**Creative Computing with **

**Explore Kano!**

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*Students after building the Kano Computer will take time to understand the software inside the Kano operating system and explore some of the features to get to know it!*

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| **Title:Explore Kano!**  **Time: 1 hour**  **Level: Beginner** | | |
| Learning Objectives:   * Learners will grasp the difference between hardware and software * Learners will understand how the Kano computer Operating System works * Learners will gain an understanding of the different uses of code * Be able to use code to make basic creations | | |
| * Key Stage 1: recognise common uses of information technology beyond school * Key Stage 2: use technology safely, respectfully and responsibly * Key Stage 3: understand the hardware and software components that make up computer systems, and how they communicate with one another and with other systems | | **Standards:**  **UK National Curriculum** |
| * CSTA: Computing Practice & Programming (CPP): 5. Implement problem solutions using a programming language, including: looping behavior, conditional statements, logic, expressions, variables, and functions. * [CCSS.MATH.PRACTICE.MP1](http://www.corestandards.org/Math/Practice/MP1/) Make sense of problems and persevere in solving them. | | **Standards:**  **US Common Core Math and CSTA** |
| **Materials Needed:** | | |
| **Linking: 8 min**  Remember building our computers and learning about hardware and software?  Remind learners that a way to help you remember the difference with think of hardware as a physical device. Something you can touch and put in your hands. Software you can’t do the same thing. It lives inside your computer or in another device.  Today, we’re going to dive into software and start coding. Ask learners what they have heard about code - what is it? what are some coding languages they’ve heard of? List a few on the board - including:  Scratch  Coffeescript (Make Art)  Python (Make Snake)  Kano Blocks (Make Minecraft, Make Pong)  HTML  Javascript  CSS  Swift  You can use this resources to help you discuss [code](http://www.bbc.co.uk/guides/zykx6sg) with your students. When they powered up Kano, they saw something called “binary code.” Computers think in 1s and 0s. Humans don’t! In order to speak to computers, we need code!  **Engage: 2 min**  Get excited! We want to use code to be creative - you can do all sorts of things with code! Watch [this video](https://vimeo.com/134310677) on coding at Pixar. | | |
| **Collect Kanos:** 5 min  **Retrieve Computers, Turn On, Log In..** | | |
| **Exploration Activities:** (35 min)    **Challenge 1: Explore Make Art!** (15 min)  Once the Kanos are powered on have the learners go to Make Art. Have them try out the basic activities like code a flag. Show them how they can “hack” challenges by changing sizes or colors as well! If your learners have a Kano World account ask them to share!  **Challenge 2: Explore Make Snake!** (10 min)  There are a lot of different apps on the Kano Computer. But can you hack a game? Yes! Now, let’s exit out of Make Art and go to Make Snake. If your group is young, tell them that snake was a wildly popular game on phones where you were a snake moving around the board eating apples or little dots. It was very basic, but now they get to hack it and make it challenging with code! Don’t forget to share your game with Kano World!  **Challenge 3: Explore Make Pong!** (10 min)  How about one more game? This time let’s hack Pong! Again, this was a very popular game (the first video game) and we can hack it to be AWESOME now! This platform is a little different than Snake. Instead of just using lines of code we can use block code similar to Scratch to customize the game! Don’t forget to share your game with Kano World! | | |
| **Evaluation: 5 min**  Tell the learners to get into pairs and talk about which of the 3 games they liked the best. If they haven’t already, as them to share what they’ve created via Kano World! Each pair can share what they liked best and what was most difficult.  Come up with a class definition for “code,” and list a few things that you can create using code. | | |
| **Kano Cleanup:** 5 min  **Power down and put away the Kanos** | | |