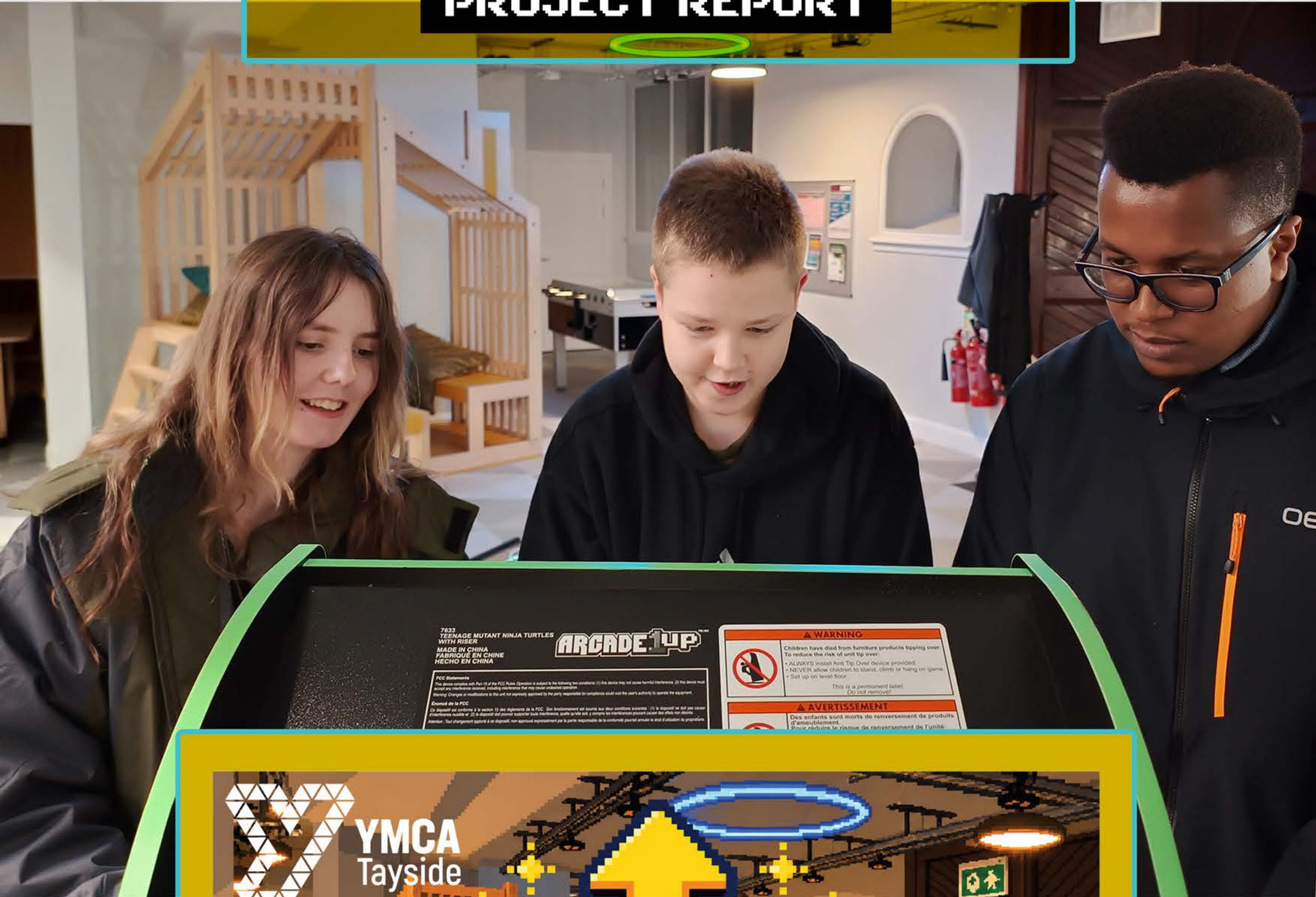




LEVEL UP PROJECT REPORT





Forward

Level Up is an exciting project and a testament to what happens when young people are placed at the centre of youth work and allowed to co-create. Conceived and driven by their own ideas and energy, this project brings together a group of young people to design and build a fully functional arcade fighting cabinet from the ground up.

Throughout the process, participants are involved in every aspect of development. From designing playable characters and editing original sound effects and music, to creating fighting arenas and assembling the physical cabinet. Their contributions shape the project at every stage.

During this journey, young people have been capturing the challenges, learning, and achievements. Through film, reviews and documentation we have tracked the impact of this project. Level Up showcases not only technical and artistic skills, but also teamwork, problem solving, and confidence building. This report reflects that journey. It's a celebration of the creativity and the potential of young people when given the opportunity to innovate.



