
Jack The Ripper's Escape the Classroom

Narratives Project: Tangible Computing & Narrative. Nov 22, 2017

CONCEPT OVERVIEW: Jack The Ripper's Escape the Classroom is a discovery learning kit that allows students to **problem solve**, **learn** and **play** using tangible computing. Students **research** and learn concepts about history, art, social history and science in a storified and interactive setting that transforms their classroom into XIXth Century East London.

NEED: Learning in a classroom environment can be boring because the students might not relate with the content and as a consequence don't engage in the learning. **Story**, **mystery**, **stakes** and **characters** can be leveraged for learning in the classroom, connecting with prior knowledge or experiences and increase motivation and engagement.

CONCEPT DESCRIPTION: It is London in the 1890s, and a murderer is loose. He has left clues behind, but to understand them, you need to be an expert in all matters Victorian. Each group of students is a different group of citizens in XIXth C. London: a team of cockney citizens, a group of East End policemen, investigators from Scotland Yard, Suffragists, etc.. Using an "escape the room" framework, the teams have to find clues that help them solve the mystery. Each clue, however, requires knowledge about the city, its science, history, etc.. Teams must research and share their knowledge with their colleagues and think together to solve them, getting them closer and closer to solving the mystery before the killer strikes again.

Physically, the "Escape the Classroom" kit contains a number of game boards, representing different neighbourhoods where the action occurs (one board per team of 4-5 students) and a tangible-computing interactive clue set (TICS), that has programmable drawers and chests that open and close, needles that can point, little doors that open, etc.. (see drawing #1). The teacher loads a set of clues into the TICS before class. Students start at their team's boards with the knowledge challenges (i.e. find information about the colonies) and share it with the other teams to solve each clue. Then they go to the "TICS" and "input" the information, receiving an "output" from the TICS (for example, a drawer opens, offering them the next clue). They continue this way until they discover as a classroom who is the murderer, and she/he emerges from the final unopened box.

Because the game is only a "structure" it can be used to solve multiple puzzles with multiple sets of content. The kit will include a number of these stories, geared to different age groups. Not only that, the EC TICS (Escape the Classroom Tangible Computing Interactive Clue Set) has a "lite" and "advanced" use. In the "lite" students solve fun mysteries programmed by the designers. In the "advanced", they can use the EC TICS to design and craft discovery mysteries of their own, programing the TICS to react to clues (input) and designing other clues (outputs) that come out as a result. They can even design different sets of cards and boards to take the experience to different times and places if they want (ancient egypt? The American Civil War? The future?).

