MaKey CollaboThon

Facilitator's Key

15 minutes (*excludes wait time in between games*)

Ages 9 and up

2 Guests per Demo Table
6-10 Guests per Large-Scale Game

Heavy facilitation

MaKey friends this week at Makerspace! Use a MaKey MaKey to complete electrical connections with others as you join together to face the ultimate collaborative challenge.

Blog Post, Video, and more Photos!
http://www.thetech.org/about-us/tech-blog/makerspace-tech-makey-collabothon

Ingredients

Technology

(6) 10-ft long alligator clips (long wires with alligator clips attached on the ends)
OR 50 small alligator clips linked together with electrical tape to secure them
2 laptops **OR** 1 Laptop and 1 Standing Monitor
2 MaKey MaKeys wired specifically for CollaboThon*
1 projector
Makey CollaboThon Processing Code:
https://github.com/kguglielmino/TheTech/blob/master/ScoreboardTheTech3.zip

Demo Table and Large-scale Game Materials

6 rolls of electrical tape
8 boxes of tinfoil
7 stanchions (6 stanchions for game buttons, 1 stanchion for the ground)
2 rolls of masking tape
1 roll of gaffer's tape
2 colorful rolls of duct tape (Both must be different colors)
(6) 10-ft rugs (for covering Alligator Clips/Wires)
12 Sandbags

10 Soft objects to tinfoil per team

- Pool noodles
- Soft Foam
- Soft Spongy Styrofoam
- Hula hoops
- Foam swords
- Long Objects (Try to think soft!)

* See ***Additional Preparation*** of this Chapter

Goals

1. Guests develop "MacGyver thinking"—quick wit and resourcefulness.

2. Guests make and complete circuits with human chains and conductive materials as they learn some basics of circuitry, such as switches, conductivity, and ground.

3. Guests learn that people and tinfoil-covered objects conduct electricity.

4. Guests get moving, laughing, and playing collaboratively—and conductively!

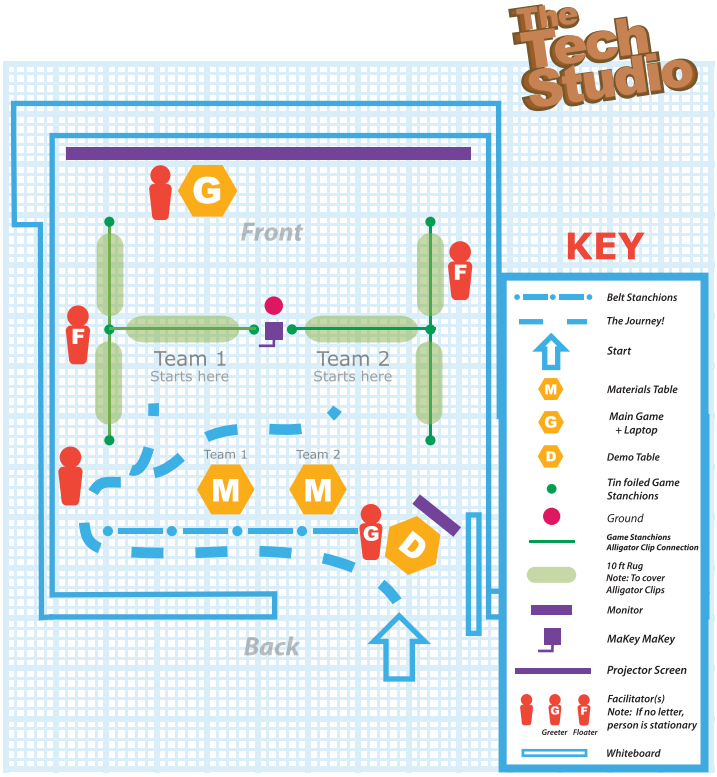
5. Guests engage in a fun and friendly competition in a live-action video game.

Guests Served
We served 10 guests at a time for a total of 320 guests for the week.

