Patterns in Nature	Grade 1 and 2
Coding Handout	

Activity 1: Seasons in a Loop

Firstly, we'll take a look at how to create a loop with ScratchJr by changing the backgrounds. To start we will select four backgrounds, one for each season and put them in order.
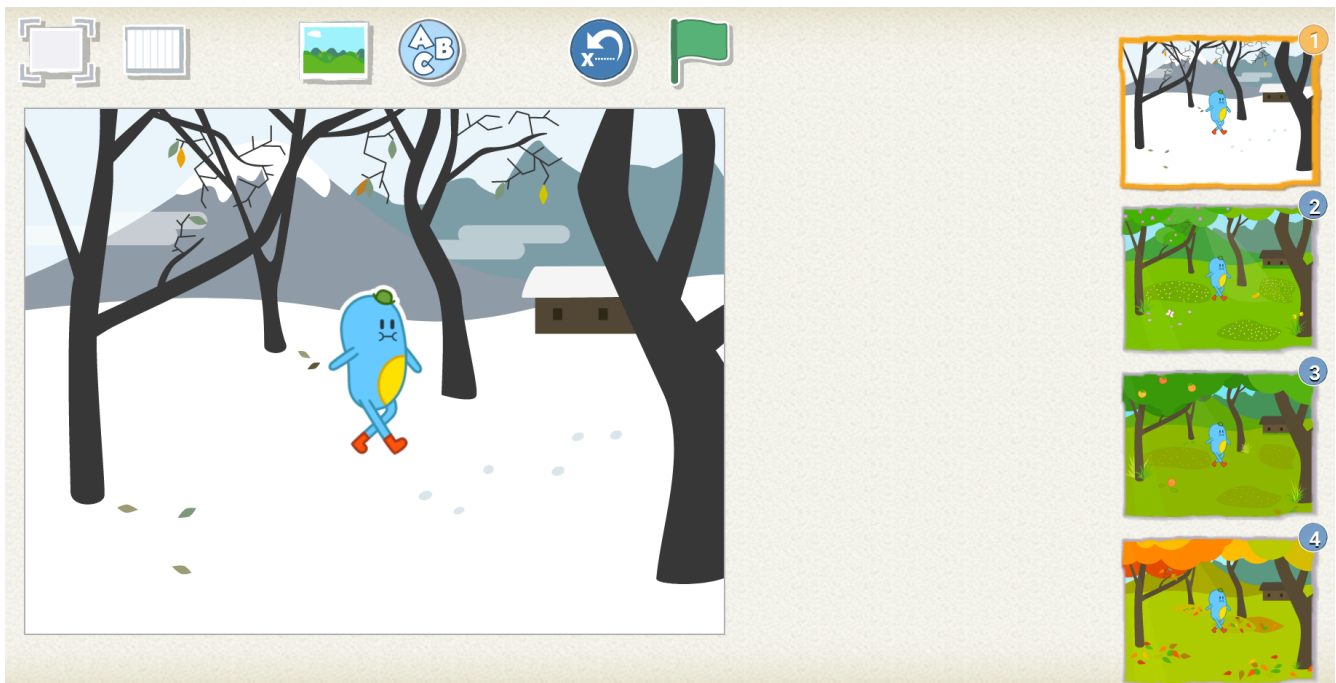
Here we can see the code blocks used for the first background on the first page. The flag block indicates that the code will start when the flag is pressed. The next block indicates a pause. The pauses are measured in a tenth of a second. This means that a number 10 here will pause for 1 second. A number 20 would pause for 2 seconds. The last block indicates that we will end by going to page 2.

Once we get to page 2, the code will follow the same pattern. We have the start, pause and switch background blocks again.
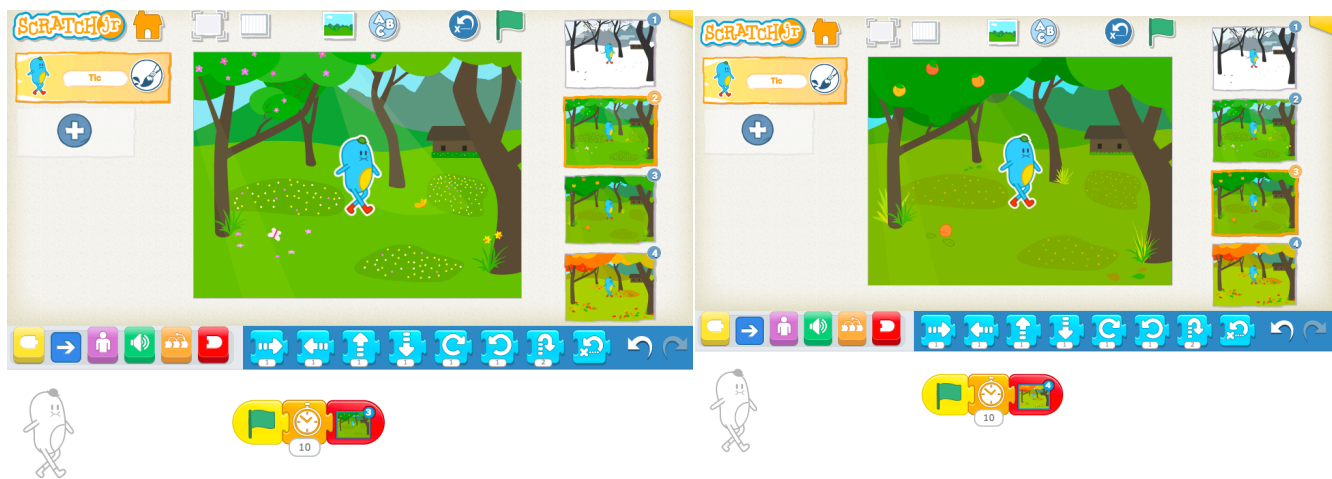
We can see that after page 2, the code blocks say to move to page 3. We repeat the same process so that page 3 moves to page 4.

The final step to finish this loop will be coded into the last page. Once we use a code block to bring up the page 1, the code will restart and the cycle begins.

This activity can be done together on a smartboard or independently on iPads. If students are looking to be challenged, you can show how to make the first transition then have them try to code the other three seasons by themselves. Here is what the final code looks like:

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2

Extension: To add to the activity, the character can be replaced or given actions. In the following example, an animal goes through one full seasonal cycle.

In the winter, the hare hops around in its white coat. We see the start code block followed by movement blocks that indicate a number of spaces in a given direction. Finally, we have the code block that indicates the page change.

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3

In the spring, the hare's coat will begin to darken. Page 2 starts with the Show block. This fades the character into view. It is used to show the change in coat. There is then a pause and switch to page 3.

On page 3, in the summer, the hare hops around in his dark coat. We see again, the movement, pause and change page blocks.

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4

Finally in the fall, we see the coat changed hare appear and pause before restarting the cycle at page 1.

Activity 2: Conditional Statements for Animals

In the following section is an example of a conditional statement that depicts a seasonal change in an animal. The Idea Handout has a list of animals included in Scratch that do different actions depending on the season. We chose the frog for this example but students can choose any animal they'd like:

If it is spring,
      Then the spring peepers are peeping

To do this in Scratch Jr, choose the appropriate character as well as the seasonal backdrop that fits the conditional statement.

Once the frog and the spring backdrop are select, the frog executes the 5 movement blocks, the pause and then the page turn.

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5

On the second page, the background was updated to include the speech bubble. A spring peeper sound was recorded and added to the sound tab. The sound is played when the page turns, then there is a pause and the code ends.

This is one example of how we can represent animals in seasons. The code will vary depending on the animal. Encourage students to be creative when coding this section!