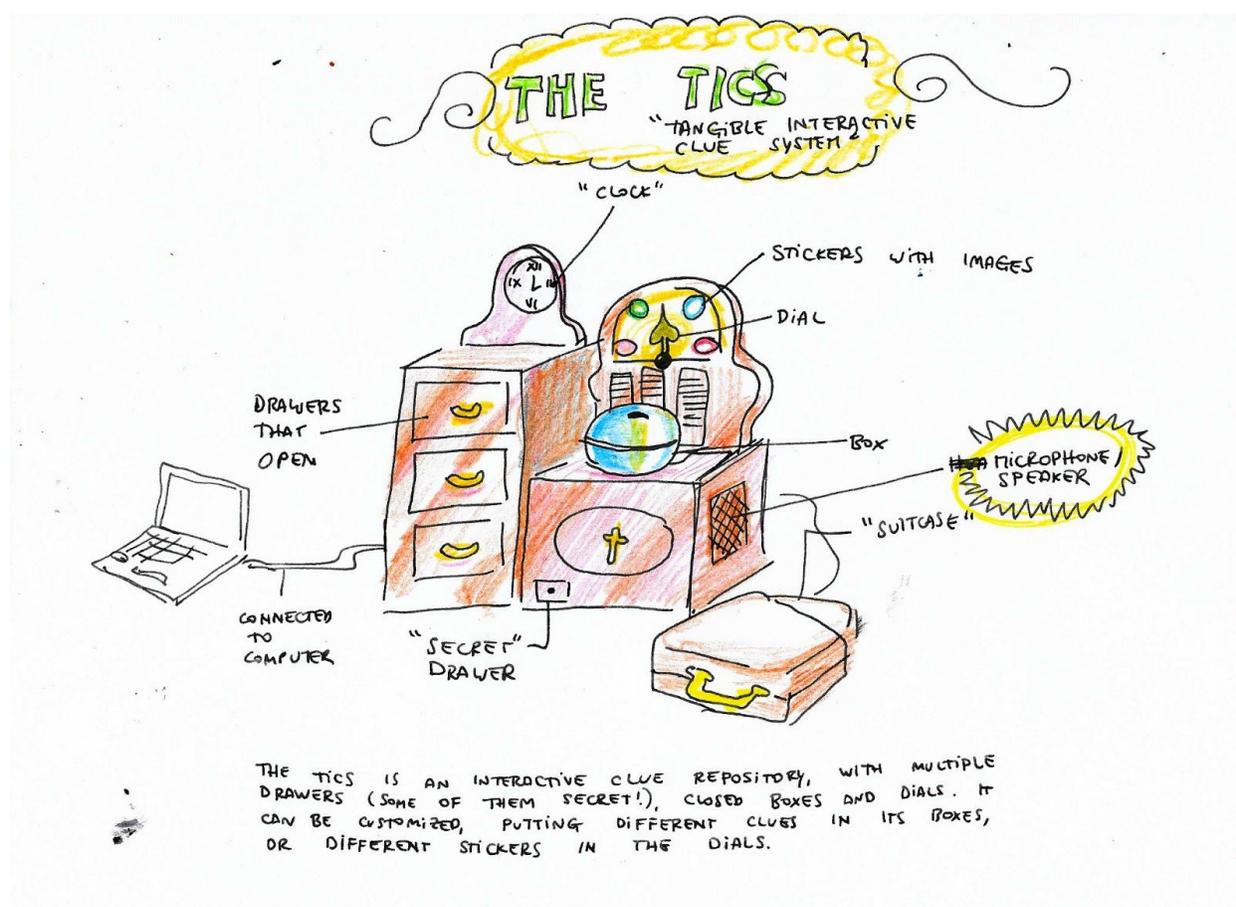
TARGETED LEARNERS:

- The main target users are medium and high schoolers studying history in school.
- Indirectly, the history teacher in charge of a classroom is the one understanding how the experience works, adapting it to the learning level of the students and preparing it so the students can play during class.

LEARNING GOALS: LITE VERSION: Specific content goals related to the content, but which can vary with each story set; i.e. "Jack The Ripper" story may be associated with **research** and learning about the epidemics (cholera, the pest), social stratification in XIXth C. England, Imperial history, concepts of psychology, vaccination, suffragist movement, etc.. Because of its constructivist framework, students learn about **collaboration** and the teachers can also use it to help students learn how to think creatively (**lateral thinking**), providing them with

