

#THREE

JUNE 2021

IN THIS ISSUE

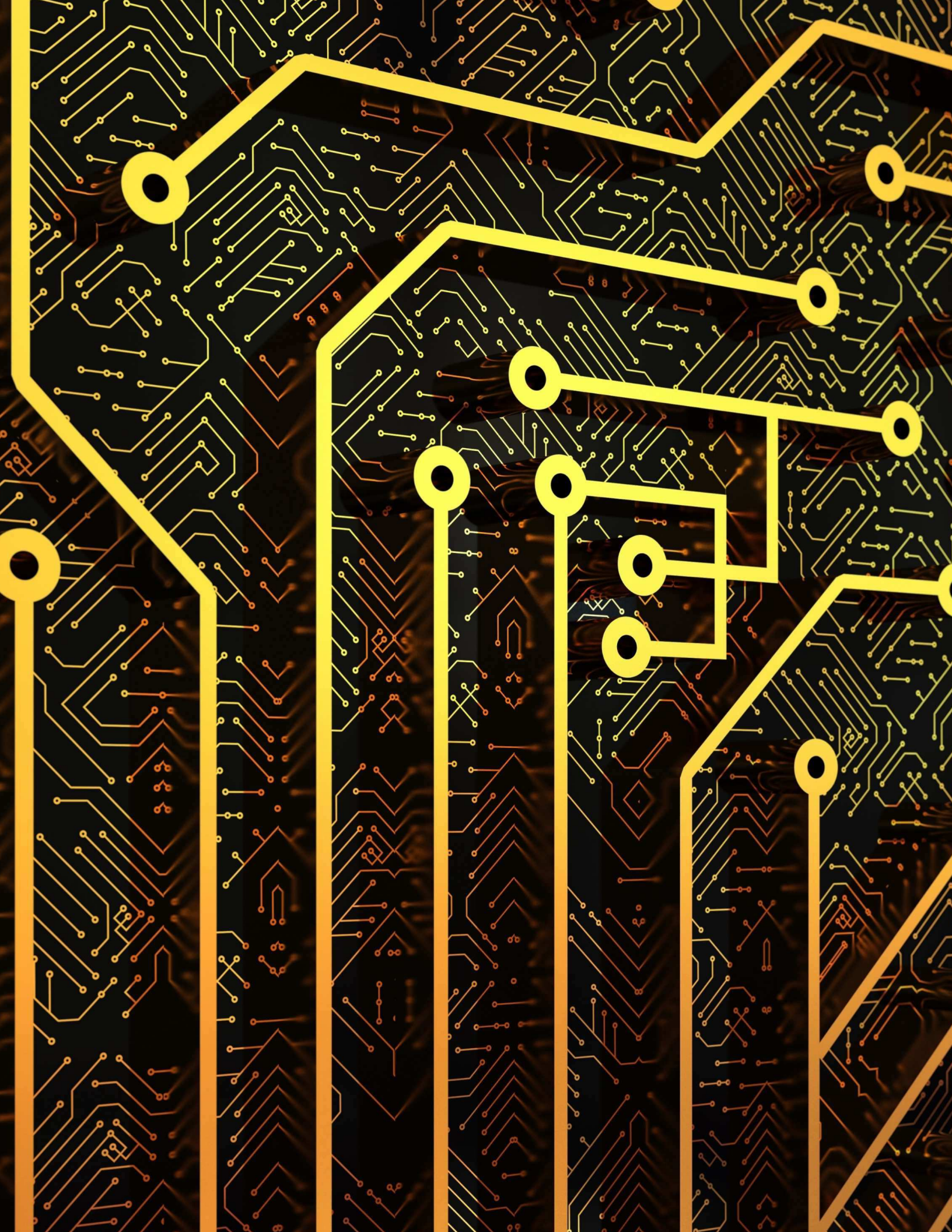
Robbie O'Connell

ICT in Education &
the Lessons to be
Learned from
Covid-19 School
Closures

EXPLORING
EDTECH

IRELAND





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EXPLORING EDTECH #THREE

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Editorial



Welcome to Issue #3 of Exploring EdTech Ireland!

Our feature article this issue by Robbie O'Connell, a highly respected and edtech savvy primary school Principal delves into the continued delivery of quality education during the Covid lockdowns and considers what lessons can be learned by the education community for the future.

We cover a whistlestop introduction to Wakelets, an incredible venture into augmented reality in education with Cleverbooks and an overview of the Reel Life Science and Tech Festival. Jennifer McGarry brings us on a tour of what a Makey Makey is, in advance of her interview with the inventor in the next issue.

Sinead O' Callaghan introduces the Exit Entry online careers platform and we spend some time in the world of Makers and Makerspace, a subject which we will devote a regular section to in future issues, capably drawn together by master maker himself, Chris Reina.

In the third regular tech support section, Val Gavin covers wireless and wired network issues in schools and reveals some ever-handy hints and tips, Steps Recorder is a new favourite!

I hope Exploring EdTech will continue to help and inspire teachers, leaders and management of our schools to make the best use of education technology to enhance and develop the whole school community. My sincerest thanks goes to our writers who, under constant pressure of the "day job", manage to find time to write for this magazine, and without whose support there would not be anything to publish!

Please feel free to get in touch with ideas and suggestions.

Tim Lavery FRCGS FLS, Editor

Castlemaine, June 16th 2021



ICT in Education & the lessons to be learned from Covid-19 school closures

Robbie O' Connell

ICT in Education & the lessons to be learned from Covid-19 school closures

Robbie O'Connell

Principal, St. Brendan's National School

"Technology will not replace great teachers but technology in the hands of great teachers can be transformational" – George Couros

The above quote is one which resonated with me when I first read it several years ago at an Apple education training course and it is one which has been most apt of late. Technology and its use in education is often misunderstood.

The use of ICT within any educational setting should be seen for what it is; a resource like so many other resources used within the classroom to supplement and assist teachers with teaching & learning whilst simultaneously upskilling and benefiting pupils. The use of technology should not be seen as a threat to the skill-set and the irreplaceable nature of professionally qualified and experienced teachers. It is about time that we fully embrace, discuss, and understand the use of technology within Education.

The Coronavirus pandemic and its impact on the education sector was challenging for all to say the least, but one must ask, should it have been so challenging? Simply put, no it should

not have been, as the education sector in Ireland as a whole was simply not equipped for the provision of remote learning. There was a great deal of panic and comparisons made between schools regarding how they would facilitate and manage remote learning for their pupils, we entered new territory and in my opinion, there are profound learnings of note. The initial lack of specific practical guidance from the Department of Education also fuelled these unfair comparisons of schools and schools were left to their own devices, literally!

Amongst all the hysteria of enforced school closures, the elephant in the room for me personally as a school principal was the lack of confidence and experience teachers had using

technology as a remote means of delivering education, as a direct result of years of insufficient training and funding in ICT for teachers. Most schools did not have a digital platform, which is understandable to a point, but one of the learnings from the school closures is that it demonstrated just how powerful & effective technology can be going forward as an invaluable tool both inside and outside the classroom complimented with sufficient knowledge and training.

The journey into remote teaching appealed to visual learners, enabled peer assessment, facilitated class blogs, strengthened home school links, pupils had access around the clock to recorded lessons and instructional videos, it upskilled pupils and parents alike in the use of a digital platform are to name but a few positive takeaways, whilst most importantly ensuring a continuation of education.

Unfortunately, I am aware of incidences which occurred within schools nationwide throughout school closures where platforms, live Zoom teaching etc., were forced upon teachers without any dialogue, agreement and more importantly training and support. Teachers' home dynamics, access to adequate Wi-Fi and compatible technology were also not considered.

This should not have been allowed to occur and only added to the apprehension teachers already possessed around ICT use and in particular with live teaching, to which there are so many well documented pitfalls, potentially putting both teachers & pupils at risk. Adequate education and ongoing training are quintessential going forward for all, if technology is to be fully embraced safely and with confidence within educational settings long after this pandemic.

In our school, we opted to use Seesaw as our digital platform, we did so after dedicated staff dialogue and agreement that this would be the most effective and suitable for both our staff and pupil cohorts. Some staff were already aware of and had used the platform previously, and after deciding and crucially agreeing as a staff on our whole school approach, we then took part in training PRIOR to implementing it, which eliminated risks and highlighted any potential pitfalls for teachers and pupils going forward.

A whole school approach is also a must with regard to the use of digital platforms and this is another key point that did not occur in a large proportion of schools. We have had such a positive experience with Seesaw as a school

community, so much so that we are going to continue to use it going forward on a phased basis for homework from time to time, peer assessment, communication with parents etc., and most importantly we will continue to engage in training as Seesaw will, like all technology does, constantly evolve and improve at a fast pace.

These pandemic times, whereby teachers dipped their toes into the sea of remote learning have clearly taught us all that ICT will not and cannot ever replace the power of classroom teaching, but it most certainly has its place as a powerful tool to supplement teaching and learning. The situation we found ourselves in as educators, is a systematic fault and one not to be put on teachers' shoulders nationwide. Teachers flew the plane while building it throughout the

school closures and showed that a worldwide pandemic cannot stop their commitment to their students. The effort teachers have made nationwide and of how they have embraced technology should be applauded far more loudly than it has been.

A cultural shift is required, and ICT should be a core & continuous practical aspect in at both primary and secondary school level. Teacher training degree courses going forward should concentrate more on the need-to-know practicalities of the everyday effective use of technology in the classroom and plethora of benefits for both the pupils & teachers alike. Small incremental steps and a supporting environment is the way forward.

“Ní neart go cur le chéile “- There's no strength without unity.





Niamh Brady
@MsNiamhBrady



Welcome to the World of Wakelet!

Niamh Brady
@MsNiamhBrady

Wakelet is an online tool that allows users to gather, store and organise content into various collections. It also enables you to curate content in a personal and meaningful way.

I stumbled upon Wakelet a few years ago and I have been using it ever since. It has revolutionised my social bookmarking and has allowed me to create collections of online resources that are organised by theme or subject.

Wakelet can be accessed via a web browser or a browser extension that can be downloaded for Google Chrome, Microsoft Edge, and Mozilla Firefox. It is also available as an app on apple and android devices.

Collections

Each Collection you create will include a title, optional cover image and/or description. The types of resources you can add to a Collection can range from a piece of text to an image, URL link, YouTube Video, Tweet, Flipgrid Video, or a link to a resource in your Google Drive or OneDrive. If you previously had a resource bookmarked in Wakelet, you can always add it to a Collection as well.



Numeracy Resources

🌐 34 items · 819 views



This collection explores a range of digital tools that can be used to effectively develop active pupil learning in the area of Numeracy.



Chinese New Year

🌐 12 items · 231 views

📖 A variety of multi-modal resources on the Lunar (Chinese) New Year suitable for remote teaching or in class teaching & learning.

Once you have created a Collection, you have the option to share it widely and even invite people to collaborate on a Collection with you. You can decide whether you would like your Collection to remain private, public, or unlisted. You can edit a Collection at any time, and you can even download it as a PDF document. When viewing your Collection in PDF format all the resources are hyperlinked and are easily accessed by the simple click of a button.

Depending on the type of Collection you are creating you can decide what type of view you want your Collection to have. This is a nice way to personalise your Collection based on the type of

content you are sharing, or the 'look' you want a particular Collection to have. There are four different styles to choose from:

Media View - Display visual, interactive content within your collection.

Compact View - Display your content as tiles and descriptions.

Grid View - Display visual, interactive content within your collection.

Mood Board - Display your content in a visual and engaging "board" view.

Another fantastic way of using a Collection is to design it as a Learning Path. A Learning Path enables teachers to select and organise resources into a

sequence or collection and share it among their colleagues or pupils.

