

GUTS Introduction to Starlogo TNG

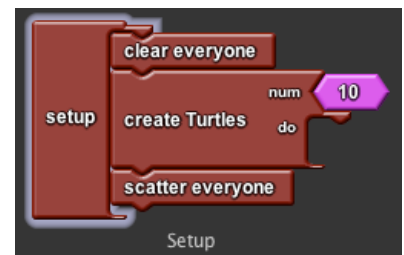
Bumper Turtles

In this activity, you will make a program in which the agents move and respond to their environment.

New Skills: making a procedure, using logic blocks, editing the terrain

Setup Block

From the Setup and Run drawer, pull out a **Setup** block and place it on the Setup column, then attach a **clear everyone** block to it. Get a **Forever** block and place it in the Runtime column. We will use these blocks to build the program.



From the My Blocks blue drawers, go to the Turtle drawer and get a **Create Turtles num/do** block to connect to the Setup. Back in the Factory, get a **scatter everyone** block from the Setup and Run drawer. Go to Spaceland and see if your Setup button works. At this point you should save your project.

Forever Block

On this block we could add all of the movements, but instead we will create a **procedure**. A procedure is a set of commands that are repeated in the program. A procedure is usually 'called' by the forever block or by another procedure.

Making a procedure

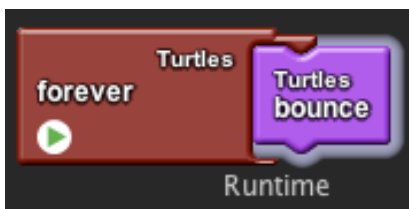
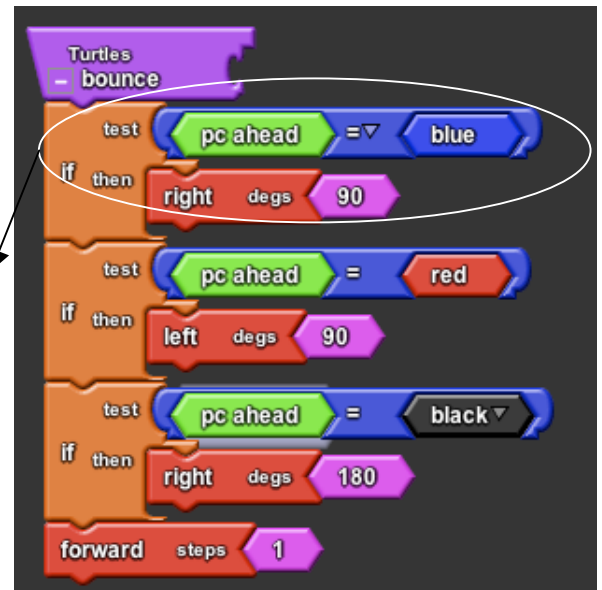
Go to the Procedure drawer of the Factory and pull out a **procedure** block and place it in the Turtle page. Click on the word 'procedure' and a black box will appear where you can change the name of the procedure to 'bounce.'



Logic and PC Ahead blocks

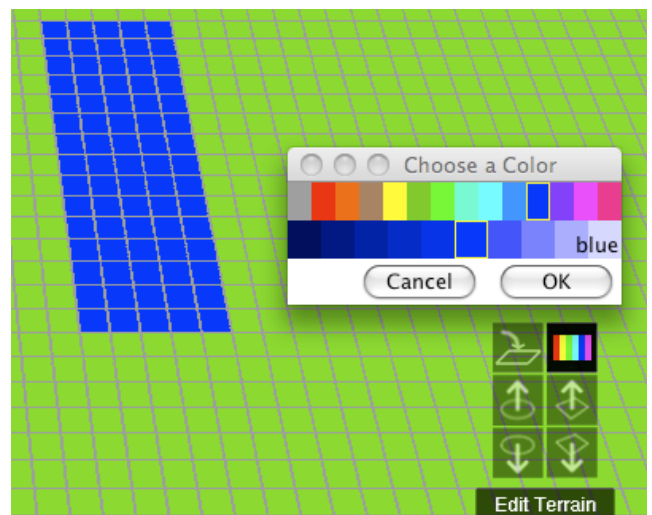
All of the turtle movement and how the turtle reacts to the environment will be created under this **procedure block**. The turtle will be reacting to the blue, red and black colors in Spaceland. In order to do this, we will need to use **logic** blocks for each color and a **pc ahead** block (pc stands for patch color). The way this code might read is: "If the patch color ahead is blue, then the turtle will turn to the right 90 degrees." Finish the bounce procedure so that it looks like the code to the right.

You have now created a procedure but it won't be activated in the program unless it is somehow either directly or indirectly connected to the **forever** block. In order to do this, go into the Turtle drawer and you will see the Bounce procedure block there. This block is the one that will be connected to the Forever block. It didn't exist in that drawer until you created it!



Spaceland

Use 'edit terrain' to add some blue, red and black areas. Make sure that you use the true blue, red and black colors and not the 'blue - 1' color. Believe it or not, the exact color name really does matter. When you hit the Edit Terrain button a grid will appear. Use your mouse to highlight different areas and then pick the 'rainbow stripes.' A new window will appear and you can choose what color to make it. The colors you choose must correspond to the colors you have in your Bounce procedure. When you're in edit terrain mode, you cannot change your spaceland view using mouse controls.



Now test your Bumper Turtle program and don't forget to save it! Now try making a maze that your turtle needs to get out of.