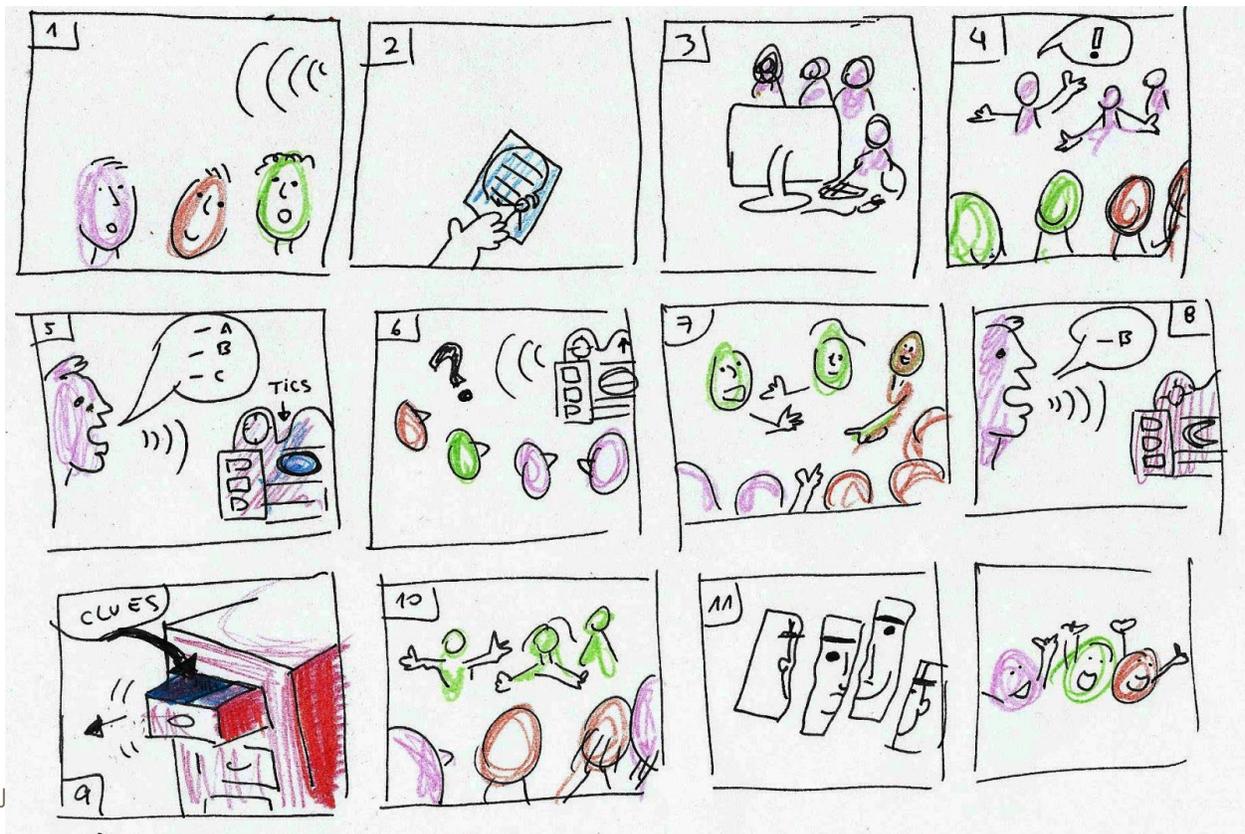
exercises that scaffold the cognitive processes that can aid them in solving the clues. *ADVANCED VERSION:* If students are actually *designing* the game, learning objectives are: deeper research (and content depending where their interests lead them), lateral thinking, game design, narrative design, computational thinking (since the input-output sequence design will need “scratch-level” computational competencies. Interestingly, the advanced version can be used to introduce a discovery learning framework in the puzzle.