This sequence or collection is in a particular order and may include resources which are grouped by theme, subject, class, topic or whatever the creator decides.

As part of creating the Learning Path, a teacher may describe how it is to be used, for example for planning purposes, lesson development, homework, project work and so on.

In the same way as a Collection, each Learning Path generates a unique URL that can be easily shared with your students. Learning Paths are also available to download as PDF document.

Here's an example of a Learning Path I created for my students for [Earth Day 2021](#).



TEMPLATES

A new feature in Wakelet is Templates. You can create visual, engaging collections that educate, inform, and inspire your students. Templates can take on many forms including:

- Newsletter
- Lesson plan
- Group project
- Research
- Assignment
- Portfolio
- Reading list



If you are looking for some Template inspiration you can search through the different styles available to you [here](#). Or if you're feeling adventurous you can always create your own Template!

SPACES

Another neat feature within Wakelet is Spaces. Spaces is for when you want to create a separate area for a particular class or a project. We saw that a Collection is made up of links and content, but a Space is made up of collections! A Space is a great place for you to create collections on a particular subject, and invite people to collaborate and create their own collections within the same Space. Spaces are there for when you want to get really specific with something, so you can create as many Spaces as you like. You can also have as many Collections as you want within each of your Spaces.

STUDENT LOGIN

The latest feature to arrive to Wakelet and the most beneficial of all to teachers is Student Accounts! Creating accounts for your students is the best way for them to experience the magic of Wakelet, and take ownership of their own private space online. There are hundreds of amazing ways that your students can benefit from using Wakelet. The platform becomes a student's own personal space on the web, where they can:

- Participate in collaborative activities with their classmates.
- Complete assignments.
- Create digital portfolios and record their school experiences.
- Much more!

You can easily set up accounts for your students by importing them directly from Google Classroom, Microsoft Educator or Clever. Only users within the same group or classroom can see the content that another student has created. A student account is entirely private, and content created on it can only be shared with the owner of the main account (class teacher), or the other members of the class or group. Students can not invite each other to Collections to collaborate on, however you can create a Collection and invite them into the Collection to collaborate with each other.

Go to the Wakelet for Educators homepage now to log in and create your free educator account <https://learn.wakelet.com/>

Wakelet also have their own dedicated YouTube channel <https://www.youtube.com/user/wakelet/featured> where you can access hundreds on tutorials on how to use Wakelet.

- Organise their research.

WAKELET COMMUNITY

There's also the opportunity to join the Wakelet Community and ride the Wakelet Wave! Why not jump on board and work towards becoming a Wakelet Ambassador.

For more information on how to start riding the #WakeletWave and become a member of this fantastic community, check out this dedicated collection [here](#).

WAKELET IRELAND COMMUNITY

The Wakelet Ireland community is a fast-growing network of educators committed to using Wakelet as part of

their teaching and learning pedagogy and sharing best practices among fellow educators. As a result, this has led to the creation of a dedicated Wakelet Ireland Facebook Community page.

The group's purpose is for educators to be able to share ideas, ask questions, and get useful feedback regarding the uses of Wakelet in your classroom. It is a safe place for our community to learn and grow. To join this inspirational group click [here](#).

To follow me on Wakelet or to access any of my collections, navigate to my Wakelet profile [page](#)!

Community Showcase



Google Tips, Tricks and Updates

21 items

Created by [Scott St.Denis](#)



Global collaboration with Microsoft Tools

32 items

Created by [Alberto Herroez](#)



Using Wakelet in our School

36 items

Created by [Robin Thompson](#)



Minecraft Course Materials

20 items

Created by [Yara Kamar](#)



Nearpod training

(resources)



Course on "E-Content



Resources for Using



Being a connected



AUGMENT YOUR CLASSROOM

INSIGHTS FOR
DIGITALISING
EDUCATION

AURORA GOULD-
MORANDI

CLEVERBOOKS



Augment your classroom: insights for digitalising education

Aurora Gould-Morandi

“Today, the future of humankind is sitting at a school desk and getting educated. It is up to us what they learn and how they learn it so they are equipped to fit the future workforce”.

- Dr. Darya Yegorina, CEO of CleverBooks

The modern world revolves around technology in daily tasks. Schools are now struggling to maintain relevancy in their classes due to rapid changes in the job market. In the digital world, educators are under tremendous pressure of equipping children with skills necessary for the unknown future workforce.

In early 2020, schools around the world were forced to embrace digitalization when almost all of them shut their doors due to the global pandemic and suddenly moved to a remote learning environment. Since then, digital transformation in the education space entered a new dimension speeding the integration of immersive technologies into the curriculum.

However, bringing education to the technological era and maintaining a curriculum, is still a challenge for schools worldwide. Improving the quality of education requires an innovative mindset and adaptation of educational technology to address the needs of a 21st-century society where the technologies are used strategically to benefit students' learning.

AUGMENTED REALITY IN EDUCATION

Augmented Reality (AR) is the latest advanced technology that found wide use in primary education to help engage students in learning through interaction with different forms of reality and simulation. More schools during the pandemic are adopting AR technology to improve the learning

environment and help teachers more efficiently deliver the material to pupils in-class and remote settings. The immersive activities help students to gain tech skills and improve their academic performance.

The global AR/VR in education market size projected to grow to \$19,6 billion by 2023, at a Compound Annual Growth Rate (CAGR) of 16.2% (source: <https://bit.ly/3hktTrN>). North America followed by the Europe region has the highest market share in the AR/VR in the education market.

AR educational solutions help teachers to get kids interested in the process of

learning and support accessible personalized education. It is an affordable tool to teach complex topics and concepts in a simplified way and explore the subjects in different settings and scenarios that would not otherwise be possible. While appealing to their emotional context and creating the “wow” effect with AR technology, there is a big chance that students will remember learned information for a longer period.

WHAT IS THE AUGMENTED CLASSROOM?

Augmented Classroom (ARC) by CleverBooks is an award-winning



digital ecosystem for education that combines three main pedagogical pillars of digital content delivery in the multi-player multilingual augmented environment, information search and exploration with AI inquiries: explore, co-create, collaborate. [Digital Innovation Challenge 2020](#) winner across the EU and nominated as the Enhanced Curriculum Solution of the Year 2021 award from [EdTech Breakthrough](#), the platform provides a strong infrastructure for in-class or remote digital education enhancing STEM curriculum and helping students develop digital skills and competence from an early age. ARC by CleverBooks is designed to change the way education is delivered today by making it personalized, engaging, and accessible for all kids in the digital age.

ARC allows teachers to present material in a visual environment that help students:

Learn to know (explore pre-designed content)

Learn to be (support digital skills development)

Learn to work together (collaborating to achieve common goals)

Learn to do (using the educational resources to develop necessary digital skills in an actual collaborative

environment)

Learn to transform yourself and society (helping each other during collaboration, challenging each other, accessing the impact of digital cooperation on teamwork in the multi-cultural and multi-user environment from an early age, etc).

ARC supports every angle of teacher-student engagement aligned with the curriculum through strategic collaboration and proactive immersive learning. This allows pupils to develop digital competencies in conjunction with the essential meta-skills set, spark innovation, and creativity.

HOW DOES IT WORK?

With a simple registration process and user-friendly UX design, educators will easily navigate through their Augmented Classroom dashboard, find a wide variety of activities to enhance the curriculum delivery, and efficiently manage students learning progress. The platform can be used cross-devices (mobile devices, Chromebooks, laptop, or desktop) and cross-operational systems (iOS, Android, and Windows) providing the option for students to join a teacher-led option or explore on their own.

Educators can choose what activity students will be interacting and engaging with, and students will join the activity with a join code. This allows students that may be virtual or in other parts of the world to connect at the same time. Global curriculum-based, ARC is tailored for students at different levels of learning in 13 languages. Collaboration in AR helps to personalize learning and reinforces critical thinking, problem-solving, and creativity skills development-boosting students' academic performance.

Augmented Classroom by CleverBooks provides educators with digital resources to get their students engaged and excited about the curriculum they are teaching, as well as empowering students to design and create their content. Students acquire the necessary skills and better navigate their way through their future workforce from an early age. Students improve test-score by up to 33% and increase *retention rate* by up to 100%.

AR FOR STUDENTS WITH SEN

AR offers capacities that resonate with students with special needs relating to conditions such as autism (ASD), ADHD, dyslexia, Down's Syndrome. Each child with a diagnosis has different learning needs that must be

accommodated and sometimes those students feel left behind in a classroom environment in comparison to their peers.

One medium that could make learning more accessible, interactive, and practical, is the use of AR. This technology can help teachers educate,



inspire, and create an inclusive classroom environment for students regardless of their abilities.

Multiple studies prove that AR technology in the classroom has reported positive results when working with students with special needs developing their knowledge, skills, and

attitudes in ways that would not have been possible otherwise. Both schools and educators have a duty of care to implement strategies that increase students' motivation, facilitate interaction, help develop cognitive skills and facilitate a learning environment where pupils can see, hear and touch the knowledge.



USED BY SCHOOLS AND PARTNERS WORLDWIDE

Augmented Classroom is a secure environment with no student data collection required. Comprehensive training and an open library of activity plans help educators quickly get started and use the platform to its full potential enhancing curriculum delivery.

Through collaboration with other partners, CleverBooks helps educators discover new ways of teaching. Augmented Classroom is listed as a trusted partner on the Canvas LMS Community and easily integrated with 95% of other LMS platforms. The platform was also recently featured by the PDST in their recent [webinar on AR/VR in Education](#) and the article published by [Acer for Education](#).

ROAD TO STUDENT SUCCESS

We define students' success by their ability to support themselves in this society and professional environment upon graduation. To see them flourish in the professional field they choose and be able to solve problems when they appear, whether in their career, families, or personal lives.

At CleverBooks, we envision a world where educators are empowered to help students to develop necessary skills through the strategic use of AR technology, breaking old-fashioned pedagogical barriers and facilitating an interactive and immersive learning environment. A world in which each educator gives a student a ticket to success by making it possible for them to develop the 21st-century skills shaping the society of the future.



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8

4

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$1+6$

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4



Reel LIFE
SCIENCE

SCHOOLS VIDEO COMPETITION



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ience

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ce.co

ReelLIFE SCIENCE 2021

Megan Depinna

Senior Youth Officer, Training, Learning and Development, Foróige

In these challenging times, the ReelLIFE SCIENCE video competition (www.reellifescience.com) is challenging young people to share their passion for Science and all things STEM, by making a short film or animation about their favourite science topic.

“ReelLIFE SCIENCE makes me a lot more interested in science. Maybe in the future I will become the world’s greatest scientist all due to this competition.”

Aoibhin aged 11, Sligo.

The contest is open to young people in Ireland and Northern Ireland representing their Primary School, Secondary School or Youth Organisation. Videos or animations can be up to three minutes in length and can communicate any aspect of STEM (Science, Technology, Engineering or Maths). By researching and producing a short film, participants develop their critical thinking, communication and digital skills and all filmmakers receive a Certificate of Participation.

“I think this is a fantastic initiative because the students are not only learning about a scientific topic - they are also developing skills to communicate what they've learnt.

These types of hands on, practical projects will be really valuable as they progress through to the next stage of their career.” Dr. Norah Patten, Aeronautical Engineer and Astronaut Candidate.

ReelLIFE SCIENCE was founded by Dr. Enda O’Connell, a biomedical scientist from NUI Galway in 2013, and, since then, more than 16,000 young people from 500 schools and youth organisations all around Ireland have taken part. Video topics have ranged from the topical ‘How Our Immune Systems Work’ and ‘Coronavirus: How It Spreads’ to ‘Climate Action!’, ‘Science on the Farm’ and even ‘Life in Space’.



