# Lessons 11 and 12 – rock:paper:scissor Game Project

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| The Big Picture – Why Is This Relevant? | Learning Objectives |
| * In this project will be introduced to the concept of radio communication and will use it along with other familiar programming blocks to program a seemingly simple game, the act of creating real world logic and functionality in a program is a vital skill in physical computing | * Understand how to use the radio blocks to broadcast radio signals to and from a micro:bit and use them to trigger other blocks * Apply programming knowledge to solve a problem * Understand how to apply a real-life game into a computational model |
| Engagement – How Can I Engage Learners? | Assessment for Learning |
| * This project is a game which is inherently engaging * The game is two player * The game requires a wearable wrist strap that requires making to engage all abilities * The making element of this project is more involved than making a simple case and learners can wear and use the product | **Expected Progress:**   * Learners will create a rock:paper:scissors game using the radio blocks with a functional wrist strap   **Good Progress:**   * Learners will create a working multiplayer rock:paper:scissors game using the radio blocks with a well-made wrist strap   **Exceptional Progress:**   * Learners will augment the game beyond the Success Criteria |
| Key Concepts | Key Words |
| * Applying a real-world game into a computational model * Using the radio as an input and an output * Setting the radio group across all devices | * Radio * Radio groups |
| Differentiation | Resources |
| Most Learners will be able to follow the instructions however the game logic can be challenging for some learners and so they may need some support when troubleshooting the program. As before there is also a making element to engage all Learners | * Lesson 11&12 PowerPoint * Lesson 11&12 Activity Sheet * Wrist Strap Design Sheet * 1 micro:bit per Learner * (optional) battery pack for micro:bit * 1 USB cable to connect the micro:bit to a PC * A PC * Access to <https://makecode.microbit.org/> * Some fabric (upcycled t-shirt or jeans) * Sharp scissors for material * Velcro with sticky back/double sided tape |
| Lesson Flow | |
| * Introduce the game and explain the internal logic, have learners play the game briefly with a partner * Introduce the success criteria for the project * Explain what the radio blocks are and discuss some ideas on how they could be used * Show learners where the resources are on the PC * Emphasise the importance of designing the wrist strap before making and introduce learners to the design template provided * Have makers briefly present their ideas to you before they start making * Pair learners if necessary and show makers the resources * Demonstrate to makers a possible way to structure the wrist strap * Learners work through resource independently; teacher intervenes where appropriate * Ensure learners have enough time to combine the programmed micro:bit and the case, and to test * Ensure that learners test the program thoroughly, this is the fun part! * Encourage more advanced learners to attempt the stretch tasks once they complete main task * Encourage learners to reflect on how their product could be improved | |
| Making | |
| * Learners can design and make a wrist strap for the micro:bit to facilitate playing the game * The strap should be designed before being made and the following should be considered:   + User needs – size, weight, comfort, ergonomics   + Safety – batteries, cables etc.   + Durability   + Look and feel * The wrist strap should be sturdy enough to stay together when shaken as part of playing the game * The strap can be made from fabric to ensure robustness (use old t-shirts or jeans) * Consider how this product would be worn and how to ensure comfort and safety * Ensure the buttons and USB port are accessible * Ensure the micro:bit is not permanently fixed to the strap! | |