Set-Up

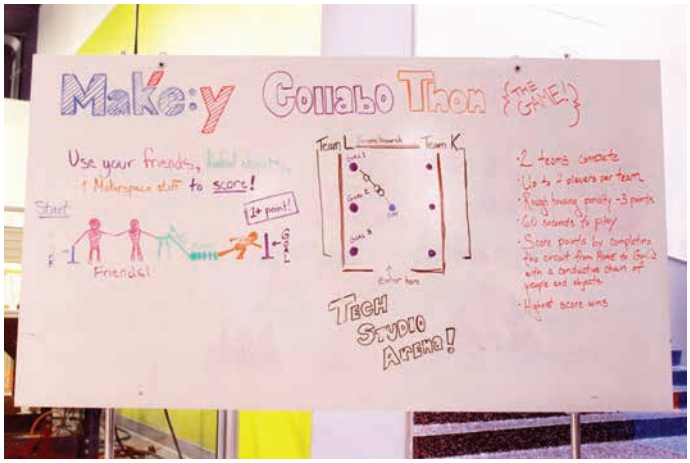
Space Layout

This program requires a lot of set-up—leave at least 2 hours. Prepare a Demo Table showing the game on a small scale so guests can learn how to play the game before playing the Large-scale game. The Large-scale game takes up almost the entire Studio space. Set up the Demo Table and Large-scale game as in the diagram. The ground for the Large-scale game is a smaller stanchion that rests in the center of the entire field. It lies near the MaKey MaKey that's wired in the center. The MaKey MaKey connects to all 10 ft alligator clips and they are laid out according to the green thin lines on the Tech Studio diagram. The light green ovals are rugs placed over the alligator clips for safety. Before placing the rugs over the wires, make sure all cables are completely taped down to the floor. Place sandbags on the bases of each stanchion to keep them in place so guests don't push them around while playing. The cables are attached at the bottom of the stanchions just under the tinfoil, and need some slack in case of sudden movement. The alligator clips will clip to each individual stanchion along the chain. Put a second pair of extra long alligator clip chains under the rug in case of sudden breaks, but do not connect them to the stanchions unless the first alligator clip chain is broken.



Confused on Set-Up? Watch the Game!

http://youtu.be/5XjZ2MFmYjk



Whiteboard Explaination
Rules of the game and how the Large-scale CollaboThon game is set up with humans.

Invitations to Make

1. "Come play The Tech's latest game using the Makey Makey!"

2. "Want to take on a challenge that's all about conductivity and collaboration?"

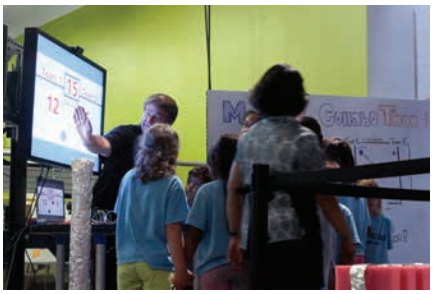
3. "Work together to score as a chain of human circuits and tin foilery!"

Present the MaKey Game

Guests use their bodies and various tin foiled objects as wires and score points by completing circuits.

We have a Demo Table showing how the game works on a smaller scale so guests can learn how to play. Once they learn how the game works, they can take on the larger-scale game. To score points, they have to touch ground and connect to the stanchion that corresponds to the highlighted circle on the screen. As different circles become highlighted, they need to respond quickly and make their connection to the corresponding stanchion.

Facilitation



Getting Guests Started

While they're waiting for the Large-scale game, introduce them to the tin foiled objects that they can use along with their bodies to complete the circuit. To start the game, have someone pull guests in by having them try the small demo first, and then wait in line for the Large-scale game. They'll work together with the objects to become a human wire, but if they or the objects are not connected they won't complete the circuit.

MaKey Demo Table

At the Demo Table, show guests how the game works and explain the science behind the game. You don't need to explain all the science, but it's important to talk about the skin and conductivity. Tin foil and skin are both conductive. Clothes and shoes won't work. Let guests know that they have to constantly touch the stanchions in order for this to work. Establish this at the Demo Table so that when they play, they get the concept faster. Its very possible guests may not get into the game until they start the first round. It can be hard for them to get the game concept, but after the first trial run they will begin to understand.

Ways to Up the Challenge

Adding a high score makes a great addition. The guests' competitive nature comes out to make the game even more fun. Add elements to increase the challenge with select objects, having none at all if they are high school students and older, or setting the timer to 30 seconds.

MaKing Teams

As guests wait in line, pre-determine teams before they play. Try to make teams as even as possible. We generally stuck to 3 people a team, following a rule of with 2 young kids acting as 1 full-sized adult. An example of another team dynamic could be a family of 5 with a 2-parent team and the 3 kids as 1 team. With large summer camps, have teams of 4-6 students. For older students, have a team of 3 with limited tinfoil objects. For larger groups, have them make a human chain of 5–6 people and no tin foiled objects to play the game. Once teams are established, let them figure out how to make connections. Give them 30 seconds to figure it out and help them if they are struggling. The goal is to let them figure it out, but give suggestions where needed on how they can connect with certain objects.