Background

YMCA Tayside is known for providing young people with "Somewhere to go, something to do, and someone to talk to". That provision comes in many forms but relevant to this report is the Y Innovate Multimedia Suite. A space where young people could come and learn various digital skills from basic computer literacy to film making, graphic design and programming.

One of our recreational activities involved a drop in where a group of young people and volunteers got together and played video and socialised. With only a couple of games consoles and TVs on offer at the time we chose arcade style 'beat-em-ups' as the game genre for activities. The fighting games allowed for 2 to 4 people to play at a time and with between 3 and 5 minutes between rounds, everyone got ample time to play! And thus, the aptly named "Friday Fight Night" was born.

As time drew on more and more games were explored to varying degrees of popularity. It was not until someone recommended a game called "Dive Kick" that an idea was born. Dive kick was a tongue-in-cheek parody of how complex fighting games had become. It featured a roster of character who only had 2 moves... Diving and kicking. It proved quite popular.

One evening whilst playing a few rounds of Dive Kick one of the young people asked, "Why can't we make a game like this?" ...That is where the idea for this project came from. We realised we could make a basic arcade style fighting game. We could keep it simple and we could also be the playable characters in it.

We just needed to figure out how best to do it and find a funder that could help us properly pilot it!

REVIEW OF PROJECT DELIVERY

Level 1

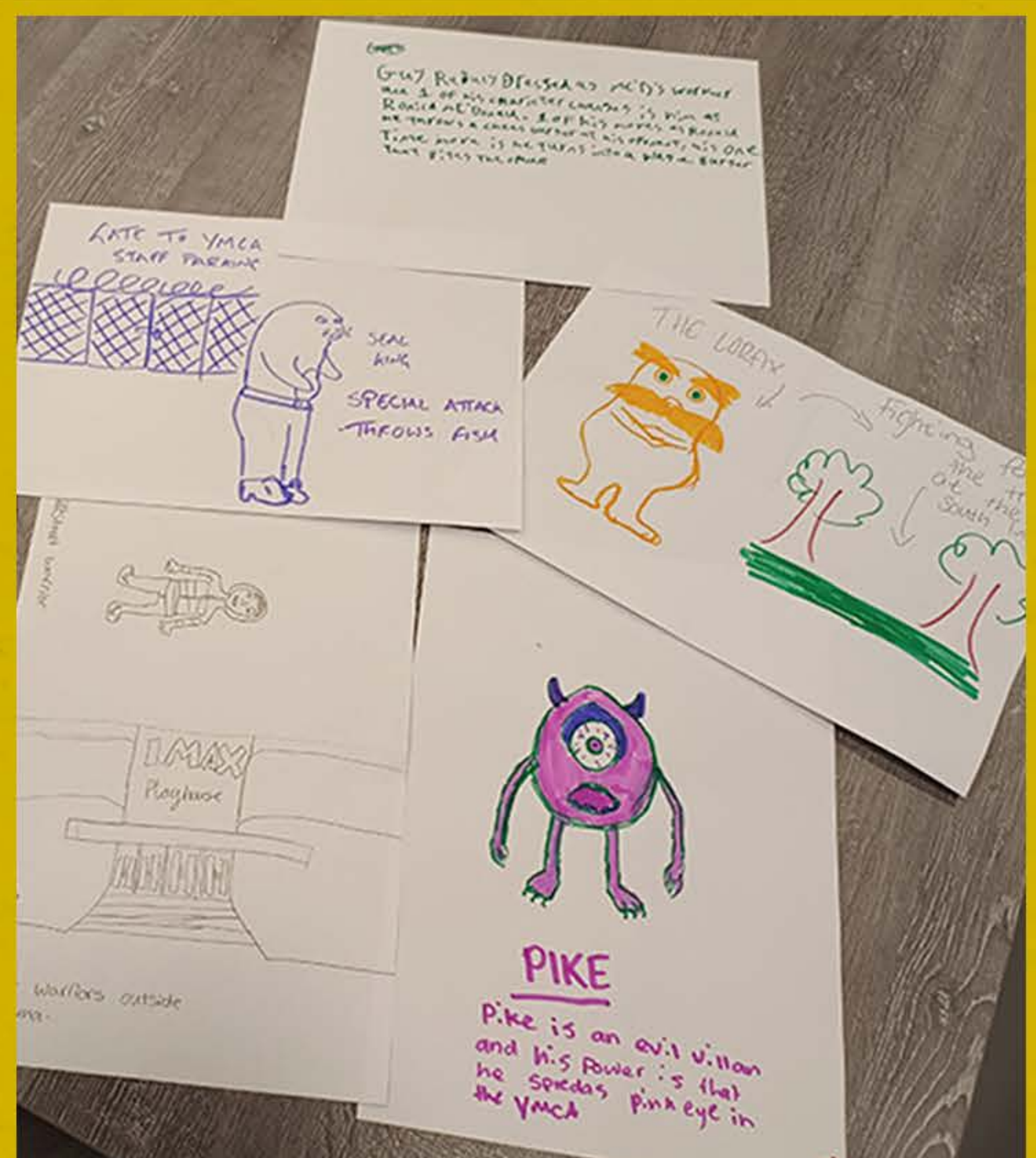
GROUP FORMATION, TEAM BUILDING, PLANNING & DESIGN

To begin our sessions, we played some games. We're lucky enough to have arcade machines in our main youth space already, so those were a good start along with some other games that had been downloaded. After each game young people noted what they liked, what they didn't, and if there were any ideas they wanted to take forward into their project. Getting the group right into the mindset of what makes a game enjoyable, and what realistically can be put in their cabinet was a great way to get everyone talking, particularly the wide range of answers offered when asked to rank each game between one and ten. We would definitely run this session again as it was an easy introduction that got good buy in from the young people attending.

After that we went into our planning session, where the young people listed off all the things that needed to be done to make an arcade cabinet, which were then narrowed down to a few key areas that other sessions would cover, which were: Character photography, art & design, music, the physical cabinet, and the game design itself. The young people then chose what they wanted to start with, giving them more ownership of the process.

WHAT SKILLS YOUNG PEOPLE DEVELOPED:

- Critical thinking:** evaluating games by identifying strengths, weaknesses, and key features that make them enjoyable
- Decision-making:** considering what ideas are realistic and achievable within their own project
- Communication skills:** sharing opinions, discussing preferences, and justifying choices within a group
- Collaboration and teamwork:** working together to agree on key focus areas for the project
- Planning and organisation:** breaking a large project (arcade cabinet) into smaller, structured work areas
- Project Design:** what works well in already existing products? what makes something appealing? How to apply that to their own product.



