2019 Resources from Participants

Aus Baraam	Swift CCC	I know a lot of us who teach CS love the CCC (Canadian Computing Competition). Waterloo has done, and continue to do, a great job in creating these fun and interactive CS challenges. However, the CCC doesn't support all languages and as some of you know, there are many new and upcoming exciting languages taking over in popularity. I took upon myself to translate a few of the CCC into the Swift programming language. Included in the zip file, you will find 20 playground files covering 10 past CCC. I have included a challenge playground file (which only houses the question and the .in files – can be given to students as an assignment or test) along side 10 playgrounds providing the solutions. Hope you enjoy!
Clark Chernak	Dot.con	Title - Dot.Con Air Date - Thursday, June 9, 2016 at 9 PM CBC-TV Link to video - https://www.cbc.ca/doczone/episodes//dot-con The internet has allowed criminals and scam artists easy access into our homes. This CBC doc follows the victims, con artists, and the police investigations into a growing phenomenon. This resource will show how social media allows criminals to collect vital information to trick their victims to perpetrate these online crimes. Identity theft and the most popular scams Canadian's fall victim too, including the "Granda Scam", are highlighted and exposed. This resource will open your students eyes and make them more responsible digital citizens.
Velia Kearns	Flowchart Lesson and Practice Problems	A lesson plan that can be used when teaching/practicing how to create flowcharts. An activity with word problems where a "Thinking Classroom" strategy can be used. Student worksheets and a teacher Copy with examples of answers are provided.
Patrick Pichette	Wireless Configuration	Students apply networking concepts for configuring a wireless router that includes wireless security, IP configuration, and basic network security.
Cassandra Postma	Intro Java Tasks	This resource contain a few java programming task ideas. The tasks cover

		introductory topics such as while loops, nested for loops, methods, file io, and 2D arrays. These tasks are great to use as an end of unit assignment before a test.
Kevin Reid	OmniChair Project	Two of my senior students wanted to create a project for a local robotics competition - open in nature about the requirements for entering. They chose to create an omnidirectional wheelchair. I have included their submission to the contest and I have included what I think would be most useful for other teachers, an interface guide to join an Arduino and Raspberry Pi. This guide includes information to start from scratch and join these two boards and use programming to control devices.
Andrew Smithe	How to use Moodle's VPL	Moodle's VPL tool allows students to edit and submit code online. These slides walk you through how to set up dynamic test cases to run the code against and automatically grade it. It also has functionality to check for similarities between different submissions.
Karen Spindler	JavaFX Activities	This is a unit I do at the end of my ICS3U course for students interested in learning JavaFX. It introduces the bare minimum skills for creating a JavaFX program, as well as some sample code with explanation.
John Tam	ICS3U Guess Who Conditions Assignment	In my ICS3U course, I introduce the following concepts in this order: variables and use of variables, conditions and then loops. One of the challenges was to have an assignment on conditions, but without the knowledge of how to loop something. The assignment I created is a "one-way" Guess Who game where the user selects a certain character from a "board", and the program proceeds to ask the user questions until it pinpoints exactly who the character is. The initial goal is to be 100% correct, but for the more advanced students, I discuss factors such as a balanced decision tree in order to ask the minimum number of questions regardless of who the user picks. This also is the beginning of emphasizing the importance of planning out your program before coding. The students are asked to come out with a dichotomous key to their solution. Ideally, I would have loved to combine this assignment with a grade 11 Biology assignment our school does with Dichotomous keys, but I discovered that the one they come up with in

		Biology is not very extensive. Since I use C in ICS3U, the students get a good experience dealing with squiggly brackets {} in terms of matching them up. I also emphasize the importance of indentation, and nested indentation as the conditions gets more nested for code readability. I started off this assignment with a few "boards" the students can choose from, but over the years, students have found online that I have permitted them to use as well. I have included all the boards that I have collected. I have also included a marking rubric for the assignment.
Richard Van De Wiele	Movie Review - Documentary "Triumph of the Nerds"	Movie Review Assignment for the documentary "Triumph of the Nerds" with rubric. Can be easily modified for other documentaries.
Peter Beens	Turtle Graphics using Python	This presentation is an introduction to Turtle Graphics using Python. Also included is a cheatsheet with introductory Turtle Graphics commands. It is a tutorial Chad Whittington and I presented at the 2018 OSSTF "Embracing Technology Conference", created as part of a DSBN (District School Board of Niagara) learning team initiative where we developed PD resources to share with other teachers. The documents are included in PowerPoint and Excel format but I am also including the URL of the original Google documents below. Presentation URL: https://docs.google.com/presentation/d/1j6JL_6iSVIFOT_5i7XI59WawVgNjds_guT_I0ZqeJO0/edit?usp=sharing Cheatsheet URL: https://docs.google.com/spreadsheets/d/1itp51BC35gBRwCogGI9b7Jlk39ihVpr7BjZ1-o-JO7g/edit#gid=0
David Crowley	VPython for Physics Students	#Background I am a converted physics and science teacher. This year I will be teaching