MaKey Player Roles

For players of the game, there are a few roles. The player at home has an easy job that involves rotating and moving slightly. The player in the middle moves slightly more, but the player on the outside has the most work to do. With larger groups, have multiple guests working together with 1 at each station and then moving a chain back and forth. We put the cap at 6 people, with no objects in hand just to make it more challenging and accommodate more people.

Guest's Strategies

1. A larger team playing without tin foiled objects had teammates stationed at the stanchions that grabbed the hand of the runner when it was time to connect.

Troubleshooting

Securing the Stanchions

We had some technical difficulties with the hardware. There were challenges with the homemade 10-foot alligator clips due to the movement of the stanchions caused by guests getting really competitive during the game. The wires were thrown around because of the movement of the stanchions, which made it very difficult to keep them connected during the game play. The stanchions need to be stabilized with sandbags and kept in place. They can be taped down, but for the more competitive guests they'll need something stronger.

2. A smaller team left tin foiled objects touching the stanchions and connected with really long objects by touching the chain of objects rather than reaching to the stanchions.

3. Another team made a long chain amongst themselves and various objects and moved the entire chain with them rather than leaving objects at the stanchions.

4. Another team figured out that the hula-hoop could go around ground, allowing the teammate holding the hoop to rotate without losing their connection.

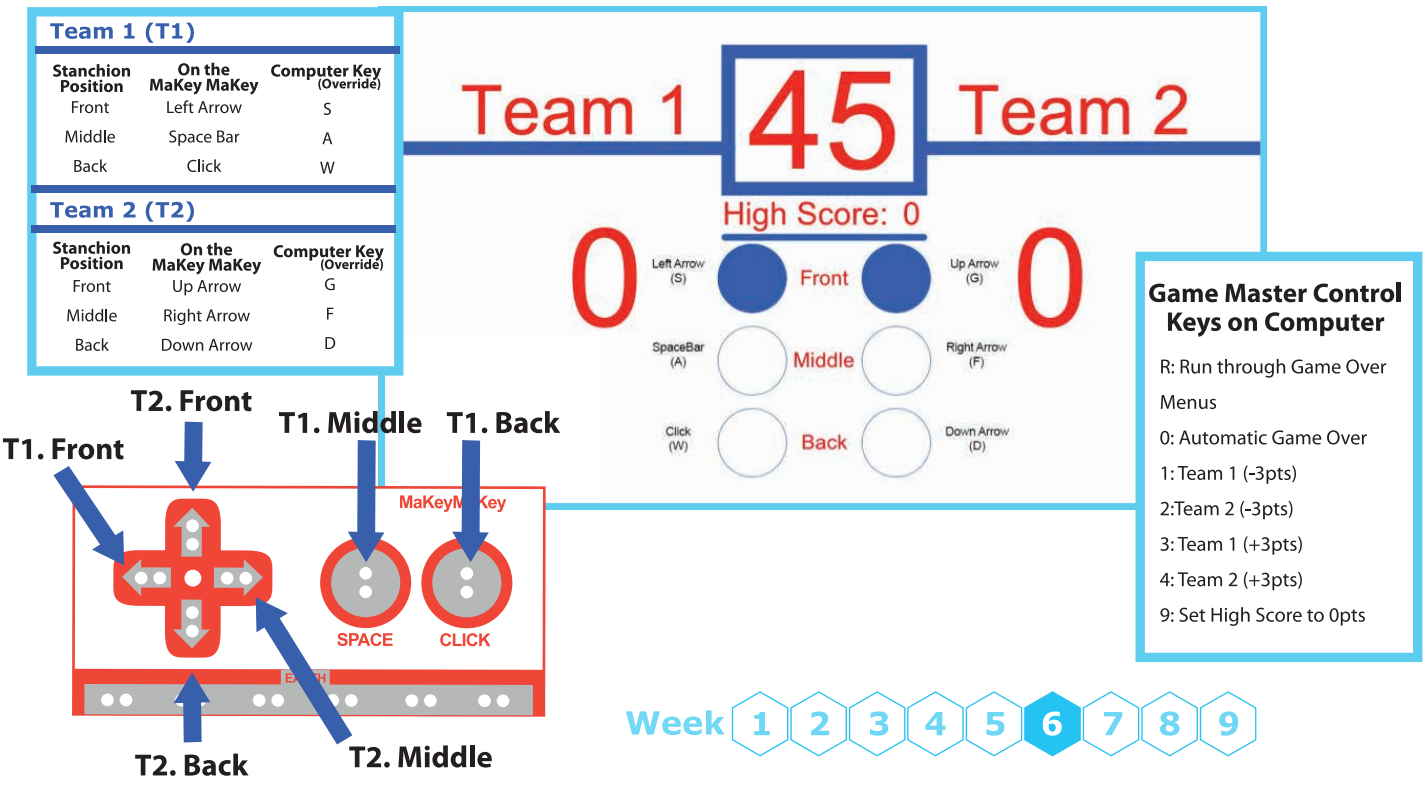
Additional Preparation

Diversity of Conductive Objects

Find as many pool noodles to tin foil as possible! The variety of different conductive objects makes this challenge. All objects should be light and robust—Styrofoam is good. You can have multiples of the same object type, but try to have many different shapes. Wrapping everything in tinfoil helps bring the random objects together. It's fun to use ridiculous objects to complete a circuit—a sphere, a long tube, a hula-hoop, and other random objects. It adds to the whimsy of the game to have such random objects composing a circuit.

MaKey MaKey Connections

