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| **Topic/Duration** | Adding Increment to range() / 60 mins |
| **Priority Standards** | **Georgia Music Technology Standards:**   1. [**MSMTC6.CR.1**](https://case.georgiastandards.org/f3b94c72-9c0d-11e8-b85c-3b1a3079ae6e/) Generate musical ideas for various purposes and contexts.   **Georgia Computer Science Standards**   1. [**MS-CS-FCP-4.8**](https://case.georgiastandards.org/00fcf0e2-b9c3-11e7-a4ad-47f36833e889/82d5d495-4977-4fb6-af1a-3f74fba6e5bf/576) Create a computer program that implements a loop. |
| **Supporting Standards** | Georgia Music Technology Standards:   1. [**MSMTC6.CR.2**](https://case.georgiastandards.org/f3b94c72-9c0d-11e8-b85c-3b1a3079ae6e/437e30dc-fc39-11ea-becb-0242ac150004/1934)Select and develop musical ideas for defined purposes and contexts. 2. **[MSMTC6.CR.3](https://case.georgiastandards.org/f3b94c72-9c0d-11e8-b85c-3b1a3079ae6e/85317462-fc39-11ea-aa0f-0242ac150004/1936)** Evaluate and refine selected musical ideas to create musical work (e.g. arrangement, composition, improvisation, mixed-media project, orchestration, sound design) that meet appropriate criteria.   Georgia Computer Science Standards   1. [**MS-CS-FCP-4.1**](https://case.georgiastandards.org/00fcf0e2-b9c3-11e7-a4ad-47f36833e889/ac4b16a7-8293-41d0-b699-3bcc99695fd0/569) Develop a working vocabulary of programming including flowcharting and/or storyboarding, coding, debugging, user interfaces, usability, variables, lists, loops, conditionals, programming language, and events. |
| **Student Facing Goals** | Students will be able to....   * use Soundtrap to write a melody and import it to EarSketch. * utilize a third parameter for the range() function to control the incrementing of a for loop. |
| **Essential Question & Enduring Understanding** | **How can we add variation to our drum beats?**  *By utilizing a third parameter in the range() function, we can increment for loops by numbers other than 1, allowing us to have more control over how the for loop is executed.* |
| **Evidence of Learning** | **Summative**: Students will create a complex drum beat by using makeBeat() and for loops with a 3-parameter range() function, then use fitMedia() to complement it with other instruments. |
| **Materials** | EarSketch  Soundtrap |
| **Vocabulary** | * **Parameter:** A variable used in a function definition. In EarSketch, a parameter may be a sound name, track number, etc. * **Argument:** Information given to a function when it is used. Arguments fill in the place of parameters when using a function. |

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| **Resources** | |
| [Example EarSketch script](https://earsketch.gatech.edu/earsketch2/?sharing=SprP7TxlvobdxGPtRTPQ7A) |  |

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| **Teacher Preparation** |
| 1. Understand the difference between a parameter and an argument. 2. Review PowerPoint in order to be familiar with the example scripts. |

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| Lesson Implementation |

Lesson

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| **Engage / Explore: Making Connections Time: 10 Minutes Slide: *4*** | |
| **Section Goal:** Students will learn about song transition techniques. | |
| **Student Activities**   * Participate in a discussion about how to transition between sections of a song. | **Teacher Activities**   * Facilitate discussion on song transitions. Potential topics to discuss include the purpose of song transitions and song transition techniques including but not limited to:   + Dynamics: crescendos that lead to transitionary material.   + Silence: tracks that stop simultaneously to introduce a new section.   + Instrumentation: soloing an instrument and layering new material over previously heard material.   + The buildup/tension: layering instruments, sounds, and effects together.   + Fills: improvisational rhythmic transition (drum fills will be covered in the Explain section). |
| **Coding Connections: N/A** | |

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| **Explain: Understanding Time: 10 Minutes Slides 6*-13*** | |
| **Section Goal:** Students will understand the importance of variation in music as well as how to introduce variation in their own songs. | |
| **Student Activities**   * Make note of vocabulary and participate in class discussion. | **Teacher Activities**   * Introduce the concept of variation in music. Discuss why musicians might want to add variation in their drum beats and songs. Encourage students to think about listener interest throughout the duration of a song, the development of musical ideas and thematic material, and variations’ role in the interplay between repetition and contrast (i.e. repetition doesn’t feel as boring if the material is varied). * Vocabulary overview. Make note of the difference between a parameter and an argument. * Introduce the *step* parameter of the range() function. The step parameter allows for loops to increment by numbers other than 1 (Slides 8-12). |
| **Coding Connections: Parameters vs arguments. Additional parameter for range(). Incrementing by non-1 values in for loops** | |

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| **Elaborate: Apply your Skills Time: 30 Minutes Slide: *14*** | |
| **Section Goal:** Students will demonstrate their understanding of the step parameter of the range() function by creating complex drum beats using makeBeat(). | |
| **Student Activities**   * Create a drum beat that alternates beat strings by using a for loop that increments by 2. * Use fitMedia() to add sounds from the browser to accompany their drum beat. | **Teacher Activities**   * After students have been introduced to the step parameter of the range() function, introduce the alternating beat strings activity. * Instruct students to create a drum beats that alternates beat strings in increments of 2 (every other measure). Make sure students are focusing on proper implementation of the additional range() parameter before they move onto additional instrumentation with fitMedia(). |
| **Coding Connections: makeBeat(), strings, for loops, and range() with 3rd parameter** | |

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| **Evaluate:** Assessment / Wrapping Up  **Time: 10 Minutes Slide: *15*** | |
| **Section Goal:** Students will evaluate and share their completed EarSketch scripts. | |
| **Student Activities**   * Share completed scripts with a partner and provide each other with feedback regarding the drum beat. | **Teacher Activities**   * Play student examples on the projector and offer positive and constructive feedback. |
| **Coding Connections: N/A** | |