Mobile Lesson Plan

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Background

- **Content Area**: Computer Technology
- **Title**: Intro to Programming
- **Grade Level or Target Group**: 6th and 7th grade

Pre-Planning

- **Big Idea(s)**: The goal is to provide students with a hands-on, easy to understand introduction to the general ideas behind computer programming.
- **Essential Questions**: What is computer programming? How can we create instructions that a computer will understand?

Objectives

- Students will be introduced to the basics of computer programming
- Students will explore simplified, hands-on, interactive applications which demonstrate the foundational concepts of computer programming

Summative Assessment

Assessment will come in multiple parts. First, students will take screen grabs at various times throughout the three apps we will be using. These screen grabs will show that the students understand the fundamental computer programming concepts these apps demonstrate.

Second, students will write a short reflection over each of the three apps they use. This reflection will discuss what they learned, what they liked, and how they might use these apps in the future.

Lesson Opening

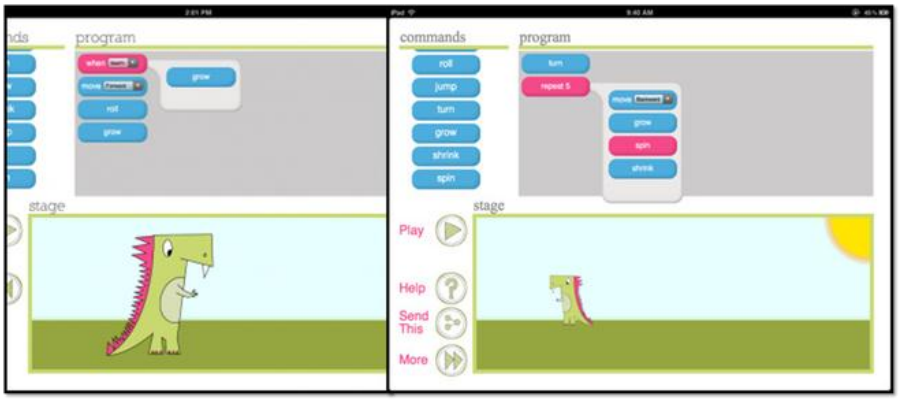
This lesson will take place using a classroom set of iPads. Throughout the lesson, students will use three different apps. The first of these (the hook) will be Cargo-Bot.

Cargo-Bot is a game that teaches players the basics of computer programming in a fun, easy to understand environment. The goal is to move a stack of colored boxes from one stand to another using a series of repeatable instructions. Students will quickly grasp the goal of the game and through playing, they will begin to understand the basic ideas behind computer programming. Playing this app will be paired with a classroom discussion over key questions and the challenges students are facing in the game.

Lesson Body

Explanation:

The next app students will use is called "Daisy the Dinosaur." This app allows students to create basic programs with a sprite named "Daisy." There are two modes for this app – Challenge Mode, which teaches the students the basic concepts of programming and how to use them; and Freeplay mode which lets the students explore and create unique programs on their own. This app will also be paired with a formative assessment in which students will answer questions on how they successfully programmed Daisy to overcome obstacles.



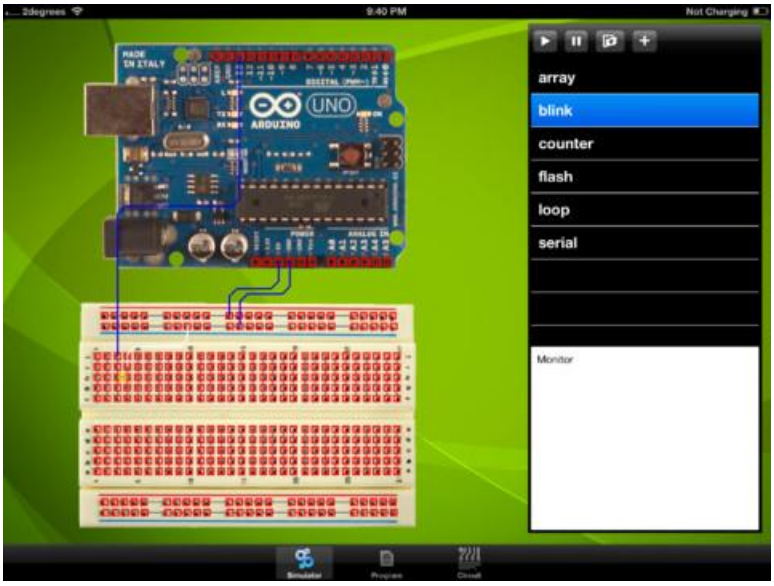
Check for Understanding:

To check understanding, students will use the app "Move the Turtle." This app takes what the students learned in Daisy the Dinosaur (the basics of computer programming and sprite interaction) a step further. There are more commands, more variables, and, like cargo-bot, it is structured like a game.

Students will work their way through the various levels will writing a reflection over similarities and differences between this app and the first two. Additionally, Students will also write a culminating reflection after using this app which will discuss their current understanding of computer programming.

Extended Practice:

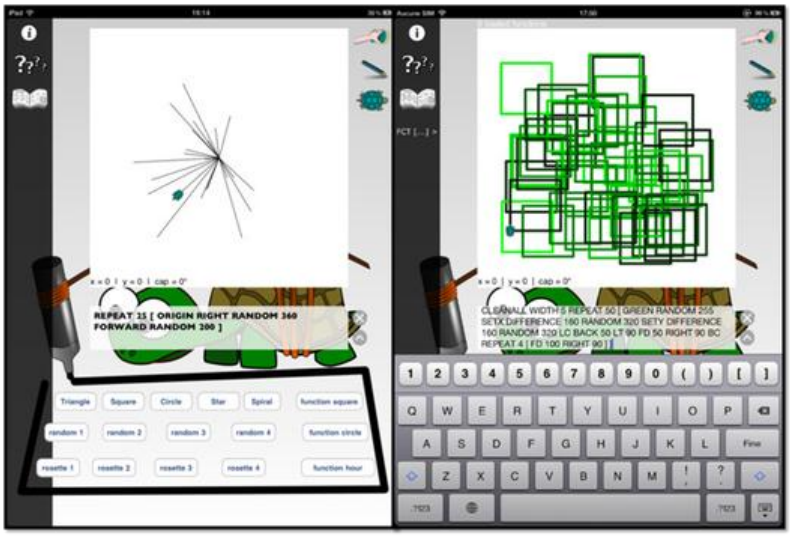
For those students who want some extended practice, or who have serious interest in computer programming, they will work with the app, "Simduino." Simduino is a virtual arduino processer and with this app students can start digging into actual programming code. The interface is simple but the possibilities for coding are pretty huge. This app would only be for those students who show a serious interest or for the higher level students who finish the rest of the work early and need a more challenging experience.



Closing

Lesson Closing:

The final app students will use is "i-logo." Using the coding language LOGO students will create several images or patterns. LOGO is a computer language that has been in use since the late 60's and this app brings the language into an easy-to-understand educational environment. Much like before, as students use this app they will have questions to answer and we will have a class discussion upon completion.



At the end of this lesson, students will be familiar with the basics and intermediate ideas behind computer programming. Additionally, these apps are the perfect preview for more advanced computer programming software such as Scratch or Alice.

Materials

- Classroom set of ipads ($10,000)
- Cargo Bot app (free)
- Daisy the Dinosaur app (free)
- Move the Turtle app ($2.99)
- Simduino app ($1.99)
- i-logo app ($1.99)

References

De Haan, Jack (2012). "Best apps to teach programming" Retrieved online from: http://www.techwithintent.com/2012/07/5-best-ipad-apps-to-teach-programming/