Lesson 7 Read Loops 2

Overview

Students practice reading code by predicting and stepping through the code of enemies 1-3 in the maze game. Enemies have repeating behavior so students will have to be comfortable reading code that has loops.

Objectives

- I can step through and act out code that contains a loop.

- I can predict the effects of code that contains a loop.
- I can summarize what a section of code does on the stage.

Agenda

Small Group: (20 min)

1. Engage: Super Mario (5 min)
2. Elaborate: Stepping Through Loops (10 min)
3. Evaluate: Salsa Practice (5 min)

Independent Coding Practice: (20 min) Code.org Course 2 Stage 8: Bee Loops

Materials

Teacher Materials:

- Lesson 7 Slides
- Projector
- Unplugged Platform
- Piece of Paper

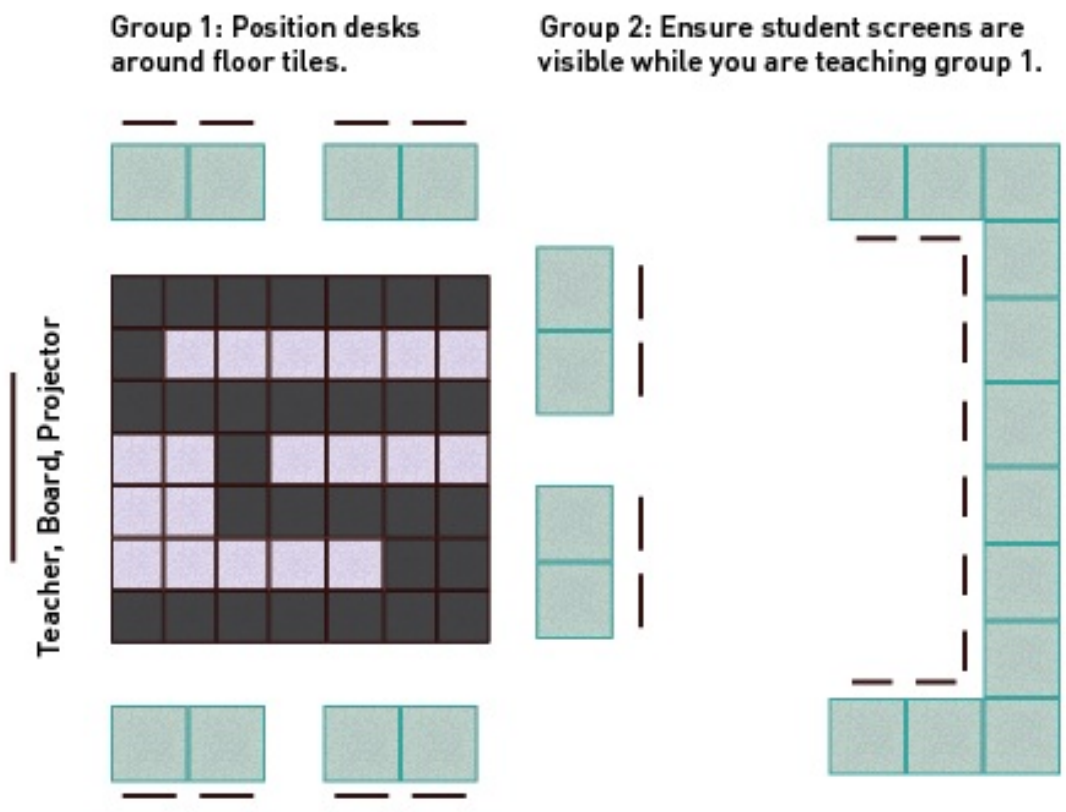
Student Materials:

- Index cards (1 per student)
- Idea Journals
- Pencils
- Dry erase markers (1/2 class set)
- Handout: Maze (1/2 class set)
- Enemies Character (1/2 class set)
- Salsa Cards
- Computers

Vocabulary

- Loop: A sequence of instructions that is continually repeated until a certain condition is reached.
- For-Loop: A type of loop that specifies the number of times to repeat the nested sequence of instructions.

