ScratchJr Reverse-Engineering Assessment

Contents

1 Overview

This guide outlines how to assess students' understanding and sequencing of the programming blocks in the ScratchJr iPad app. This assessment was originally designed to evaluate student learning in K-2 classrooms after finishing the ScratchJr "Animated Genres" curriculum, but the method could be adapted to any ScratchJr curriculum.

2 Setting Up

To conduct this assessment, you will need the following:
- an iPad with ScratchJr installed
- a projector, preferably with a "blank screen" capability, to display the iPad's screen
- each "Solve-It" project pre-programmed on the iPad
- an answer sheet for each student
- stickers with ScratchJr blocks for each student

Make sure you know how to run and re-run all of the Solve-Its in Presentation Mode (tap the "Presentation Mode" icon; use the arrow on the multi-page Solve-It to return to the first page.)

3 The Assessment

Students view a ScratchJr project as it runs in "Presentation Mode" (so that they cannot see the blocks), and they re-construct the project's scripts using stickers with pre-printed ScratchJr blocks.

Before beginning the assessment, instruct the students as follows:
1. Write your name clearly at the top of the page.
2. We will show you a ScratchJr project, and you will reconstruct its scripts on a piece of paper using stickers that have ScratchJr programming blocks on them.
3. You do not need to fill in numbers for the blocks or words for the "Say" block. Just use the sticker as it is, with a blank number or word.
4. The time we give for each project will be limited. When we go on to the next project, turn your full attention to it or you will miss it. Do not try to finish up the previous project.
5. All answers should be your own. Do not look at anyone else's paper.

4 Running the Assessment

For each of the seven "Solve-Its" do the following:
1. Announce the number of the "Solve-It" so the students know where on the assessment paper to put their stickers.

2. Display the project in "Presentation Mode." Note: do not display the project on the projector's screen until you have put the project in Presentation Mode so that the students do not see the blocks that are being used in the project. If you have a projector with a "blank" button, you can blank the screen until you are ready. Otherwise, block the projector's lens from displaying on the screen or disconnect the iPad from the projector until you have put the project in Presentation Mode.
3. Make sure the class sees how you start running the program (whether by tapping a character or by tapping the green flag).
4. Re-run the program 2 more times so that the students get to see it run a total of three times.
   If the "Solve-It" is rated "Easy" wait 30 seconds between each run. Wait 1 minute for "Medium" "Solve-Its" and 2 minutes for "Hard "Solve-Its."
   If the program starts with a green flag, the characters will reset themselves to their original positions when the green flag is tapped. If the program starts by tapping a character, you will have to tap the green flag first in order to have all of the characters return to their original positions. Make sure the class knows that the green flag is not part of the program in that case-- it is only being used to return the characters to their starting positions (or, press the green flag while the iPad is not being projected on the screen).

At the end of the assessment collect the handouts.
Note: Students may omit the red "End" block except in the following cases:
- where it leads to another page
- where it causes the program to repeat infinitely.

5 The Solve-It Programs

1. Disappear, Then Reappear
This is a warm-up exercise to let the students become familiar with the "Reverse Engineering" activity. Review the answer when you are finished with this Solve-It to make sure the students understand what they need to do for the remaining Solve-Its.
Difficulty: Easy

2. Hop Twice, Wait, Hop Again
Difficulty: Easy

3. Turn Right and Left, Go Up and Down
Difficulty: Medium

4. Walk, then Run

Note: manually move cat to left side of stage before you program it.

Difficulty: Medium

5. Grow, Shrink, then Go To Outer Space

Difficulty: Medium

6. When Cat Touches Dog, Dog Disappears

Difficulty: Hard

Cat Program:

Dog Program:

7. Cat says "Do this" and Dances; Dog says "OK" and Mimics the Dance

Difficulty: Hard

Cat Program:

Dog Program:

Name:_____

1.

2.

3.

4.

5.

6.

7.