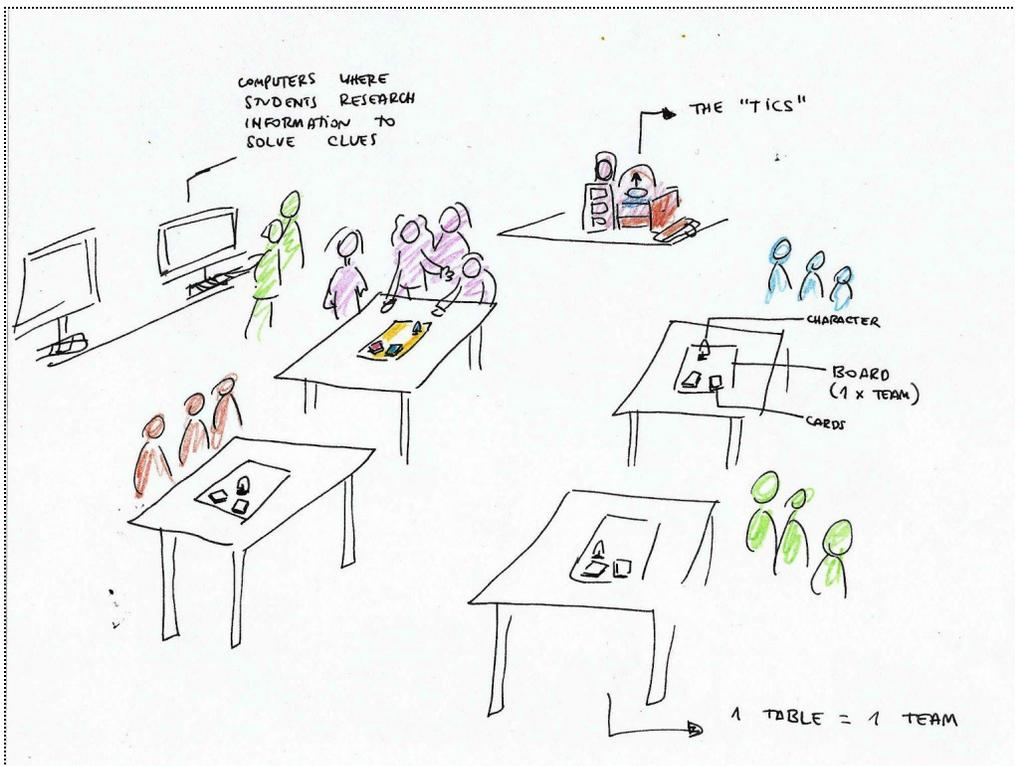
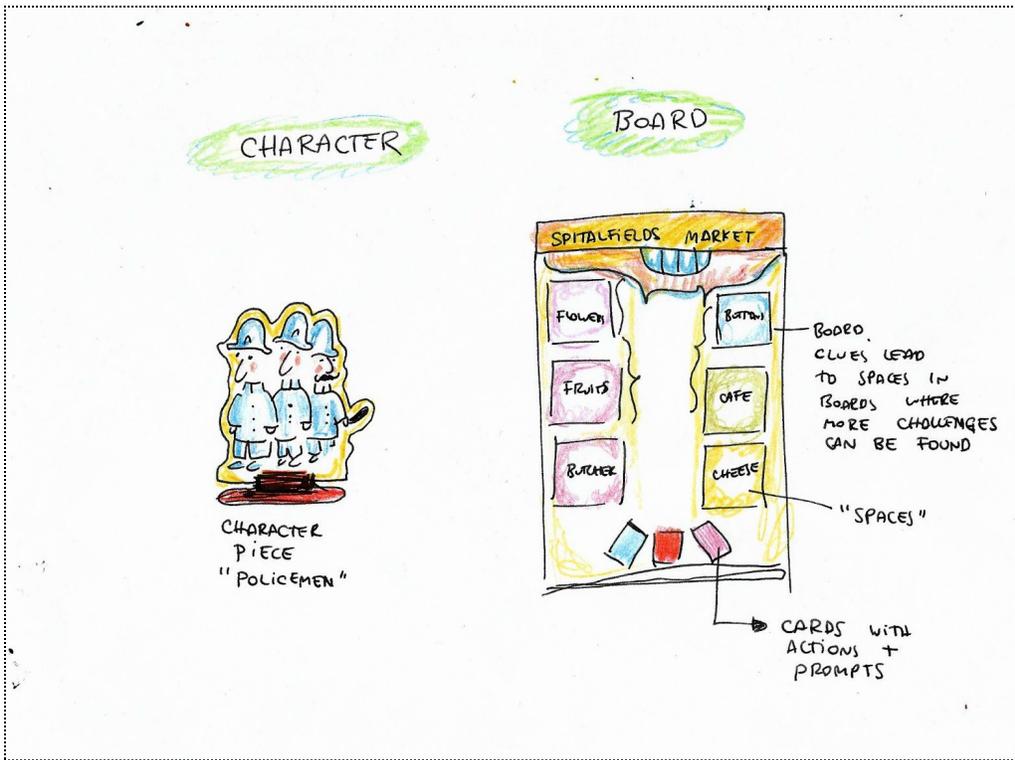
LEARNING THEORIES: *SEL and Experiential Learning:* learners can learn more if emotions or an interesting, memorable experience are associated with learning. *Constructionism:* Often one learns more through the construction of objects that embody the knowledge. *Collaborative learning:* One learns better when in groups, since there are constant opportunities to test our knowledge, correct misconceptions, and use our needs of social interaction as motivators. *Inquiry Learning & Situated Learning &:* Stories and challenges can situate and make abstract knowledge more concrete. *Discovery learning:* Internal motivation and curiosity can be used as a drive for intense and deep learning experiences. *Embodied learning:* At its best, learning should be a process that involves all the body; by moving around the classroom and doing things, student physically engage with the learning.



