

Number Patterns and Counting with ScratchJr.

Brief Overview:

Students work in small groups to determine how many steps Scratch will take to walk across the stage. Students will use the ScratchJr app to code a program for counting by 1's, 5's and 10's.

Target Grade Levels:

1st

Time: 15-minute center rotations

Computer Science SOLs:

Target SOLs: 1.1, 1.2
Supporting SOLs: 1.3

Content SOLs:

Target SOLs: Math 1.1 a, d
Supporting SOLs: Math 1.14

Objectives:

Students will:

- Count steps by 1's, 5's and 10's (option to add: count by 2's)
- Identify numeric patterns
- Build algorithms (instructions) to create a computer program
- Apply critical thinking skills when debugging (testing) programs

Materials/ Prep:

- iPads or ActivPanel with app
- ScratchJr. App

CS Vocabulary:

- Algorithm -A list of steps to finish a task.
- Program - An algorithm that has been coded into something that can be run by a machine.
- Debug - Finding and fixing problems in an algorithm or program.

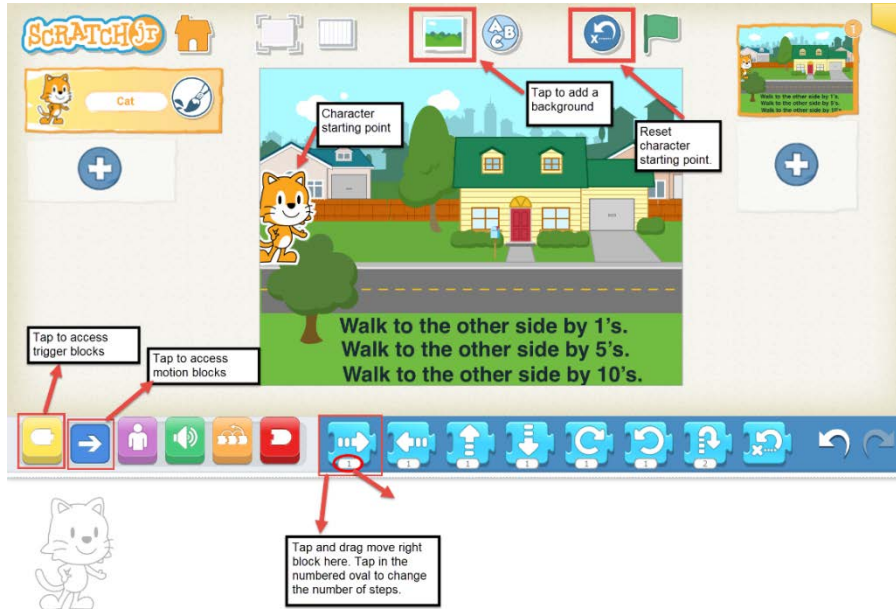
Teaching Guide:

1. Open the ScratchJr. App and create a new project.
2. Add a background and move Scratch to left side of the background.
3. Have students use the green flag start block and the move right code block to create a program that will move Scratch from the left to the right side of the screen counting by 1's, 5's and 10's. (See directions below for setup)
4. After students understand how to move around and use coding blocks give them another challenge with a new scene. For example, have them move Scratch to the surfboard in the beach scene or have them move Scratch to touch the globe in the classroom scene.

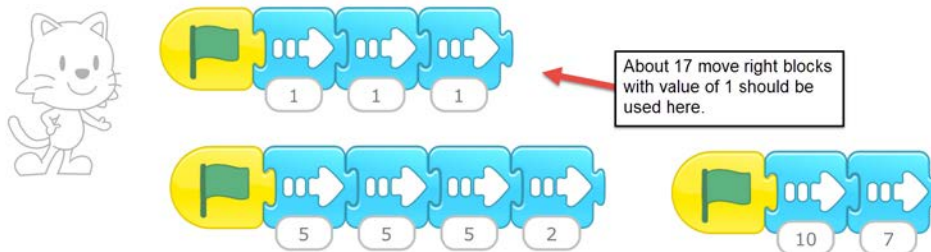
Credits and Links:

Number Patterns and Counting with ScratchJr

1. Open the ScratchJr App. Create a new project by tapping the plus button. Tap the picture icon (shown) to add a background. Move Scratch (the cat) to the left side of the screen (as shown). You may add text directions to the screen if desired by pressing the ABC button at the top. (Optional).



2. Have students take turns adding code blocks to the programming area and testing the program. If Scratch doesn't make it to the other side of the screen, the next student will reset Scratch and continue building on the code until they have enough steps to make it to the other side. Students will make 3 programs. One that counts by 1, one that counts by 5 and one that counts by 10. Programs might look like the images below. **Tip:** Tap the green flag for each program block to play that program only.



3. To reset the character position, tap the blue reset button at the top of the screen next to the background icon.



4. Alternatively, students can build their own reset code that looks like this:



More scenes to try that include up and down movements.

