

# Dance the Loopey-Loop

## Description

The goal of a good programmer is to write a program that is a short, clear, and effective as possible. In this lesson, students will learn how write programs using loops.

## Subjects

**Coding**

## Group Size

2 - 4 students

## Target Grades

3 - 5

## Time Required

1 hour

## Objectives

- Learn how to effectively use loops in programs.

## What You'll Need

## Robots & Accessories



Dash

## Downloadable Materials

- [Dance the Loopedy Loop - Evaluation Rubric.pdf](#)

## Other Supplies

- Tablet
- Whiteboard and markers
- Fun bits of fabric and stickers to use to dress up the robots, if desired.

## Lesson Procedure

This lesson can be broken into three sections.

Part 1: Why Use Loops (10 minutes) Part 2: Understanding Different Types of Loops (25 - 30 minutes) Part 3: Robot Dance Party (30 minutes)

- [Class 1](#)
- [Class 2](#)
- [Class 3](#)
- [Educational Standards](#)

# Why Use Loops

Have students stand up. Tell students you're going to give them some instructions.

- Say "jump" 5 times (as in "jump, jump, jump, jump, jump").

Ask students what you asked them to do. That answer you are looking for is "Jump 5 times".

Ask students how you could have asked them to do the same action in an easier or more simple way. That answer you are looking for is "Jump 5 times".

Do this again by saying "Wiggle your ears, touch your toes" three times. Ask students to tell you what you asked them to do and push for the simplest answer ("Wiggle my ears and touch my toes three times").

Challenge students to write out the steps that they would have to follow to walk in a square. Are any of those steps repeated? Challenge students to write those steps using “Repeat X number of times” followed by a list of steps.

- To draw or walk a square, the steps could be as follows:
  - Repeat 4 times
    - Walk forward
    - Turn Left

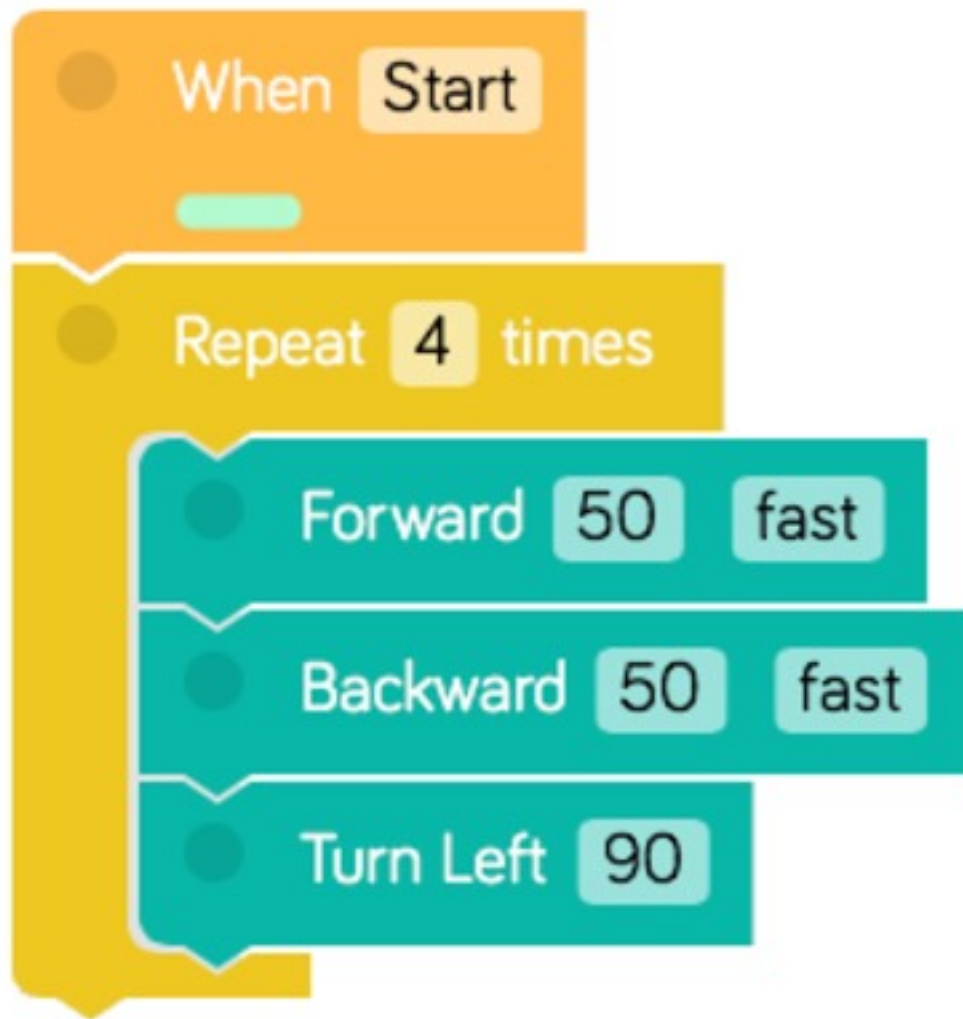
## Understanding Different Types of Loops

