UNIT 1 LESSON 5

ANIMATE AND DEBUG

3RD & 4TH GRADE

CS FOR ALL

NSF
Award #1837380

SUMMARY AND STANDARDS

Summary:

 In this lesson, students will plan and code their animation for their written instructions on making a drink. Students will also edit and debug their code and make sure their animation matches their writing and planning in CoCo level 2.

Content Standards:
The student will
- Use organizational strategies to structure writing according to type.
- Write a clear topic sentence focusing on main idea.
- Elaborate writing by including supporting details.
- Use transition words to vary sentence structure.
- Revise writing for clarity of content using specific vocabulary and information.

CS Standards:
The student will construct sets of step-by-step instructions (algorithms), both independently and collaboratively
a) using sequencing;
b) using events.

MATERIALS AND RESOURCES NEEDED FOR THIS LESSON:

- Teacher slide deck
- Chromebook/Laptop
- Internet Access
- Link to CoCo
- Student slide deck (optional)

Reminder:
In this lesson, every student should be **assigned a story in CoCo** using **Level 2.**

The story should be titled "**Unit 1 Drink Recipe**"

Each student should save their work using this naming strategy: "**Student Name + Unit # + Descriptor",** for example, "**Johnny Unit 1 Drink Recipe**"

https://wego.gmu.edu/scratchgo/welcome_user.php

WARM UP:

1. Review CoCo Level 2 briefly, highlighting the planning and self-monitor features

We've already filled in column 1 with our drink recipe! Today we are going to focus on using CoCo to plan our Scratch animation, find those blocks in Scratch, and then use the self-monitoring column AFTER we've successfully found our blocks in Scratch. Sound good?

BRAINSTORM WITH A PARTNER: HOW WILL YOU ANIMATE YOUR RECIPE IN SCRATCH?

LESSON OBJECTIVES
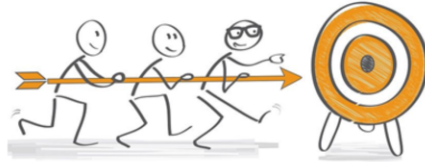
- ❏ Review Scratch Blocks and features of Coco Level 2
- ❏ Describe steps of debugging
- ❏ Set up all sections in Coco Level 2
- ❏ Code the animation for written instructions in Scratch
- ❏ Participate in pair programming to debug (run the code and use self-monitor checklist)

DIRECT INSTRUCTION & GUIDED PRACTICE

BUGS: AN ERROR IN A CODE THAT PREVENTS THE PROGRAM FROM RUNNING AS EXPECTED.

Remember, A bug is an error or mistake in your code that prevents the program from running as expected.

DEBUGGING: LOOKING FOR AND FIXING THE ERRORS IN YOUR CODE

When you need to fix your error in your code we call that debugging. This means you are looking for your mistake and then fixing it. Debugging can happen at anytime while you are coding. Maybe you debug at the end when you realize your sequence isn't correct, or it could happen at the very beginning, maybe you forgot your start block!

TO DEBUG AN ALGORITHM, WE...

❏ Describe the problem.

❏ Hunt for bugs (what is it in our code causing the problem).

❏ Try out some solutions and test.

❏ Remember what we learned from the bug.

Whenever we realize that we have a bug, here are the steps for debugging. We [read slide]. Debugging happens all the time while we are coding!

Debugging Recipe from Code.org: https://code.org/curriculum/docs/k-5/DebuggingTeacher.pdf

Let's try this out!

VIDEO: HOW TO DEBUG

Watch here:
https://www.dropbox.com/scl/fi/dbrpzems158xupecpgnju/How-To-Debug.mp4?rlkey=mho8luyji0rofuu9dj612j0y6&st=yx4vhjzo&dl=0

1. Remind students to use debugging as they work on planning and animating their writing

DEBUGGING ACTIVITY (OPTIONAL)

Students should access the debugging activity in their student slide decks to try and debug several coding projects. Link to the activity here.

https://www.dropbox.com/scl/fi/nthuf6q3mzvvx84r3wd4a/lesson4_Debugging_Kaya-updated.pptx?rlkey=x402sas5z51nds5hiwkqp4041&dl=0

INDEPENDENT PRACTICE

COCO CONTINUES TO HELP US!

Today, you will use Coco to help you code
your instructional animation in Scratch!

1. Open a tab with Coco
2. Open a tab with Scratch
3. Use column 3 of Coco to find the blocks
   in Scratch we need for each step.
4. After you've found the blocks in Scratch,
   check off each row's self-monitoring
   before moving to the next step.