“Students greatly benefited from the active approach to learning and felt that by 'doing' helped them to gain a better understanding of the material and the confidence to incorporate their knowledge into a storyline. It provided me as the educator a unique opportunity to enrich the minds of my students in a creative and

engaging manner, bringing relevant real-life material into the classroom in a way they could relate to. The REELlife science experience gave the students the opportunity to excel as part of a team in the directing, videoing and editing of the film.”

Fiona O'Connor, Science Teacher, Davitt College Castlebar.

Supported by the Science Foundation Ireland Discover programme, the Community Knowledge Initiative, the CÚRAM Centre for Research in Medical Devices and the Cell Explorers Outreach programme, ReelLIFE SCIENCE awards prizes of €1000 at Primary School, Secondary School and Youth Organisation level for the best videos, which will be screened for the public at the annual Galway Science and

Technology Festival.

Closing date for entries is the 15th October 2021, so loads of time for groups to get creative!

More information, including video production guides, sample videos and the application form can be found at www.reellifescience.com



A man's face is shown in profile, with various digital icons and data points overlaid on it, suggesting a high-tech or artificial intelligence theme. A hand is holding a smartphone in the foreground, with a blue light reflecting off it. The background is dark with some colorful, abstract shapes.

Exit



By Sinéad O' Callaghan



Sinéad O' Callaghan

Exit Entry is an educational technology platform that helps students to best match their talents with opportunities.

Exit Entry's mission is to create opportunities for everyone. The Exit Entry Post Primary app was launched in May 2020 to post primary students across Ireland. To date, over 35,000 students have accessed the app and are availing of its features.

The app can be accessed by students from 1st to 6th year and they can create their own profile on the app where they can gain a deeper sense of their skills and interests at a young age, explore courses, companies and college information. The Exit Entry app is particularly useful for Transition Year students and 6th years on their CAO application journey. As the youth of today are digital natives, most students have access to mobile phones. They can now use their phones and the free Exit Entry app to discover the best courses to suit their skills and interests.

The features of the Exit Entry app include

- FREE Skills and Interest Assessment

- College Pathways
- Over 4,000 courses
- Work X platform
- Free BMI Open P-Tech Badges
- College Information

The Skills and Interest assessment within the app is based on 60 years of scientific research developed in partnership with Dublin City University. By downloading the app and following Exit Entry on Instagram @exitentryjobs and TikTok @exit.entry, students will become members of the Exit Entry student community which prides itself on inclusiveness, diversity and opportunities. Through the Exit Entry technology, students have access to opportunities, IBM accredited badges



and a wide range of informative content from companies such as Intel, Eir, IBM, Chartered Accountants of Ireland, HERSPORT, Emu Ink, Culture Me, Chef Brian McDermott, Jill & Gill and many more.

The IBM Open P-Tech badges available on the app are a result of a collaboration between Exit Entry and IBM; one of the world's largest and most successful technology companies. These badges provide students with an excellent insight into the world of work and are also an admirable addition to every young person's CV. Students can engage in self-directed learning through the app and complete the badges in their own time without the pressure of any deadlines. We're delighted that numerous schools and Guidance Departments across the country are embracing the Exit Entry technology within their classrooms and the wider whole school environment. Niamh Dwyer, Guidance Counsellor and director of *My Career Plan* states;



"The students found the app easy and enjoyable to engage with and navigate. They loved the insight they got into their own skills and interests as well as the direct access it gave them to really worthwhile work-related experiences and excellent and relevant courses in the virtual space"

The IBM badges are available to students nationwide via the Exit Entry

app in the areas of;

- Professional Skills,
- Cybersecurity Fundamentals,
- Principles of Visual Design,
- Explorations into Mindfulness,
- Agile Explorer.

Exit Entry believes in a future community that encompasses support for Students, Schools & Colleges, Parents/Guardians and Industry. At Exit Entry we understand that the school day for teachers can be both challenging and stressful. We know the positive impact you make on students and how you want to support their future goals and life. We believe in the contribution teachers make to their students' lives. With this in mind, we want to support you in this process of transforming your students' lives.

Therefore, Exit Entry has developed and launched the *Exit Entry Guidance Counsellor HUB*, which is a platform that supports the Guidance Departments in Post Primary schools to transform students' access to future opportunities. The HUB utilises technology and data to provide Guidance Counsellors with an insight into their student's skills and interests, enabling them to support students to reach their future goals.

Donnchadha O' Mahoney, Guidance Counsellor at Loreto College, St. Stephen's Green, Dublin highlights how useful the Guidance Counsellor HUB platform has been to enhancing his daily school life:

"The Exit Entry app made my life as a Guidance Counsellor easier. With the Guidance Counsellor Dashboard feature it makes it simple for me to stay on top of what each student is doing. The IBM badges also give students the opportunity to access worthwhile skills no matter where they are in the country."

Exit Entry is a company with a global mission to create opportunities for everyone. With users now in 98% of post primary schools in Ireland and 97% in DEIS schools we are working to transform future opportunities for students globally. If you are a teacher, parent, student, school or business interested in joining our community please reach out to us at sinead@exitentry.com



**AN INVENTION
KIT FOR ALL**

JENNIFER MCGARRY

Makey Makey: an invention kit for all

Jennifer McGarry

If someone hears the word “Makey Makey” their first thought is likely to be along the lines of “oh isn’t that the cool little device that connects to bananas?” or “is that the electronic thing that helps you play music with random items?” The answer to both of these musings would be yes - but the Makey Makey is a powerful little device and can do a whole lot more too!

Image Left: The Makey Makey with USB cable and extension wires.

TELL ME MORE - WHAT IS A MAKEY MAKEY?

The Makey Makey is a printed circuit board that was developed as an academic and artistic project by two MIT students, Jay Silver and Eric Rosenbaum. It is referred to as an invention kit as it allows users to turn everyday objects into touchpads, keyboards or mouse clicks and combine them with software. Inspired by the Maker Movement, the aim of the creation of such an invention kit was, and still is, to help people to begin to think of themselves as ‘Makers’ and agents of change. Their philosophy is that when you have a ‘Maker's Mindset’, you know that you can change the world! The Makey Makey underwent several iterations to make it as user friendly and effective as possible.

The first prototype [1] of the Makey Makey (image 1) was created in 2010, and is pretty interesting to see. It ran at a workshop at the San Francisco Exploratorium and looks nothing like the second prototype [2] (image 2). The second prototype was developed a year later and Silver and Rosenbaum tested this prototype with professional interaction designers to aspire towards a user centered design to encourage meaningful interactions between the users and the device.

Image 1: Prototype 1

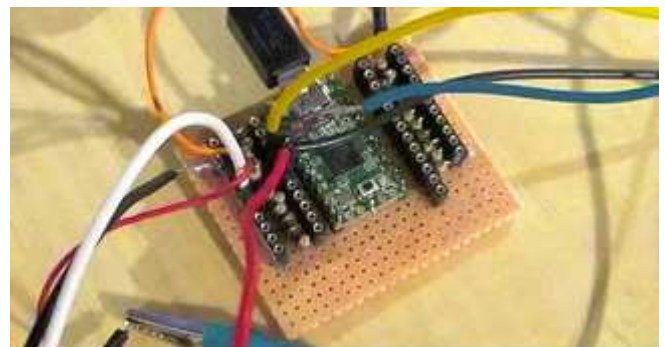


Image 2: Prototype 2

The third prototype [3] (image 3) looks much more like the Makey Makey that we are used to seeing today and has, since this third prototype, gone through subsequent updates to its current design.



Image 3: Prototype 3

WHAT DOES THE MAKEY MAKEY LOOK LIKE?

The Makey Makey is a small two-sided device, about 9cm long and 4.5cm wide. It has 18 inputs in total that it can use to send keystrokes and mouse commands to the computer.

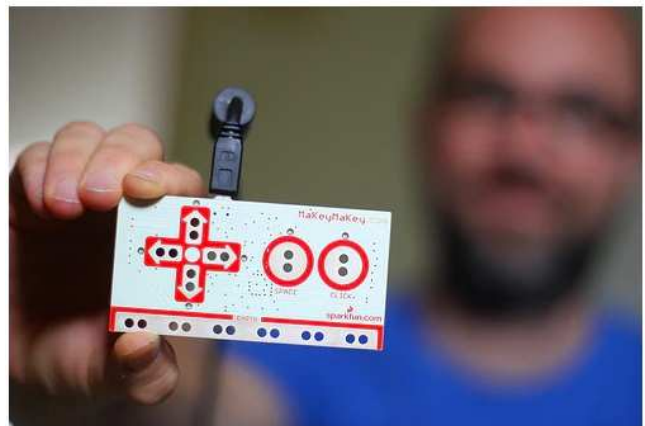
On the front (image 5), the Makey Makey has 6 inputs [4]:

- Up, down, left and right arrow keys,
- The spacebar,
- The mouse left click.

Image 5: Front of Makey Makey

And on the back (image 6), there are 12 more inputs [4]:

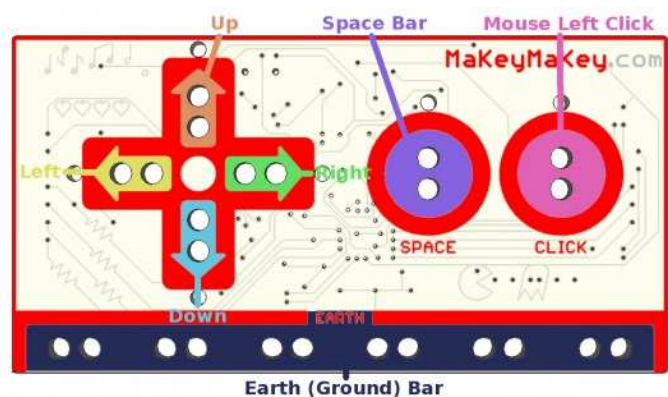
- W, A, S, D, F, and G on the keyboard,
- Up, down, left and right mouse movements,



- Left and right clicks on the mouse side.

Image 6: Back of Makey Makey

The pins on the back side are all available in the form of “jumper-wire” connectors. These will either come with