Level 2

PRODUCTION

The first section chosen was the physical cabinet. Getting the group thinking about the design of the cabinets in the room, we had them sketch out all the pieces of wood which would be needed to put one together, we then took those sketches and had the young people try out laser cutting to make mini cabinets from their design. This was a tactile way to learn about assembling wood pieces, and designing parts that will fit together smoothly. The group then decided on what the big outer pieces would look like, giving them a great idea of how the finished product would come together.

Next, we looked at photography. Explaining sprite sheets to the young people and letting their creativity flow in quite a unique way around their character's move set was really entertaining, with one participant dressing up completely and bringing props in to use. This was a good collaborative activity with one young person posing, one manning the camera, and often others helping hold the posing young person in position. Several young people identified this as some of the most fun they had during the project. Next time we run this course we will start with a completed example sprite sheet as that will work better than the pose checklist we were using. With a group of six young people the process of photography, then background removal, then arranging on the sprite sheet is quite a long one so time needs to be given for that.

Art & music were worked on simultaneously depending on which section individuals felt more called to. We pooled some inspiration art and music pieces from games and films and then got to work. Having a young person design the logo with iterative input from the others worked great with the particular group we had, but having young people sketch their ideas and then a more confident artist turns it into something more useable would work just about as well. It was really important for the group to see their design come to life on the cabinet and screen. Similarly, one of our group is studying sound engineering so was well versed in the equipment we had meaning two original tracks could be created entirely by young people as others helped out around vocals. This really energised the group towards the end when it was less exciting finishing touches needing done on other elements. Of course, this young person won't be around for future groups but their idea of having a basic track that young people can shout fighting slogans over the top of will be a nice and quite simple way of bringing young people into the music elements. We recorded sound effects of young people hitting a punching bag and saying their cheesy one liners to add in as well. All of this gave a basic understanding of sound recording and the technology involved while being a session with more movement in it which suited some young people really well.

For the game design we had a designer on board who had previously been a young person with us. They had the skeleton of the game already made allowing our young people to slot in their characters, art, and music throughout the project and see the progress as it happened. When this is running again we will add in just one session where the group will get hands on with some code, changing parameters around movement speed/jump heights/damage/etc. to their preference. As we ran this with a very creative group, but not necessarily a hugely digital enthusiastic group, these sessions didn't quite fit in this time around.