COCO
COMPOSE & CODE

DEPICT-CS

1. Instruct students to open CoCo Level 2 project from last lesson

Video Model

How to Choose Animation Blocks in Scratch Tutorial

LOG INTO COCO AND COMPLETE COLUMNS 2 & 3

BEFORE YOU BEGIN TO CODE IN SCRATCH....

❑ MAKE SURE YOU HAVE A TOPIC SENTENCE
❑ MATCH YOUR ANIMATION TO YOUR WRITING
❑ BE CONSISTENT
❑ MATCH YOUR VISUALS TO YOUR TEXT

Okay! Have we all finished answering the questions in CoCo? Good job.

Well, there's one more step we need to take before we can start working in Scratch. CoCo has helped us find the blocks for adding characters, adding backgrounds, making them say or think something. But! Choosing the kind of sprite and backdrop is still up to us. I've got a few tips to share with you as you're coding in Scratch.

You want to a) include a topic sentence, b) match your animation to your writing, c) be consistent, and d) make sure all the visuals in the frame make sense given what you have written in your text.

GOOD ANIMATIONS CAN BE SIMPLE OR COMPLEX!

SIMPLE EXAMPLE :

HTTPS://WWW.DROPBOX.COM/S/JLIST1ZAUJJPC8E/SCREEN%20RECORDING%202023-09-18%20AT%209.21.46%200V?DL=0

MORE COMPLEX EXAMPLE :

HTTPS://WWW.DROPBOX.COM/S/NH93DMDKPHD4N0Z/SCREEN%20RECORDING%202023-09-19%20AT%201.45.13%20AM.MOV?DL=0

Good animations that follow these guidelines can be as simple as https://www.dropbox.com/s/jlist1zaujjpc8e/Screen%20Recording%202023-09-18%20at%209.21.46%20PM.mor as complex as https://www.dropbox.com/s/nh93dmdkphd4n0z/Screen%20Recording%202023-09-19%20at%201.45.13%20AM.mov?dl=0so long as they clearly convey the message to the reader visually and verbally!

"ONCE UPON A TIME THERE LIVED A PRINCESS…"

For example, if I was writing a story about "Once upon a time there lived a princess…." which one of these sprites would make more sense?

"ONCE UPON A TIME THERE LIVED A PRINCESS..."

For example, if I was writing a story about "Once upon a time there lived a princess…." which one of these sprites would make more sense? Probably this one. Although, if our princess played baseball later in the story, you could switch it up!
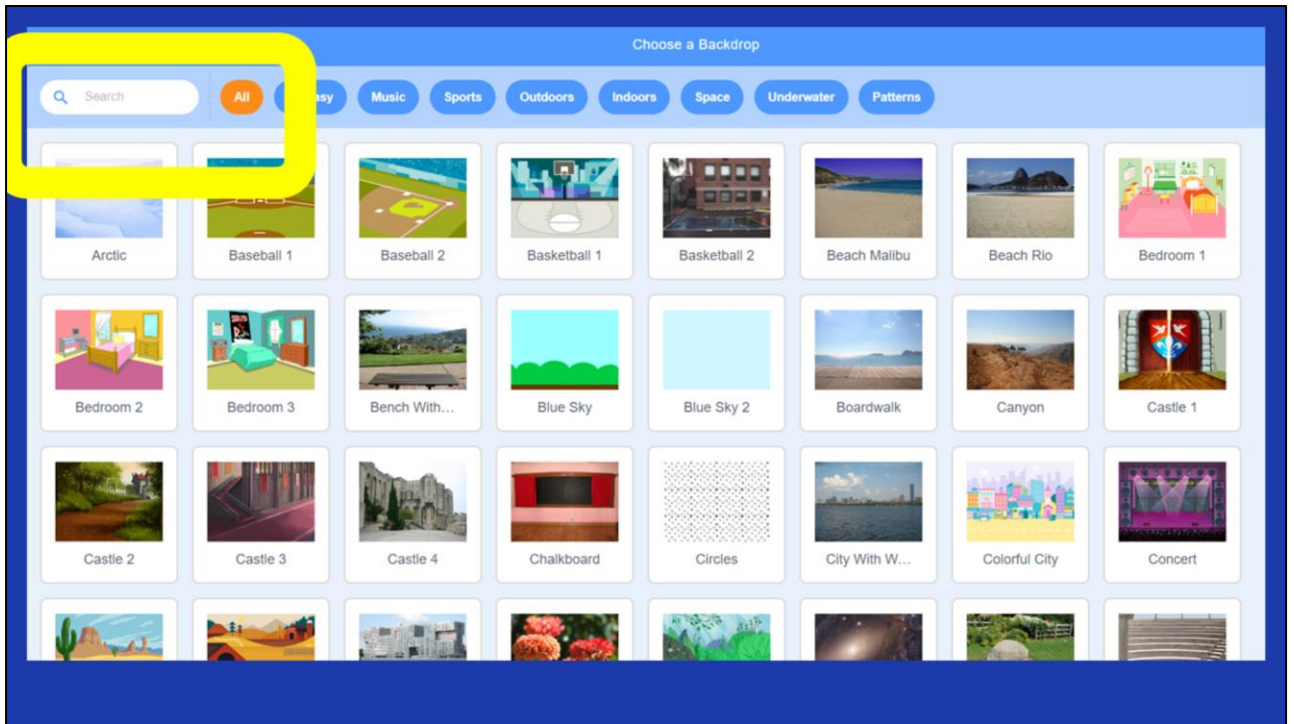
CASTLE."

