STEM 101
Powered by THE STEM ACADEMY

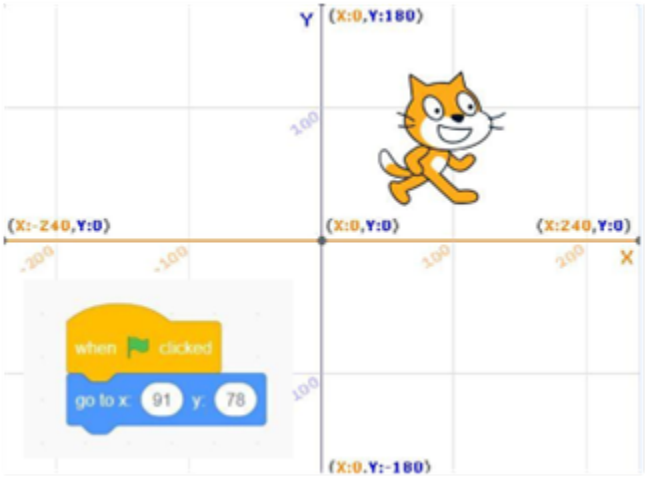
Name: _____
Period: _____

CODE YOUR OWN ANIMATION

UNIT: ELECTRONICS/CODING LEVEL 1- ACTIVITY 2

THE PROBLEM:

In this activity you will create your own animation using coding skills. Your animation will include a character that moves on screen to all 4 quadrants of the coordinate plane.



CONSTRAINTS AND CRITERIA

1. Safely create a classroom online Scratch account with your teacher's assistance.
2. Practice appropriate online responsibility and safety.
3. Select a theme or storyline for your animation and choose a **sprite** and **backdrop** that coordinate.
4. Effectively use 4 **go to** or **glide** command blocks from the blue motion menu to move your sprite with **(x, y) coordinates** to each of the 4 **quadrants** of the **coordinate plane**.
5. Use **when green flag is clicked** from the yellow events menu to effectively start your animation.
6. Add an extra creative touch to your animation using other Scratch code blocks.

MATERIALS:

- Online classroom Scratch account

TOOLS:

- ✓ Pencil
- ✓ Computer or Chromebook with online internet access

DIRECTIONS:

Be sure to check off each step ☑ as you progress.

☐ **Step#1** – Define the Problem

Read the problem listed on the first page and write it in your own words (p. 3).

- ☐ **Step#2** – Define the Criteria

  Listen and read along as your teacher reads the activity and constraints. Then actively participate in the Scratch Animation training session with your teacher to safely set up your Scratch account and practice coding with the colored code blocks. Write down and describe what you find most challenging about the constraints and training, and what you're most looking forward to learning or improving during this activity (p.3).

- ☐ **Step#3** – Develop Ideas

  Brainstorm ideas for your animation. Begin by deciding what sprites and backdrops you might want to include. Think about storyline situations that would require a sprite to move around the screen. Be creative and make it unique! Include a rough sketch of your plan. Be flexible and know your plan may change during this process (p. 4).

- ☐ **Step #4** – Develop Solutions

  Create your animation in Scratch. List the coordinates you use to navigate your sprite to each of the 4 quadrants. If you chose to use additional blocks that your teacher showed you or that you discovered on your own, list and describe them (p. 5).

- ☐ **Step #5** – Testing and Evaluating

  Each time you click a block you are running a test of your coding program. Continue to test and modify as much as needed to finish your animation.

- ☐ **Step #6** – Present and Produce

  Answer the questions in the reflection section (p. 6). Reflect on your design process by describing at least one test that went well and one that needed modification. Share and/or present your animation as directed by your teacher. Turn in the design brief.

Name: _____
Period: _____

STEP 1: Describe the problem in your own words.

STEP 2: After you've completed the training segment, revisit the problem and constraints.

- What do you think will challenge you most and why?

- What are you most looking forward to learning or improving and why?

STEP 3: Develop Ideas – Plan out the details of your animation here. Feel free to list multiple ideas.

- Which sprite(s) are you considering using?

- Which backdrop(s) are you considering using?

- What might the theme or story be? Why will the sprite be moving around the screen?

- Sketch a rough drawing of your idea below:

Name: _____
Period: _____

STEP 4: List the coordinates you use to navigate your sprite to each of the coordinate plane quadrants:

Quadrant 1: (x _____, y _____)

Quadrant 2: (x _____, y _____)

Quadrant 3: (x _____, y _____)

Quadrant 4: (x _____, y _____)

Did you choose to use any additional code blocks? If yes, list them below and describe the function of each.

STEP 5 & 6: Reflection Questions

- Each time you clicked a block to see how it was working in your animation was a "test". Describe a test that didn't go as you planned and needed modification. What did you do to make it work the way you wanted it to?

- Describe one of your coding successes. What can you code now that you couldn't before this activity?

- What is still challenging you? What coding skills would you like to improve or learn more about?

Name: _____
Period: _____

GRADING RUBRIC:

	Indicator not demonstrated	Indicator partially demonstrated	Indicator adequately demonstrated	Indicator effectively demonstrated
Design Brief	**Incomplete** Less than 50% complete	**Inadequate** Mostly complete; Criterion not met	**Adequate** Criterion met; more attention to neatness or detail needed	**Exceptional** Meets or exceeds expectations; high effort, attention to detail
Points /4	1	2	3	4
Scratch Animation Theme/Story	**Incomplete** Sprite or backdrop is missing from project	**Inadequate** Sprite & backdrop do not coordinate or reason for movement is unclear	**Adequate** Sprite and backdrop coordinate; clear reason for movement	**Exceptional** Extra details or additional coding blocks add to the Theme/Story and movement
Points /4	1	2	3	4
Design Plan & Process	**Incomplete** Did not complete or skipped steps in the process	**Inadequate** Frequent assistance; end project did not use plan	**Adequate** Limited assistance needed; plan was used to lead to final project	**Exceptional** Independent completion; revisions were made to improve
Points /4	1	2	3	4
Effort & Online Responsibility	**Incomplete** Was unable or refused to complete work or inappropriate online use	**Inadequate** Frequent reminders needed to stay on task or be responsible online	**Adequate** Occasional reminders or prompting needed	**Exceptional** Independent completion; safe and responsible online use
Points /4	1	2	3	4
Coordinate Plane	**Incomplete** Sprite does not effectively travel to 2 or more of the 4 quadrants	**Inadequate** Sprite does not effectively travel to 1 of the 4 quadrants OR Green flag not working	**Adequate** Navigates to 4 quads when green flag clicked; coordinates do NOT match Design Brief p. 5	**Exceptional** Navigates to 4 quads when green flag clicked; coordinates match Design Brief p.5
Points /4	1	2	3	4