WHAT SKILLS YOUNG PEOPLE DEVELOPED:

- **Technical 'Maker' Skills:** hands-on experience with materials, assembly, and fabrication.
- **Technical 'Design' Skills:** creating designs that are functional and able to be constructed
- **Digital Skills:** Learning how to use a vast array of new software to achieve their goals.
- **Creativity Skills:** developing characters, poses, and expressive movements for sprites.
- **Artistic development:** creating visuals such as logos, character designs, and cabinet artwork
- **Patience and process awareness:** recognising the time required to achieve a complex product
- **Game development:** seeing how assets are integrated into a working game
- **Basic Coding (where applicable):** understanding that gameplay elements can be adjusted through variables and parameters

Level 3

ASSEMBLY & PLAYTESTING

To finish off we had to bring everything together. Our game developer came in to set up the hardware in the cabinet young people had made, and then it was time to playtest. The beauty of how modular the code is, with sprite sheets being slotted in, and certain game parameters being easily changeable, as well as the physical accessibility of the microcomputer in the cabinet means that as young people play it more if something starts to feel off, it can be changed quite easily, even months down the line. The format of the project opened the door for continued engagement beyond the structured sessions. The cabinet is not just a finished product, but a platform that can evolve over time. Young people can revisit it, add new characters, tweak gameplay, or involve others who may not have taken part in the full programme. The option for additional participants to be photographed and included as characters proved to be a particularly inclusive feature, helping to widen engagement and maintain interest in the project even after we came to the end of the process.

In terms of delivery, we did find that this stage felt slightly compressed, with some of the laser cutting and mechanical work needing to be completed outside of core sessions. While this ensured the project was completed to a high standard, it highlighted the importance of protecting enough time for final assembly and testing as a group.

Going forward, we will look to build in clearer milestones earlier in the process, particularly around art and music, to ensure everything is ready to come together smoothly at the end. This will not only improve the pacing of the project but also maximise the opportunity for young people to be involved in the final build and testing stages, which are some of the most engaging and impactful parts of the experience. Overall, this final phase strongly reinforced the value of the project. Seeing a tangible, playable outcome that directly reflected their ideas, creativity, and effort gave young people a clear sense of accomplishment and demonstrated what can be achieved through collaborative, hands-on learning.

WHAT SKILLS YOUNG PEOPLE DEVELOPED:

- **Integration skills:** bringing together multiple elements (art, sound, code, and hardware)
- **Systems thinking:** understanding how different parts of a project interact and affect one another
- **Testing and evaluation:** identifying what works well and what needs improvement
- **Ownership and pride:** achieving a goal that reflects their individual and group contributions
- **Inclusivity awareness:** recognising ways others can still contribute (e.g. adding new characters later)
- **Time management:** understanding how important the pacing, deadlines, and scheduling are.





Lessons Learned



The main takeaway for myself as course facilitator was understanding both the strengths and challenges that come with offering a high level of creative freedom within a project of this scale. From the outset, giving young people ownership over ideas, design choices, and the direction of different elements worked incredibly well in terms of engagement. It helped build enthusiasm early on, encouraged individuality, and allowed participants to feel genuinely invested in the final outcome. This was particularly evident in areas such as character creation, photography, and music, where young people really took the lead and produced work that felt personal and meaningful.

At the same time, this level of openness did present some challenges in terms of pacing and cohesion. With so many ideas being explored at once, the number of sessions extended beyond what had originally been planned, and the final stages of bringing everything together felt more compressed and slightly disjointed as a result. In particular, balancing creative exploration with the practical requirements of building, assembling, and integrating the different elements proved to be a key learning point.

Going forward, the approach will be to maintain that strong emphasis on creativity and ownership, while introducing clearer structure around timelines and key milestones from the beginning. Setting expectations around when certain elements such as artwork, music, and physical components need to be completed will help keep the project moving at a steady and manageable pace. This will ensure that the final stages can be experienced more fully as a group, allowing young people to be more directly involved in the assembly, testing, and refinement process.

Overall, this experience reinforced the value of a balanced approach: one that protects space for creativity and self-expression, while also providing enough structure to guide the group towards a cohesive and well-paced final outcome.

Participant Feedback



LOOKING AHEAD

HOW TO MAKE IT ALL WORK

1P



1P



1P



2P

Introduction

We are very much advocates for Co-Design and Co-Delivery. Making that work in the reality of this project is about finding a delicate balance between following a tried and tested method and allowing young people to bring their own creativity into the mix. There are things that can be adapted to fit young peoples' ideas and there are things that probably shouldn't be changed unless you want a lot of headache trying to pull everything together.

With this collaborative mindset in place, we are providing the following guide to delivery. We have separated the project into sections and outlined what you are working towards in each. We have deliberately not given a session by session plan as the nature, size and age range of a group can drastically change how you deliver a project like this.

Level 1

GETTING STARTED

RECRUITMENT

This Level up is designed to be appealing to a wide variety of young people. In truth, if you have enough relevant knowledge in your staff /volunteer team, you can make this work with any young people. That being said, there are particular demographics of young people that this will be an easier sell to.

This project lends itself well to:

Young people who are interested in creative digital pursuits such as: Photography, Coding, Graphic Design, Music.

Gamers. If they are gamers then interest in taking part is usually very high.

