Essay on the Gamification of Learning: Interactivity and Engagement

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Assignment

"Please prepare a paper worthy of a graduate student in which you discuss the current trends in gamification of learning, the concepts of interactivity and engagement, and any other topics you feel relavant. You are required to rely heavily and reference the given resources given in your Syllabus." (Wilson, 2017)

Most of this paper's headings are direct quotes from the class syllabus (Wilson, 2017). This notification applies to "Overview," "Free Online Education Games vs The Learning Company," "Pure Gaming and What it Is," "2017: The Future is Here??" and "Specific Examples of Game Type Learning." The headings not directly quoted from the syllabus are "Hour of Code: Creating Simple Games" and "References."

Overview

My students use a variety of educational games in the computer lab. Steve Kallowich's report on Sarah Smith-Robbins's speech supports using games to increase learning (Kallowich, 2010). Games provide multiple opportunities to learn new concepts in a risk-free environment that can be more motivating than some other classroom activities. A good course, like a good game, needs to include the same qualities: "clear goals, fair rules, and strong incentives to learn from errors and develop the knowledge and skills necessary to be successful." Games make learning fun and efficient because they have clear rules, are nonjudgmental, and reward steps toward success along with achieving the desired objective. Michele Berger agrees when quoting Marcus T. Wright, "Video games bring about so much imagination, creativity, and problem-solving. … They can facilitate all kinds of learning," (Berger, 2017). One game genre that is particularly helpful to students is the immersive/roll playing type of games. These advanced

games put students in situations and give them objectives that they have to reach, while combining academic and real-life skills. This type of video game increases students' academic skills while helping them to generalize academic learning to the world outside of the classroom. Whether students are engaged advanced educational games or games that help them to learn their multiplication tables, using games in instructional situations can benefit students.

There can be some difficulties with using games in instruction. Rebecca Rufo-Tepper (2015) mentions that if assessment is not a fluid aspect of the game it will need to be provided outside of the game itself. Some educational games seamlessly embed assessments, but students will lose interest in a game if the game stops to provide assessments. Some of the suggestions for assessing students without breaking the flow of the game include walking around the room to determine who is successful and who is struggling (and providing additional questions or assistance if appropriate) and providing assessment after the game is complete. Post-game assessment can be a creative assignment where students integrate what they have learned into group or individual projects. Difficulty determining how long each unit should take, assuring that all students cover all of the required material, and the possibility of overusing educational games to the exclusion of other learning methods need to be addressed by schools (Keesee, 2011). None of these struggles are insurmountable, but educators do need to be aware and make sure that the games that they use complement educational goals and intent.

Free Online Education Games vs The Learning Company

When I first took over the computer lab in my school, none of my students were efficient readers. I built the lab around five titles from Edmark: "Bailey's Book House," "Millie's Math House," "Sammy's Science House," "Trudy's Time and Place House," and "Thinkin' Things

Collection 1." Later, when my school started taking in more advanced students, I added The Learning Company's "Reader Rabbit" and "Clue Finders" educational games (all versions — baby/toddler through sixth grade). As The Learning Company's built in assessment and individual adaptability improved, I relied more heavily on their titles. I switched to Sunburst's "Key Skills" math and literacy series because this new (at the time) series did not state specific grade levels and let me customize the experience for each student so that he or she could be in a different grade level for each skill, if needed. The data-collection and reporting function of "Key Skills" also better met my needs. None of these titles are produced for today's modern computers, but in their time they all had high quality sound, graphics, and animations that held my students' attention and helped me to teach academic and foundational skills. The titles were not free, but I only had to purchase one copy of each program per computer, not per student (unlike some of today's subscription services that charge per student per year).

There are still many free educational online games available to students that are funded through advertisements, upgrades, or by private supporters/companies. Often, these free games are more simplistic and lack the eye-catching animations that keep my students involved. They also usually lack the individualization and data collection that was available with "Key Skills," "Reader Rabbit," and "Clue Finders." Some of the free games that caught my eye, for better or worse, are below.

