Hour of Code Activity:
Can I Make My Characters Greet Each Other?

Overview

Children will use the ScratchJr programming app to make a program in which a kitten and a dog "meet" each other and exchange hellos. With this activity, children will use a variety of ScratchJr features, including **adding characters**, moving characters to start in a specific position, using the **say block** to add speech bubbles so characters can communicate, and utilizing the **number pad** to control how many times a character completes an action. Furthermore, "Can I Make My Characters Greet Each Other?" will introduce children to more complex programming concepts such as the **start on message block**, and the **start on bump block**, which will prepare children for creating projects in which one character's actions are dependent on the other's. Putting all of these components together to create the "Can I Make My Characters Greet Each Other?" program will enhance children's math, reasoning, coordination, and storytelling skills.

Goal

"Can I Make My Characters Greet Each Other?" is an advanced activity meant for children in kindergarten through second grade who have prior experience with programming to master more advanced features of ScratchJr. Later, children can use the skills they have learned in doing this activity to create their own unique projects, or build upon what they created in the "Can I Make My Characters Greet Each Other?" program. Through this activity and continued time with ScratchJr, students will have the opportunity to think creatively, become storytellers, and improve upon mathematical reasoning and sequencing skills.

Materials
- iPads Running iOS 7 or greater or Android tablets running Android 4.4 or greater
    - Enough for each student in class, or have students work in small groups
- The ScratchJr app
    - A free download from the Apple App Store (iPads) or Google Play (Android tablets)
- A large screen to project tablet projects onto for sharing, if available

Prep
- Download the free ScratchJr app onto each of your classroom iPads or Android tablets
- Become familiar with the ScratchJr app by exploring how-to videos and resources on www.ScratchJr.org
- Explore the sample projects embedded in the app to learn the basics of what each block can do

Intro (5 minutes)

With ScratchJr, your students can become storytellers, programmers, artists, and more. Spend some time introducing the class to the concepts they will be learning about with this advanced ScratchJr activity. Here are a few discussion questions to pose to the class before getting started with programming "Can I Make My Characters Greet Each Other?":
- Can anyone remember some of the blocks you have used in the ScratchJr app?
- What sorts of programs have you made with ScratchJr before?
- How do you think programming and storytelling are similar? How are they different?
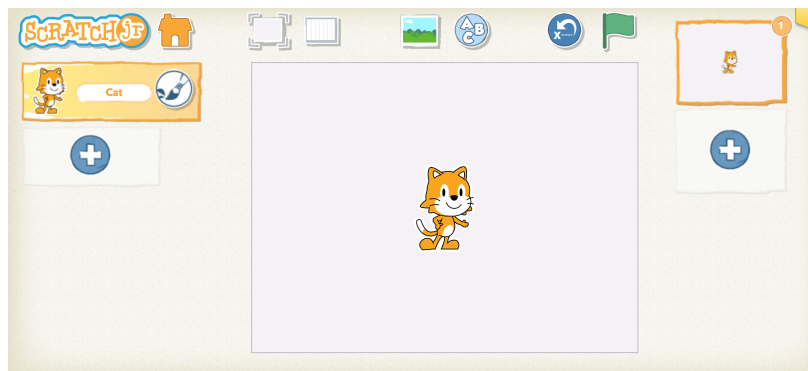
Getting Started (15 minutes)

Have your students take about 15 minutes exploring the basic features of the app.
- First, open up the ScratchJr app from the home screen on the tablets
- Tap the **home** button on the left to start

- To create a new project, tap the **plus** sign under "My Projects"
- Use the **ScratchJr Kitten** as an example character to explore what different blocks can do

o Go through the different categories of blocks in ScratchJr. Ask the class if they know what each block does, and what the different categories mean. Ask if they have used all the blocks before, or if any have been too advanced to try on their own.
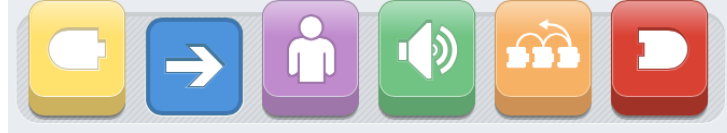

o Looking at the screen, what block do students think will be able to **start a program** besides the green flag?
o Explore all the different ways you can **begin** a program in ScratchJr in the **yellow triggering blocks category.** As the class what they think each block means, and how they could use it in a program?


