



## Dyslexia and Code Club Aotearoa

Code Club Aotearoa's mission is to make coding available to every kiwi kid, no matter who or where they are. This includes children who have additional support needs, such as children with dyslexia. Dyslexia is a learning preference that affects an estimated [1 in 10 New Zealanders, and 70,000 school aged children](#), so it's likely you have a dyslexic child in your club.

Children with dyslexia often have strengths in logical thinking and problem solving, which are great skills for coding and programming. They sometimes find other tasks difficult though, such as reading and writing. Rather than singling out a dyslexic student for special support, which can make a child feel outcast from their peers, we recommend you provide a range of learning methods for all students at your club! This will benefit the whole club, because not all cases of dyslexia are diagnosed at school, and even children without dyslexia learn in different ways. With a varied learning environment, students with and without dyslexia will flourish at your Code Club!

### Our Top Tips Summarised

- Provide a range of learning methods for all students at your club, and let children self-direct their learning.
- **Print Project Instructions** or help students put instructions side-by-side with the Code Club project in their browser.
- **Start Students Coding in Scratch** and help students become familiar with the Scratch block colours to learn block functions.
- Create physical 'coding blocks' or use toys to simulate Scratch in the real world.
- **Provide tools for visual checking** of code such as a good integrated development environment (IDE) that can colour code commands and variables
- Copy and paste text into a word processor to spell check code
- Plan out code on paper before starting to type
- Speak to the student's class teacher or parents to find out about support given at school

### Print Project Instructions

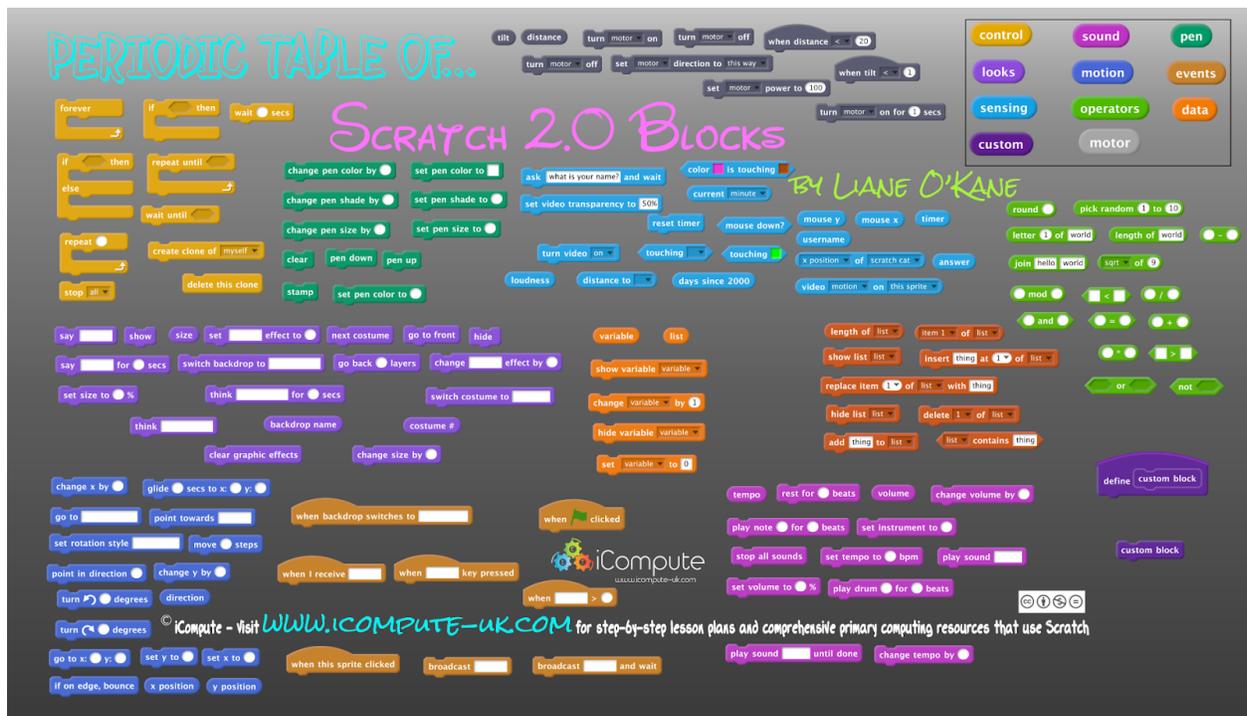
One problem children with dyslexia face is poor short term memory. When working on a coding project, many students switch browser tabs between their Code Club project and the project's instructions. For students with dyslexia, not having the instructions on the screen at all time might make it harder for them to remember, or to keep track of where they are up to.

One way to get around this is to give students the option of using printed project instructions, or by helping them put the instructions side by side with their project page in the computer window. This allows each student to think about how they learn, and make decisions for themselves. Helping students tick off each step as they work through the instructions will help them keep track of where they are (students can 'tick off' the browser-based instructions as well). If you are concerned about paper waste, collect the instructions back at the end of a session and use them again next term!

### Start Students Coding in Scratch

Scratch is an excellent place to start a student with dyslexia, as the coding commands/blocks are colour coded. This means that once a student is familiar with the colours and shape of each block, and learns what that block does in the program, they become less reliant on reading. You might need to have a little extra patience at the start to help students read each block to learn what it does.

If you have the time and resources available, [creating printed and laminated 'Scratch blocks'](#) for physical programming could help a student with dyslexia! You could also do this with coloured Lego blocks and a label maker. By creating a physical and tactile way to simulate Scratch in the real world, students with dyslexia are able to learn how Scratch works in the digital (and abstract) world. For students new to coding, a toy could be used to 'act out' the blocks of physical code in the same way a Sprite would in Scratch.



### **Provide tools for Visual Checking**

A problem for children with dyslexia using a text-based language like Python, is that spelling mistakes are difficult to spot. One solution is to use a good Integrated Development Environment (IDE) that changes the colour of the text when it recognises variables and commands. For example, it is much easier to spot that you've spelt 'print' incorrectly if you know it should be pink but it isn't! It's the same idea as the squiggly red line that appears under spelling mistakes in word processing programs. (Alternatively, you could copy and paste the text into a word processor and run spell check – but watch out for the automatic corrections!)

An offline editor may also let students change the text colour, text background, and font, which can make it easier for them to read, as can changing the screen contrast. Some students may also find it useful to plan their code out on paper before they start typing. Rather than writing out all of the commands, this could be a series of notes or drawings showing the logic needed and order the commands need to go in.

### **Final Thoughts**

Everyone is different, and what works for one person with dyslexia might not necessarily help another! The key to success will be communicating with your students, giving them choices, and getting to know where they might need extra help. If you are struggling, try talking to the student's class teacher or their parents. They will likely know what support the child is getting at school, and how best to help them. Most importantly, don't forget that Code Club is supposed to be fun! What is most fun for a student is when they can learn at their own pace and with their own style.

### **Additional Resources**

<http://www.dyslexiafoundation.org.nz/index.php>

<https://www.dyslexic.com/blog/helping-your-student-with-dyslexia-learn-5-strategies-to-rely-on/>

<https://www.dyslexia.com/about-dyslexia/understanding-dyslexia/guide-for-classroom-teachers/>