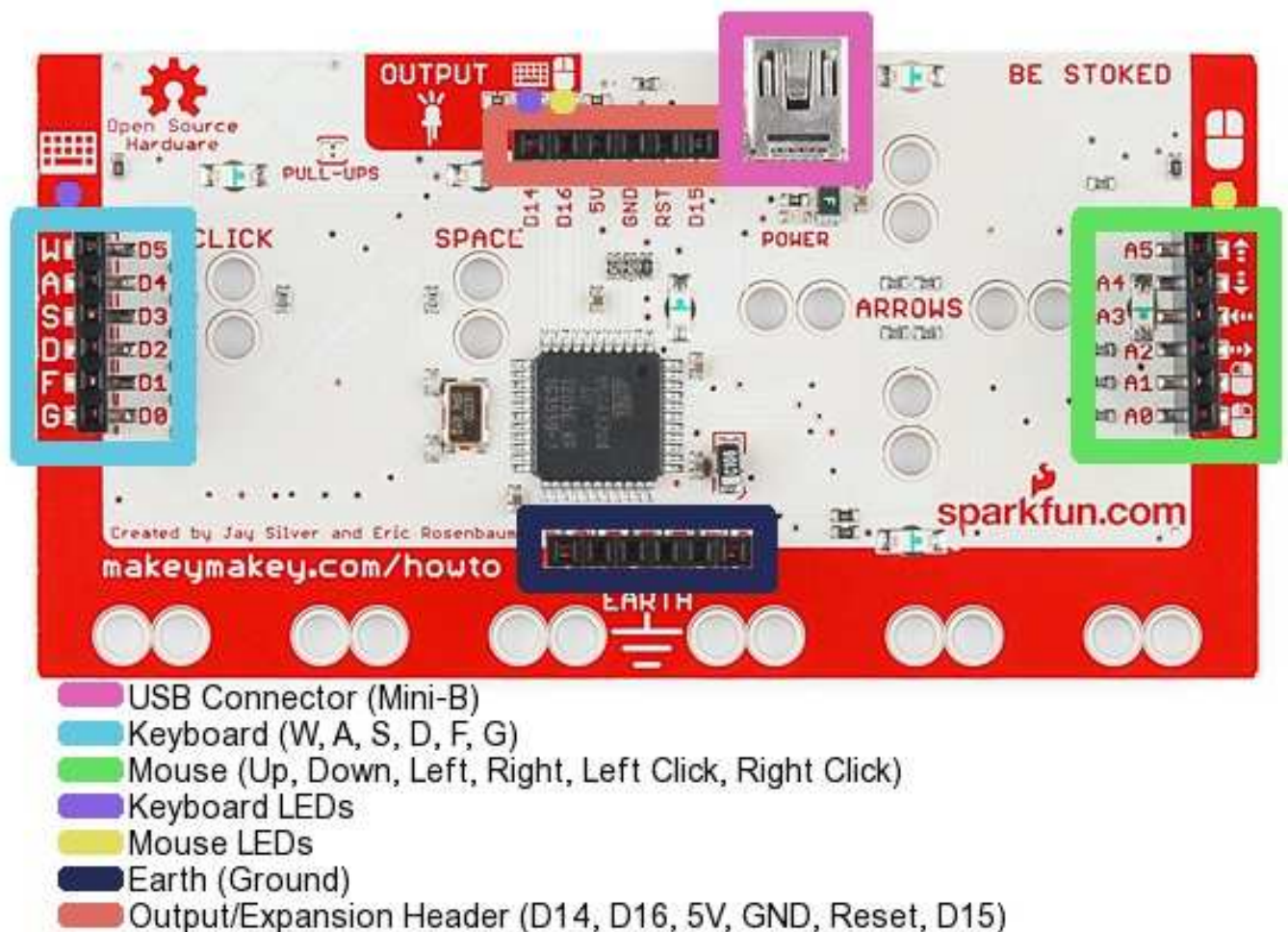
your Makey Makey or you can use standard male-to-male jumper wires to connect the Makey Makey to your object or to a crocodile clip.

HOW DOES THE MAKEY MAKEY WORK?

Any laptop or computer with a USB port and a recent operating system will work with the Makey Makey. iPads running OS 13.4.1 [1] will also work with the Makey Makey v.1.4. The Makey Makey is designed to connect everyday objects to computer keys and any

material that can conduct at least a tiny bit of electricity will work. Such materials can include fruit, graphite pencil rubbings and finger paint. Non conductive materials can be transformed into conductive ones through rubbing it with bananas, spraying it with water or applying copper tape.

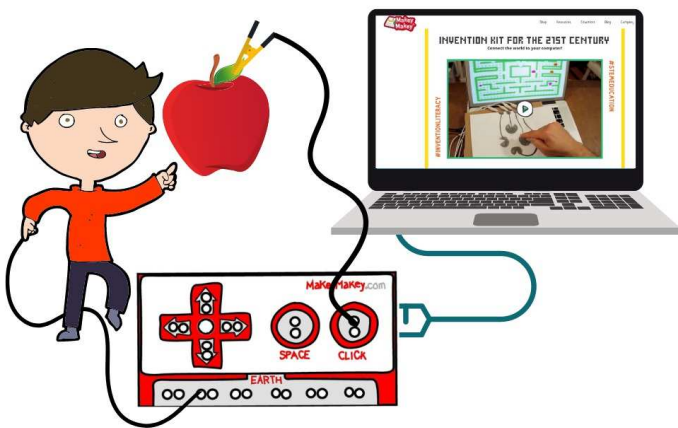
To make the Makey Makey work, all one needs is themselves, a conductive object (optional, but more fun!), two alligator clips, one USB cable, the Makey Makey circuit board and a



laptop/computer etc.

Image 4 shows a Makey Makey circuit about to be completed [5]. When the apple is touched it triggers the sensor inputs, a connection is made and the circuit is complete. The Makey Makey then sends the computer a keyboard message.

Image 4: Basic Makey Makey circuit.



WHAT CAN YOU CREATE WITH A MAKEY MAKEY?

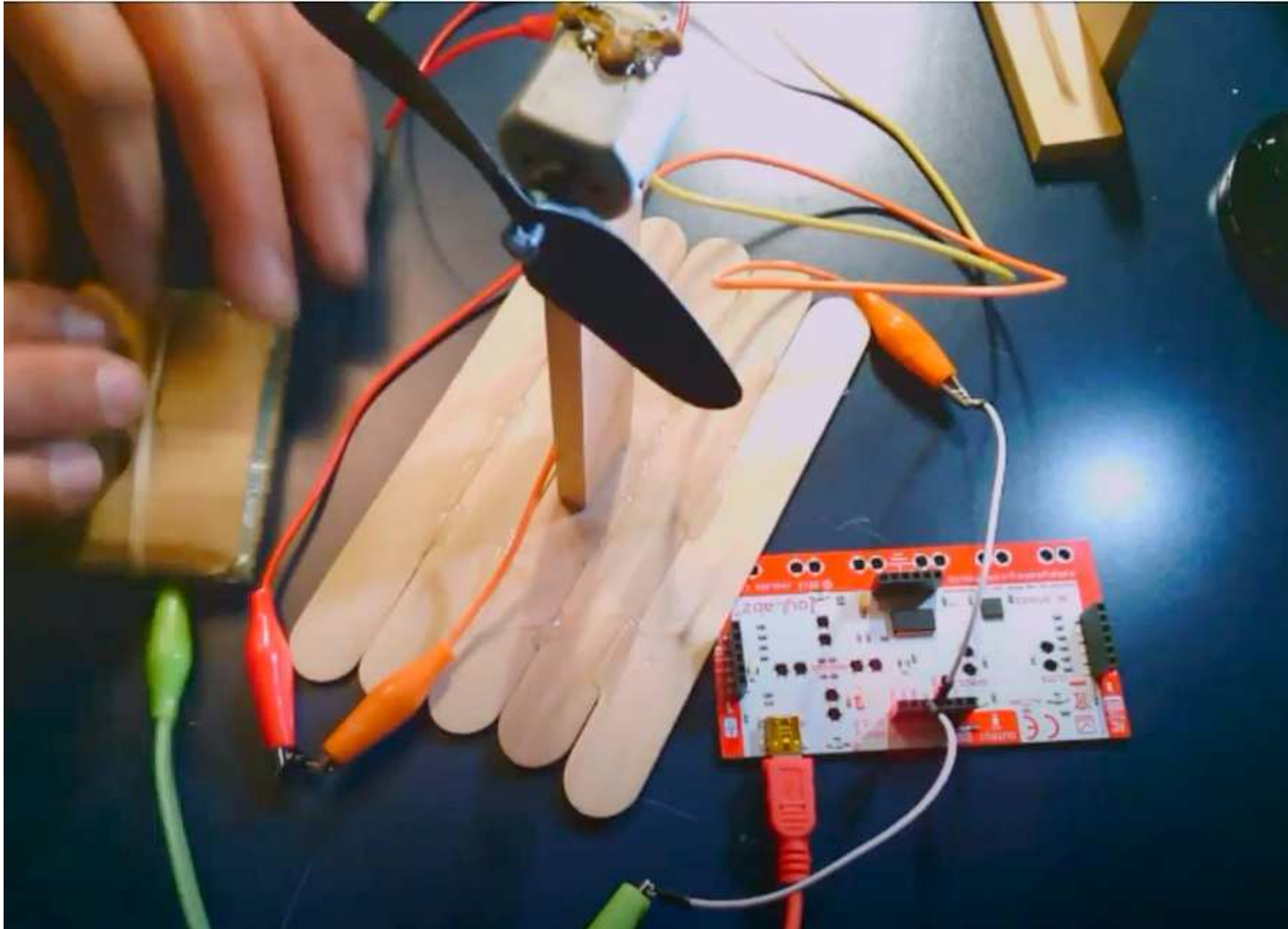
There are so many different, fun projects that you can create with the Makey Makey, ranging from making simple circuits with young children, to complex interactive art pieces, to hacking your Makey Makey to become an Arduino (more on that later!). You can use the Makey Makey to type; move your cursor around and click; play video games; play digital music instruments;

navigate websites; trigger a webcam. Basically anything that you might do with a keyboard or mouse, you can do with your Makey Makey. The Makey Makey works with any software that uses the keyboard, mouse, and/or arrow keys. Some software such as the “Piano” app and “MK-1” (a sampling synth) has been made specifically for use with the Makey Makey and great fun can be had experimenting with these. The “Scratch” software (a free block based programming language) can also be used to create interactive stories, games, and animations with a Makey Makey.

TURNING THE MAKEY MAKEY INTO AN ARDUINO MICROCONTROLLER

The Makey Makey also has the very cool optional extra of being able to be re-programmed to act like an Arduino. This is because the Makey Makey is based on a hardware design similar to the Arduino Leonardo microcontroller board. This allows the creator to re-programme the Makey Makey in the Arduino IDE to trigger different keystrokes than the ones that are already pre-programmed on the device, opening up the possibility to connect a buzzer, a DC motor (image 8) or something else that works on 5V.

Image 8: A re-programmed Makey Makey being used to power a DC motor to turn a plastic two-blade fan [6].



EXPLORING THE MAKEY MAKEY WITH THE BBC MICRO:BIT MICROCONTROLLER

Another super fun project is to use a Micro:bit (a microcontroller board) and a Makey Makey side by side. While creators cannot hack the Makey Makey to turn it into a Micro:bit, creators and

programmers can use the Scratch programming environment to design and make interactive projects using the Makey Makey and a Micro:bit. An example of this would be to add the Micro:bit extensions in the Scratch environment, in order to utilise the ‘*tilt*’ function of the Micro:bit (image 9), before coding a magical power-glove invention [7]! This invention

can then be physically created; first, by coding the Makey Makey and Micro:bit in Scratch and secondly, by lightly stitching the Micro:bit to a cloth glove with non-conductive thread. The creator can then use the tilt of their hand to control the animation that was coded in Scratch.