STORYBOARD

1. Students listen to "story set up": a crime has been committed in London. Each team is a group of citizens working together to solve it.
2. In the board, learners take the first card, with a prompt for a "clue". For example, in one card "a seller" in the "5 corners" board tells the "suffragists" that she saw a suspicious man, and that he seemed ill. Then a question: what were some of the diseases/epidemics of XIXth C. London?
3. Students go to computers and research about common diseases (which will lead them to STDs and Cholera, among others); instructor monitors that they are researching well and scaffolds the process if necessary.
4. Students explain what they found to their classmates (here is an opportunity for the teacher to assess, correct and enrich the discussion).
5. Together, they go to the TICS and "say" the potential disease.
6. The TICS responds with a riddle that has, as answer, one of the diseases (for example, a poem that ambiguously describes the symptoms and causes of cholera).
7. The class works together to solve the puzzle based on the knowledge from the presentation.
8. They say the answer aloud to the TICS; "cholera". (This process works as fun and formative assessment).
9. A drawer opens in the TICS (or a box, or a mini suitcase, or a needle points at something, etc.).
 - a. It can have a middle process clue, that leads to more research, or
 - b. an end-of game clue, that is a clue to who the killer is.
 - c. Either way, as the game progresses, along with the research clues the drawers present students with a set of candidates for the killer, which are increasingly narrowed down.
10. Then, another group that has finished their research shares their info with the class, etc.
11. Finally, the class puts all the clues that the TICS produced together and try to solve the mystery of who "Jack the Ripper" is.





