

UNIT 4, LESSON 2

DECOMPOSITION

3RD & 4TH GRADE



Lesson created by the GMU-ODU CSforAll Team. For more information about this lesson and our CSforAll initiative, contact Dr. Amy Hutchison at ahutchison1@ua.edu

REMINDER 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, “John’s Unit 4 Summary”

SUMMARY AND STANDARDS

Summary:

In this lesson, students will be guided through Level 5 of Coco and new features and blocks in Scratch.

ELA Standards

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.
- e) Use transition words to vary sentence structure.

CS Standards:

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.

Today

MATERIALS AND RESOURCES NEEDED FOR THIS LESSON:

- Chromebook/Laptop
- Internet Access
- Teacher slide deck
- [Animation Planner](#)
- [Coco Link](#)
 - Teacher should have assigned story in CoCo, using naming strategy “Unit 4 Summary”



You will need....[read slide]

LESSON OBJECTIVES: I CAN...

- Identify and use NEW BLOCKS
- Write, review, and edit a summary in Coco Level 4 (Column 1)
- Plan and self-monitor in Coco Level 4 (Columns 2, 3, 4)
- Share my plan with a partner and modify plan based on feedback

Let's go over today's lesson's objectives: [read slide]

DECOMPOSE: TO BREAK A PROBLEM DOWN INTO SMALLER PIECES

DECOMPOSITION (DEE-COMP-UH-ZI-SHUN): BREAKING A LARGE PROBLEM INTO SMALLER PARTS

Computer scientists have to solve coding problems and need to make think about what steps they need to take and what order to do them in.

Sometimes the problem is so big or complex, it can be hard to know where to start.

Decomposition is when we break a problem down into smaller parts to make it easier to tackle.

It has many advantages. It helps us manage large projects and makes the process of solving a complex problem less scary and much easier to take on.


This Unit, we're going to learn more about decomposition, our final computational thinking concept. Decomposition is going to be key in helping us to animate our new stories in Scratch with more Scratch blocks."

SUMMARY: RESTATES THE MAIN IDEAS OF A STORY IN YOUR OWN WORDS

A summary restates the main ideas of a story in your own words. You have probably done this quite often after you have read or listened to a story. We don't want to retell everything that happens in the story, we just want to share the main idea

SOMEBODY... WANTED...BUT....SO.... THEN

- **Somebody:** Character
- **Wanted:** Goal/motivation
- **But:** Conflict/problem
- **So:** Resolution
- **Then:** How does it end?

Little Red Riding Hood 

Somebody	Little Red Riding Hood
Wanted	wanted to take her Granny some treats...
But	but she met a wolf who tricked her by locking her Granny up and pretending to be Granny so he could eat her...
So	so Little Red got away and a woodcutter who was working nearby killed the wolf...
	Then Little Red saved her Granny and they lived happily ever after....

There are several ways that we can decompose a story, but Today, we're going to review one great strategy for summarizing. This strategy uses these anchor words to help us create a summary: "Somebody Wanted But So Then" {Read Slide}

Let's see how this strategy can help use decompose the familiar story of Little Red Riding Hood. To do this, we can use Coco, our favorite graphic organizer, to help us. Today, we are briefly going to be introduced to Level 4 of Coco, where we can record our summaries. Let me show you how.

SHARE WITH A PARTNER

Instructions:

1. Pick a story to summarize.
2. Answer the following questions:
 - a. What are the main ideas of the story?
 - b. What details from the story are important to include in your summary?
 - c. What details from the story are not that important to the main idea?

SUMMARIZE IN COCO LEVEL 5: COLUMN 1, OUR WRITING

Story: Tutorial

My topic:

