Teacher's Name: Ticey Little

Domain: Exploring Computer Science

Date Range: March 03, 2025 – March 07, 2025

ACOS Standard:

4 - Use and adapt classic algorithms to solve computational problems.
5 - Design and iteratively develop computational artifacts for practical intent, personal expression, or to address a societal issue by using current events.

Student Friendly Outcome:

Unit 3: Programming

I CAN name the basic terms used in Scratch.
I CAN create the beginning of a simple program in Scratch.
I CAN build upon previous units to explore the concept of identity through personalized projects.
I CAN demonstrate how programming can be used to express and explore cultural and personal identity.
I CAN revise name projects responding to comments & feedback (Iterative process of programming.
I CAN learn different blocks to move characters in Scratch.
I CAN write a program that responds to user-created events from the mouse and keyboard.

Monday	Tuesday	Wednesday	Thursday	Friday
Objectives continued from last week Journal entry (20 minutes) moving.sb3 (20 minutes) Discussion of responses to questions (10 minutes)	Map Route Activity (55 minutes)	Finish Map Route activity (15 min) Gallery walk (15-30 min)	Journal Entry: Celebration(s) (15 minutes) Journal entry: Event driven programming in daily life (15 min) Description of Create Your Celebration Animation (25 minutes)	Create Your Party (55 minutes)

Instructional Lesson # 3. Days 6-8

Topic Description: Students analyze the cultural and personal significance of community landmarks, reflecting on how their name and identity are connected to their community. Students learn how to move sprite in different ways on a map of their community.

Objectives

The student will be able to:

- Students analyze the cultural and personal significance of community landmarks & reflecting on how their name and identity are connected to their community.
- Students learn different blocks to move characters in Scratch

Outline of the Lesson

Segment	Reason/Purpose
Day 1 Journal entry (20 minutes) moving.sb3 (20 minutes) Discussion of responses to questions (10 minutes)	explore differences / similarities between communities Learn about movements in scratch (3 ways)
Day 2 Map Route Activity (55 minutes)	Apply Scratch movements to a map representing community & destinations to visit
Day 3 Finish Map Route activity (15 min) Gallery walk (15-30 min)	Share out Revisit original program to enhance it (part of software cycle)

Student Activities

Day 1

- Complete journal entry.
- Pairs examine moving.sb3
- Discuss responses to questions.

Day 2

- Pairs complete Map Route activity.

Day 3

- Finish Map Route activity

Teaching/Learning Strategies

Day 1

- Journal Entry**:** *How would you describe your community? Be specific in your description to include details about urban, rural settings. What are some places you regularly visit in your community? How do you move around your community: Car, public transportations, bike, walk. How does your name connect you to the places in your community?*
    - Students write in journals and discuss responses in groups of 3-4. Each group chooses one community detail to share with the whole class. Encourage the discussions by asking questions such as: How are the communities different/similar? Where do you get what you need daily? What places do you avoid and why?
- Journal entry**:** *Imagine that you need to give a visitor directions to a destination in your community: your school, the movie theater, or a community event. Their phone is broken so you have to give them a paper map. How would they find the place they need to go?*
    - Students share answers with class.
    - You will create a Scratch program that moves a character on a map of your community. You will now learn how to move a sprite on a map representing some destinations in your community through the following activity. Introduce different methods of sprite movement, such as change x/y, turn, and glide. Discuss when those movements might be important to insert in the script.
- Moving Project
    - Students open moving.sb3 (See resources.) and work in pairs. For this lesson they will use the rules of pair programming as they respond to the following questions and complete moving.sb3 activity.
    - There are basically 3 ways to move sprites in Scratch. Try the file moving.sb3 and answer the questions below:
        - Look at the scripts for each of the 3 sprites. What 3 blocks do all three sprites use?
        - What blocks does the cat use to move?
        - What block does the dog use to move?
        - What block does the monkey use to move?
        - Describe in your own words how the move block works.
        - Describe in your own words how the go to xy block works.
        - Describe in your own words how the glide block works.
        - Some of the blocks require x: and y: coordinates. Click on the cat and drag it around. Look at the values of x and y. How are the x and y coordinates arranged on the stage?
        - Use what you've learned about moving to complete the Map Route Activity.
- Discussion after students answer questions
    - Emphasize that the "repeat" block will do whatever is inside it n times. This behavior can be called iteration or looping. Remind them about the forever loop in lesson one.
    - Ask students about previous instances of iteration (Cornrow Curves).
    - Point out that iteration is a construct that is used in other programming languages.
    - Emphasize the differences between the 3 ways to move.
    - make sure students find and understand the coordinate plane. Ensure they understand the x and y coordinates on the Scratch stage.
        - Optional- compare N, S, E, W directions to X, Y
    - Circulate the room and help students respond to the questions.