PROCESS

Brainstorming

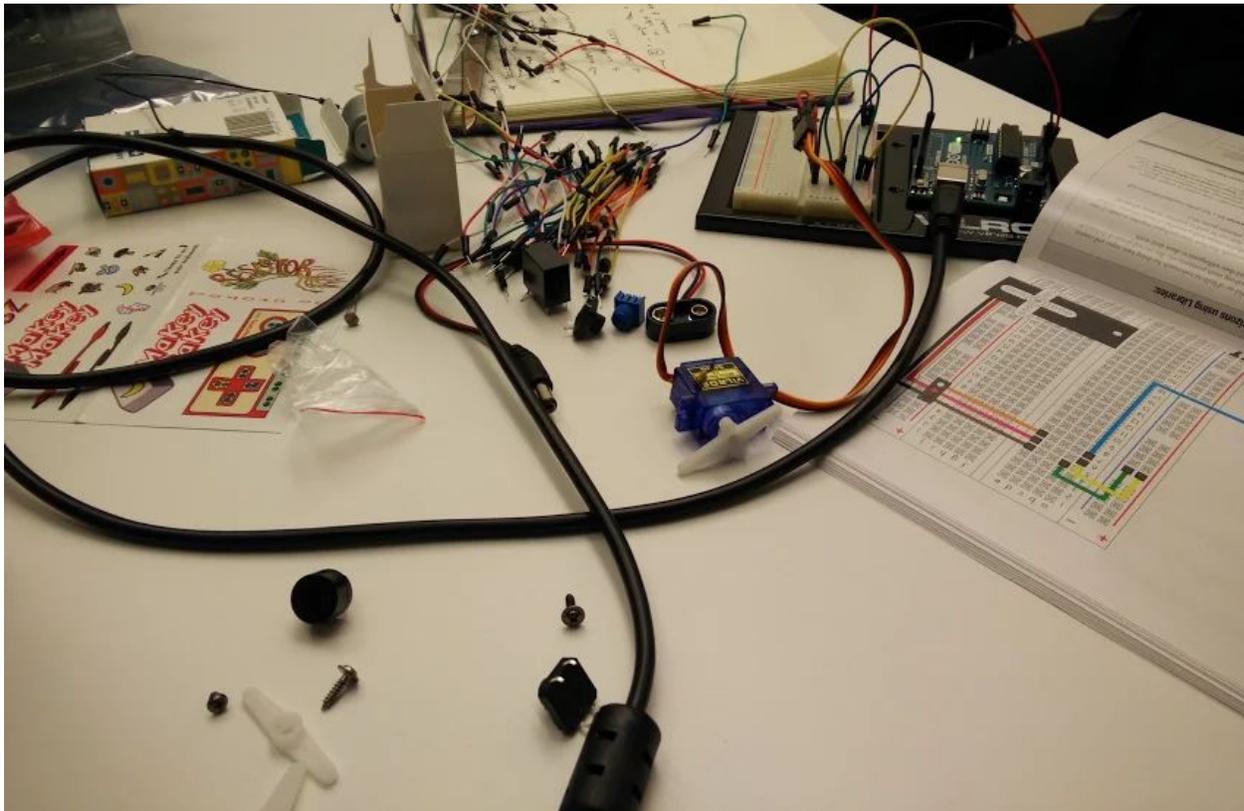
We had a couple of meetings to discuss about what both of us wanted to focus on regarding learning and to start designing the experience. From that, some ideas and concepts came out: Embodied, creativity, puzzle...; Aniol related those concepts to the experience of a Escape Room, since his brother owns one in the city of Girona back in Catalonia. We both liked that idea, so then we had to think about what type of learning could happen in that environment and how would it happen. We talked about what narrative do escape rooms usually use (mystery and a story behind it), which lead to JP saying he used to be a tour guide back when he was in London, and that people really liked the story of Jack the Ripper and morbid abject stories in general. This led us to think of ways to use these abject ideas in a storified playful setting, as an effective way of engaging students.