My Ideas:	What I Want to Do:	Blocks & Icons I will need:	Self-monitoring:
<input type="text"/>	<ul style="list-style-type: none">Do I need to add a start block?Do I need to add a sprite or object?Do I need to add or change a background?Do I need to make my sprite talk?	<p>No <input type="checkbox"/> Yes <input type="checkbox"/></p> <p>No <input type="checkbox"/> Yes <input type="checkbox"/></p> <p>No <input type="checkbox"/> Yes <input type="checkbox"/></p> <p>No <input type="checkbox"/> Yes <input type="checkbox"/></p> <p>... <input type="checkbox"/> ... <input type="checkbox"/></p>	
<input type="text"/>	<ul style="list-style-type: none">Do I need to add or change a background?Do I need to make my sprite talk?Do I need to make my sprite think something?Do I need to create a costume?	<p>No <input type="checkbox"/> Yes <input type="checkbox"/></p> <p>No <input type="checkbox"/> Yes <input type="checkbox"/></p> <p>No <input type="checkbox"/> Yes <input type="checkbox"/></p> <p>No <input type="checkbox"/> Yes <input type="checkbox"/></p> <p>... <input type="checkbox"/> ... <input type="checkbox"/></p>	
<input type="text"/>	<ul style="list-style-type: none">Do I need to add or change a background?Do I need to make my sprite talk?Do I need to make my sprite think something?Do I need to create a costume?	<p>No <input type="checkbox"/> Yes <input type="checkbox"/></p> <p>No <input type="checkbox"/> Yes <input type="checkbox"/></p> <p>No <input type="checkbox"/> Yes <input type="checkbox"/></p> <p>No <input type="checkbox"/> Yes <input type="checkbox"/></p> <p>... <input type="checkbox"/> ... <input type="checkbox"/></p>	
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Remember, there are four columns in CoCo to complete. For now, we are going to add our writing into Column 1. Under, "My Ideas"

ADDING MORE ROWS TO COCO LEVEL 5

The image shows a screenshot of the CoCo Level 5 interface. The main window is titled "Step 3: Composing & Coding - Use the Graphic Organizer" and "Story: Level 5". It features a table with columns for "My ideas", "What I Want to Do", and "Blocks & items I will need". The table contains several rows, each with a "My ideas" section, a "What I Want to Do" section with a list of tasks, and a "Blocks & items I will need" section. At the bottom left of the table, there is a green button labeled "Add bottom row". An orange arrow points from this button to a confirmation dialog box on the right. The dialog box is green and contains the text "Add bottom row, OK?" and two buttons: "OK" and "Cancel". Above and below the dialog box are "No" and "Yes" radio buttons.

One change in level 5 is that you can add more rows to CoCo. Click on the green button that says "Add Bottom Row" and then click "OK" and a new row will appear.

COMPLETE COLUMN 1 IN COCO

Make
sure you
are using
CoCo!



COCO
COMPOSE & CODE
SERIES

Pause here and students should fill in CoCo with their writing in CoCo Column 1 from their paper graphic organizer from last time


PLAN YOUR ANIMATION GRAPHIC ORGANIZER

Now, plan how you will animate each part of your summary in Scratch using the graphic organizer your teacher provides.

- Note, you do not need to write your summary again, but make sure your planning matches what you wrote in CoCo.

Summary of _____

You have already filled in the left Column in CoCo. Using that summary, start planning your animation. On the right, plan how you will animate in Scratch.




















Somebody	How will you animate?
	

Wanted	How will you animate?

SUMMARIZE IN COCO LEVEL 5: COLUMN 2 & 3, OUR SCRATCH PLAN

Story: Tutorial

My topic:

My ideas:	What I Want to Do:	Blocks & Icons I will need:	Self-monitoring:
 <input type="text"/>	 Do I need to add a start block?  Do I need to add a sprite or object?  Do I need to add or change a background?  Do I need to make my sprite talk? <input type="radio"/> No <input type="radio"/> Yes		
 <input type="text"/>	 Do I need to add or change a background?  Do I need to make my sprite talk?  Do I need to make my sprite think something?  Do I need to create a costume? <input type="radio"/> No <input type="radio"/> Yes		
 <input type="text"/>	 Do I need to add or change a background?  Do I need to make my sprite talk?  Do I need to make my sprite think something?  Do I need to create a costume? <input type="radio"/> No <input type="radio"/> Yes		
 <input type="text"/>	 Do I need to add or change a background?  Do I need to make my sprite talk?  Do I need to make my sprite think something? <input type="radio"/> No <input type="radio"/> Yes		

Next, students should use the paper graphic organizer to plan and select blocks for Scratch in CoCo columns 2 & 3, based on their planned animation

COMPLETE COLUMNS 2 & 3 IN COCO

Make
sure you
are using
CoCo!



COCO
COMPOSE & CODE
SERIES

Pause here and students should fill in CoCo with their writing in CoCo Columns 2 & 3 from their paper graphic organizer from last time

EDIT & REVISE WITH A FRIEND

.Have students share their plan with a partner and offer suggestions for enhancing or modifying their plan and/or writing.

WRAP UP: WHICH BLOCK ARE YOU MOST EXCITED TO USE FOR ANIMATING YOUR SUMMARY? WHY?

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.