Day 2

- Map Route Activity: students will import a map from google that shows their community and at least 4 landmarks/destinations to which they want to navigate. (See resources.)
    - Circulate the room and help student pairs finish the activity. Remind them to switch roles.
    - Students may need assistance importing a map background.
    - **Make sure students use the resize icons in the toolbar instead of resizing the image in the costumes editor**. Have them explore the way to make an image stay centered and edit the images in the costume editor. If they resize the image in the costume editor the sprite may not turn appropriately when turn block is used.

Day 3

- Complete project and get ready for gallery walk
    - During Gallery walk leave suggestions for extra fun to add to projects you review
    - Students reflect in their journal about the places they saw others visit. Do they visit the same kinds of places? What similarities did they see between different communities?

Resources

- Moving Project
- Scratch Files (www.exploringcs.org/curriculum)
- Map Route Activity

Teacher Reflection Notes

Moving Project

Answer the questions below:

1. Look at the scripts for each of the 3 sprites. What 3 blocks do all three sprites use?

2. What blocks does the cat use to move?

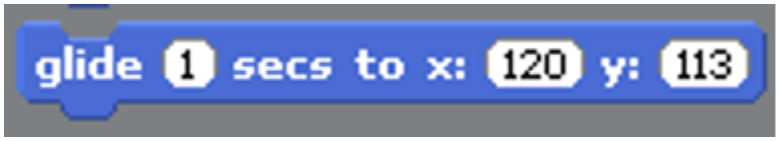
3. What block does the dog use to move?

4. What block does the monkey use to move?

5. Describe in your own words how the move block works.

6. Describe in your own words how the go to block works.

7. Describe in your own words how the glide block works.



8. Some of the blocks require x: and y: coordinates. Place the mouse over the white window and look at the mouse x: and mouse y: numbers underneath the bottom. How are the x: and y: coordinates determined in Scratch?

9. Use what you've learned about moving to complete the Map Route Activity

Map Route Activity

Directions

Now that you have analyzed movement in Scratch, let's try something more intricate. You are going to design a Scratch program to command a sprite to get from point A on a map to point B and back to point A using only streets.

Using Google Maps, find a map representing your community location and 4 destinations– maybe your neighborhood, school block, or fun place you spend time at. Incorporate cultural landmarks or symbols on your map routes. You probably don't want to make your destination too far away as the street map will be really small and more difficult to navigate.

Once you have your map on the screen, using screen capture software (like snipIt or cmd-shift-4 on a mac), save the map area as a jpg. Now going to Scratch, upload your map image as a new background. You need to mark your start location and destinations with colored dots in the Scratch editor.

Choose an appropriate sprite and use the resize buttons in the toolbar to resize your sprite.

Remember to click on the resize icon then on your sprite to change size.

Start writing the program to move your sprite from starting to end destination with at least 2 other places visited in between.

Instructional Lesson # 4. Days 9-11

Topic Description: The students will think about an important celebration and customs that goes around it, and write a program Create Your Celebration Animation that responds to user-created events from the mouse and keyboard to represent the different customs/traditions that go around this celebration.

Objectives

The student will be able to:

- The students will think about an important celebration and customs/traditions that goes around it.
- Write a program that responds to user-created events from the mouse and keyboard

Outline of the Lesson

Segment	Reason/Purpose
Day 1 Journal Entry: Celebration(s) (15 minutes) Journal entry: Event driven programming in daily life (15 min) Description of Create Your Celebration Animation (25 minutes)	Explore identity/community through celebrations & customs around them Introduce the concept of Event Driven Programs Plan the program through storyboarding, image imports
Day 2 Create Your Party (55 minutes)	Execute the planned program
Day 3 Student presentations (40 minutes) Students implement challenges (15 minutes)	Present & get feedback Revise/ add to program based on feedback

Student Activities

Day 1

- Journal Entry: Celebration(s) (15 minutes)
- Journal entry: Event driven programming in daily life (10 min)
- Description of Create Your Celebration Animation (10 minutes)
- Storyboarding the program (20 minutes)

Day 2

- Create Your Party (50 minutes)

Day 3

- Student presentations (25 minutes)
- Revise programs (25 minutes)

Teaching/Learning Strategies:

Day 1

- Journal Entry**:** *Choose an important celebration in your community (Christmas, Eid, Días de Muerta,..). Describe some unique things you do to commemorate this celebration: (Special food items, clothes, places you visit,...)*
    - Students share with class. Highlight the different things they do around the same celebrations depending on their cultures. Highlight the variety of celebrations and their different times around the year.
- Journal Entry**:** *How do the programs on the computer (or phone) know what the user wants to do next? In other words, if you are surfing the web, how does the computer (or phone) know what website to go to next? If you were writing a story, how would you know which scene should come next?*
    - Allow some students to share journal entries with class. Point out the idea of user events (clicks, typing, touch, talking) driving the program and causing it to respond.
    - **Show students that** Scratch provides some blocks that allow you to write programs that respond to user events.
    - When Sprite clicked
    - When _ key pressed
    - Allow students to explore the blocks for a few minutes.
    - Explain that students will develop a story that responds to user input. The story will describe the celebration you wrote about in your journal and the things you do to commemorate this celebration through a conversation between 2 attendants of the party. The story will advance when it takes input from the user.
- Description of Create Your celebration animation project:
    - Direct the students in a short discussion to emphasize the concepts they have learned so far.
        - Include user events, sprite actions, and program responses, as well as coordinate plane and iterations.
    - Create a sample first conversation with students that introduces the celebration they chose in their journal.
        - One strategy is to have students take turns providing you sentences, pausing and asking other students to predict what will happen. Emphasize that users will discover what happens next when they click on a sprite.
    - Students complete a storyboard for their story. The story is told through a conversation describing the celebrations and the customs around it guided by the Create Your Own Party Sample Rubric (See resources.). Storyboard should include the name of the celebration and transitions between at least 3 scenes, sprites, costumes, backgrounds,...
    - Students identify images for the sprites to be used in their story after completing the storyboard.
    - **Ethical Image Use Discussions:** Lead a brief discussion about ethical image use. Remind students to respect copyright and licensing when importing images from the internet. Encourage them to credit sources appropriately.
    - Show students how to access free image libraries, public domain works, and open-source licensed images
    - Explain that students will bring in pictures from the internet.
        - Download a .gif or .jpg.
        - Use import or paint to make it the second costume for your letter.
    - Show how to change costumes and backdrops.

        - Use a “switch to costume _” or “switch to backdrop _” block.
    - Show students how to output in talk bubbles.
        - Use a “say _ for _ sec” block.
    - Remind students that they are creating an animation to tell a conversation about their celebrations and the customs around it. Encourage creativity and story cohesion. Remind students to be respectful about their story telling. Emphasize respectful portrayals and conversations, as well as age and school appropriateness.
    - Circulate room and answer questions as student pairs complete their storyboard.

Day 2

- Create your party
    - Students create their programs guided by storyboards created earlier. Students test their scenes as they go and advance to the next conversation once the current is working to their specifications.
    - Teacher circulate & give feedback

Day 3

- Student presentations
    - Students share their programs with 2-3 groups. Students explain how their program works, the storyboards they created, and why they chose specific Scratch blocks and features.
        - Discuss why they made these programming choices, which may include colors, symbols, or movements that represent different aspects of the identities and cultures shown in their program.
- Extra fun
    - If the class is small and the presentations don’t take the entire class, then add one or more challenges
        - Add sounds and motion to your sprites.
        - Add a title at the beginning.
        - Add and end scene

Resources

- Create Your Own Party Animation
- Create Your Own Party Sample Rubric
- Scratch Files (www.exploringcs.org/curriculum)

Teacher Reflection Notes

Create Your Own Party Animation

Directions: The story will describe the celebration you wrote about in your journal and the things you do to commemorate this celebration through a conversation between 2 attendants of the party. The story will advance when it takes input from the user.

You will work together with a partner using the driver–navigator protocol. Partners will present their scenes to the class. You may decide not to include a title scene to see if the class can guess the movie/TV show/play or book.

Before you get started coding, you will need to create a storyboard and have it approved. Your storyboard should include:

- specific background choices
- specific sprite choices
- scene transitions
- dialogue
- animation action
- soundtrack ideas

Be creative and have fun! Can you recreate your scene using existing sprites and backgrounds? Constraint breeds creativity

Create Your Own Party Animation Sample Rubric

Do you have	Possible Points	Yes	No	Points Earned
Completed storyboard with backdrops, events labeled, sprites and speech bubbles labeled	5			
At least 3 scenes to your party	4			
Two choices per conversation, excluding the last one	3			
Backdrops or costumes change when sprites are clicked or letters pressed	4			
Sprites change costume and/or show movement	4			
The “say _ for _ sec” outputs what the letter stands for (i.e. “S is for Soccer field”)	3			
Program can be reset	2			
Total	25			

Extra Fun

A microphone to record sounds for sprites and levels. Play a sound when some sprites are clicked or typed (e.g., clicking on a food item)	2			
Total with Extra Fun!	27			