



Drone: Efficient Drone Control with Loops

Welcome to Drone Flight Basics!

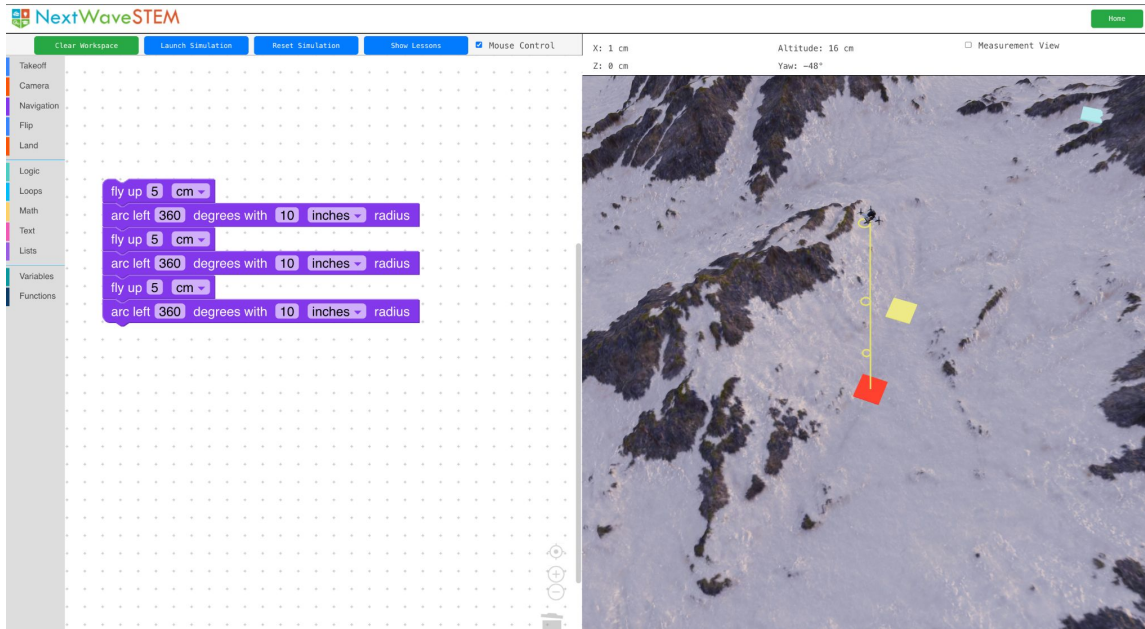
Loops help us repeat tasks without writing the same instructions multiple times.

- **repeat x times:** Repeats a set of instructions a specific number of times.
- **while condition:** Executes a block of code as long as a condition is true.

"Loops are especially useful for creating patterns, exploring large areas, or performing repeated actions like flips or photos."



Drone Loops



The screenshot displays the NextWaveSTEM interface. On the left is a sidebar with categories: Takeoff, Camera, Navigation, Flip, Land, Logic, Loops, Math, Text, Lists, Variables, and Functions. The 'Loops' category is selected. The main workspace contains a code block with the following sequence of actions:

- fly up 5 cm
- arc left 360 degrees with 10 inches radius
- fly up 5 cm
- arc left 360 degrees with 10 inches radius
- fly up 5 cm
- arc left 360 degrees with 10 inches radius

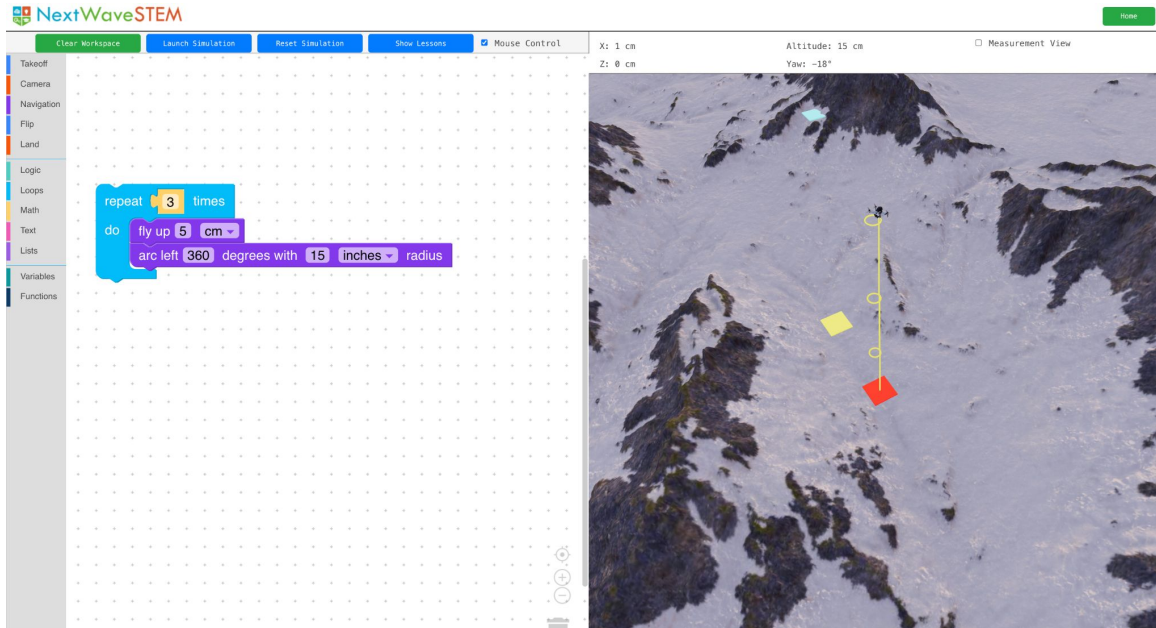
On the right, a 3D simulation view shows a drone (represented by a small blue icon) flying over a snowy, mountainous terrain. A yellow line indicates the drone's path, with a red square at the start and a yellow square at the end. The top status bar shows: X: 1 cm, Altitude: 16 cm, Z: 0 cm, Yaw: -48°, and a 'Measurement View' checkbox. A 'Pause' button is visible in the top right corner.

What is the outcome of this launch? What is the outcome of this launch?

Show your instructor the image captured by the drone.

Drone Loops:

Loops are especially useful for creating patterns, exploring large areas, or performing repeated actions like flips or photos.



The screenshot displays the NextWaveSTEM drone simulation interface. On the left, a sidebar lists various drone actions: Takeoff, Camera, Navigation, Flip, Land, Logic, Loops, Math, Text, Lists, Variables, and Functions. The 'Loops' category is selected, showing a script with a 'repeat 3 times' block containing two sub-actions: 'fly up 5 cm' and 'arc left 360 degrees with 15 inches radius'. The main area shows a 3D view of a drone in flight over a snowy, mountainous terrain. The drone's path is indicated by a yellow line with circular markers. A yellow diamond marker is at the start, and a red square marker is at the end of the path. The drone is currently at the top of the path. The top right corner shows the drone's position: X: 1 cm, Z: 0 cm, Altitude: 15 cm, Yaw: -18°. A 'Measurement View' checkbox is also visible.

What is the outcome of this launch? What is the outcome of this launch?

Show your instructor the image captured by the drone.



Now It's Your Turn!

Experimenting with Drone Movement

Your Task:

1. Use a loop to fly the drone in a square path.
2. The drone should move forward 10 cm, then turn 90° to the right, and repeat this four times to complete the square.
3. Land the drone on the yellow platform.

Blockly Steps:

- Use a **repeat 4 times** loop to execute:
 - **flying_forward_distance (10 cm)**
 - **yaw_right (90°)**
- Add **land** after the loop ends.