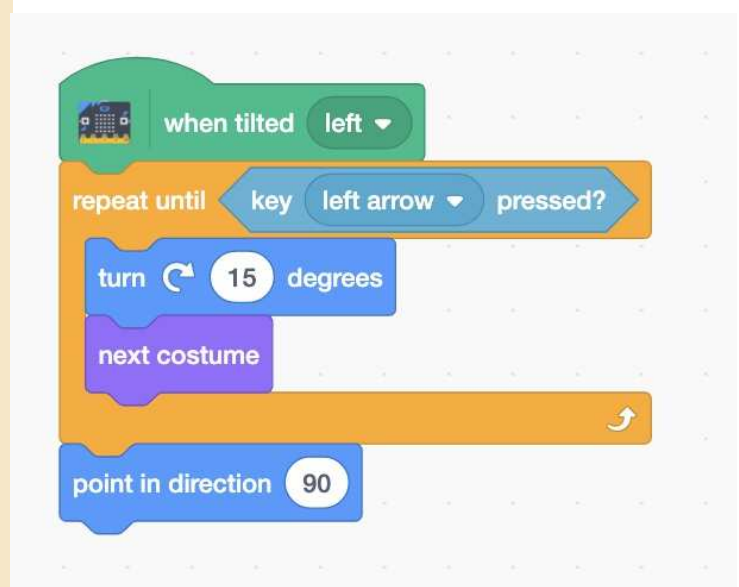
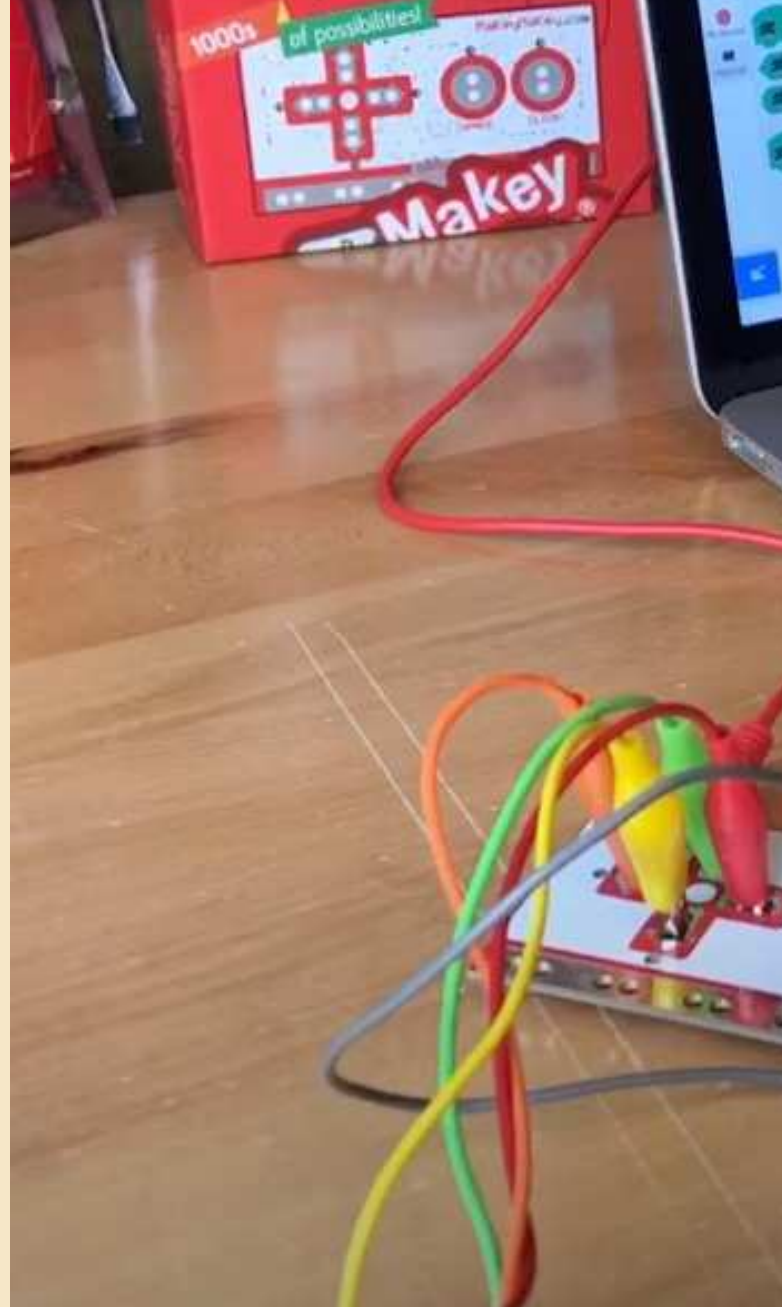
Image 9: A snippet of code showing the Micro:bit extension being used in Scratch [8].

Image 10: The magical power-glove invention!

USING THE MAKEY MAKEY TO CREATE ASSISTIVE TECHNOLOGIES

As mentioned above, the creation of the Makey Makey was inspired by the Maker Movement with the aspiration of encouraging people to realise that they can exert agency over their lives and help change the world for the better. This belief fits in with the idea of Makerspaces that was explored in Issue 2 of “Exploring Edtech” - that Makerspaces are outward-looking, community centered spaces that challenge the learner (child, teenager or adult) to solve real-world scenarios.

An excellent example of using the





Makey Makey to solve real world scenarios is the work that Joylabz (the company to which Makey Makey belongs) is doing through collaborations with the Canadian platform “Makers Making Change”. This platform aims to connect people with disabilities to volunteer ‘Makers’ in order to build assistive technologies to help improve their lives. Through this partnership, many interesting and practical resources for using Makey Makeys as

assistive technology are being created and shared on the Makey Makey website. Such projects show the range and versatility of the little printed circuit board.

Image 11: A prototype of an assistive controller for Minecraft being powered by the Makey Makey, invented by students at Newlands Intermediate School in Wellington, New Zealand. One of their students was restricted to

using his left foot for communication and controls. They wanted to create a way for him to make and collaborate in Minecraft [9].

Image 12: The final wood version of the Makey Makey Minecraft assistive controller!

Image 13: Steel wool was added to the student's shoe for conductivity.

I'M HOOKED, WHERE CAN I FIND OUT MORE ABOUT THE MAKEY MAKEY?

Loads of great projects can be found at <https://makeymakey.com/>, and even more can be found on various Makerspace-style blogspots, forums and websites.

You can find out even more about the Makey Makey and other related creative tools and invention kits such as Drawdio, Singing Fingers, and Scratch - through next month's issue of 'Exploring EdTech' when we will be interviewing one of the creators of the Makey Makey - Jay Silver.

Jay is the Founder and CEO of JoyLabz and the Makey Makey, and is an electrical engineer and toy inventor from Cocoa Beach, Florida. He has made



many creative platforms along with the Makey Makey, such as Drawdio and has spoken at many different events - TED talks and PopTech amongst others. Checkout Jay's TED Talk on hacking a banana to make a keyboard [10], to get an idea of some of the topics that we will be discussing in our interview with him next month.

Image 13: Jay experimenting with the Makey Makey



To help us with our interview, we'd love to hear from you and how you have used your Makey Makey in a school, informal or any type of setting!

Do you, and/or your students, have a question that you would love to ask Jay?

Perhaps you have a photo of a Makey Makey project that you're really proud of and would love to share with the world? Or maybe you have a photo of something that you are really stuck on and would like to share it with Jay to see what he thinks? Photos will be published in the July issue of 'Exploring Edtech'.

If so, please send us any questions or photos by using the following link:
<https://r2v4ul9cb7z.typeform.com/to/SG6icBsX>

RESOURCES

1, 2, 3, 5 <https://www.kickstarter.com/projects/joylabz/makey-makey-an-invention-kit-for-everyone>

4 <https://makeymakey.com/blogs/blog/connect-a-makey-makey-to-your-ipad-to-build-a-mouse-or-trackpad-code-your-key-presses>

6 screenshot from: <https://www.youtube.com/watch?v=aog-2r4Wa40>

7 screenshot from: <https://www.youtube.com/watch?v=XXJetgQsYq8>

8 screenshot from: <https://makeymakey.com/blogs/how-to-instructions/scratch-coding-literacy-project-ideas-for-makey-makey-micro-bit-inventions>

9 screenshots 11, 12, 13: <https://www.linkedin.com/pulse/make-assistive-tech-minecraft-controller-matt-richards/>

10 https://www.ted.com/talks/jay_silver_hack_a_banana_make_a_keyboard

13 image from: <https://images.app.goo.gl/7MPQwSuCPHNBCSfH6>

14 image from: <https://www.linkedin.com/in/1derful>

The QR code can also be scanned by different, multiple devices in case your photos might be scattered across several other devices.

We look forward to hearing from you!



