

Teacher Pre-observation form and conference

User Information

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Building: Mineola High School	Department: None
Grade: None	Evaluation Type: Non-Tenured Teacher
Assigned Administrator: Culella, Nicole	Evaluation Cycle: 09/01/2016 - 06/29/2017
Submitted By: Culella, Nicole	Date Submitted: 10/28/2016 11:04 am EDT
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Finalized By: Culella, Nicole	Date Finalized : 10/28/2016 11:04 am EDT

1A. What student learning outcomes/objectives and CCS learning outcomes are the focuses of the lesson? Include what data informed this (these) outcome/objective(s).

Gamemaker Course Learning goal:

- The students will understand the basics of conductivity and Makey Makey controllers by summarizing their work in a written assignment.
- The students will apply their knowledge of circuits and Makey Makey controllers by demonstrating the ability to create a basic video-game controller.

CCSS Standards:

[ELA-L.RST.11-12.3](#): Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks; analyze the specific results based on explanations in the text.

[ELA-L.RST.11-12.9](#): Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.

CSTA Standards:

CT.L3B-08 Use models and simulations to help formulate, refine, and test scientific hypotheses. CT.L3B-09 Analyze data and identify patterns through modeling and simulation.

CD.L3A-04 Compare various forms of input and output.

CD.L3B-02 Identify and describe hardware

ISTE Standards:

3.A. Plan and employ effective research strategies to locate information and other resources for their intellectual or creative pursuits.

4.C Develop, test and refine prototypes as part of a cyclical design process.

These outcomes were informed by my knowledge that understanding the relationship between hardware and software is crucial for a game designer. Since this is a topic that is new for all students, (an informal poll showed that none have done this before), all students will be starting at the beginning and receiving an introduction to the material, including a brief review of circuits.

We started our circuit review in the previous class, and will continue in the following class. Students indicated that they had studied circuits before, but that it had been a long time and they did not all feel comfortable with the subject. I will be reinforcing this knowledge with the way it specifically relates to using the Makey Makeys

In addition to meeting these technical goals, students will also be developing skills such as research strategies and testing and following multistep procedures, which are crucial skills that can be used in many disciplines. Students will need to express their learning and be able to communicate with others to create and test their work.

1B. Briefly describe the students in your class including those with special needs. How will you differentiate instruction for individuals or groups in your class to meet lesson objectives?

I have three students in the class for whom English is their second language. Early in the year, I discussed with the students their preferences for learning. The students have let me know that they prefer to have instructions given on paper, rather than orally. These students often work together through projects and do not always understand my oral directions or explanations the first time.

Another student in the class is Joe. Joe's IEP states that his reading comprehension and decoding skills are below average, therefore, Joe sometimes struggles to convert the written instructions correctly into a working program and does better with oral directions. Joe is creative and exploratory and often works alone on his projects.

I have another student, AJ, who is autistic and very quiet. AJ is respectful and stays on task, but sometimes will not ask for help when she is stuck. AJ also chooses to work alone. It was stated to me in her case that she often has trouble speaking or conversing in a group where she does not feel comfortable.

The last student with an IEP is Andre, who is diagnosed with ADHD. I have not seen any signs of this in my classroom, as this class is of great interest to Andre, and he stays on topic and is very involved in his work.

The three other students in the class are generally respectful and very interested in programming. In general the class is mostly independent work, with students asking each other for assistance when needed.

All students in the class often go above and beyond the resources given, and I like to provide them with exploratory ways that they can connect the work we do in class to their interests. Students will search the internet for ways to do advanced programming and have designed characters and games that fit their interests. In this unit, they will eventually design a controller that is especially created for the game that they have been working on in class.

Overall, there is a wide variety of students in the small class, and I align my lessons to include choice for the students. For each assignment, there is verbal instruction from me, written instruction for the students to refer to, and some also include video instruction as well. Students are also encouraged to seek out the answers to their questions from each other by working in groups or by looking online. This is a skill that I am deliberately teaching, because in computer science, it is absolutely necessary to know how to find the answer - and it is probably more important than knowing the answer itself.

Because much of the class is then independent work, I am able to go around the room to check in on students, give them individual help as needed, and to guide them towards extra topics that may be of interest to them. By allowing the students choice and flexibility in their learning styles, I am able to make sure the lesson is tailored to meet the needs of all students while meeting the minimum objectives and learning goals for the course.

1C. How does this lesson align within the current unit of study/across other units?

The current unit of study is on hardware design, which is an important component in game design. Before this unit, students learned the basics

of the Scratch programming language, and then worked to create a game for the user focusing on software user design. This unit will build upon the design elements of the previous unit, but with a focus on the tangible controller. Students will also understand the difference between hardware and software, which is a key component in computer science.

In this specific lesson, students will also understand the basics of conductivity and circuits. They will demonstrate their knowledge by creating a basic controller with a Makey Makey and submitting written information. A Makey Makey is a tool for hardware design which lets the students create their own input device. Just as we learned the scratch programming language before designing a video game, students need to know how to use the Makey Makey tool before learning how to design an input device.

After students learn how to use this tool, they can use it to extend their learning by designing and implementing their own video game controllers. This will be the culmination of this unit. The skills learned by creating the controllers will help students understand input and hardware better, and will also be helpful if they decide to pursue other computer science classes such as robotics.

1D. What instructional materials, including technology, will you employ to meet the learning outcomes/objectives of this lesson?