Connect the keys of the MaKey MaKey according to the layout of the image at the bottom. The extra letters (S, A, W, G, F, and D) on the back of the MaKey MaKey are not needed to play the game so refer to the front side only. During our first day of programming we had problems with the MaKey MaKey CLICK button getting stuck in the "on" position. We programmed in these letters (S, A, W, G, F, and D) to press on the computer to give the stanchion point to a team as a failsafe in case we ran into issues again. The image below shows the controls to run the game we made in Processing. To the lower right corner of the image is the Game Master Control Keys to add, subtract, reset the game, and reset high score.



Reflections

MaKey Program Development

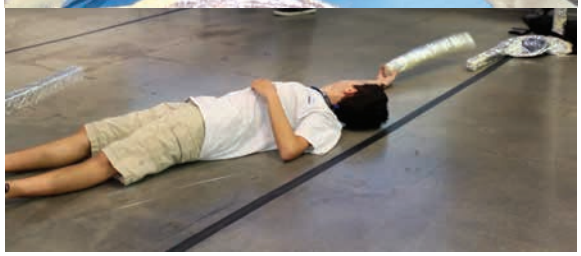
This program was originally made for the MaKey MaKey contest challenging MaKey MaKey-lovers everywhere to design a collaborative activity using the MaKey MaKey. We knew we wanted to make a game, but struggled with the concept. We finally settled on a simple game that turning into MaKey CollaboThon.

If You Build a Giant MaKey MaKey Game, They Will Come

This MaKey MaKey game was a great way for guests to show how they could think on their feet and make their mark at The Tech. There was really no need to convince people play—it sparked so much curiosity that people came and participated on their own whether they were playing both versions of the game or just the Demo Table. This game easily engages all ages, from really young kids to older students. Parents love competing against their kids and the college students have a blast playing against each other. The competition was good-spirited and really fun!

Makerspace Gets Physical!

This program was the first interactive and physical game we did over the summer. It was a nice change from the usual making projects because it allowed guests to display their creative improv skills as they connected and completed the circuit depending on how they worked together in a small or large group. All the groups played the game in their own way.



Improv Facilitation

This was our first Makerspace where crowd control was a must. We needed a good amount of facilitation and control for this program—from the Demo Table, breaking guests into teams, teaching them how to play the Large-scale game, establishing rules, and then letting them play the game twice to fully grasp the concept of human wires. The learning at the Demo Table can be completely controlled and translates really well to the Large-scale game. The game can be adapted in many ways: having 1 person on each side hitting each stanchion with tin foiled objects, learning how to work with major disadvantages, finding a way to include someone in a wheelchair, playing with a 20-person summer camp, and so much more.

Resources

Maker Kenny's MaKey CollaboThon Processing code:
https://github.com/kguglielmino/TheTech/blob/master/ScoreboardTheTech3.zip

Video of Makerspace guests playing MaKey CollaboThon:
http://youtu.be/5XjZ2MFmYjk

MaKey MaKey:
http://www.makeymakey.com/