Room Design


Group 1: Position desks around floor tiles.
Group 2: Ensure student screens are visible while you are teaching group 1.
Teacher, Board, Projector

Symbols Key

help
question

check_circle
answer

action item

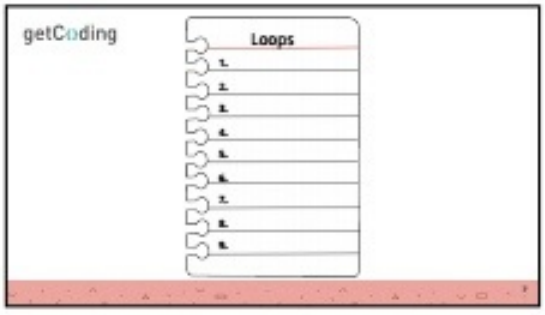
Engage: Super Mario (5 min)

Unearth loops in examples of video games: Students turn to the next blank page in their idea journal and title it Loops. Play the Super Mario Bros. video and have students create a list of examples of actions that may be coded as a loop in the video game.

> vpn_key
>
> Key Points
>
> Loops allow us to repeat sequences without having to write out the entire sequence multiple times.

Think Pair Share: Students share their list of loops.

Slides:



Elaborate: Support Stepping Through Loops: (10 min)

Show students the code for Enemy 1.

help
What do you predict this code will do?

check_circle
Answers will vary

> lightbulb_outline
>
> tip
>
> The "Wait 1 secs" block is necessary in Scratch to be able to see the Sprite's movement. When acting out the code, students can pause for one second every time they see this block.

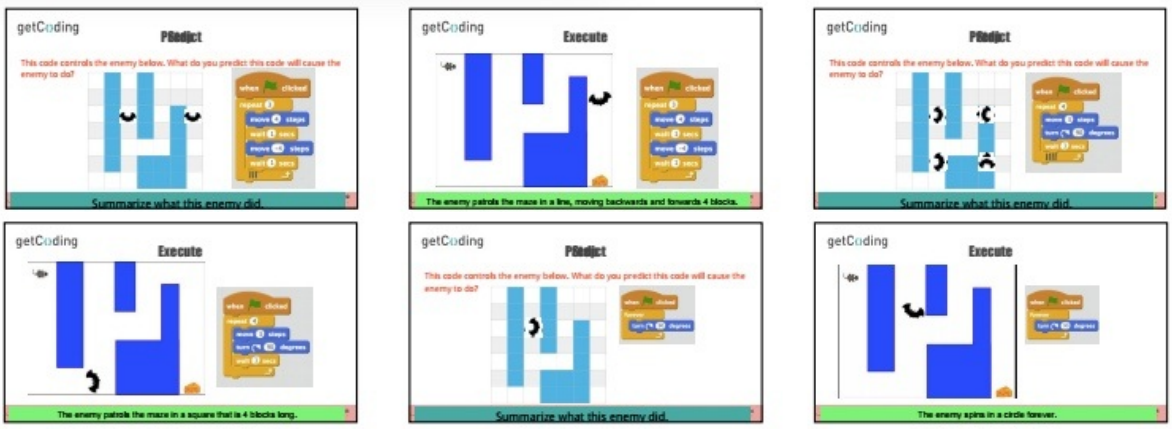
Step through the code using the strategy from lesson 6:

- Demonstrate uncovering each line one at a time using a sheet of paper (students use an index card).
- Make a mark at the end of the sequence each time you complete a loop.

For grades proficient in writing: Students write a sentence summary in their idea journals of each enemy's movements.

Repeat this process for Enemies 2 & 3.

Slides:


getCoding
Predict
This code controls the enemy below. What do you predict this code will cause the enemy to do?
Summarize what this enemy did.
getCoding
Execute
The enemy patrols the maze in a line, moving backwards and forwards 4 blocks.
getCoding
Predict
This code controls the enemy below. What do you predict this code will cause the enemy to do?
Summarize what this enemy did.
getCoding
Execute
The enemy patrols the maze in a square that is 4 blocks long.
getCoding
Predict
This code controls the enemy below. What do you predict this code will cause the enemy to do?
Summarize what this enemy did.
getCoding
Execute
The enemy spins in a circle forever.