Now, if I was writing a story about a princess who lived in a castle, this backdrop would make more sense.

"ONCE UPON A TIME THERE LIVED A PRINCESS WHO PLAYED BASEBALL."
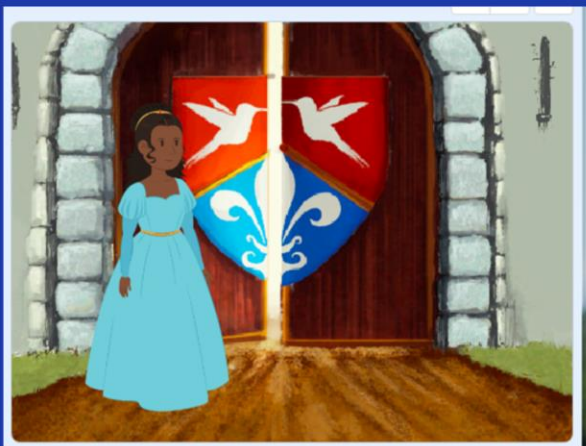
But if I wrote about a princess who played baseball, this one could also work!

Here's another Scratch tip: when looking for sprites and backdrops, you can enter words into the "search" bar and see if any of the results match what you're looking for.

If you don't find the backdrop you're looking for you could also search the following websites for non-copyrighted images that you can upload to Scratch
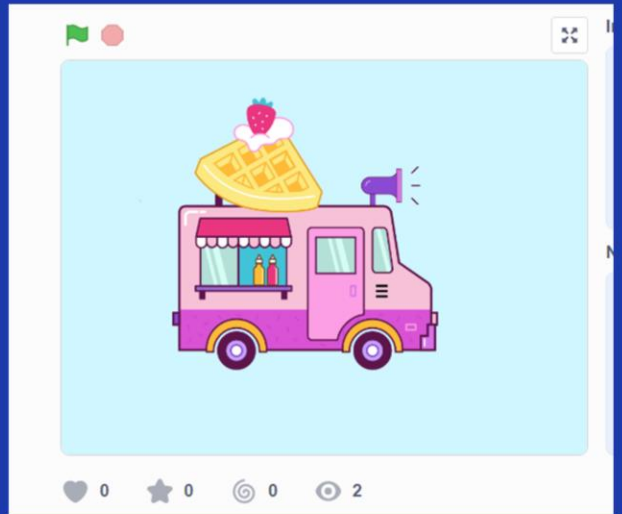- Dribble: https://dribbble.com/
- Library of Congress free to use and reuse: https://loc.gov/free-to-use
- Flickr: https://flickr.com/
- Unsplash: https://unsplash.com/

Let's look at this example of a scratch project that is consistent, matches its text, and whose visuals make sense. This is using the "how to make hot chocolate" recipe we've seen before.

Now, let's look at the same video but where the visuals don't match the text. Hmm, what went wrong here?

Okay! Now that we've thought carefully about how we will match our Scratch visuals to our writing in CoCo, we're ready to start coding! Let's watch this short video on how to move between CoCo and Scratch. Remember we will be toggling back and forth!

Let's make sure we all get the hang of it by starting with adding the blocks from ONLY OUR FIRST ROW into Scratch. Pause and look at me when you're done.