https://www.education.com/games/ This site primarily focuses on the younger students, with the most games available for first grade students (one hundred five games). There are only fourteen games available for fourth grade students and sixteen games for fifth grade students – some of which are the same games. These games are simple games that address only one skill per title, and there is no method for the instructor to keep students in the assigned activity. This

site may be fine for choice or leisure time, but I would not use it as an instructional tool unless I had students who stayed where they belong. (Education.com, 2006-2017)

http://www.knowledgeadventure.com After five minutes of clicking on things and not getting to all of the free on-line interactive educational games that I was trying to explore, I have decided not to recommend this site's free content. I need to encourage purposeful mouse use and exploration in my lab, and this site is just too disorganized for my students. Several times, I clicked on what looked like an interesting game, only to be taken to something other than that game. Most of the games still appear to work, but the landing page bares a 2014 copyright, so I have my doubts about how often the games are updated and the links checked. (Jump Start Games, 2014)

http://www.abcya.com Some of my students use ABCya.com (2017) in their classrooms and I have used it in my lab in the past, when I had a better method of keeping students in the Web sites that I approved (that function is no longer working on the computers I use). I found the interface easy to use and all of the links worked. Instructors can pay for the advertisement-free version that looks like it would be good for my students who click on everything, but at $39.99 a month for the "Classroom Plan," I don't see myself as ever purchasing the premium version. As with other free sites, the graphics are a bit simplistic, but my students don't seem to care about that. In fact, they can sometimes get lost in complicated graphics because they have difficulty focusing in on the content.

https://prodigygame.com/ The educational content of this game is always free, but members (paid subscription) unlock additional incentives that help to keep children interested and motivated to do well. I found the games to be more detailed and visually interesting than other "free" sites that are supported by advertising. During my exploration, I did not see an entire

advertisement. It would be interesting to unlock the subscription bonuses, but I cannot afford to purchase subscriptions for each of my students, so once again I would have to settle for the free content. I really like that the free version has individual accounts for each student. So far, this seems the most robust of the free online educational games sites.

http://www.helpkidzlearn.com HelpKidzLearn's site license is only $240.00 for all students for the entire year (building site license). This site is developed for students with significant disabilities, including severe developmental delays. I use this site for approximately a third of my students who have the most severe delays or have multiple disabilities that interfere with their academic achievement. Because these activities were developed in the United Kingdom, some do not work well with American adaptive technologies, but these is enough here to interest many of my students who are not yet able to access mainstream educational games. There are even simple activities that do not look babyish and can be used by older students who function on a younger level. This site is not listed in the syllabus, but I wanted to include it because many people to not think of students with severe intellectual disabilities or severe autism when they think of educational games.

Often, the more an instructor pays for an educational game, the better the graphics, animations, and customization become. Unless a teacher works for a school with enough funding to purchase subscriptions, he or she has to use free and low-cost alternatives. While these may not be ideal, a creative teacher who has the time to investigate available options can find something that will work with her or his students.

Pure Gaming and What it Is

Unity3D (Unity, 2017b) is a platform that is used to create both entertainment and

educational games. About half of my students use an English Language Arts software suite that is created with Unity, Imagine Learning (Imagine Learning, 2017). Unity3D is also used to create purely entertainment games. Screenshots of a large number of games that were created using Unity3D are located at https://connect.unity.com/p. Unity 4 introduced many improvements, especially the ability to have characters share the code behind actions. This made game development easier, quicker, and reduced the memory needed to store characters and their movements (videogamr DE (2012, August 29). Since then, Unity3D has continued to grow and improve with the times. The current version, Unity 2017.1 continues the trend of high quality graphics and animations and adds improved cooperation tools so that game developers can better work together on each project (Unity, 2017a). While Unity3D is not the only platform available to game creators, it is an interesting example of how the gaming industry has become more visual, interactive, competitive, and cooperative all at the same time.

2017: The Future is Here??

When it comes to education, games do not just mean activities with winners and losers. Games include interactive activities that engage and motivate students to find answers to problems and explore topics and places unknown to the students (Holford and Portnoy, 2017). This does not mean that teachers need to learn to program computers (Livingston, 2017). "To achieve efficacy, games should engage students and support the curriculum standards of any given school, district, and state—while also being easy to integrate into a classroom," (Livingston, 2017). Simply put, games are effective learning tools if they are relevant, easily implemented in real classrooms, and directly relate to the educational content that students need to learn.

Finding appropriate educational games and other online tools for teachers can be time-consuming. Giorgio Cassella (2017) compiled a comprehensive list of resources with input from members of the education community around the world. Below are four of my favorite online resources from Cassella's list.

Topping his list is Nearpod. Nearpod has a wide variety of customizable content and pre-made lessons that teachers can send out to students' individual laptops and tablets. Nearpod is constantly growing and now includes 3D and virtual reality (VR) elements along with assessments that aid teachers in monitoring process. It can be used to enhance individual and group work. Additional information about Nearpod can be found at https://nearpod.com.

GoNoodle (https://www.gonoodle.com) gets kids up and moving. Several teachers in my school use this site to provide short movement breaks between lessons or as an award for appropriate behavior (i.e. students who maintained their focus during a spelling test can choose the song that the class will dance to). Many of the songs have social or academic lyrics that the children learn to sing without realizing that they are learning. This is a great tool, especially for my students with emotional disabilities that interfere with they desire to learn.

