

## **GenCyber Teacher Camp Follow Up- Feb 10, 2018**

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8:30-8:45- Joyce

### **Welcome and Introductions**

We have some new friends joining us today. Please share your name and school, and a little something about yourself. We have placed you in teams of two. This morning as we work on a few activities, you will remain with your partner. In the afternoon, you will have the opportunity for independent exploring. You can remain with your partner, join another team, or work independently.

### **Human Boolean Activity**

George Boole, an English mathematician in the 19th century, developed "Boolean Logic" in order to combine certain concepts and exclude certain concepts when searching databases. Boolean logic is a system of showing relationships between sets by using the words AND, OR, and NOT. Boolean logic is recognized by many electronic searching tools as a way of defining a search string. The Boolean operator AND narrows a search. The Boolean operator OR broadens a search. The Boolean operator NOT excludes words from a search.

### Directions

- Choose another participant in the room (don't say who it is)
- Identify characteristics of that participant
  - Brown hair
  - Blue eyes
  - Not wearing earrings
  - Wearing jeans
- Come up with a Boolean statement that describes that participant
- When you have completed your statement, we will take turns calling out the statement to see if only one person matches your logic.
- Example- Will the student with brown hair AND blue eyes AND a blue shirt OR blue jeans NOT wearing earrings please stand up?

8:45-9:45 AM- Joyce

### **Bloxels Demonstration and Exploration**

For this activity, we will introduce how to use Bloxels, following the guidelines in this introduction. After we complete this first activity together, you will have time to create additional boards and make your own modifications. If one hour is not enough time, you will have additional time later this afternoon to continue working.

#### **Demonstration**

We will work together to complete the Bloxels tutorial. Keep this tutorial as reference if you would like to use it later on with students.

#### **Exploration**

Once we finish the Demonstration, continue exploring with your partner until 9:45

9:45-10:00 AM

#### **Break**

Use this time to clean up the Bloxels, stretch, and take a break  
Let's take a group picture during this time as well

10:00-11:30 AM- Lauren

### **Introduction to Circuit Playground/ code.org CS Discoveries course**

For this activity, we will introduce you to Unit 6 - Lesson 5 in the CS Discoveries course on the code.org website. This Lesson focuses on learning how to use the Maker Toolkit on code.org to program your circuit playground. At the end of this lesson, you will be able to complete a challenge with your partner. We will get you started, then you and your partner can move independently through the lesson. We will be around to assist if you have questions. If you don't complete the challenge within the timeframe, you can finish it during the independent time later on in the day. After lesson 5, there are additional lessons which also involve the use of components on the circuit playground not covered in this lesson.

#### **What is a Circuit Playground?**

<https://code.org/circuitplayground>

There are several different ways to program the circuit playground. Today, we will be using the Code.org maker toolkit.

### **Code.org Curriculum**

<https://studio.code.org/courses/csd>

In order to access the code.org curriculum, you will need to log into the website

### **Maker Toolkit**

<https://studio.code.org/maker/setup>

### **Aligned to CSTA K-12 Computer Science Standards**

<https://www.csteachers.org/page/standards>

#### **AP - Algorithms & Programming**

- 2-AP-11 - Create clearly named variables that represent different data types and perform operations on their values.
- 2-AP-13 - Decompose problems and subproblems into parts to facilitate the design, implementation, and review of programs.
- 2-AP-16 - Incorporate existing code, media, and libraries into original programs, and give attribution.
- 2-AP-19 - Document programs in order to make them easier to follow, test, and debug.

#### **CS - Computing Systems**

- 2-CS-02 - Design projects that combine hardware and software components to collect and exchange data.
- 2-CS-03 - Systematically identify and fix problems with computing devices and their components.

11:30 AM -12:30 PM

### **Lunch on your own**

12:30-1:00 PM- Lauren and Marguerite

### **Share what you are doing (cybersecurity and computer science lessons/training) back at your schools**

We are curious to know what you are teaching or learning back at your schools. If you have resources to share, let us know and we will collect them to place in the Blackboard Course.

1:00 – 2:45 PM- Lauren and Marguerite

### **Exploration time**

This is your time to explore. Complete just one activity, or try a few. The choice is yours. Please note that many of these tools are new to us as well. Some of which, we haven't had the opportunity to explore. If you find that you have questions that we are unable to answer, write them down and we will do some additional research, then get back to you. As you are exploring, think about how you could use these items back in your classroom, so you can share your ideas with others

- **Continue exploring Bloxels**
  - Tutorials are located at <http://kids.bloxelsbuilder.com/all-tutorials/>
  - Manual for working with Bloxels-  
<https://static1.squarespace.com/static/54d26ef1e4b010d0584740ef/t/582a41961b631b2b4abca366/1479164317941/bloxels-guidebook.pdf>
  - Support- <http://www.bloxelsbuilder.com/support/>
  
- **Continue exploring Circuit Playground and the code.org curriculum**
  - Continue working on what you had started or use the resources above to work on the code.org CS Discoveries course
  
- **Explore using Mbot robot**
  - Since the robots are already put together, turn to page 11 in the Mbot manual
  - Try moving the robot around the room with the remote
    - Turn on the robot and wait until the lights on top turn white.
    - Click the gear key in the middle of the remote control.
    - Use the arrow keys to move the robot around the floor.
  - Try using the robot in obstacle mode
    - Press the on board button until the lights on the Mbot are green
    - Watch the Mbot avoid obstacles
  - Try using the robot in line following mode
    - Press the on board button until the lights on the Mbot are red