Testing the affordances of the technology

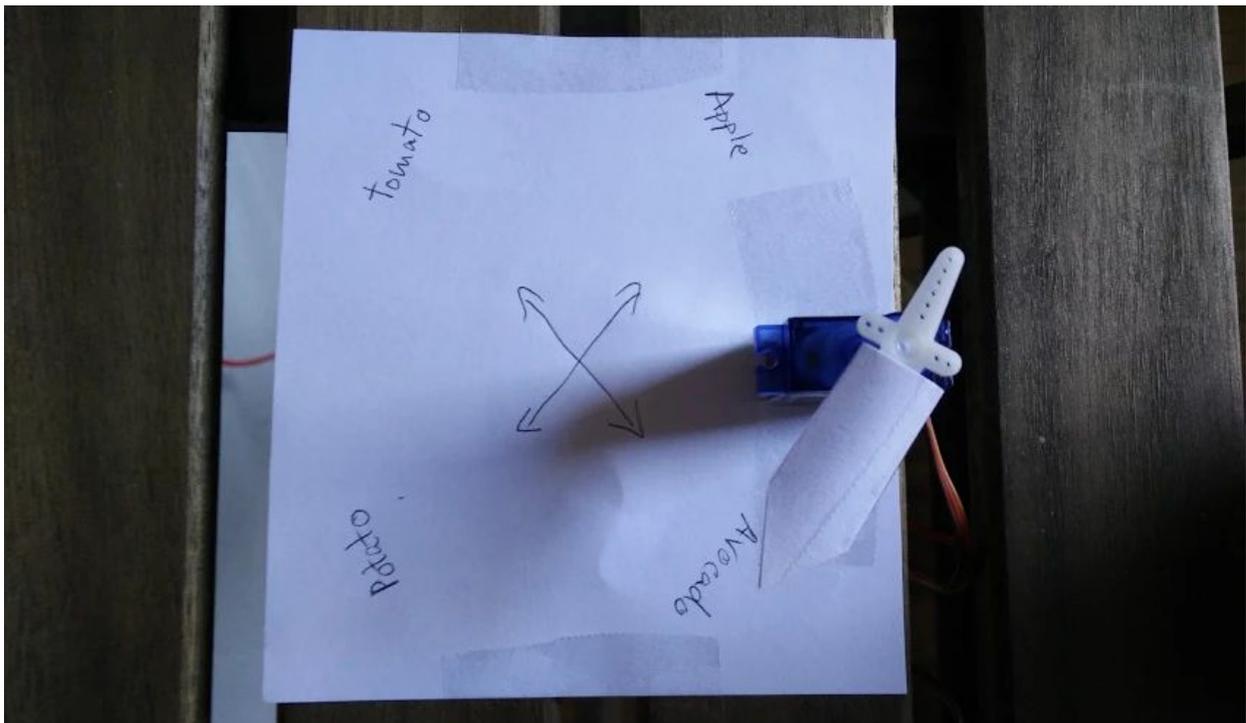
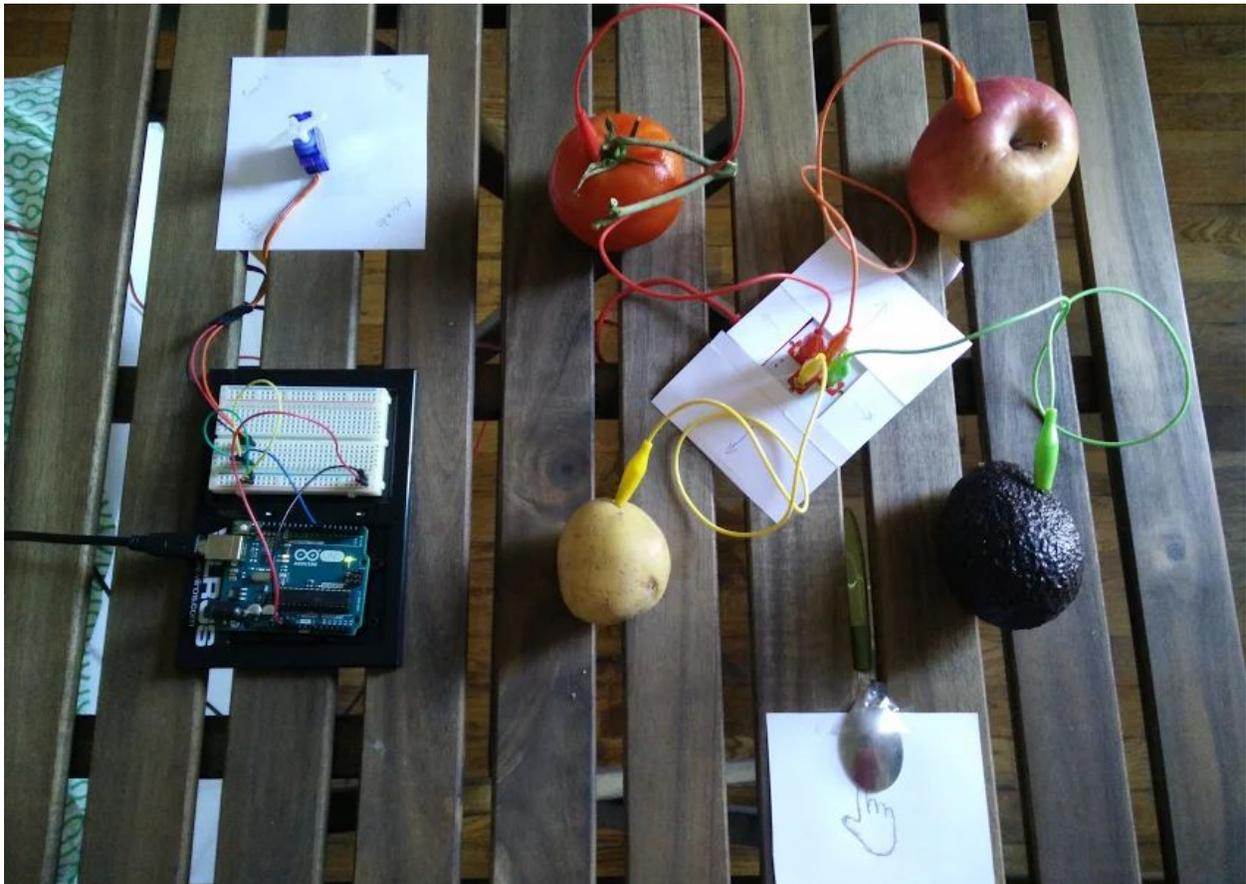
After having a rough idea of the experience, we started playing with the technology. First we tried the Arduino UNO kit... after some struggle, we ended up moving a servo (which felt like a big achievement at that time!).