Artistic Young People. The whole project can focus on drawing instead of photography. Characters and levels can be drawn. Artwork is also required for the cabinet itself.

Young people involved in theatre or acting. They can get really into their character, voice lines, sound effects and back story.

For group size you should be aiming for anything between 4 and 12 participants. 4 regular participants as a group is really the minimum amount for this to feel like a beneficial activity and keep them motivated and enthusiastic about seeing it through. In the case of a small group like this, they can invite other people to be playable characters who don't necessarily need to be part of the rest of the project.

For a group size of over 6, we recommend a second competent staff member or volunteer to assist with delivery. Each staff member can work with up to 6 young people taking the project to a maximum of 12 participants. We will explain how delivery in this case work in level 2.

GROUP FORMATION & TEAM BUILDING:

Once you are ready to start the journey with a group of young people, it is important to allow time and space for them to get to know each other. Whilst youth work is very much a part of the whole process, it is very much on show here. You will need ice breakers, team building activities, etc.

Because of the overall theme and outcomes of the project, we recommend making some if not all of these activities relevant to gaming or particular digital skills within the project. How many relevant activities you can plan will depend on the resources you have available.

We would recommend at least 2 sessions be spent on group formation and team building. If you have an already established group then you could do it in one session.

ACTIVITY IDEAS:

- Playing some relevant games. Please ensure you check that games are appropriate for your group. Some games are age restricted due to violence such as 'Mortal Kombat', others can be visually hyper stimulating such as 'Super Smash Bros', others have questionable wardrobe choices such as the 'Soul Calibur' series. You can arrange your own internal league/tournament or other creative ways to sample games and break the ice.
- Play on some arcade machines. If you do not have any of our own, you can arrange a trip to visit a retro arcade if there is one in your vicinity and you have access to transport.
- Ask each participant to quickly design a "main character" version of themselves as if they were already in a fighting game. This can be done on paper or digitally depending on resources. Include details such as: Name/Alias, Special move, fighting style, personality traits, backstory, etc.
- Each young person prepares and delivers a short presentation on their favourite game (video game or board game depending on the group), explaining what makes it enjoyable and memorable. You can do the same with favourite character



PLANNING AND DESIGN:

It is at this stage that the group is able to dive into the details of the project and what lies ahead. This is where there is opportunity for the Co-Design process to begin. Young people can bring their ideas and creativity to the project and really shape the weeks ahead. It is also a great opportunity to discover where people's interests, strengths and passions lie. Now, with that being said there are certain things that we don't recommend you invite young people to change (unless you have the expertise in house and the additional time required to make these changes). Remember, we are not trying to make the next Grand Theft Auto. This experience is about igniting a spark that may inspire young people to pursue their digital creative gifts.

To make this straight forward we have split this into 2 lists for you:

Do

Delegate roles and responsibilities to the team.
Elevate people to: Artist, Sound Designer, Head of Photography, Gameplay lead, Quality Assurance officer

Let young people rebrand/rename the game

Invite young people to design the visual elements of the game. The cabinet decoration, the game logo, the game menus, the levels/fighting arenas.

Stick to the number of moves on the sprite sheet.

Run all your ideas about any changes to the game itself past your game designer before committing to them.

Add more details outside of gameplay.
Characters and arenas can have backstory added.

Invite other young people become characters even if they don't want to take part in the rest of the process.

Set clear deadlines for art/music/sound effects being completed so those don't spiral timewise

Ensure your last two sessions for assembly are scheduled well in advance so the group finishes strong

Don't

Change the structural design of the cabinet itself.

Make major changes to the code of the game.
Your game designer should have final say in what is possible/realistically achievable.

Introduce more moves or make drastic variations to the existing moves of the game.
This is linked to the point above.

CONTINUED

At this stage you should get some baseline information from the participants that you can revisit and track at each level of the process. You should at least be doing this at the start, middle and end of the project.

Here are some examples but you are not bound or limited to this. These should not be unfamiliar to you.

- Action Plans for the group.
- Baseline assessments of Digital skills. T
- Baseline assessments of soft skills.
- A group behaviour agreement.

We recommend at least 1 session is spent on this stage.

Level 2

PRODUCTION

This is the part of the process that will take the most time. Depending on the kind of group, you can tailor the level of involvement to suit them. For example, if you have group that has no interest in programming at all, you can just leave programming-based activities out.

We understand that not every group will have a full multimedia suite at their disposal to be able to be able to do all of these activities from scratch. The great thing is that you don't need to. This is just a guide. There are many ways to work around this. We will assume that if you read this far and you are still keen to deliver this, then you must have some foundation upon which to take this project forward. How technical you decide to get is completely up to you. If you have the knowledge, experience and resources to customise any/every experience then go for it! You can focus in on your strengths and spend less time on the elements you are less equipped to deal with.

