

AUTISMFIT

Promoting the Inclusion and Wellbeing of Youth with
Autism



GAME 9

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Introduction to Makey Software for Game Creation

This document provides an overview of Makey software - a tool that enables the creation of interactive and accessible games, which also can be beneficial for youth with autism. Designed to support interactive learning, Makey offers schools and parents a direct way to introduce **STEM-based projects** into classrooms and homes.

Since its inception in 2010, Makey has become a popular platform worldwide, known for its simplicity and extensive resources that make learning projects easy to find and implement.

This document will walk you through Makey's key features and capabilities, highlighting its potential for creating customizable, interactive games. With a focus on sensory engagement and adaptability, Makey is a powerful tool for developing games that are both educational and enjoyable.



Why Makey?

Makey software is a platform that simplifies **game creation**, making it accessible even for those **without a technical background**. With its user-friendly interface, visual scripting, and sensory customization, Makey is an ideal tool for developing interactive, multi-sensory experiences with an aim to diverse cognitive and sensory needs.

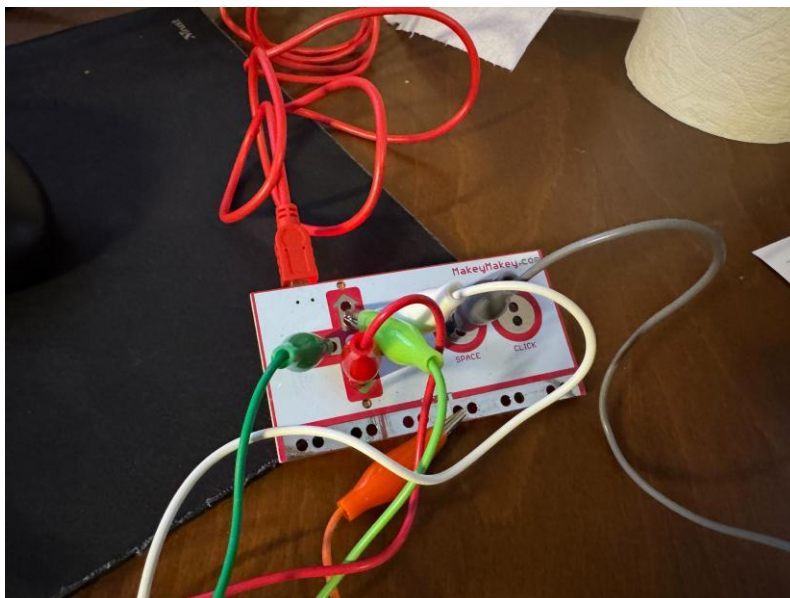
Key Features and Capabilities

- **Customizable Sensory Inputs:** Makey supports various input types, such as sound, visuals, and touch, allowing us to adapt games to the sensory preferences of **youth with autism**.
- **Visual Scripting:** Instead of traditional coding, Makey uses visual **block coding**, enabling game creation through drag-and-drop logic blocks that simplify the design process.
- **Adaptable Game Elements:** Game components can be adjusted easily, sensory effects, and interactions, making it easy to create content that suits each **user's comfort level**.
- **Educational and Recreational Focus:** Makey supports a wide range of game types, from memory and matching games to interactive storytelling, all of which can be customized to improve development and social engagement.

Makey Makey: A Fun Tool for Learning Nutrition

Makey Makey transforms music learning into an interactive and memorable experience by turning everyday objects into playable instruments. By using coloured water and a lemon as touch-responsive inputs, players physically explore sound, rhythm, and harmony while directly connecting actions to musical outcomes. This hands-on, game-based approach encourages creativity, experimentation, and collaboration, helping learners understand basic musical concepts in a fun, engaging way that makes music creation accessible and exciting for everyone.

Setup Makey Makey





To set up your Makey Makey for this experiment:

- 1) Plug the Makey Makey into the computer using a USB cable.
- 2) Connect one alligator clip to the **ground (Earth/GND)** on the Makey Makey; the player must hold or touch this ground clip for the game to work.
- 3) Connect four alligator clips to the **up, down, right, and left arrow** inputs on the Makey Makey. Each arrow key is connected to a cup of **colored water**, and each color represents a different piano chord.
- 4) The **first chord** is connected to the **up arrow**, the **second chord** to the **down arrow**, the **third chord** to the **right arrow**, and the **fourth chord** to the **left arrow**. Touching the colored water while holding the ground plays the corresponding piano chord.
- 5) Connect the **space bar** input on the Makey Makey to the **lemon**. Touching the lemon while holding the ground starts playing the drum sound in the Scratch project.

Experiment 9 : Music with coloured water

Experiment Explanation

- **Goal:** Invite players to create music in a fun, interactive way using Makey Makey and Scratch by turning everyday objects into musical instruments. Players explore rhythm and harmony through hands-on play.
- **Setup:** Four cups of colored water are connected to the Makey Makey arrow keys—up, down, right, and left—with each cup representing a different piano chord. The space bar input is connected to a lemon to control drums.
- **Interaction:** In this game, touching a cup of colored water while holding the ground triggers its assigned piano chord, just like pressing a key on a keyboard. Each arrow key plays a different chord, allowing players to layer sounds and experiment with musical combinations, while touching the lemon starts a drum beat. This setup blends physical interaction with immediate audio feedback, making music creation intuitive and engaging.
- **Why This Is Engaging:** The game is engaging because it transforms simple objects into musical controls, encouraging exploration and creativity. Players learn through touch and sound, experiment with cause-and-effect, and collaborate by creating rhythms and chords together. The instant musical feedback makes the experience playful, memorable, and accessible, even for beginners.

Coding Overview

- **Each key trigger:** Each cup of colored water is connected to a specific Makey Makey key. When the player touches a cup while holding the ground, the corresponding key is triggered and a piano chord plays in Scratch, allowing the game to immediately respond with sound. Touching the lemon triggers the space key and starts the drum beat.
- **The code uses simple logic:** The Scratch project uses basic **when key pressed** blocks to detect which arrow key or space bar is triggered, play the correct chord or drum sound, and control how the music layers. This simple structure makes the code easy to understand, modify, and expand with more sounds or instruments.

The image shows a Scratch project titled "Music Player". The stage background is a vibrant purple scene with a band performing on a stage. The band consists of a drummer, a keyboardist, and several guitarists. The stage is lit with spotlights, and there are large speakers on either side. The code editor on the left contains a series of "when key pressed" blocks, each triggered by a specific piano key (e.g., C4, C5, D4, D5, E4, E5, F4, F5, G4, G5, A4, A5, B4, B5). Each block is followed by a "set instrument to (1) Piano" block and a "play note (X) for (0.25) beats" block, where X is the MIDI note number. A "say something..." block is also present. The right panel shows the "Keyboard" sprite selected, with its position set to x: 109, y: -46, size 100, and direction 90. The "Sprite" panel also shows a "Drum Kit" sprite.

Outcome

- Players express creativity by making music through touch, using everyday objects as musical controls.
- Players receive instant audio feedback as piano chords and drum sounds play in response to their actions.
- The hands-on setup encourages active exploration and makes learning through sound fun and engaging.
- The activity promotes collaboration, discussion, and experimentation with rhythm, harmony, and layering sounds.
- Players learn basic coding concepts such as key detection, **if-else** logic, and variables through an interactive Scratch project.
- The project can be easily expanded with more sounds, instruments, or visual elements such as animations or visual beat indicators.