- Place the robot on the figure 8 paper provided in the Mbot box.
  - Try programming the Mbot using the MBlock app on the iPad.
    - The robot will need to be connected to the iPad through Bluetooth. The app will tell you when this needs to be done.
    - Follow the directions on the app to complete the challenges to program the Mbot to move. There 10 sets of challenges you complete that build skills as you go
    - Choose the Create icon on the main page of the app to create your own program for the Mbot
- **Explore using the BoeBot robot (middle/high level)**
  - The BoeBot is programmed with Arduino software
  - Use the directions booklet to build a robot
  - Use the Robotics spiral bound book to begin programming your robot.
  - For an extra challenge, program your robot to go through the blue tape maze in the main room of the ITC
- **Try the Kano computer**
  - The Kano is a computer that you can build and modify, and is recommended for students in grades 4-8
  - The Kano is powered by a Raspberry Pi. Learn more about the components of a Raspberry Pi by viewing this diagram-  
[https://drive.google.com/file/d/0B\\_hLHkhz3JRIOWduNFNaVHRWTEE/view](https://drive.google.com/file/d/0B_hLHkhz3JRIOWduNFNaVHRWTEE/view)
  - Complete the “Make a Computer” directions in the Kano box to put the computer together
  - Plug the Kano in, and set it up with the keyboard. (Note, you may need to turn the keyboard back on)
  - Use the yellow HDMI cable to plug the Kano into either the Smartboard, or one of the TVs in the main ITC room as your source for a monitor
  - Wait for the Kano to start up and then follow the instructions!
  - Have fun!

- When you get to the screen with multiple apps, choose one and then choose a challenge to walk through how to complete them. We suggest the art app.

Note that if you are asked to connect to wireless, you will not need to for the purposes of what we are doing today

- More information can be found at <https://kano.me/educators/getting-started>
- Explore Kano lesson plan- <https://docs.google.com/document/d/18hBrXh6VKOyG2eNmiWEtX2CH62SS4aPOndQ8V-rpJaM/edit>
- Other Kano lesson plans- <https://kano.me/educators/lesson-plans>
- Kano Hour of Code activities- [https://static.kano.me/assets/hour-of-code/hoc-teacher-support-materials.pdf?\\_ga=2.36909603.203155155.1517930602-861327198.1517930602](https://static.kano.me/assets/hour-of-code/hoc-teacher-support-materials.pdf?_ga=2.36909603.203155155.1517930602-861327198.1517930602)

- **Learn How to Solder**

- Written directions on how to solder- <https://www.sciencebuddies.org/science-fair-projects/references/how-to-solder#overview>
- Soldering video for beginners- <https://www.youtube.com/watch?v=Qps9woUGkvl>
- A few more short soldering videos- <https://www.howcast.com/videos/504734-how-to-solder-surface-mount-components-soldering/>

- **Explore the coding board games**

- Robot Turtles
- Code Master
- Monkey Island
- Robot Wars
- Cntrl-Alt-Hack

2:45- 3:15- Marguerite

### **Sharing**

Share what you learned today and how you will use it back at your schools.

3:15-3:30- Lauren

### **End of Day Wrap Up**

Thanks for spending the day with us. We should know in another few weeks whether or not we received funding for another GenCyber Teacher camp this summer. If we did, there would be the opportunity to return, or the opportunity to recommend others who might be interested. Please continue to be ambassadors of the GenCyber program and share the word with others about cybersecurity principles.

### **How to check out items from the ITC**

Now that you have learned how to use some of these tools, we would like to remind you that you have the capability to check them out from the ITC to use in your classrooms. Lauren will explain the checkout procedures.

### **ITC Equipment Checkout for Local Area Teachers**

#### **Unofficial Policy**

Winthrop University is proud of the connections and support the College of Education provides to local area schools and their teachers. The Instructional Technology Center is committed to serving these teachers and assisting with their in-classroom technology needs. In order to continue to provide this support, the ITC asks that teachers follow a few policies, to ensure a smooth and fair equipment checkout process for all of its patrons.

1. Due to the responsibility associated with checking out and using ITC equipment, local area teachers must currently be involved with the University, in some capacity. This could include attending professional development sessions throughout the year, working as a host teacher to one of our students in the educator preparation program, or working with a Winthrop faculty member who is a WIFR at your location.
2. Teachers who would like to borrow equipment from the ITC must attend a professional development training on proper use of the items. ITC Director Joyce Camp will have a list of teachers who have successfully completed the appropriate training.

3. Winthrop students will have priority access to ITC equipment. During the months of October, November, February, and March, local area teachers may not be allowed to checkout or reserve equipment, due to high student demand.
4. Equipment may be checked out for the standard one week checkout period. Teachers who have requested items must come in the ITC in order to checkout their equipment. Teachers will also be required to return to the ITC to check-in their equipment by the due date.
5. At checkout, the local area teacher will need to sign a form agreeing to comply with the standard ITC policies and procedures regarding appropriate use of the equipment, damaged or missing items, and late fees.