Looping Dance Party

Educator's Guide

Overview

CS Hands-On is a 501(c)(3) nonprofit teaching computational thinking skills through technology-free lessons and activities. This curriculum is built to teach fundamental computer science concepts in an engaging, hands-on way. In this mission, students create a dance routine using loops to repeat actions.

Prerequisite Knowledge

Loops repeat a sequence of instructions until a criteria is reached. For repetitive tasks like writing your name 100 times or drawing 50 triangles, loops organize instructions and save time.

Lesson Details

At Patteron, students will learn to find and distinguish different patterns with Pancho the Snail. Students will create a repetitive dance routine, then use loops to shorten and organize their steps.

This lesson was developed for students ages 8 to 13 and can be modified for all skills and ages. This lesson takes around 30 minutes.

Learning Objectives

Key Question

How can you create a loop to repeat dance moves in a dance routine?

Key Terms

Loop: Repeats a sequence of instructions until a certain criteria is reached

Curriculum Standards

Students should be able to...

- Explain the purpose of loops for a repetitive task (Patterns)
- Read, write, and interpret loops (Literacy)
- Explain loops through a repeated dance routine (Creative Arts)

View standards addressed here

Lesson Plan

Materials

- Looping Dance Party worksheet (per student)

Setup

- Hand out a Looping Dance Party worksheet to each student
- Set up your classroom to form students in groups of 2-4

ANSWER KEY & LESSON ANNOTATIONS

Patteron
Mission 1

Name: _____ Date: _____

Looping Dance Party

It's Time to Dance!

At Patteron, Pancho loves blasting jazz music and dancing in the breezy air. Get ready to move with Pancho as you create your personalized dance loop routine!

What are loops?

A **loop** repeats a sequence of instructions until a certain criteria is reached. In computer science, we use loops to **repeat actions** as many times as we need.

Why Pancho loves loops:

At Patteron, Pancho loves using loops to dance to his favorite tunes. He writes down his routine on how to dance his classic *Pancho Swing*, *Twisted Bop*, then *Dynamic Dunk*, which he joyfully repeats 4 times. As you will discover later, Pancho loves loops because they help him **shorten** and **organize** his steps!

Let's Get Movin'!

Today, you'll be making your own dance loop routine like Pancho has! Start by listing your three of your favorite dance moves below.

My Top 3 Dance Moves:

the Disco | the cha cha slide | bunny hop

CS Hands-On Looping Dance Party 1

Reflect

When do we repeat sets of instructions in our everyday life? Examples could include walking (repeating left step forward and right step forward), breathing, and jumping rope.

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Awesome! Now, brainstorm a dance combo with your top 3 dance moves. In your dance instructions below, write your combo down 4 times. Each set should have the same instructions since you will be repeating your dance combo every time!

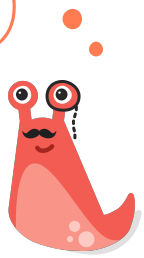
Ex. Set 1: "Pancho Swing" "Twisted Bop" "Dynamic Dunk"
Set 2: "Pancho Swing" "Twisted Bop" "Dynamic Dunk"
Set 3: "Pancho Swing" "Twisted Bop" "Dynamic Dunk"
Set 4: "Pancho Swing" "Twisted Bop" "Dynamic Dunk"

My Dance Routine

Set 1:	the Disco	the cha cha slide	bunny hop
Set 2:	the Disco	the cha cha slide	bunny hop
Set 3:	the Disco	the cha cha slide	bunny hop
Set 4:	the Disco	the cha cha slide	bunny hop

Consider this:

What if you were in the mood to dance and wanted to create instructions for repeating your dance combo 100 times? Imagine how much time writing out each dance move 100 times would take! Lucky for us, we can use loops to write out these instructions in much fewer lines.



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Educator Note

Explain to students that we must write down our instructions word-for-word for us to understand the dance routine. Once students continue to write the same instructions repeatedly, they should find this process time-consuming and inefficient!

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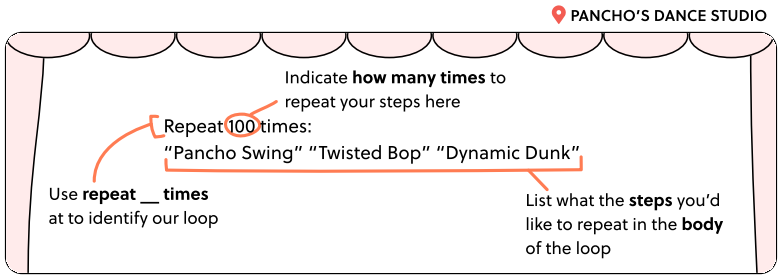
Mission 1

How to Make a Loop

Take a look inside Pancho's dance studio to learn how to write a loop! In this case, the above instructions will tell us to "Pancho Swing", "Twisted Bop", and "Dynamic Dunk" 100 times.



Your Turn!

Create your custom dance loop and perform this with a friend. You can change the repetitions, write new dance moves, and make this loop as crazy as you like.

Repeat 5 **times:**

the Disco | the cha cha slide | bunny hop

Reflection

Why do you think loops are important to use?

Loops are important to use because they shorten repetitive instructions. They also save time by only needing to write a set of instructions once!

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Educator Note

Explain to students the syntax of a loop. Repeat this syntax with other real-life examples brought up in the previous discussion. Once they become more familiar with making loops, ask them what differences they notice using loops rather than not using loops.

We would notice shorter and more convenient instructions because we wouldn't have to write the same instructions repeatedly.

Extension

For students who finish early, have them try to write a loop that represents the macarena dance. Students can also work on creating loops based on repetitions in their everyday life.

Educator Note

Loops allow us to save time by repeating instructions instead of writing each one individually. In programming specifically, we use loops to reduce the lines of code in a program. Having too many lines of code can be time-consuming to type and make the program laggy.

Wrap up & reflect

Group students into pairs and have them discuss the following reflection questions. Afterwards, have students share their ideas as a class.

- What are three scenarios that loops could be used to model?
  Ex. The water cycle, a daily schedule, and running laps around the track.
- When would loops be considered a good option to model a scenario?
  Ex. Loops are great for modeling repetitive scenarios.