

Create – Applications From Ideas

Written Response Submission Template

Please see [Assessment Overview and Performance Task Directions for Student](#) for the task directions and recommended word counts.

Program Purpose and Development

2a)

The programming language I used was scratch. Scratch is a program online which makes coding easy, and is a visual language using blocks stacking on and into each other. The purpose of my program is a random terrain generator. The code creates a 2D terrain randomly generated at different heights which can be used for side scrolling games. The video shows the code running and creating the terrain's columns that vary at random height

2b)

The first part of my program I had trouble with was determining the variables and how they were going to play into the program. I knew I would have to use a variable to determine the randomly generated height of each column, so I tested out multiple repeat loops to clone the sprite. The clone function was another problem I encountered, I could not create layers of grass, dirt, and stone because the clone could only maintain one costume, so it would be uniform grass, dirt, or stone not a layer of stone, dirt, then grass. I ended up removing the clone function and inserting a stamp function instead, so the sprite can switch costumes to another type of terrain, get stamped onto the stage, move up for a new layer in the column and repeat. I had some help in collaborating on where to find the stamp function, I could not find the stamp function or use it very well, so I had some help from a friend on what the stamp function actually does.

2c)

If your captured code segment is an image, click the Picture icon to browse to the location of your saved image. If your captured code segment is text, include it with the rest of your 2c written response below.

The algorithm in my code is essentially the driver of my code, making it function until it completes its purpose. The code will repeat until the sprite hits the X position of 240, or the end of the stage. Each time the code is ran, the sprite moves closer to the end of the stage because in the code the X position of the sprite is increased by 8, eventually reaching 240 so the code will stop repeating, and complete the purpose of the program to create a randomly generated terrain.

The image shows a Scratch script for creating a bar chart. The script starts with a 'when clicked' event, followed by 'go to x: -235 y: -180', 'show', and 'clear graphic effects'. A large black box highlights the main loop, which is a 'repeat until' block with the condition 'x position = 240'. Inside this loop, the following steps are performed:

- 'set Howtall to pick random 4 to 8': A yellow callout box explains: 'Creates columns until the sprite reaches the end of the stage'.
- 'switch costume to costume3': A yellow callout box explains: 'sets the randomized height of each column'.
- 'repeat Howtall': A yellow callout box explains: 'Creates the distance between each column'.
- 'stamp': Stamps the current costume.
- 'change y by 5': Changes the y-coordinate by 5 units.
- 'switch costume to costume2': Switches to the second costume.
- 'repeat 2': Repeats the stamp and change y by 5 blocks twice.
- 'switch costume to costume1': Switches to the first costume.
- 'stamp': Stamps the first costume.
- 'change x by 8': Moves the x-coordinate 8 units to the right.
- 'set y to -180': Resets the y-coordinate to -180.

The script concludes with a 'hide' block.

2d)

If your captured code segment is an image, click the Picture icon to browse to the location of your saved image. If your captured code segment is text, include it with the rest of your 2d written response below.

My abstraction uses loops to stamp the sprite to the stage, creating part of the column. As the code progresses the costume is switched to create terrain layering, then changing the Y value of the sprite by a small amount to add height to the columns. When the column reaches it's determined height by the algorithm the loops in the code will change it's X value and rerun the code to create a new column with another randomly generated height.

The image shows a Scratch script starting with a 'when clicked' event. The script includes the following blocks: 'go to x: -235 y: -180', 'show', 'clear graphic effects', and a 'repeat until' loop where the condition is 'x position = 240'. Inside this loop, there is a 'set Howtall to pick random 4 to 8' block, which is circled in black. Below this, there is a 'switch costume to costume3' block, followed by a 'repeat Howtall' loop containing a 'stamp' block and a 'change y by 5' block. After the 'repeat until' loop, there is a 'switch costume to costume2' block, followed by a 'repeat 2' loop containing a 'stamp' block and a 'change y by 5' block. This is followed by a 'switch costume to costume1' block, a 'stamp' block, a 'change x by 8' block, a 'set y to -180' block, and finally a 'hide' block. Three yellow callout boxes are present: one pointing to the 'repeat until' loop with the text 'Creates columns until the sprite reaches the end of the stage', one pointing to the 'set Howtall' block with the text 'sets the randomized height of each column', and one pointing to the 'switch costume to costume2' block with the text 'Creates the distance between each column'.