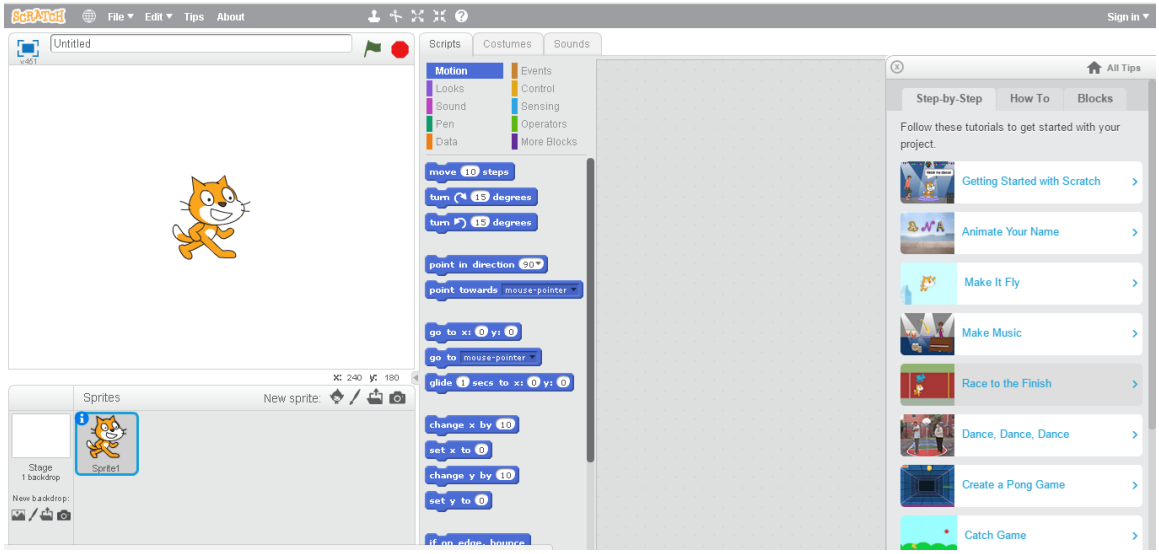
How Algorithms Work – Programming Structures

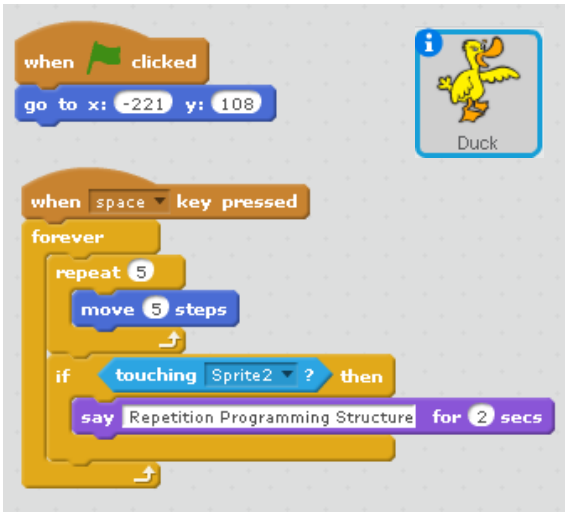
There are many ways one can solve a problem or perform a task. However, the more efficient an algorithm is for the game engine the faster a program can run. In this activity, you will see firsthand the 3 types of programming structures in Scratch and conclude which one is more efficient.

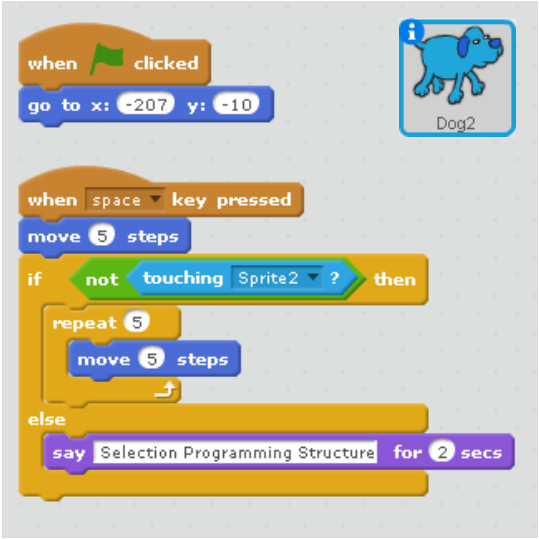
1. Go to *www.scratch.mit.edu*.
2. Click on the **Sign-in** or **Join Scratch Tab** to access your account.
3. Click on the **Create** tab.
4. Click on the **Race to Finish Game** on the right-sidebar of the step-by-step instructions. (If you don't see the right-sidebar as shown in the picture, make sure you click on the ⓘ icon.)



5. Follow the steps below in the tutorial:
   - Choose a backdrop (background) for the Race
   - Start moving
   - Move by pressing a key
   - Draw a finish line
   - If you reach the finish line
     - In this step, use the sequential code to the right for Sprite 1 (the Cat)
   - Go to your starting point
     - Use the x (-200) and y (-122) coordinates

- Add another Sprite to race
    - In this step, use the Selection code to the right for Sprite Dog2 (the blue dog)
- Before you personalize your game with sound (next step) add a third Sprite to race
    - In this step, use the Repetition (looping) code below for Sprite Duck





- Personalize your game
- Finally, save and share your project

Question:

After creating 3 different types of programming structure algorithms, which one is more efficient? Why?

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