Here is a list of all the stages to consider in this level. You can tackle them in whatever order you like. We recommend that you spend at least 1 session on each of these. You may find that if your group is larger, some tasks may take longer than 1 session.

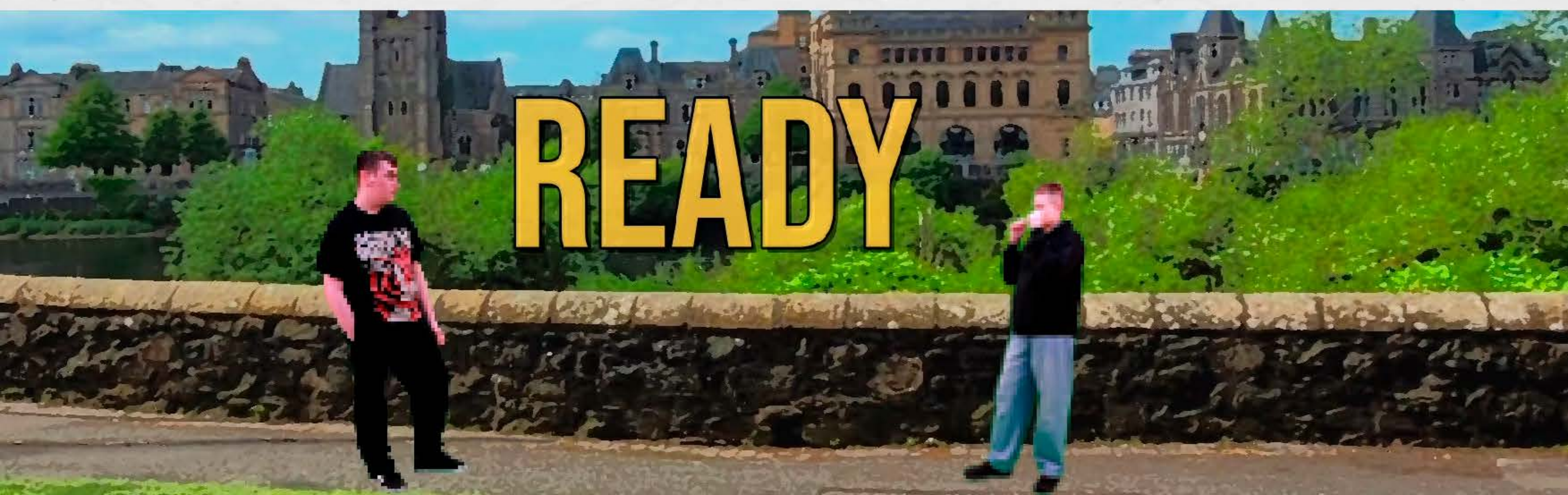


Character Design

In this stage, young people bring their characters to life by following a structured sprite sheet guide and capturing a series of photographs for each movement. Each participant takes on the role of their character and performs a set of predefined poses (e.g. idle stance, punch, kick, jump, hit reaction), ensuring consistency in positioning and framing. This process works best as a collaborative activity, with roles shared between posing, camera operation, and supporting with positioning or props.

It is important to keep the number and type of poses consistent across all characters so that they fit seamlessly into the game. Clear guidance should be given on spacing, angles, and scale to make the editing process smoother later on. Once captured, these images can then be processed (e.g. background removal) and arranged into sprite sheets, ready to be integrated into the game.

Young people can get really creative here. A fun thing to try is to have costumes and props which can be used to make each character unique and look distinctive from the others.





This stage focuses on creating the environments in which the fights take place. Young people have the option to either design their arenas digitally or by hand, or to use photography as a base and stylise it to fit the overall look of the game.

Photographed arenas could include real locations that are meaningful or visually interesting, which can then be edited (e.g. colour grading, adding effects, or removing backgrounds) to give them a more "game-like" feel. Alternatively, drawn arenas allow for more imaginative and stylised designs that can match the characters and overall theme of the game more closely.

There is also an opportunity here to introduce generative AI-assisted tools, which can help transform and stylise images in quick and creative ways. For example, young people could take a simple photograph and use AI tools to convert it into a pixel-art style, comic-book aesthetic, or futuristic environment. This can be particularly useful for groups with limited digital art experience, as it lowers the barrier to creating high-quality assets.



Now the focus shifts to the visual identity of the arcade cabinet. The structural design will already be set, allowing young people to concentrate purely on how the cabinet looks and feels from a player's perspective. This includes elements such as the side panel artwork, control panel design, button layout visuals, and any branding or logos that will be visible on the finished piece.

This stage is particularly rewarding, as it is one of the most visible parts of the final product. Seeing their designs physically applied to the cabinet helps reinforce a strong sense of ownership and pride, while also giving them experience in designing for a real-world application rather than just a screen.



