**Lesson created by the GMU-ODU CSforAll Team. For more information about**

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| **Unit 4 Lesson 2: Decomposition** *5th & 6th Grade* | | |
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| **Concept: Decomposition** | | |
| **Vocabulary:**   * Decomposition * Summary * Create a Clone | | |
| **Narrative/Summary:**  In this lesson, students will be guided through Level 5 of Coco and new features and blocks in Scratch. | | |
| **Lesson Objectives (learning targets): I can…**   * Identify and use Event Blocks and “Create a Clone” Block * Write, review, and edit your new story in Coco Level 5 * Plan and self-monitor in Coco Level 5 (Columns 2, 3, 4) * Share your plan with a partner and modify plan based on feedback | | |
| **VDOE ELA Standard(s)** | **VDOE Computer Science Standard(s)** | |
| The student will write in a variety of forms to include narrative, descriptive, opinion, and expository.  a) Engage in writing as a process.  b) Identify audience and purpose.  c) Use a variety of prewriting strategies.  d) Use organizational strategies to structure  writing according to type.  g) Use transition words to vary sentence  structure. | The student will construct sets of step-by-step instructions (algorithms) both independently and collaboratively using sequencing and using loops.  The student will construct programs to accomplish a task as a means of creative expression using a block or text based programming language, both independently and collaboratively using sequencing and using loops.  The student will analyze, correct, and improve (debug) an algorithm that includes sequencing, events, loops and variables. | |

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| **Materials** |
| **Lesson materials:**   * Chromebook/Laptop * Internet Access * [Coco Link](https://wego.gmu.edu/scratchgo/login.php) * [Scratch link](https://scratch.mit.edu/) * Teacher slide deck * [SWBST & CoCo graphic organizer](https://www.dropbox.com/scl/fi/8tappiekkn103upaxr0dz/SWBST_CoCo-graphic-organizer.docx?dl=0&rlkey=yk2tv9fkha68o7o30asky3wsn)   **Supplemental resources:** |

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| **Lesson Structure and Activities** |
| **Note for Teachers:**   * **Prior to beginning this Unit,** be sure to assign your students a story in CoCo, using **Level 5.** * **Please use the following naming strategy for assigning the story in CoCo:**   + “Unit # + Descriptor”, for example, “Unit 4 Summary” * **Students should use the same naming strategy for their final Scratch Project:**    + “Student Name + Unit # + Descriptor”, for example, “Johns Unit 4 Summary” |
| **Warm-up/ Introduction:**  **NOTE: All slides for this lesson are scripted so that, if needed, you can see exact definitions and instructions for teaching this lesson in the notes at the bottom of the teacher slide deck.**   * (Optional) Read aloud the summary and standards as well as the materials and resources needed for this lesson (slides 1-4) * Review Decomposition and Summaries (slides 5-7)   + Remind students of SWBST * Have students share what they would like to summarize with a partner (slide 8) |
| **Guided Instruction and Independent Practice:**   1. Instruct students that they will be writing a summary and planning how to animate their summary today (no slide). 2. Instruct students to open CoCo and add their written summaries into Column 1. (slides 9-11)    1. *Note: Students are writing their SWBST summaries directly into CoCo here.* 3. Provide students with the [graphic organizer for summarizing and planning](https://www.dropbox.com/scl/fi/8tappiekkn103upaxr0dz/SWBST_Scratch-Planner-graphic-organizer.docx?dl=0&rlkey=yk2tv9fkha68o7o30asky3wsn) (slide 12)    1. *Note: Students do not need to re-write their summaries. They should be brainstorming and planning how they want to animate their summaries on the paper graphic organizer BEFORE they makes those decisions in CoCo, columns 2 &3.* 4. Instruct students to plan out their animation for Scratch using Columns 2 & 3 of CoCo. (slides 13-14)   (*Remember, please require your students to use CoCo)*   1. Have students share their plan with a partner and offer suggestions for enhancing or modifying their plan and/or writing. (slide 15) |
| **Guided Instruction and Independent Practice for Scratch:**   * Review Events from last lesson (when sprite clicked, when key pressed) (slide 16) * Introduce students to “Create a Clone” Block (slide 17)   + Cloning is a feature that allows a sprite to create a copy of itself while the project is running. Each clone has the same costumes, sounds, scripts, and variables as the original but is otherwise independent.   + Cloning is commonly used when a project has many similar sprites doing similar things. Because clones are created by the project rather than the user, cloning prevents the user from needing to make the same changes to each of many sprites.   + Today we will use the “Create a Clone” block, which clones the sprite selected * Model How to Use Block (slide 18) * Instruct Students to open Scratch and try out cloning with a sprite of their choice. (slide 19)   + Using several blocks, create an artistic animation of your name |
| **Wrap up:**   * Ask students to share when they think the clone block could be helpful (slide 20).   + “Next time, we will be animating our summaries in Scratch. Turn and talk to a partner about which blocks you may want to try to use in Scratch and why.” |
| **Assessment Strategy:** Monitor for understanding while students practice sound blocks and loops in Scratch. |