Teacher Lesson 13: Learning to Code Repeat Loops

Using the Rugged Robot app, the Tuff-Bot Online Emulator, and the TacTile Code Reader, students can repeat a set of commands. Being able to repeat commands allows them to:

- create more compact code
- more easily draw shapes and other designs.
- look for patterns that they can repeat
- plan more complex routes

The repeat function is a powerful tool to learn to use in any coding language.

Coding Repeats in the Online Emulator:

To start a repeat loop, click this button:

The button is initially set to 2 loops, but clicking the button adds 1 more loop, and you can continue up to 8 loops.

Then add the commands you want to repeat. To end the repeat, click this button.

Here is a set of commands that will move in the shape of a square.

Coding Repeats in the TacTile Code Reader:

As you will learn in the next lesson, the TacTile Code Reader allows you to control Tuff-Bot remotely using Bluetooth, just like the Rugged Robot app. The way you create repeat loops is different, however.

To create loops, you need to add the Extension Tile Pack, which gives you 45 degree angles and repeat capabilities. Read more here: www.terrapinlogo.com/extension-tiles.html

To have Tuff-Bot move in the shape of a square, you would use this order of tiles:

Note that the number of times to repeat comes at the end, which is different from the emulator repeat command.

See the next page for how to code repeats using the Rugged Robot app.
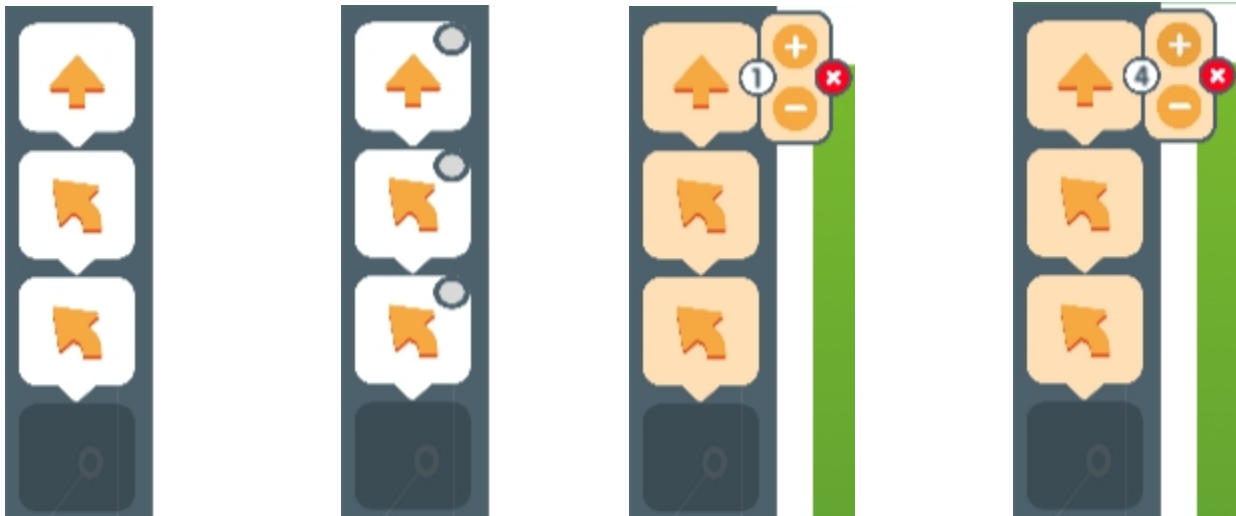
Coding Repeats in the Rugged Robot App:

To code repeat loops in the Rugged Robot app, you need to enter "Explore Mode" when you start up the app.

To have Tuff-Bot move in the shape of a square, as in the previous activities, do the following:

1. Press the buttons for Forward, Left turn, Left turn.

2. Then press the "Repeat a section" button. Dots will appear after the commands.

3. Select the first and last buttons in the command list to select that group. When you select the top button the clear dot will turn orange. When you press the bottom one, all three will be selected and you will see a number 1 in a circle. This indicates that the commands would be repeated one time.

4. Click on the + sign until it shows 4.

Now you can press **GO** in the app to send Tuff-Bot around a square shape.

Note that you can practice creating repeat loops in the app even if it is not connected to Tuff-Bot. Just click the **X** to close the pane that is open when the app says it cannot find Rugged Robot (Tuff-Bot).

Coding Repeats in Logo:

Use a command like this: `tuffbot.write [repeat 4 [fd 1 rt 90]`
Then: `tuffbot.go`