<https://drive.google.com/a/nyu.edu/file/d/1NnB-mhwk0TI8blgNihYAyEv6Rvg4AkZt/view?usp=sharing>



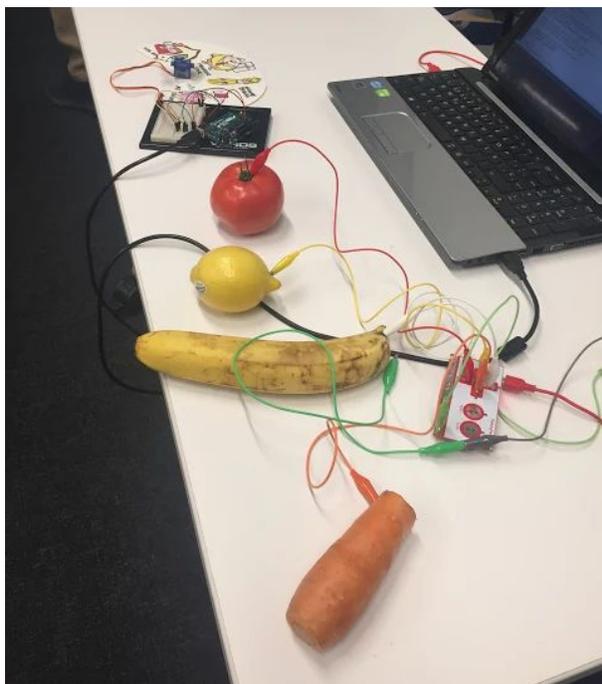
Then we tried to combine the MakeyMakey with the Arduino to test if one of the ideas we had for the escape room would be possible (retrieving a code to open a door by touching different fruits, water or something similar that would move a servo pointing to the different numbers or letters needed for the code). It worked! After surfing the internet for a while, we managed to connect both boards thanks to the software Processing and move the servo to different positions by touching different fruits or vegetables.

<https://drive.google.com/a/nyu.edu/file/d/18V2CE-DFgcriKACawll4xu7RTAZCtryL/view?usp=sharing>



Prototype exploring narrative possibilities

Finally to the previous concept we added the narrative layer by relating every fruit to a character the servo would point to.



This was a truly “constructionist” project, where the work we did with the Arduino informed some of the conceptual choices and ideas that we came up with as we discussed the conceptual “ideal” solution for an “escape the (class) room” kit. We discussed ways in which we could make it so that students would have to research information themselves, using the game as motivator, and ways to maintain most of them engaged (which is a challenge, since most escape the rooms are designed for groups of no more than 10 people, ideally less). The solution that we came up is still in process... there is certainly more that one can do with the “board



game” part of the project. There is also a challenge in finding ways in which students are not necessarily looking for one correct answer, but that the solving of the clues is more holistic (so they have to research, but not geared towards a single right answer, but towards knowledge of the subject matter in general). There are still challenges to the design. However, on a first layer, it is experiential learning, very storified, using a known exciting narrative to make learning and research more exciting in a classroom.