Make the link between the previous activity and programming.

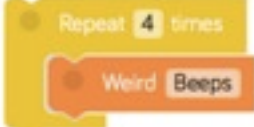
- In programming, we try to write code that is as simple and easy to read as possible. Additionally, we try to write code as concisely as possible (in the smallest number of lines, or “blocks”).
- In order to make our code the best it can be, we need to look for “loops” or patterns in the instructions we need to tell Dash and Dot.



Show students these two sets of code to compare. These bits of code are doing the exact same thing, but which one is easier to read? Have students discuss which code is better and why.

```
When Start
  Forward 50 fast
  Backward 50 fast
  Turn Left 90
  Forward 50 fast
  Backward 50 fast
  Turn Left 90
  Forward 50 fast
  Backward 50 fast
  Turn Left 90
  Forward 50 fast
  Backward 50 fast
  Turn Left 90
```



Discuss the 3 types of loops that are found in Blockly. Do a quick “unplugged” activity with students to demonstrate each type of loop.

Loop	What does it do?	Fun Activity With Students
Repeat [#]	<p>This block repeats the code inside the block the given number of times.</p>  <p>In this code, Dash will "beep" 4 times.</p>	<p>Tell students to "Repeat 3 times, touch your toes, touch your nose". Watch students do the actions to see that they understand that they need to repeat the given actions 3 times.</p> <p>Pass the control over to a couple of students and ask them to each give their class instructions in that form "Repeat X times, actions".</p>
Repeat Until [event]	<p>This block repeats the code inside the block until the given event occurs.</p>	<p>Tell students to "Repeat until I turn the lights off: wave your arms".</p> <p>Let students wave around and</p>

	 <p>In this code, Dash will Beep until someone presses the top button.</p>	<p>then turn the lights off. Students should stop waving their arms.</p> <p>Pass the control over to a couple of students and ask them to each give their class instructions in that form "Repeat until [event], actions".</p>
Repeat Forever	<p>This block repeats the code inside the block forever.</p> <p>Of course, the code will stop playing when the Stop button is pressed, or the loop could be broken when another When block is triggered.</p>  <p>In this code, Dash will beep forever, or until the Stop button is pressed (or Dash runs out of power!).</p>	<p>Tell students "Repeat forever, tap your nose."</p>

Teach the kids the chicken dance using looping. Write or project the following instructions onto the board.

- Repeat Forever:
  - Repeat Until Music Changes

- Beak Hands
- Flap Wings
- Shimmy
- Clap
- Repeat until music changes
  - Repeat Twice
    - Join arms and swing in one direction
  - Repeat Twice
    - Join arms and swing in the other direction

Demonstrate each move with the kids then turn on the music and let them dance away! Stand at the front and point at each of the directions as they come up in the loop (like the dot moves with the program in Blockly).