VIDEO MODEL

Video on transferring the rest of your work from CoCo to Scratch and monitoring your progress
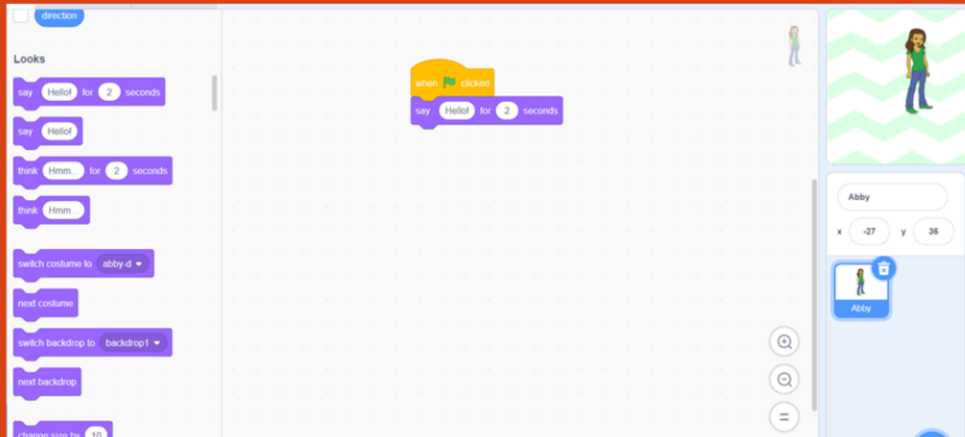
Once you get the hang of it

Step 3: Composing & Coding - Use the Graphic Organizer

Story: Recipe

My Ideas:	What I Want to Do:	Blocks & Icons I will need:	Self-monitoring:
First. First, get all of your materials. You will need lemons, water, and sugar.	Do I need to add a start block? No/Yes Do I need to add a character or object? No/Yes Do I need to add or change a background? No/Yes Do I need to make my character talk? No/Yes		I found the start block. I created a character (sprite). I added a background. I made my character talk.
Then. Then, squeeze the lemons into juice.	Do I need to add or change a background? No/Yes Do I need to make my character talk? No/Yes Do I need to make my character think something? No/Yes Do I need to create a costume? No/Yes Do I need to switch a costume? No/Yes		I made my character talk. I switched a costume.
Next. Next, add water and sugar.	Do I need to add or change a background? No/Yes Do I need to make my character talk? No/Yes Do I need to make my character think something? No/Yes Do I need to create a costume? No/Yes Do I need to switch a costume? No/Yes		I made my character talk. I switched a costume.
Last. Last, stir the ingredients together.	Do I need to add or change a background? No/Yes Do I need to make my character talk? No/Yes Do I need to make my character think something? No/Yes Do I need to create a costume? No/Yes Do I need to switch a costume? No/Yes		I made my character talk. I switched a costume.
Finally. Great job!	Do I need to create a costume? No/Yes Do I need to switch a costume? No/Yes Do I need to make my character think something? No/Yes	Costumes	I created a costume. I changed a costume. I made my sprite think something.

PAUSE HERE AND CODE IN SCRATCH, CHECK YOUR SELF MONITOR

BUT WAIT!

Did you debug any errors?

Does your Scratch animation match what you planned and wrote in CoCo?

1. In pairs (or independently), ask students to review and debug their code, making sure their animation matches what they planned and wrote in CoCo.

LAST STEP, SELF EVALUATION

VIDEO MODEL

Step 4: Self-Evaluation - Rate How You Feel About It

|	unhappy	neutral	happy
How do I feel about my written story today?	☺ unhappy	☹ neutral	☺ happy
How do I feel about using CoCo today?	☺ unhappy	☹ neutral	☺ happy
How do I feel about coding today?	☺ unhappy	☹ neutral	☺ happy
How do I feel about my Scratch project today?	☺ unhappy	☹ neutral	☺ happy

SHARING YOUR .SB3 FILE FROM CS FIRST TO COCO

1. Create the file in CS First

2. In the Scratch editor, find the word "File" in the top-left corner.
3. Click on "File" menu and you'll see some choices pop down.

1. Choose "Save to your computer." This will download your Scratch project.

1. Look in your "Downloads" folder. That's where your saved project might be.

1. Go to the CoCo website and log in to your account. https://wego.gmu.edu/scratchgo/login.php

1. Click proceed on the correct story in CoCo.

1. Navigate to the section of CoCo where you c   nax).

1. Click "Save".

Model how students can share Scratch creations to their teacher's studio

HERE IS AN <u>OPTIONAL VIDEO</u> TO LEARN HOW TO SHARE YOUR PROJECT IN SCRATCH.

Pause here.

Video modeling how students can share Scratch creations to their teacher's studio

[Scratch - Imagine, Program, Share](#)

SHARE YOUR WORK:

- Find a partner and share your animation.
- Share what you learned and something you might want to try differently.

PAUSE AND SHARE

Here are some suggestions for sharing your work and getting feedback. Feedback can help us learn and make our work better in the future. [Read Slide]
Adapted from Getting Unstuck