EDTECH

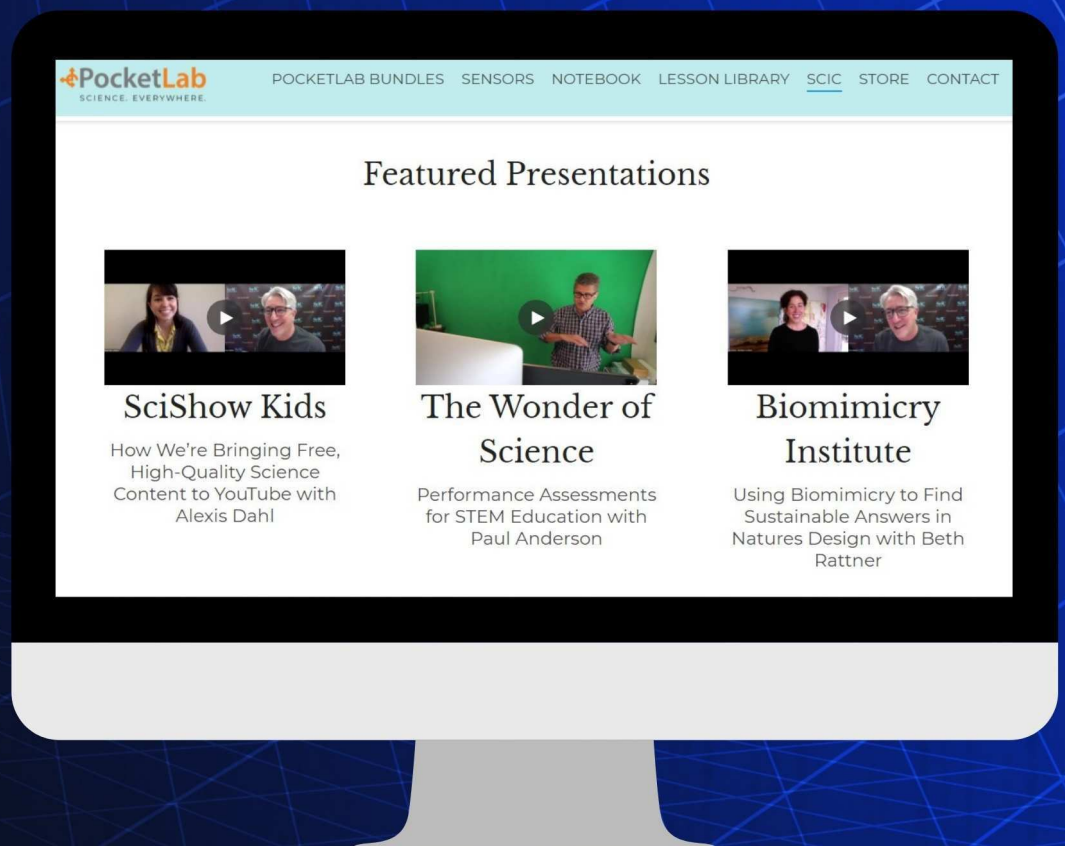


OUR FAVOUITE EDTECH RESOURCE OF THE MONTH

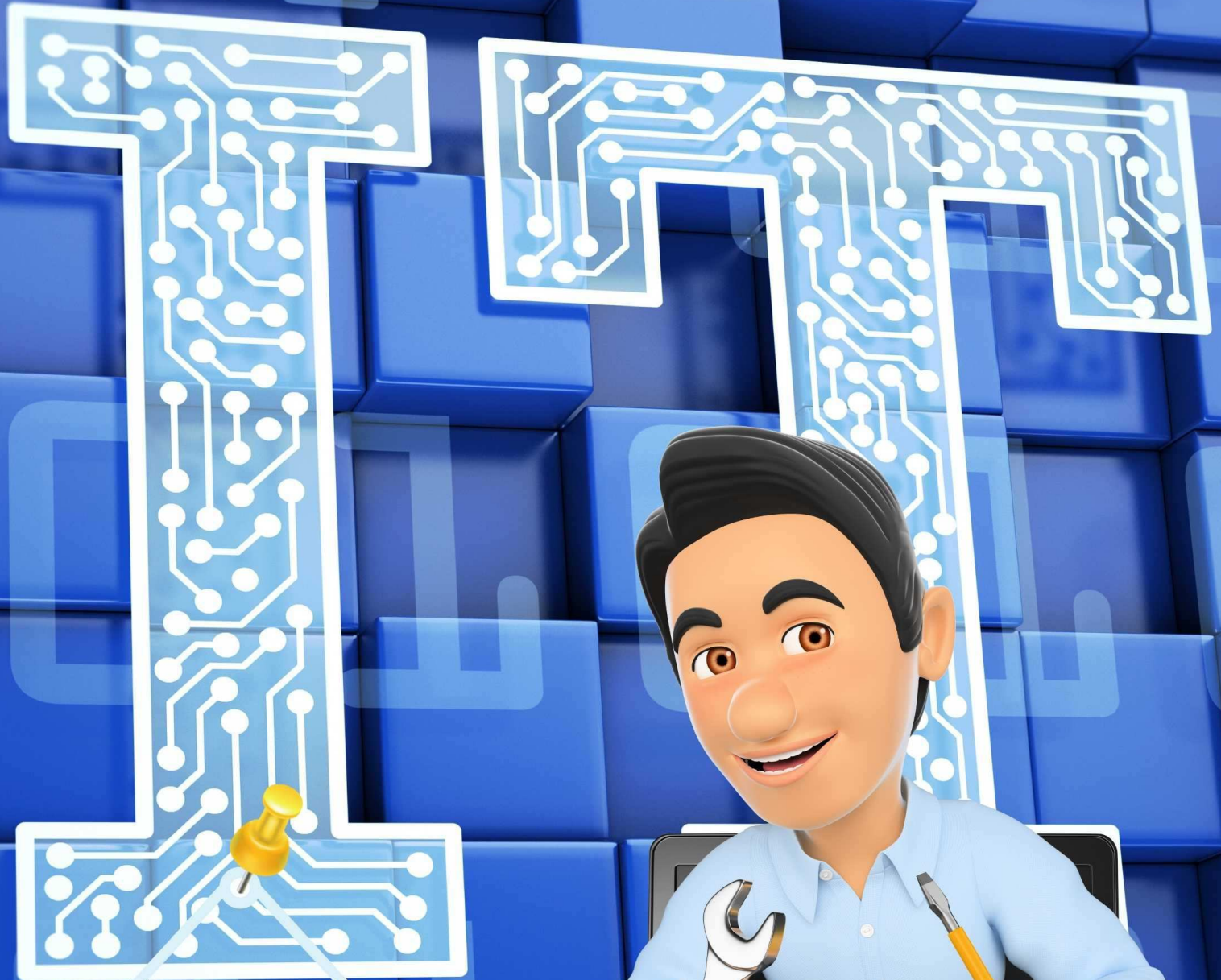
Upcoming ScIC6 Unconference
THURSDAY, JULY 29

Esports, educational games, and gamification
in STEM

ScIC
Science is
Cool Free
Virtual
Unconference
by PocketLab
(thepocketlab
.com)



TECH SUPPORT



Val Gavin



School Network Problems - Wired and Wireless

Val Gavin

With more schools relying on decent broadband speeds for their online school administration software it is necessary to manage and get the most out of whatever bandwidth and speed your school has, and this management must include your internal wireless and wired network.

I have seen a trend recently where schools have moved away from Desktop Computers which were connected to the wired network and have switched to Notebooks for teachers, Chromebooks and or Tablets for students and all of those devices require a stable and high-speed wireless network, but the problem for many schools is that their wireless installation is layered atop of a wired network infrastructure that was installed 15 or maybe 20 plus years ago when Internet usage wasn't so important.

I get schools calling and saying that their wireless network is very slow but there are so many reasons why a school wireless network is slow and there is no one quick fix, the obvious ones are broadband bandwidth, the number of devices connected to it and of course your school Wired Network Infrastructure.

The question is, apart from wireless speeds in your school, are you having network speed issues on your wired network in some areas around the

school, if so and if you want to understand what is happening then you need to get a complete picture of your school's wired network infrastructure, you could get your IT support company to do an audit to isolate the problems but if that is not possible and you have the time and inclination you could try the following yourself, don't worry you are not going to cause any problems and when you are finished you will have a better understanding of your school network.

The first thing to do is get a complete floorplan of your school bring it with you; now take a decent notebook (turn off or temporarily disable its wireless) then connect it by cable to your BB provider's router (Juniper box or whatever router has been provided) and test the BB speed directly from the provider, use <https://speedtest.net> or <https://broadbandspeedtest.ie/> - but to get an accurate test you should disconnect the router (Juniper box) from the school network, depending on your network it most likely is just one Cat5e patch lead, here is an image of a Juniper router port 5 is used for Internet connection to the modem do not disconnect it:

[\(R4de2b80e8647181bba87b3b24bc6401b\(1500x350\)\(bing.com\)\)](https://www.broadbandspeedtest.ie/1b(1500x350)(bing.com)).

If you are unsure do get advice from your IT provider or email myself.

Mark this speed test on your floorplan, ***don't forget to connect that patch lead again***, connect this same notebook to every Ethernet Data Point in every classroom, resource room and office in the school, write down the classroom number and the data outlet box number, check the speed using the same URL write the results for each room on your floorplan, (if there are too many data outlet points in your classrooms just check ones connected to your computer/s).





This audit will give you a picture of your Local Area Network speeds throughout the school and will show up any inconsistencies, you can now check those classroom data point numbers against their corresponding numbers on the patch panel/s:

[\(R0bbe6a6f1d3408765b4539f5bf0b0c30 \(1500x220\) \(bing.com\)\)](#).

In your Comms Cabinet and then follow the cabling from patch panel to the network switches, any switch with 10/100 on it should be replaced as soon as possible with GB switches but your floor plan information will point to issues other than your Switch speeds.

During this audit of classrooms look out for Wireless Access Points (properly installed Wi-Fi devices will be installed in the classroom ceiling or in the corridor outside) also look for any wireless device just plugged into the LAN, I have come across cheap P&P Wireless AP's purchased online (c. €20) by teachers to get wireless access to the school network for their mobile phones, those devices cause serious problems for your wireless system but also many of them can be easily switched between Router and Access Point, I have had a few occasions to trace rogue DHCP Servers and IP conflicts which turned out to be one of these.

Next on the list is Powerline Adaptors, some schools use these devices to bring network access to hard to reach areas in the school or for network printers etc, many of those cheap powerline adaptors can cause intermittent dropouts or reduce the bandwidth speed by 75-80%,

I have a few that I took out of schools that within 30/60 minutes of being plugged in causes dropouts, I have been onto TP-Link but gave up as they could not resolve the issue; but I have come across other named devices causing similar problems, so if at all possible do not use these on your school network.

Now connect that same notebook to the school's Wi-Fi and run similar speed tests from the centre of each classroom also look at the signal strength on the Wi-Fi icon of your notebook, record this, check for other Wi-Fi AP's and record their SSID's and signal strength, do this as you walk throughout the school. To get a better idea of signal quality open a command prompt run as administrator and type the following into the window "netsh wlan show interfaces" without the quotes , press return. There is a lot of information in this window but second from the bottom is the quality of signal this goes



from 0 to 100% anything between 90 and 100 is very good; below 60 and you will have a very slow wireless network no matter what your BB speed is, leave the command prompt open and check this also in every classroom.

Check and see where you lose wireless connection and mark those also, looking at your floorplan will show up areas of poor network connection/speeds and you will be in a better position to make decisions on what is required to manage and repair your network.

We might advise you so take a copy of your floorplan (to scale if possible), mark where each Access Point is located on it and record its SSID and signal strength also note if the walls are solid concrete block of fibreboard partition, tell us what Wireless System you have installed, scan or take a picture of it and email it to us we might then be in a

better position to help.

I have seen Wireless networks installed and configured to default settings other than password and SSID, these installations had no channel planning, too many devices per channel they allowed clients to connect to and stay connected to AP's with low signal levels, connections were not refreshed until the signal was lost so a teacher and her students and their Chromebooks could still be connected to an AP 3 doors down putting certain AP's under stress and causing the network to run very slow, so just because you have installed new AP's does not mean that they are working correctly, they must be configured to suit the school layout and its population, get this checked asap.

A BB connection of 200Mbps Megabits/s may sound like a decent BB speed but remember that is its potential speed and you will never get this in the



classroom especially with a poorly configured wireless installation, so you have teachers and (and where allowed) student mobile phones connected and unless configured otherwise mobile phones left on and connected to the school wireless network maintain a connection with their APP servers. Many so-called free APPs install Malware and unwanted ADD's continually transmitting data over the network then you have Facebook, WhatsApp, Twitter, Email and mobile updates etc all using valuable BB space and that is just mobile phones, then you have all the school's wireless devices and teacher computers and from what I have seen recently, classroom computers are mostly notebooks which must connect to the school wireless network.

As stated earlier, a survey of your school network infrastructure is very important and you should get it done as soon as possible, look at your wireless network and see how it is configured, is it (1) a new installation with new structured cabling, POE Switches and a fully managed AP system even if it is your audit should show up any discrepancies, or (2) was it installed using existing cabling, the installers might have rerouted existing cables from wall outlets to the new AP's and used POE injectors or a POE switch for

each AP. I have seen this in a few installs where money was an issue, if it is configured properly then it is perfectly fine; again your audit will show up issues, or is it (3) a mishmash of independent Wireless AP's or Wireless Routers added in classrooms when required, if it is number (3) then it is time to talk with your IT providers on getting your system upgraded.

Don't forget we are here to help you so if you have issues you can email val@valgavin.biz

A FEW TIPS & TRICKS



→ INSTANTLY LOCK YOUR COMPUTER

Sometimes we are doing private works on our laptop/computer and suddenly someone enters your room. Click Windows+L key to instantly lock your Computer/Laptop.



→ NIGHT LIGHT

Use Night lights in Windows 10 this reduces the harsh blue light of your screen to a much warmer one just like your phone. In the search window type Night Light you can turn it on or set a schedule time.



→ GOD MODE

This switch pulls all the advanced admin-level settings inside a folder name 'God Mode' so you have instant access to all those tools. Create a folder on your desktop and rename it GodMode.{ED7BA470-8E54-465E-825C-99712043E01C}



→ STEP RECORDER

Step recorder is a Windows tool that records your every step you perform on your screen. You just need to type 'PSR' into the search pane and open the step recorder. Click start record to record the screen. Ideal for creating tutorials or just recording often used processes.



→ TASKBAR

To move the Taskbar to top right or left of screen - type Taskbar - go to settings

DUBLIN MAKER



The Who, What and How of Ireland's Premiere Maker Festival

Chris Reina

I'm sitting here virtually with some very interesting people. They are part of the organisers of the DublinMaker Festival which takes place every year in Merrion Square in Dublin. Clearly - with Covid-19 and the lockdown, this would be very difficult to happen and for 2021 they have moved the venue online.

With me I have Jeffrey Roe, Laura Tobin and Vicky Twomey-Lee. Jeffrey is CEO of TOG, Dublin's Hackerspace and apparently has bear hands. Laura is a Science Communicator and can control lasers with her mind. Vicky is Maker Advocate for DublinMaker and organises tech/workshop events, advocates diversity in tech with CodingGrace, PyLadies Dublin and Women Who Code Dublin and is trying to find time to play the ukulele. I began the interview by asking them what exactly DublinMaker is...

Chris: So, tell me - what exactly is DublinMaker?

Jeffrey: DublinMaker is an eclectic mix of Makers from all across Ireland and further afield. It is the showcase event for Makers in Ireland where all the participants get to demonstrate all the wonderful creativity and skills they have.

Chris: When did DublinMaker start?

Laura: DublinMaker started 9 years ago.

Chris: And..how did it start?

Jeffrey: Two members of the team - David McKeown from UCD and Tomas Ward from DCU got together to plan outreach work during the ESOE (European Science Open Forum) which Dublin was hosting in 2012. They spoke about doing outreach work and came up with the idea to start a mini MakerFair which was hosted on the Physics Lawn of Trinity in July of the same year. Laura Tobin brought her science and maker expertise to the group in the same year and joined the board the

following year.