I've seen Book Creator (https://bookcreator.com) demonstrated in several workshops. It is a simple iPad all that encourages students to be creative. With parental permission, students' books can even be uploaded to the World Wide Web so that they can reach an authentic audience. Book Creator used to just be for iPads, but they recently released a Google Chrome version that is device neutral (the iPad app still is available, but the transitional Android and Windows apps are being removed).

While I have never used Education City (https://www.educationcity.com/explore) it is described as providing interactive content in a variety of subject areas. Education City is

designed for children ages three through twelve, but many of its activities look like they would be appropriate for older students who are functioning academically on a younger level. The activities begin with introducing the material then allow students to explore on their own and engage in specific activities.

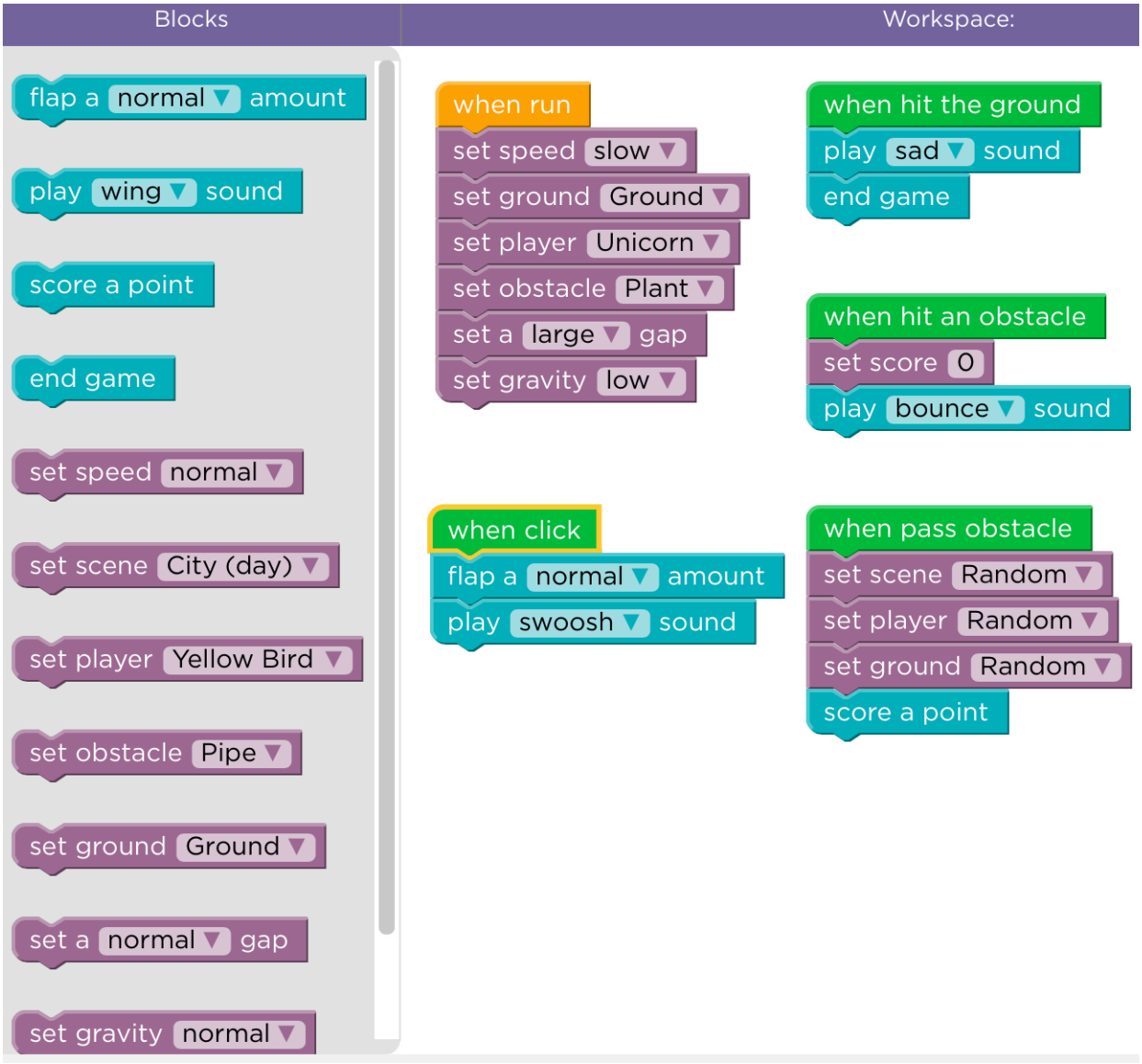
Is the future really here? By definition, the future is never "here" right now, but we are always approaching and building the future. Educational games, including the whole variety of interactive online educational activities, are included in many schools right now. The content, availability, and interactivity of these resources are constantly growing. The future begins a split second after … NOW.