This stage focuses on developing the background music that supports the overall feel and energy of the game. Music plays an important role in shaping the player's experience. Young people can approach this in a number of ways depending on their interests and the resources available. Where possible, participants can create original tracks from scratch using music software, experimenting with rhythm, mood, and tempo to match the pace of gameplay. This can be a great opportunity for those interested in music production to take a lead role and explore composition in a practical context.

Alternatively, groups can source music from free, open-source libraries, selecting tracks that align with the style and atmosphere they want to create. This approach is particularly useful where time, equipment, or experience is limited, and still allows young people to make creative decisions about the identity of their game.

Both approaches can also be combined, for example by using an existing track as a base and layering recorded vocals or sound effects over the top.

This stage allows young people to explore how music contributes to immersion and player engagement, while also offering a different creative outlet that complements the visual and interactive elements developed throughout the project.



Sound Effects

This stage focuses on creating the audio elements that bring the game to life. Young people record their own voices for character sounds, including cheesy one-liners, victory phrases, and hit reactions. These recordings add personality and humour to the game, and often become some of the most memorable elements for the group.

Alongside voice work, participants also create sound effects for actions such as punches, kicks, and jumps. This is a great opportunity to explore how sound works in games, as these effects are often exaggerated or stylised rather than realistic. For example, a punch sound in a game may be made using a combination of unexpected materials to create a more impactful and satisfying result than a real-life recording.

Groups can approach this stage in different ways depending on interest and resources. Some may choose to experiment and learn how to create sounds from scratch using everyday objects and basic recording techniques, while others may prefer to source sounds from free, open-access libraries such as freesound.org. Both approaches are equally valid and can be combined to create a rich and varied soundscape.



Coding

In this stage, young people are introduced to the programming side of the project in an accessible and engaging way. The core code for the fighting game will already be complete, allowing participants to focus on adjusting key parameters and variables rather than building a game from scratch. This might include changing elements such as movement speed, jump height, or damage values, helping them to understand how small changes in code can have a noticeable impact on gameplay.

This approach provides a practical introduction to programming concepts without becoming overwhelming, especially for groups who may be less confident or experienced with coding. It also reinforces the idea that games are systems that can be tested, tweaked, and improved over time.

For groups with a stronger interest in programming, an additional session can be introduced using a separate, simpler game (such as an Asteroids-style project). This allows young people to engage more directly with the code, gradually adding features like movement, controls, and interactions, and testing them as they go. This step-by-step process helps build a clearer understanding of how games are constructed and gives more insight into the logic behind the mechanics they have been using throughout the project.

Overall, this stage offers a flexible entry point into programming, allowing young people to engage at a level that suits their interest while still being connected to the wider project.