Chris: What exactly is a "Maker"?

Vicky: A Maker is anyone who works with traditional crafts such as weaving or woodturning, right up to coding, 3D printing or laser-cutting - anything really! Take things apart, put things together - upcycling, recycling - anything you create with your hands! Everyone qualifies as a Maker, there are no age or skill requirements.

Chris: How much does DublinMaker cost to attend?

Laura: DublinMaker is entirely free to attend!

Chris: So, do I have to be a Maker to attend?

Laura: No, not at all! There are two ways to attend this year's festival - we have been working to recreate the usual venue of Merrion Square virtually. People can sign up for free to attend, create their own avatar and walk around and view the exhibitions the same as they would in person.

People can also just watch live via the DublinMaker YouTube channel:



Cathrach
a Cliath
y Council



(https://youtube.com/playlist?list=PLAagJ_L-cqBEF2BxEWYQhRdtG6r3lDI2w)

The YouTube channel will have the keynote speakers and there will be a roving reporter showcasing the different booths. We recognise online difficulties and have tried to make the virtual venue as accessible as possible for everyone.

Chris: When is the event happening this year?

Vicky: DublinMaker 2021 is happening Saturday June 19th - Sunday June 20th from 10.00-16.00.

Chris: Do participants have to register?

Vicky: Normally, there is no registration required, but this year, as we are using the digital platform of **gather.town** - the event is still free, but we are asking people to register beforehand.

Chris: Can I attend if I don't live in Dublin?

Vicky: Of course! At our normal in-person event, you can just drop in if you're passing by and we always have

music, food and entertainment. This year is even easier as it will be all online, so you can attend from anywhere in the world (tell all your friends!) - but you'll have to provide your own food - however, we will have music and entertainment!

Chris: You mentioned "Gather Town" - what is that?

Vicky: **Gather.town** is like a virtual town. It's easiest to think of it like a top-down gaming platform where you create your character and can walk freely around the event. We've customised it to loosely represent Merrion Square. As you walk around, you will see other people also attending the event. When you get near to people, they (and you) will appear to each other and you can choose (or not) to turn on your camera and microphone and interact with other people or the Makers themselves. It's a fun, different proximity-based way for people to interact with the Makers and other attendees.

Jeffrey: We've tried to make the 2021 event represent as closely as we can to an in-person event - and **gather.town** looks like the best way to do this virtually. We hope visitors will get the same sense of discovery they would



when attending Merrion Square.

Chris: What will I see if I attend DublinMaker?

Jeffrey: We have a great eclectic mix of crafts and skills on show for this year. Some examples of these are an LED light up face mask created by Lorraine Underwood who will be joining us from the UK. Daisy Brown will be showing her project “Max - The Amphibious Quadruped Robot!”

Laura: We’re very excited to have a number of new Makers joining us from other places this year - it’s one of the advantages of offering the festival

virtually - there’s no costs involved in travel or accommodation which opens the doors to having an extremely diverse set of both Makers and attendees.

Jeffrey: It’s also not all about high-tech skills - we’ll have the Boyne Currach Heritage Group making Currachs with Hazelwood rods and cowskin for use on the Boyne river.

Vicky: A couple of other returning Makers include the *National Print Museum*, *Crafty Nathan Creations* with Cosplay and diorama work, the *Trinity Walton Club* and *Asma Slaimi* explaining how to make Tunisian cuisine! There



will be something for all age groups - we promote the areas of S.T.E.A.M. (Science, Technology, Engineering, Arts and Maths) so, a really diverse amount of projects for everyone! A full list of exhibitors can be viewed at: www.dublinmaker.ie/makers-2021/

Chris: What else does DublinMaker do?

Vicky: In 2019 DublinMaker applied to the “Make” programme, “Maker Advocacy for Everyone” - and I was hired full-time! My role as Maker Advocate is to join the community and raise the profile of Maker culture. As well as this, DublinMaker partner with Science HackDay for their event every year. Further to this, we’ve been making Podcasts (The Dublin Maker Podcast)

and Videos (Maker-a-Day Videos) to engage with the Maker community during the Covid-19 lockdown to highlight to the public what Makers are doing nationwide.

Jeffrey: Just prior to the lockdown - Vicky engaged with Dublin City Council to help create a MakerVan and a Makerspace in Coolock Library as well as offering advice to Fingal Libraries and Smart Balbriggan around their Makerspaces.

Chris: Is there anything else you’d like to add?

Jeffrey: We’d like to thank the volunteer efforts of all the amazing Makers who give up their time to exhibit.

And a final thank you to our Sponsors:
SFI (Science Foundation Ireland) and
the **ESB Energy for Generations Fund**

**Chris: Well - that all sounds amazing -
I'll certainly be going! Thank you
very much for your time here and all
the work and effort you all put in to
creating a really exciting festival!**

Website: www.dublinmaker.ie

List of Makers: [http://
www.dublinmaker.ie/makers-2021/](http://www.dublinmaker.ie/makers-2021/)

Interact with us on: Twitter, Instagram
& Facebook: @dublinmaker

YouTube: [https://www.youtube.com/
channel/UCGrfQgjDsIZqUuXl4nanjpg](https://www.youtube.com/channel/UCGrfQgjDsIZqUuXl4nanjpg)

Podcast: [https://
dublinmaker.buzzsprout.com](https://dublinmaker.buzzsprout.com)





CHRIS REINA'S

makers' corner



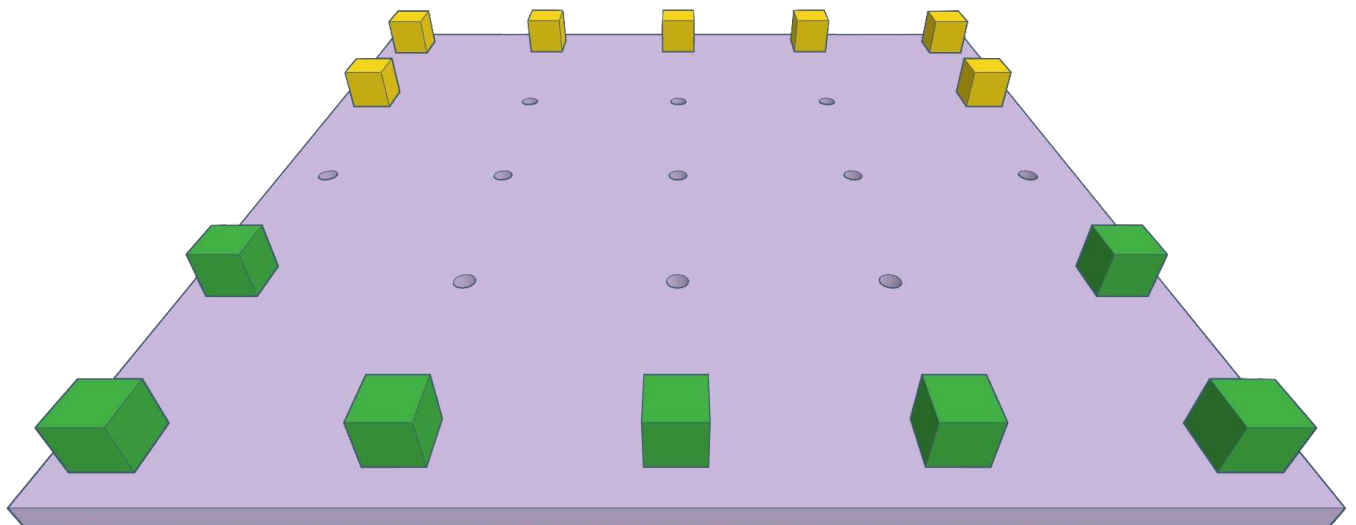


MakerMeet develop and deliver a diverse selection of Maker-led, project-based, S.T.E.A.M. workshops for students and teachers in the education, enterprise and private sectors. Each issue we will bring you a new Maker project to do at home or in school - some will be very simple while others may require specific materials.

Five Field Kono - Korean Strategy Game

Chris Reina

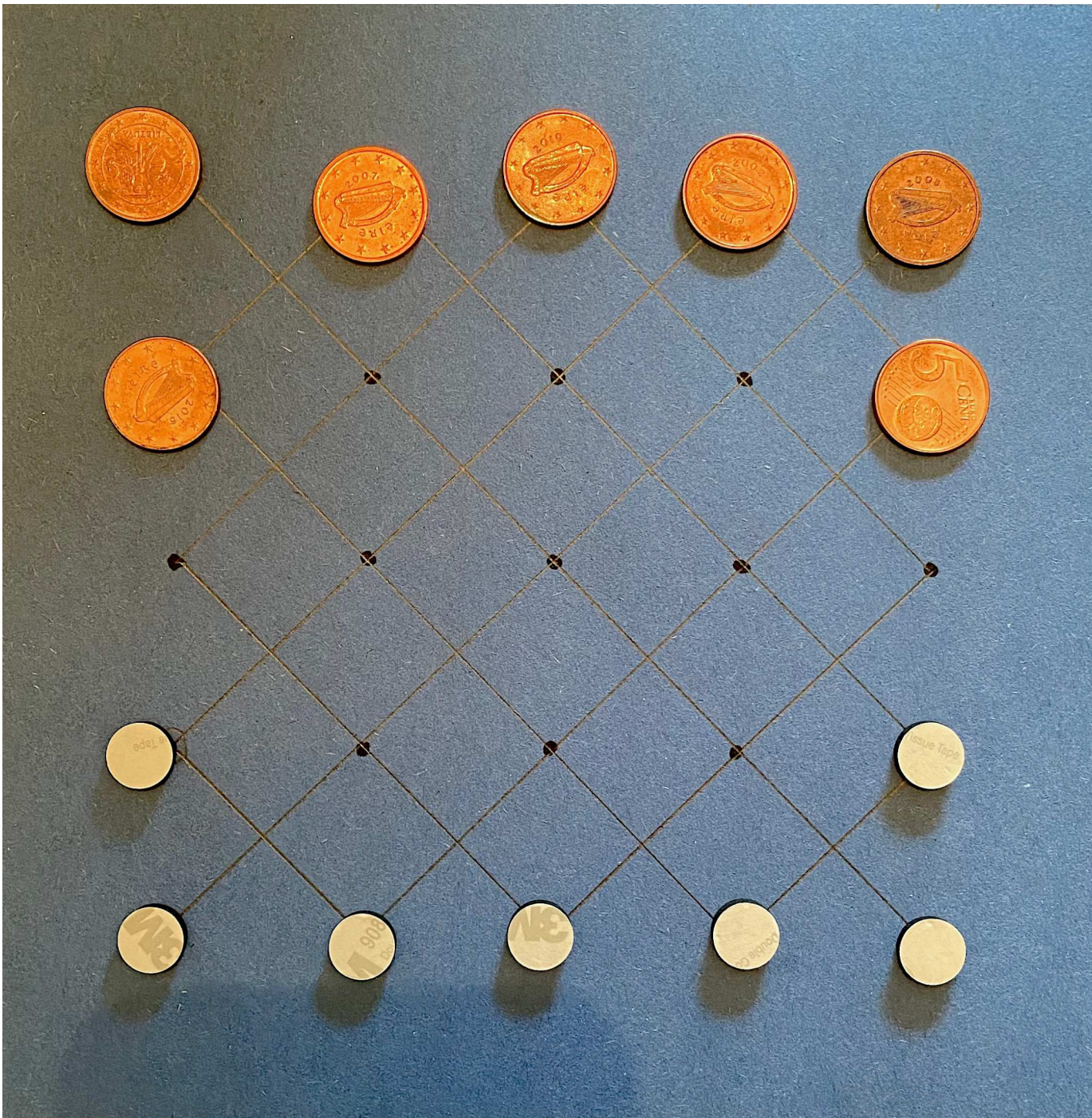
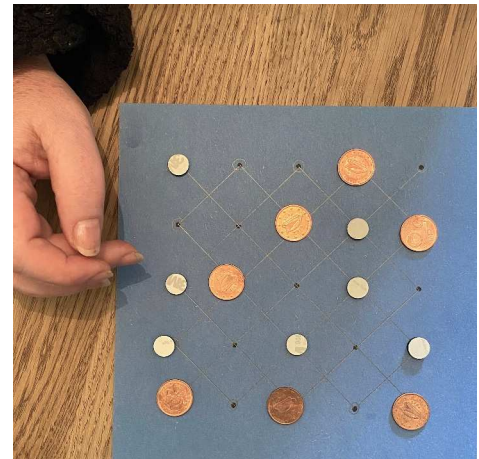
We'll start off our first Maker project with an uncomplicated game. This is suitable for ages 9+ and appears simple initially while also having a nice depth to the strategy.



