## Project Number 1 Sailboat

1. First, we need to remove the cat. In the toolbar, click on the *Scissors*, then click on the cat on the stage. The cat sprite should disappear.

2. The first project is about a boat, so we need to put a water background on the stage. Click on the stage icon. Above the Scripts area, you will see **Stage** in the window and 3 tabs. Click on the center **Backgrounds** tab.

3. You now have the option to edit, copy, or delete the present background. Above this is the option to paint, import or use the camera to get a new background. Click on **Import**.
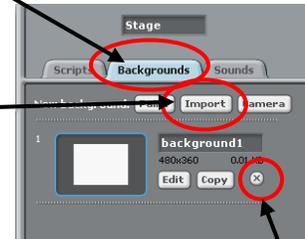
4. A new window will open with 4 folders and a x-y grid. Each folder contains numerous backgrounds that may be used in your projects. Double click on the **Outdoor** folder. Scroll down until you see the **City-with-water1** background. Click on **City-with-water1** and then **OK**. To remove the blank background, click the **X** beside background1.

5. Now we may insert a different sprite. (Note: you do not have to remove a sprite in order to add a new sprite.) Below and to the left of the stage are three sprite buttons. Click on the middle button.

6. A new window with six folders will open. Each folder contains a large number of sprites that may be used in Scratch. Double click on the folder to open it and view the collection of sprites. Use the scroll bar on the right to scroll through the sprites in each folder. To choose a sprite, click on the sprite and click the *OK* button.
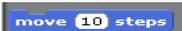
   For this project, the boat is located in the *Transportation* folder and is named *sail-boat*. When you add a sprite, it is important that you rename it immediately. This will minimize any confusion about the sprites identity while building the scripts. In the center section, double click on the name **Sprite1.** The name will be highlighted in blue. Type the new name in the space.

7. To position the sprite on the stage, click and drag the sprite to the desired location. The location of the sprite is shown in the x-y display located at the bottom, right of the stage. Remember the location is based on the center of the sprite. Move your sprite to the lower left corner (I chose x:-180, Y: -120.)

   Hint: Save often.

8. You may need to change the size of the sprite. Above the stage (beside the scissors) are two icons for changing the size. The one with the arrows pointing out enlarges the sprite; the one with the arrows pointing inward shrinks the sprite. Click on the shrink icon, then click on the sprite until the sprite (sailboat) is the desired size. To unselect, click in the gray area beside the icons. When you see the pointer, the enlarge/shrink has been removed.

9. There are several ways to make the sprite move. One way is to move the sprite in steps. Make sure the Motion scripts are visible in the Blocks Palette. Motion scripts are always blue. Find the script "*move 10 steps*". Click and drag it into the Scripts Area.

10. When you click on the script in the *Scripts Area*, the sprite will complete that command. You can change the value of the steps by click on the number (10) inside the white space. The value to be highlighted in blue. Type the new value of 40 and press *Enter*. Notice the sailboat moves in the direction the sailboat is pointing. For the sailboat to move from left to right and up, you need to move the sailboat in the x and y direction. Remove the *"move 10 steps"* script by clicking and drag the script into the left column with the other scripts. Simply drop the unwanted script anywhere in the left column.

11. Add *"change x by 10"* and *"change y by 10"* to the *Scripts Area*. Notice that each script has an indentation and a bump similar to a jigsaw puzzle. If the shapes match, then the scripts will fit together. Click on the connected script and notice the movement of the ship.
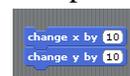
12. The sailboat is moving too far in the y direction. Change the x and y movement until the sailboat is gently moving across the water. (I chose x = 4 and y = 2.)

13. You have to click on the script each time you want to sailboat to move. A script is needed to make Scratch repeat the *change* scripts multiple times. This type of script is called a loop.

14. Thus far you have been working with the Blue Motion Scripts. In the upper left corner of the Scratch interface, you see 8 buttons with different colors containing different types of scripts. The color coding helps to identify the types and locations of scripts. Click on the Yellow Control button. Scroll down and drag the *forever loop* onto the Scripts Area.

Hint: Save often.

15. Click and drag the *change x…and change y…* scripts into the *forever loop*. When the white line appears in the middle, open area of the loop, release the scripts.

16. When you click the new set of scripts the sailboat moves completely off the stage. This is not the desired movement. To stop this from happening, you would need to click the red stop button in the upper right corner or change the forever loop.

17. First, you need to remove the *change x….and change y* scripts by clicking on the top script *change … by …* and drag them outside the loop. Then drag the *forever loop* to the left, into the *Blocks Palette* (totally out of the Scripts area) to delete the forever loop.

18. Drag the *repeat 10 loop* onto the Scripts Area and place the *change* scripts in the *repeat loop*. You may need to reposition your sailboat before testing the new script.

19. To change the number of times the loop is repeated, click in the white area containing the number. When the number is highlighted, type in a different number.

20. We need a way to start the script without have to click on the script. Drag the *when (green flag) clicked* control script onto the Scripts Area and attach it above the *repeat loop*. Clicking on the green flag in the upper right corner of the Scratch interface will start the animation. (Hint: clicking the red stop sign will stop an animation.)

21. A sprite may have more than one costume. Click on the *Costumes* tab located above the Scripts Area. Click on the *Copy* button. As second costume, identical to the first one is created. It is important to create a copy before editing the first costume or you lose the original costume. The second costume is named sail-boat1; you do not need to rename the costume.

22. Click on the *Edit* button for sail-boat1. We want the sailboat to appear as if it is on fire. Use the paint palette and tools to modify the costume. When you have finished, click *OK*. Before leaving the Costume area, make sure the first costume (sailboat – the one not on fire) is selected.

    Hint: Save often.

23. Click on the purple *Look* button. Drag the *switch to costume* script below the *repeat loop*. Make sure it indicates to switch to costume *sail-boat1*. Click on the green flag to start the animation.

24. The action may have been correct for the first test but not the following tests. We need to place the sailboat with the original costume in the correct location prior to starting the loop. Use the *switch to costume* and *go to x: ...y:...*, scripts to put the original sailboat in the correct location. Experiment with placing these two scripts before the loop and at the end. What were the differences in the animations?
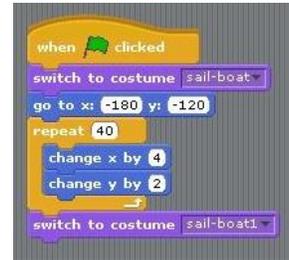
25. You may add to the story line by making additional costumes (NOT sprites) for the sailboat. In the paint editor there are numerous tools to change the size, erase, rotate, etc. You may add sprites if you need to add other boats, airplanes, cannonballs, etc. to your story.

Create a new animation using the scripts learned in this lesson. Use the paint palette to create new costumes for the sprite.
Suggestions: airplane, car, train, bird.
Be sure to save your work prior to starting a new project or a new story.