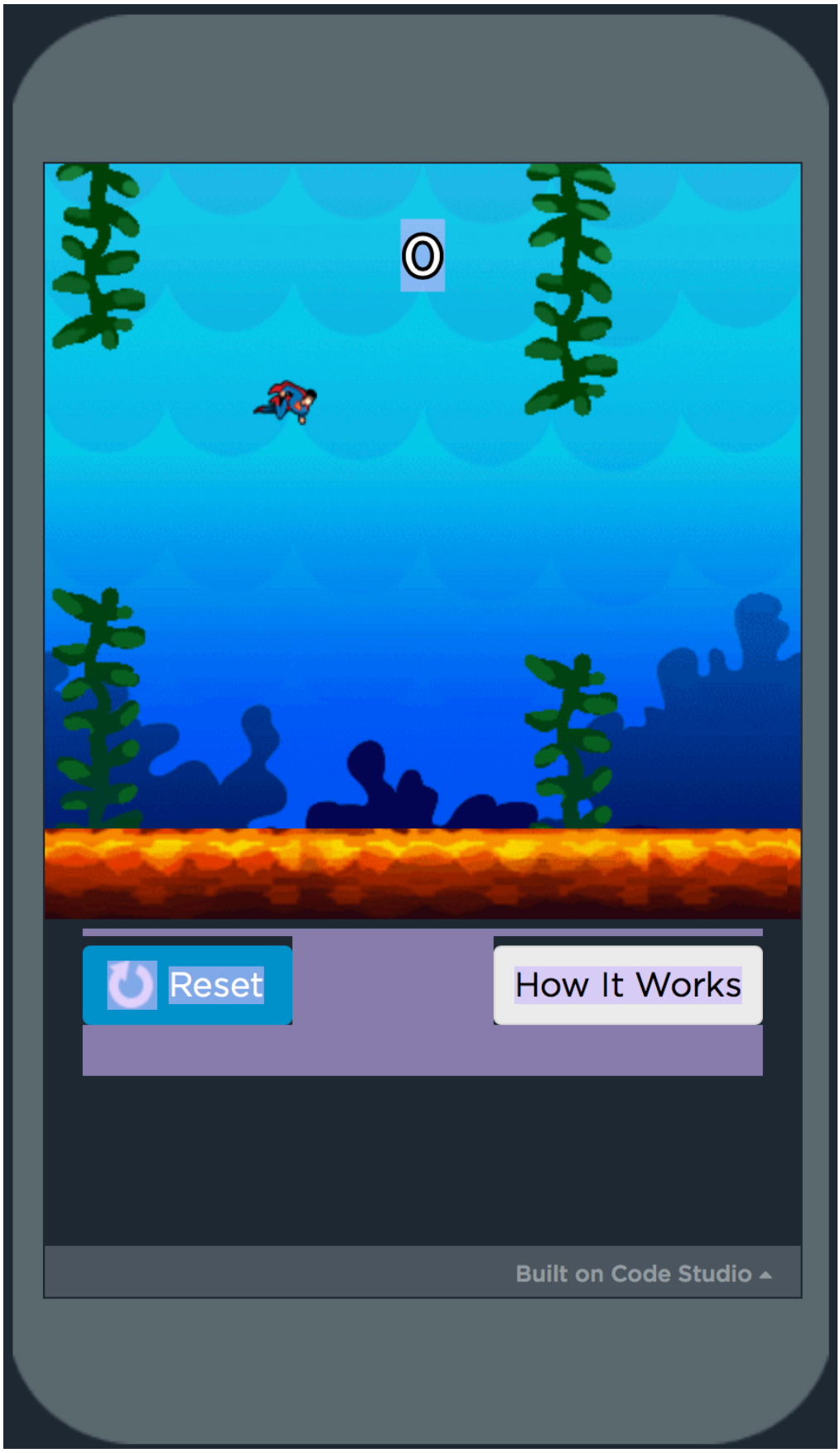
Hour of Code Game Creation

The directions for this paper explicitly state that game creation is not within the prevue of this course. I enjoy creating things, especially if I use it with my students or potential students, so I completed an Hour of Code (https://code.org/learn) game creation activity (Code.org. 2017a). I may use this game creation tool in a future Hour of Code unit.

