Switch. Shane says, "I found it helped build friendships throughout all year groups, which the school loved, so my school never saw any problems with running it."

Dominic Luther, a computing teacher in Sandbach, UK, found that "Code Club works well as it has a set of projects, gives students a view of a variety of different skills, and can be done fairly independently. A Key Stage 4 or 5 [aged 14-18] volunteer or two can do most of the helping necessary and manage the workload."

Nigel Hydes, a STEM Ambassador in Ipswich, UK, supported a Code Club at a local primary school. Beginners placed the highest demands on him, and he found Code Club projects a useful resource. When he demonstrated the use of turtle graphics in Trinket to plot polygons in colour, children were inspired to create patterns with overlaid polygons. Nigel found he needed to support the teacher with debugging until he encouraged the pupils to become experts at helping each other out. At the beginning, many children just wanted to sit and play games until Nigel intervened and gave stronger direction.

Graham Bridge, another STEM Ambassador, in St Albans, UK, recommends laying down ground rules: for one, playing games is forbidden. The only games allowed are the ones they write themselves. Graham also advises being bold: "We started mine with Lua on Minecraft/ComputerCraft, followed by Crumble, some Python, and finally Windows Forms with C# using SharpDevelop IDE. Some Year 5 [aged 9-10] children progressed to Unity/C# after a YouTube tutorial."