		my first computer science and robotics courses. The resource I am sharing is one that I found when trying to implement some elements of coding into my SPH3U physics classes. It is authored by Rhett Allain, a physics professor at Southeastern Louisiana University, a popular columnist at Wired.com (often doing video analysis of movies to test the physics) and a consultant for the new McGyver TV series. #Coding resources The code uses a modified version of Python called VPython that makes 3D modeling fairly straightforward. It can be run locally, but is often used entirely online (see: Glowscript.org or Trinket.io). All the links in Mr. Allain's public resource are for Trinket.io. #Teaching methodology Since the resource is geared towards physics students and teachers, it is based on editable code and starter code. Students are then asked a variety of physics-related questions that make them engage with the code in increasingly more complex and complete ways. The goal is both a better physics understanding and a better grasp of basic coding ideas (such as declaring variables, arrays [VPython has a special array of size 3 called vec that is used for 3-dimensional vectors], loops, vector and scalar arithmetic, displaying results, real time interactivity).
Esteban De Los Santos	Robot Drive Autonomous Assignment with Ultrasonic Sensor	Students will program the Lego NXT (or EV3) to perform a set of actions as it follows the sequence shown on the different pictures in the handout. For this purpose, they will use the ultrasonic sensor, and the two motors present in the robot.
Paul Guse	Embedded Programming with CircuitPython	This resource is an introduction to embedded programming with Adafruit's CircuitPython using two boards: the Circuit Playground Express and the ItsyBitsy M4 Express. Example programs and challenges use light and temperature sensors, NeoPixels, and breadboard circuits including resistors and LEDs. Resources/links are provided so that you can progress beyond this basic introduction.
Joseph Indovina	Robot Revolution	This is a worksheet including short web clips from a documentary series about how the field of robotics will change the way we work and interact with one another. It includes multiple short questions to assess learning and

		ends with a cumulative art piece summarizing what the student has learned.
Ahmed Islaih	Digital Citizenship	Digital citizenship is focused on helping people including kids and youth live meaningful lives in the digital world. More precisely, it helps them maintain their safety, privacy and wellness while living and interacting online.
Owain Jones	Logic Lab (Boolean Challenges)	This is a set of logic challenges using a website called Logic Lab. These problems can be used to reinforce boolean logic, students can also demonstrate different representations of logic (e.g. Truth Tables) They can also use boolean algebra to simplify the circuits. Eventually they can incorporate flip-flops into their work. The problems increase in difficulty.
Chuck Kemp	JavaFX	Three introductory resources for teaching JavaFX. JavaFX is the current GUI framework for Java. I use this in grade 12 (ICS4U), but could be used in 11 (ICS3U) if you want to start GUI earlier.
John Osborne	Virtual Slot Machine - Python	This is a virtual slot machine program using Turtle and Python. It includes how to respond to events and make use of the graphical features of Turtle.
Frank Rankin	ICS 3C Final Exam	Final Exam for ICS 3C course - Python programming language.
Roma Uniat	Introduction to Arduino Labs	This is a unit on introduction to Arduino boards and programming in the form of labs. It includes pdf instructions and questions for students. A one page doc to summarize the labs and the main learning elements. There is a slides presentation to summarize each lab with learning goals and common mistakes. A checklist to track student progress and a pdf quiz as a summative.
Nathan Wensink	Privacy and Cookies	This is a video about privacy and cookies on the internet for the ICS20 course
Peter Conlon	List of Cities	This assignment is appropriate for an ICS 3U1 group when they have learned to code with Arrays and Lists. It could also be used as a review assignment for the ICS 4U1 course. The main focus of the problem is the use of Arrays and / or Lists. The solution also requires knowledge of String methods. They are required to read data from a text file.

		The sample solution is coded in java.
Jill Harris	Binary/Octal/Hex	This is a TEJ3MI 2 lessons on Binary/Octal/Hex at the beginning of the unit. The documentation refers to where you are going in the following lessons, but they are not included. The first lesson is very basic, power point, some examples on the board and worksheets. Pretty boring, but the next day is a room, area of school hunt. This everyone has fun with. Prepare early and get teachers permission to visit their class rooms. If your school is a maze of cubby holes, students by grade 11 still don't know where everything is. Send ESL and ELD students to ESL teacher's first, students with IEP's to resources first and student success etc. I tend to do this in pairs. I've included my sheets, but you will need to change room numbers to fit your school. (Don't forget VP's and Guidance, support staff too.) Note: I send the teacher's their room number so they may check - some do some don't.
Angie Hildebrand		
Catherine McCaffery	Under 40 - Dice Game	Game was designed with the Gr 11 ICS 3U/C class in mind and is scaffolded to both demonstrate various programming skills (decisions, loops, methods etc) and encourage the breakdown of a problem into various smaller and manageable pieces (ICS 3C class does not complete the arrays section) Coding can be done independently or started independently and then integrated with partners/groups at the methods stage by using the designs and ideas of multiple people There is a checklist included for both student/teacher use if desired
Christin Ruza	Student Debate on the Impact of Computers on the Environment and Human Health	This presentation organizes a student debate about the impact of computers on both the environment and human health. Both files are identical; one is in Keynote format and the other in PowerPoint format. The debate addresses curriculum expectations in ICS 3UI and ICS 4UI.
Donn Pasiliao	Website Planning for ICS2O	This is a project template we used for ICS2O that guides students on how to plan their webpages. It was designed using the IB MYP Design Framework and was used to teach a mix of grade 9 and 10 students.
Raj Nachimuthu	Moodle VPL Tool	This is a final project for TEJ3 / 4M using Arduino. It uses a keypad and a

		seven segment display. It has project outline and templates for the report.