I created my very own "Flappy Bird" style game at https://studio.code.org/flappy/1 (code.org, 2017b); it was just a simple basic block-coding project. After some experimentation, I chose to use the included random image generator that cycles through pre-existing images in a random order. It can be played online at https://studio.code.org/c/423989822. This game took me about twenty minutes to create and another twenty minutes of experimentation to finalize, but it is estimated to take most students an hour. After completing a variety of tutorials, students are told, "Create your own Flappy game. You can change all the visuals and all the rules, even the gravity. When you are done, click Finish to let your friends try your game on their phones."

There are other, more advanced game creation tools at https://code.org/learn, but I wanted to complete an activity that I might be able to use in my computer lab some day.

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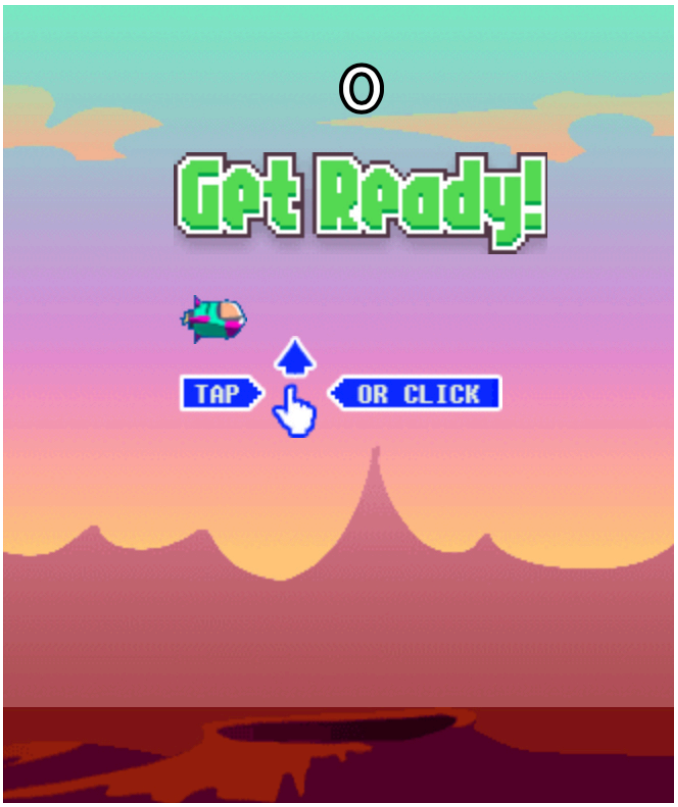
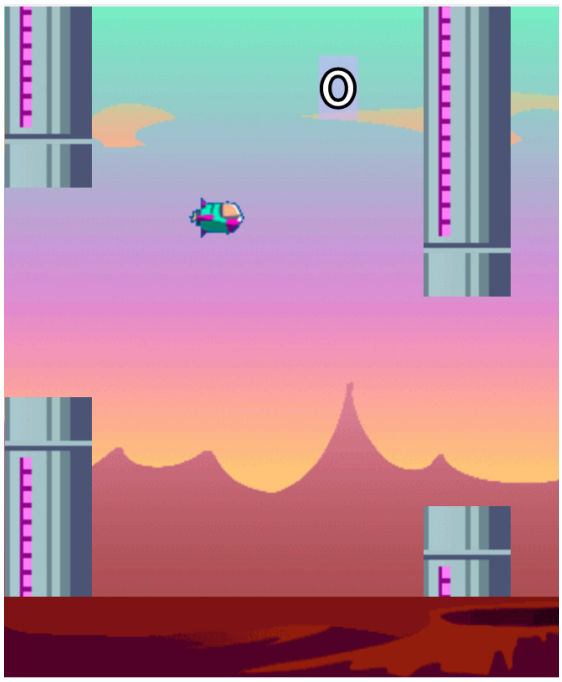
Reset
How It Works
Built on Code Studio

For my second project, I further modified the “Flappy Bird” game. Often, our students are asked to write and/or draw after reading or listening to a story. Maybe, they could create simple games to expresses their reactions. I imagined a situation where my students read a non-fiction story about NASA’s efforts to land a man on the moon before the Soviet Union. I came up with this twist on the flappy game as an example of something that students could create; it can be seen at https://studio.code.org/c/423994129. While the game itself is not teaching about the space race, it is a motivating activity that may reward students after completing their reading assignment, while helping them to understand the feelings of creativity and frustration, of the people at NASA who struggled to create something new. The students can compete against each other to succeed in games of their own creations. None of my current students could finish this activity on their own, but maybe in the “future” …





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