o Use the **Start on Bump block** to explore how to make different characters interact with each other by one "bumping" the other to start a program


o Still in the **yellow triggering blocks category,** ask students if they have ever been introduced to the **message blocks**.
  ▪ With the students, explore the concept of sending messages, and starting upon receiving a message: what are the envelopes used for? What do the different colors mean? Can messages be used when there is only one character in the program? How can we use messages to create a creative story with multiple different characters?
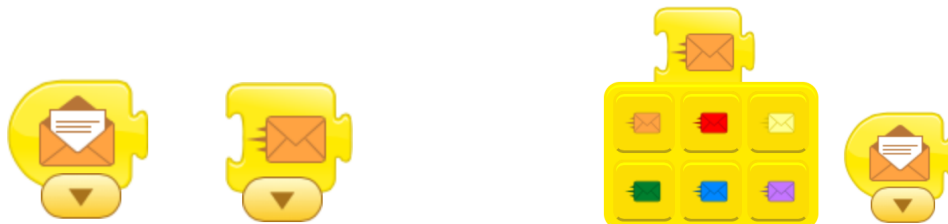
- Next, take a few minutes to explore the **purple looks blocks category**.
  - Which block could we use to have characters communicate with each other?
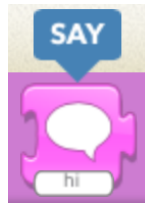
- What happens when the **number** at the bottom of the block changes? How do we change it?
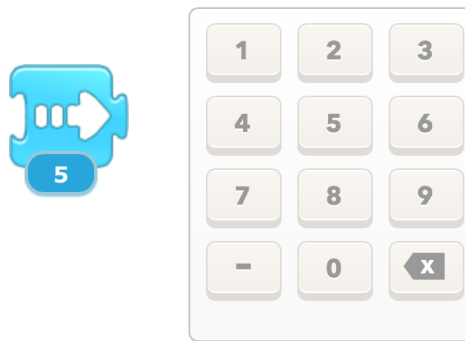
- Review the concept of adding a new character

- Look through the different background options

- Explore the more open-ended features of ScratchJr, **adding text**, **drawing**, and **changing background colors**

Create (30 minutes)

Each student can now use his or her own iPad or Android tablet (or work together in groups) to create the activity "Can I Make My Characters Greet Each Other?"

1. Choose the **City background** to get started

2. Add the dog as a new character to meet the ScratchJr Kitten!

3. Move the dog and the kitten to the start places below by dragging them to begin the "Can I Make My Characters Greet Each Other?" program:

Position the characters by dragging them from the center of the screen.

4. Thinking back to the different blocks we explored earlier, which blocks do you think we should use to have the dog and kitten "meet" and "greet" each other?
   a. We first want the dog to move to the kitten so that the two can "meet." Estimate how many times the dog must move toward the right to "bump into" and touch the kitten. Is it 5? Is it 8?
   b. It looks like 8 will work! Change the number of times the dog moves to the right by tapping the number under the **blue move right block** and changing it on the **number pad.**
   c. Don't forget to add a **start on green flag block** and a **red end block** to complete this part of the dog's sequence!


5. Once the dog "meets" the kitten, we want them to say "hi" to each other!
   a. To do this, make the kitten start when the dog bumps into it by beginning the kitten's program with the **start on bump block**
   b. Have the kitten say "Oh, hi" to greet the dog using the **purple say block**
   i. You can change what the kitten says by tapping the letters on the block and typing in whatever you want!

   c. After the kitten says hi, we want it to send a **message** to the dog so the dog hears it
   d. Let's use the orange envelope to **send an orange start message** to the dog
   e. The kitten's program should now look like this:

6. Now we need the dog to open up the orange message that the kitten sent, so the dog can say hi, too! Use the **start on orange message block**—the one that looks like an opened envelope—to create another program for the dog.
    a. After the dog hears the kitten say "Oh, hi!" have the dog respond by saying "Woof! Woof!" using the **purple say block**
    b. The dog's two programs should now look like this:
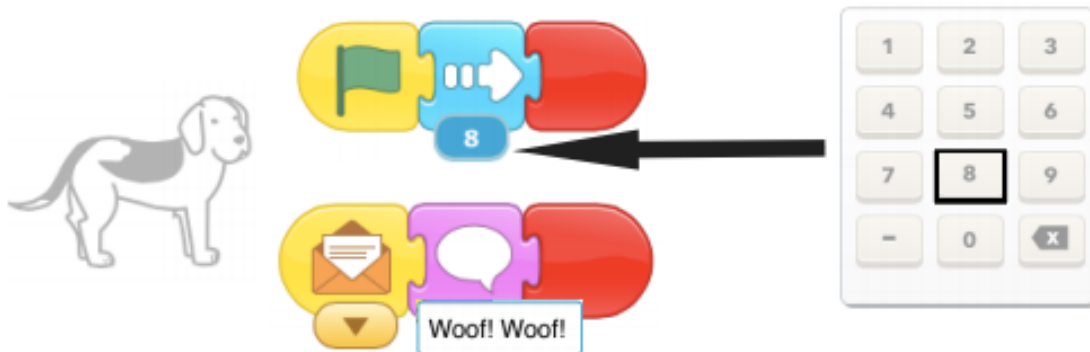
7. Go ahead and tap the **green flag** to begin your program with the dog moving to the kitten, and watch then greet each other!
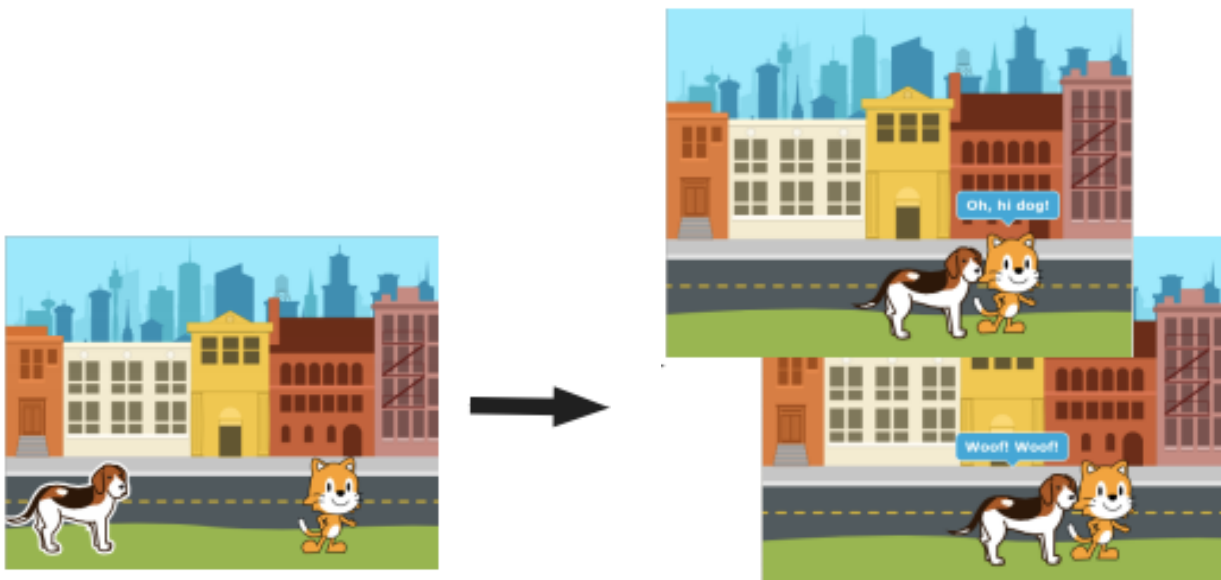
Share (10 minutes)

Have students go around and share the programs that they made. Ask if anyone had any difficulties with the instructions, or if any aspect of "Can I Make My Characters Greet Each Other?" was particularly confusing for them. What did they learn about programming and coding? Talk about what they could do to add to their program to make it unique.

What's Next?

When "Can I Make My Characters Greet Each Other?" is completed, teachers are advised to encourage children to experiment with other ScratchJr features and extend the project into something personally meaningful. Extending the activity allows children to think creatively and make the project unique to their own lives. Potential ideas may include:

- Do you notice how the program repeats forever? How can we make the program stop?
- Add more characters that can meet and greet each other
- Create a longer story with the dog and kitten in different settings by adding more pages and backgrounds
- Create a game with the project
- Draw your own background for the dog and kitten using the drawing tools
- Change the dog and kitten to friends or family members