While there is a tutorial on Makey Makey's website, the lessons and materials created for this lesson are all create by me. This is because I did not feel there was a good lesson out there that took into account my students' current knowledge and educational goals. This is true in general for this entire course.

To deliver my materials to students, I use a variety of technology and tools to enhance my teaching. The first that I will use in this lesson is a PearDeck presentation. This will allow me to demonstrate the lesson and to receive formative assessment of students during the presentation to make sure they understood the topics from yesterday as well as the topics presented today. The application will also allow students to follow along with the presentation on their iPads so they can better see what is going on. I will also use written instructions with images so that students who prefer to do so, can walk through the instructions one-by-one. This presentation is available to students after the class, so they can review.

The second piece of technology used to deliver the material is CodeOYO. The students required and exploratory challenges are all posted on CodeOYO, and they have been logging in to complete the challenges and earn badges throughout the year. In addition to holding the challenges and badges, CodeOYO also hosts "courses" where I can upload the content for students to follow at their own pace. For this lesson, students will complete a CodeOYO challenge with the reflective questions to earn a badge of completion. Students who are unable to complete the challenge on the first time will be given unlimited retries to gain mastery. In addition, I have provided the Makey Makey information which includes the presentation and additional resources, as a course for those students who need additional instruction or review.

For building materials, we will use the Makey Makey kit, one for each student, which will allow students to interface with the computer and create their own hardware. The Makey Makey kit includes a Makey Makey, a USB cord, and Alligator clips to connect objects to the board. I will also have various creative materials, including aluminum foil, graphite pencils, fruits, vegetables, play-doh, coins, and cardboard. After guiding the students with the banana, I want them to experiment and make their controller their own. In future lessons, I will tell students that they can bring in objects from their home to support their designs.

The materials are broken into two categories, those that are necessary to create the physical controller, and those that are used for delivering information to students. The objects for the physical controller include the Makey Makey and the various props. These items are important because students are more likely to understand the connection between hardware and software and the design process if they are hands on. By physically creating hardware just as they have physically created software, they will feel connected to the entire computer process.

The other instructional materials including the PearDeck and written instructions are used for students to understand the process of the lesson. The information will be available to students in several ways (lecture, demo, written instructions, online resources, peer help and teacher help). This will help differentiate the lesson so that each student can meet the learning objective of being able to understand and use a Makey Makey so that they can later create their own hardware controller.

1E. How do your instructional strategies, including student grouping, promote higher levels of thinking and student engagement?

In the beginning of the lesson I will use a PearDeck presentation to engage the students. This class of students in particular is quiet and not prone to class discussion. There are several reasons for this, including students for whom English is their second language, students who have learning or developmental disabilities which affect their propensity towards speech, or simply introverts who are uncomfortable speaking in a classroom setting. PearDeck allows students to participate in a low-stress environment. By having students respond to the PearDeck questions, I can see who understands and who doesn't quickly. I can also use the students' answers as a springboard into a discussion, which allows me to keep students engaged and interested. This also keeps students engaged in the learning material, and I can see if students have logged off of the presentation or if they are not answering correctly.

Additionally, a hands on lesson allows students to experiment and play with materials on their own, using trial and error to determine how to connect and interface with objects. During this lesson, students are given choice as to the materials and mediums that they use to create their work. They are also encouraged to work in small groups if they would like, which allows them to collaborate or practice their explanation skills as they work together to complete the challenges and to come up with ideas for their projects. By giving students choice and having them work with their hands will keep students engaged, and the scaffolding of the assignment from a demonstration to individual work leads students to higher level thinking. Finally, the skills learned in this lesson will lead to students designing their own controllers later in the unit, which will require high-level thinking for the designing and testing process. Students will use the information they know about understanding the Makey Makey and then use it to design a controller that matches their individual game that they have programmed in Scratch. They will be given a lot of choice and leeway into creating their controller, and we will work together to achieve their vision.

1F. How do you plan to assess student achievement? Include how your assessment(s) will be a tool for future instruction.

One goal of this class is to understand the basics of conductivity and Makey Makey controllers. Students will demonstrate this by creating a circuit and summarizing their work in a written assignment on CodeOYO. The questions asked will let me know if students understand the basics of conductivity and how it relates to the creation of their controller. While I expect most students to complete the assignment today, students who cannot complete it or who show misconceptions will be able to recomplete the assignment until they earn the badge.





In class, I will be able to monitor achievement first through the PearDeck Questions. Students responses will appear on my iPad, and I will be able to know if there are large misconceptions in the class, or if a few students are not understanding (and who those students are). I will be able to modify my instruction given to the class in real time.

The second way I will be able to monitor achievement is by watching students create their circuit controllers. It will be very clear which students are working, which students are off task, and which are struggling. This lesson in particular is very obvious when students have mastered a concept because I will hear their computers making noise. Since students will be working independently, I will be able to walk around, monitor progress, answer questions, and seek out students who do not seem to be making progress or who are drifting off-task.

I will work with students who struggle with the assessments next class, to give them a mini-lesson to increase their understanding and to try to

Lesson Plan and Pre-observation Artifacts

Please upload Lesson Plan and Pre-observation Artifacts below.

Artifacts						
Name	Upload Date	Upload User	File			
Lesson Plan	10/12/2016	DiFede, Kuri	edit			
OYOClass Challenge	10/23/2016	DiFede, Kuri	Screen_Shot_2016_10_23_at_4_2...			
PearDeck Presentation	10/12/2016	DiFede, Kuri	view	