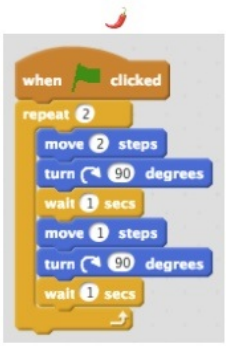
Evaluate: Salsa Practice (5 min)

In pairs students predict and step through the code from one of the four cards.

> lightbulb_outline
>
> tip
>
> The chili peppers represent the level of difficulty of a card. Four peppers is the most challenging.

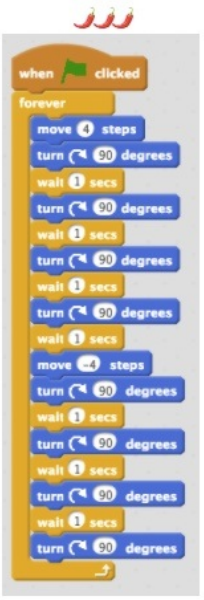
Observe student work to evaluate how comfortable students are reading loops.

Encourage pairs that finish early to try a more challenging card.

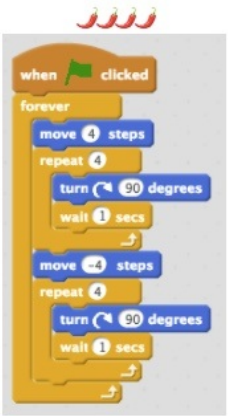


This enemy moves in a rectangle once.

This enemy moves back and forth 8 times, changing costume at the end of each set of steps.

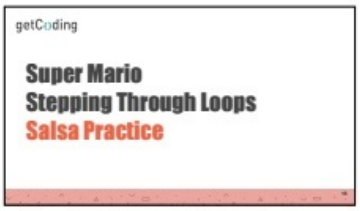


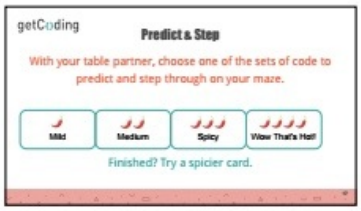
This enemy moves back and forth forever, spinning in a complete circle at the end of each set of steps.

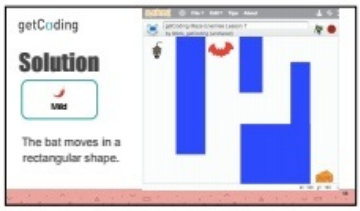


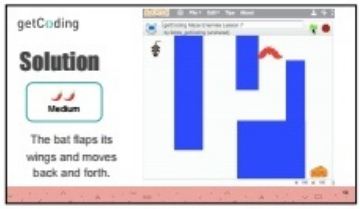
This enemy moves back and forth forever, spinning in a complete circle at the end of each set of steps. This is the same as the 3-chili pepper problem, but with nested loops.

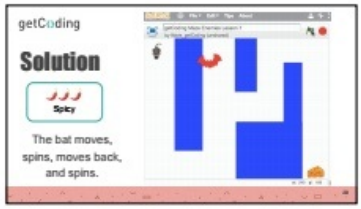
Slides:


getCoding
Super Mario
Stepping Through Loops
Salsa Practice


getCoding
Predict & Step
With your table partner, choose one of the sets of code to predict and step through on your maze.
Mild
Medium
Spicy
Wow That's Hot!
Finished? Try a spicier card.


getCoding
Solution
Mild
The bat moves in a rectangular shape.


getCoding
Solution
Medium
The bat flaps its wings and moves back and forth.


getCoding
Solution
Spicy
The bat moves, spins, moves back, and spins.


getCoding
Solution
Wow That's Hot!