Number of Players:
2 Players

Materials Required:

- Gameboard
- Pieces (2x 7 of different shapes/sizes/colours)



Gameboard:

You can make your gameboard by simply drawing it, or you can print the one provided here. (It will fit on an A4 page).

Pieces:

Players will need 7 pieces per person. You can use any household object like paperclips; stones (nicer painted!); bottlecaps; bits of cardboard; buttons (chocolate or regular!); pushpins; coins or anything really!

Goal:

To move your pieces to the other side of the board and be the first to replace your opponents pieces in the starting position.

Instructions:

Place pieces in the starting position (as shown)

Decide who goes first

Pieces may only move:

- to one point at a time
- diagonally
- forwards or backwards

Pieces may not:

- move to an occupied point
- jump any piece

Notes:

It is possible to reach a stalemate situation (but not likely) - in this case, simply restart the game.

Further information:

For those with more interest - one of the first written works of this is by Stewart Culin (1895), entitled “Korean Games with Notes on the Corresponding Games of China and Japan”.

You can download the book for free or read it here: <https://babel.hathitrust.org/cgi/pt?id=nyp.33433066586441&view=1up&seq=208>

Five Field Kono is on page #208.

Next issue we'll follow on with our games theme by creating an online game using Microsoft's Makecode Arcade.

Chris has been involved in education since 2002, technology since 1981 and Making since 1971. He feels passionately that education is the most important thing in the world and that teaching using Maker skills is the most rewarding job there is.

Chris loves cats, kayaking, kite-flying, steampunk, pedantic semantics and knowing the meanings of ligatures, aglets, gallibanders and lexiphanic.



contributors and credits

Exploring EdTech Ireland is grateful to all our writers for permission to publish their work in the magazine and on the hub.

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ROBBIE O' CONNELL

Robbie O' Connell is the Principal of St. Brendan's National School in the picturesque village of Blennerville, just outside Tralee in Co. Kerry in Ireland.

Robbie is an accredited Apple educator and founder and co-manager of the Kerry Apple Regional Training Centre based in the Education Centre Tralee, Co. Kerry providing continuous professional development for all educational staff on the effective use of iPads in the classroom. Robbie is also a member of the Apple advisory board of regional training centres. Robbie is a keen advocate of the use of iPads in education and developed an iPad programme which was rolled out nationally for *Let's Go Summer Schools* iPad camps.

Robbie works as an educational consultant with Zeeko education who specialise in internet safety for schools, mental health, RSE, SPHE and in the development of 21st century skills.

Robbie obtained a Degree in Social Science in University College Cork and worked as a social care worker prior to completing a postgraduate Degree in Primary Education in Marino Institute of Education, Dublin. Robbie most recently completed a Postgraduate Degree in Educational Leadership via Maynooth University.



Robbie is a regular contributor to the *IPPN leadership+* magazine which is the Irish Primary Principal's Network monthly magazine and has also been invited on a number of podcasts to share his well-being initiatives and positive approach to leadership and his role as a school principal.

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Founder of World Explorers Bureau, an Irish-based agency representing world-class explorers, educators and field scientists. Experienced Consultant, Award-winning Program Manager, EdTech Specialist, Entomologist and Publisher.

Elected Fellow of four learned societies including Collegiate Fellow of the Royal Canadian Geographical Society.

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CHRIS REINA

Chris Reina has been involved in education since 2002, technology since 1981 and Making since 1971. (You do the maths). He currently runs TeachTech Support which provides technical training, consultancy and support to educational institutions nationwide.

He is also 1/3 of MakerMeet IE - who deliver Maker-led, project-based S.T.E.A.M. workshops nationwide to primary, secondary, third-level and other institutions.

As Ireland's only Apple Certified T3 Trainer - he has given workshops to students and teachers on a wide variety of subjects. As well as training to the Education, SME, B2B and Corporate sectors.

As a Maker - for the last 4 years Chris has been combined his tech and Maker skills to devise and deliver workshops to educational organisations in a wide variety of areas.

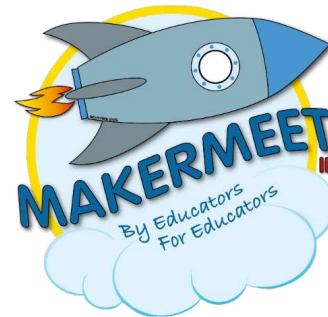
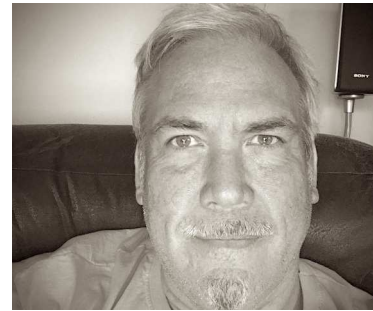
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VAL GAVIN

Val has been building electronic projects as far back as he can remember, his first love was/is Amateur Radio and got his Class A HAM Radio licence in early 80's. Val got his first computer in 84/85 and has been working with them ever since. In 1993, Val started the company Val Gavin Computer Services and has been providing IT services and support to schools since then.

Val Gavin Computer Services provides a wide range of sales and services, provide and install computers, projectors, large screen Interactive LED panels (reseller for Clever Touch), manage Wireless and Wired networks, limited data recovery.

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NIAMH BRADY

Niamh is currently working as a special class teacher in St. Mark's Special School in Newbridge, Co. Kildare having spent 14 years in a mainstream setting. She is passionate about all things STEAM related and successfully completed the Postgraduate Certificate in 21st Century Teaching & Learning (STEM) in 2019 from Trinity College Dublin.

As well as her daily teaching, Niamh regularly delivers her own CPD courses along with facilitating courses for the PDST Technology in Education and Discovery Primary Science and Maths.

Furthermore, Niamh is a Creative Associate with the Creative Schools Initiative. She is working in partnership with Donore NS in Co. Meath and supporting the school to deepen the arts and creative opportunities for their pupils.

Niamh is in her final semester of a Higher Diploma in Science in Computing in TUD Tallaght and is looking forward to new opportunities after her course.

Follow Niamh on Twitter: @MsNiamhBrady



JENNIFER MCGARRY

Jennifer is a 5th class primary school teacher and eLearning Coordinator in Alexandra College Junior School in Milltown, Co. Dublin and has an interest in all things tech, art, science and wildlife related. As well as teaching her mainstream 5th class, Jennifer runs the Junior School's Makerspace and Code Clubs as part of the after-school programme.

Furthermore, Jennifer is the Primary School Specialist with Irish company Make Create Innovate and collaborates with them to create educational resources linking computational thinking and technology to the primary school curriculum from 3rd to 6th class.

Jennifer is also one of two lead coordinators with European Schoolnet on the ARETE Pilot 1 project, working with 20 teachers across several European countries to investigate the effects of augmented reality (AR) on English language attainment through the WordsWorthLearning interactive mobile AR application.

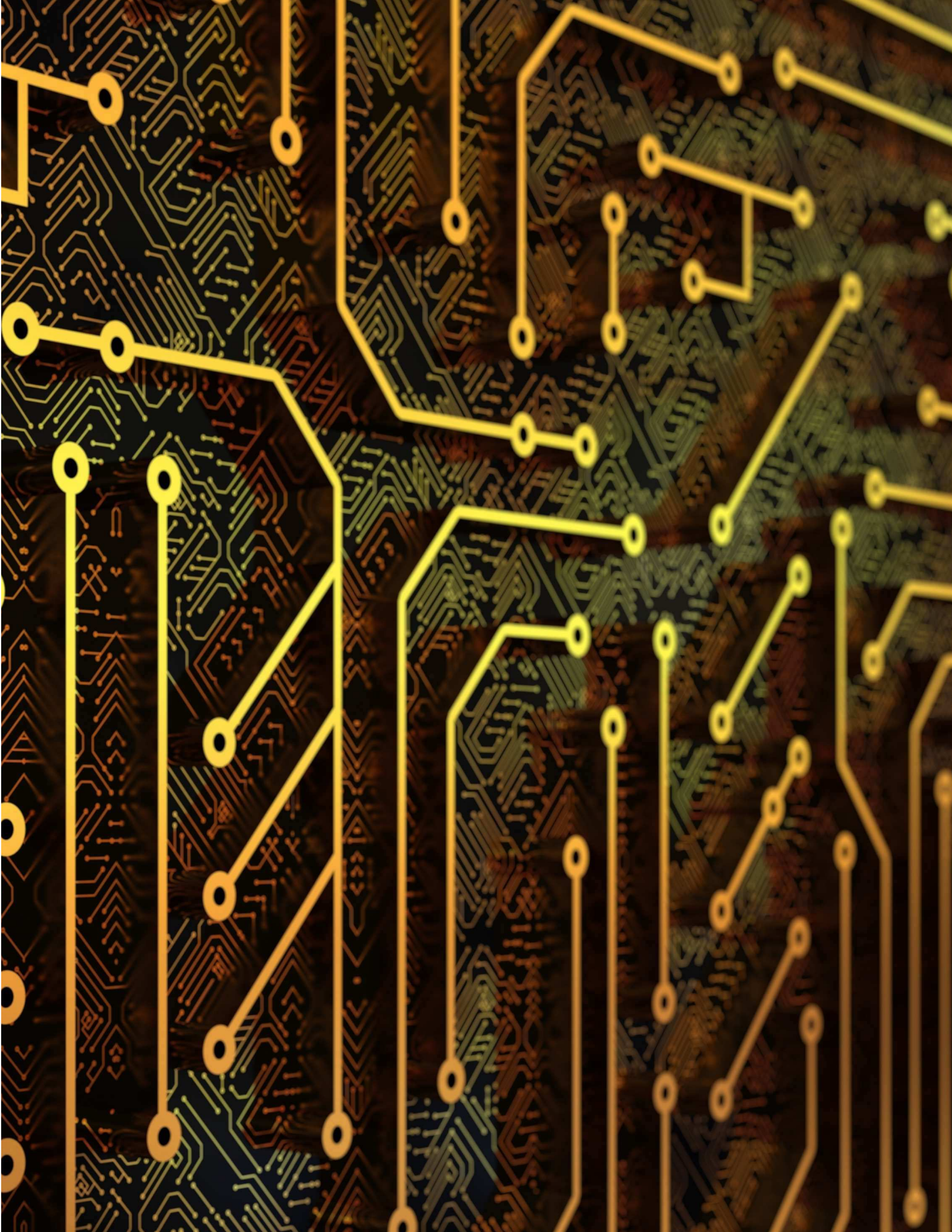


Jennifer recently completed her Higher Diploma in Science in Computing with TUD Tallaght and is looking forward to undertaking new challenges and collaborations in the future.

Make Create Innovate: <https://www.makecreateinnovate.ie/about-us>



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