## Robot Dance Party

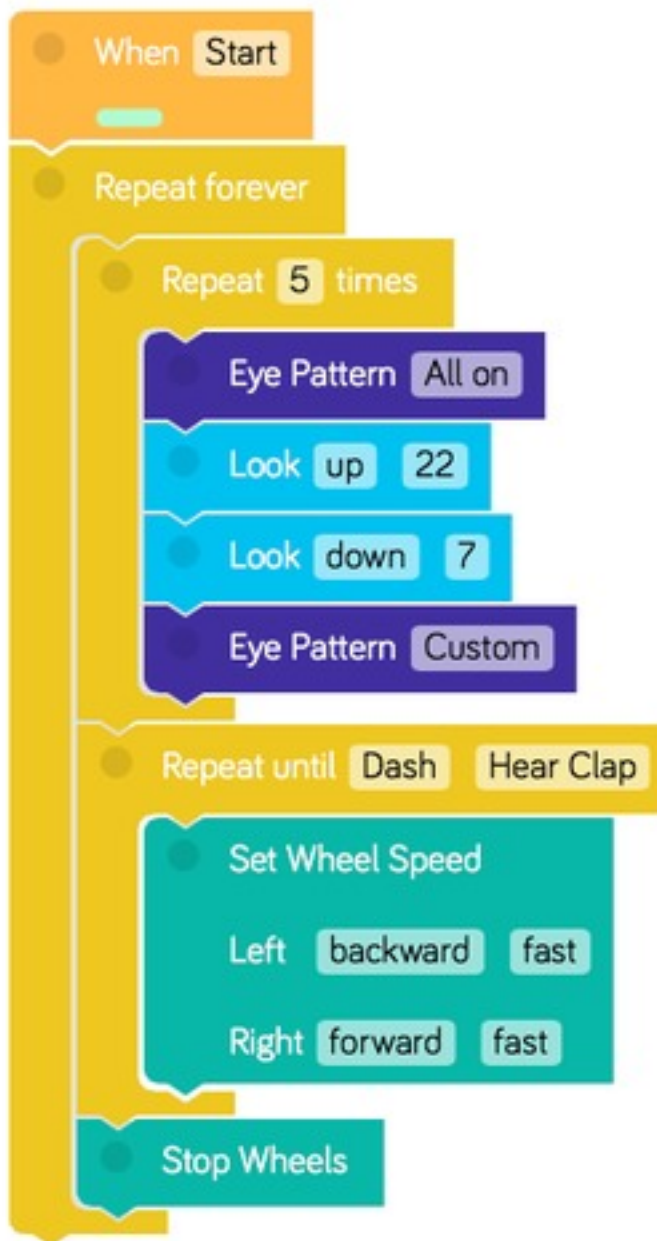
Show students the Wonder Workshop Robot Dance Party video @ <https://www.youtube.com/watch?v=s62Uny9okY0>

Challenge students to design a dance that Dash will do to music. Either select a song for students or allow students to pick a song from a selection.

Students will use the Repeat blocks to define Dash's dance.

- They can use the Repeat # and Repeat Until blocks to define patterns in Dash's dance
- They can use a repeat forever block to have Dash repeat the entire pattern until students press stop.
- Note: Tell students to avoid using "hears voice" trigger for Dash as it could be much harder to trigger with music playing.

Here is an example dance!



When Start is pressed, Dash will do the following loop until the Stop button is pressed.

- Repeat 5 times
  - Turn eye light on
  - Bob head
  - Turn half of eye light off
- Spin in a circle until a clap is heard then stop



Each group will have their Dash dance solo to the music for at least one loop of the full program. Students will explain how they used loops to create their dance

Groups will then perform their dance with other Dashes to have a robot dance party!