Level 3

ASSEMBLY, TESTING & EVALUATION

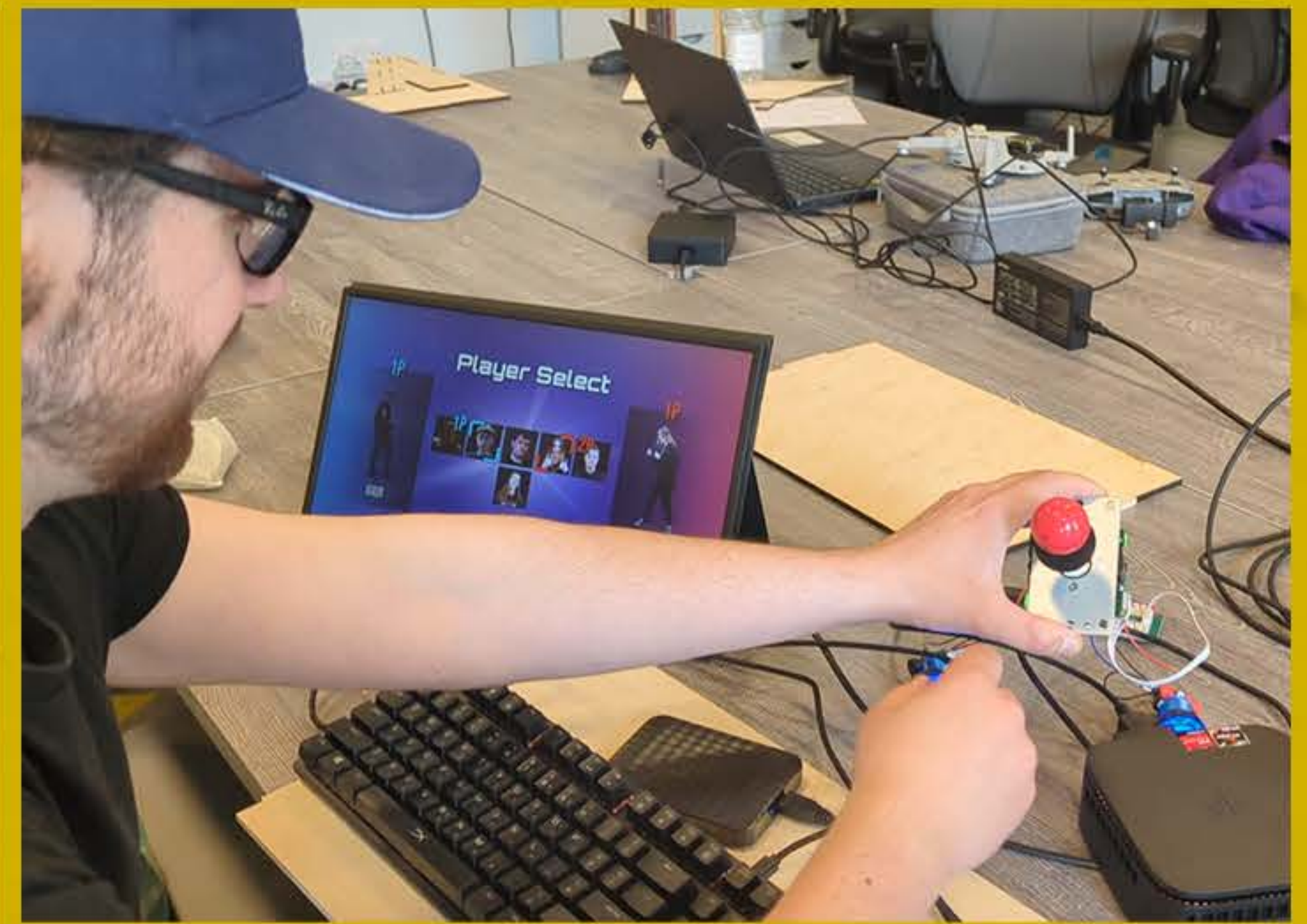
When everything has been created, it's time to bring it all together. Assembling the cabinet should hopefully be a fun culmination of everything that has been done, with the young people finally getting to see their creation put together.

It is unlikely that you are going to have a highly polished product. This is not about becoming a top tier game development studio. But, in our experience, that does not matter. Seeing a working game on a cabinet that the young people constructed themselves is novelty reward in and of itself. All the slight imperfections in design and gameplay are usually hilarious and the young people have a lot of fun taking each other on in battles. In this section, we will take you through the 3 key stages of bringing this project to its end.

CABINET ASSEMBLY

Firstly, you can run this project without physically building a cabinet. If you do not have the means, resources or budget to create the cabinet, the game can just be run on a computer with the inputs mapped to keys on the keyboard. You can also ask your game developer to have them mapped to simple controllers that can be connected via USB.

With that being said, our aim with this project is to incorporate as wide an array of skills and learning opportunities as possible.



The construction of the cabinet brings a less computer focussed element to the process. It's more about manufacturing a physical object that will need to be stress tested before it is fit for purpose. This can allow for young people with different interests to get involved.

We have a template that we follow but you can design your own. We laser cut most of ours but standard hand tools or power tools can be used. What ever approach you choose must be one you are competent and qualified to use. You may need to consider outsourcing this or inviting a professional in this field to assist.

During assembly, young people get hands-on with the electronics. The tactile nature of assembling the micro pc, wires, buttons, joysticks, etc and then the wooden cabinet itself is a very satisfying process. Before any decoration happens, you need to stress test your design.



Invite people to play the game and see if there are any weak points in the assembly that need to be addressed before the aesthetic look of the cabinet is completed.

It is important that the cabinet itself is sturdy so do take the extra time needed to ensure it can stand up against users desperately trying to win their matches! Watching it fall apart after time has been taken to decorate it will not be fun.

CELEBRATION & EVALUATION:

With the cabinet complete, functional, and decorated, the project shifts to sharing it with others and reflecting on the journey. This is an opportunity to celebrate everything that has been achieved. Inviting others to play the game is a key part of this stage. This could be other young people, staff and volunteers. Watching others engage with something they have created gives young people a strong sense of pride and ownership. This process can be very informal or the young people can present on the process and their involvement. We suggest organising a mini tournament as part of the process.

Alongside this, structured evaluation should take place with the group. This can be done through discussion, written reflections, or recorded conversations. Encourage the young people to think about each stage of the project. Bringing the project to a close in this way helps ensure that the experience is not only enjoyable, but also meaningful, underpinning the learning that has occurred all along the way. This feedback will be essential for future iterations of the project if you intend to run it again.

It is also the final stage at which you revisit the assessments you have done at earlier stages of the project as well as revisiting the action plans to see if every participant has managed to achieve the goals they set out for themselves.



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