Scratch Coding
Broadcast and Receive Blocks

Objective:
At the end of this lesson students will be able to use the “Broadcast” and “When I Receive” blocks while coding in Scratch.

Materials:
- Device connected to the internet (Laptop or Desktop preferred, iPads possible)
- A Ball or Ball of Paper to toss
- Scratch log-in codes

Procedure:
Review:
Popcorn question Scratch skills previously covered:
- Insert new sprite
- Motion Blocks
- Event Blocks
- Control Blocks
- Look Blocks
- Sound Blocks

Introduction:
What do the Broadcast and Receive blocks do?
When programming in Scratch, the Broadcast and Receive blocks provide more control over sprite programs because the sprite only begins the algorithm, or program, once it has received the command to go.

Broadcast and Receive work in pairs. If you have a Broadcast you need to have a Receive - If you don’t it is like shouting into a deep hole. You are saying something to someone, but no one knows what to do with what you are saying. If you have a Receive but no Broadcast it is like sending Amari Cooper downfield, but Dak never had a ball to throw in the first place.

So if you send a message, there has to be someone there to catch that exact message.

Whole Group:
Broadcast and Receive can be a lot like a game of catch. We now know they must work in pairs. I broadcast Panther 1, you receive Panther 1. The next broadcast, though, must have a different broadcast or it will get stuck in a loop. If you try to broadcast Panther 1 again, you’ll also receive Panther 1, which will loop and loop. So you have to change the next broadcast name. **I HIGHLY recommend using numbers to help you keep count.

Broadcast Block Catch:

OK - So I Broadcast “Panther 1” (toss ball to student), you receive…. (Panther 1)
Now you broadcast back to me…. (Panther 2). (Toss ball back to me). I Receive… (Panther 2)
Keep going. Choose other students around the class until everyone has had a chance to catch on to the pattern

Broadcast…. (Panther 3 - Toss)	Receive... (Panther 3 - Catch)
Broadcast … (Panther 4 - Toss)	Receive… (Panther 4 - Catch)
Broadcast … (Panther 5 - Toss)	Receive… (Panther 5 - Catch)

Keep going until everyone has had a chance. If more explanation is needed for some, have students play in small groups while the teacher helps small groups.

Digital Whole Group Practice:
Students will open their previously class created Scratch project. Students will create Broadcast and Receive scripts together. Begin by adding one Broadcast to the end of one of Scratch Cat’s programs, then ask students to decide what the next step is (add the Receive block to the panther with code following.) Have students add a second set of Broadcast and Receive blocks to Scratch Cat and the Panther.

Misconceptions to Address:
Discuss that the words “Broadcast” and “Receive” will not be seen on the stage. Just like we don’t see the word “Move” before a sprite starts moving, the only way we see the broadcast/receive interaction is by the sprites fulfilling the commands that follow those blocks.

Student Practice:
Display Penguin Jokes project on board.
Students will remix and fix the program using Broadcast and Receive blocks.

Demonstration of Learning:
Students will turn in Penguin Jokes to class studio.

Differentiation:
Small groups will be used to further explain and test Broadcast and Receive blocks for those needing more support with the skill.

Students needing extension will be asked to add more sprites and use the Broadcast and Receive blocks with 3 or more sprites simultaneously.

*** Virtual Lesson Adjustments ***
In a live, digital class situation:
JamBoard will be included to help describe the broadcast command moving from sprite to sprite
The catch game will involve calling a friend’s name before saying “Broadcast” instead of actually throwing anything
Questions and conversations are encouraged to promote understanding.

In a pre-recorded, digital class situation:
Students will watch the video and complete steps through “whole group”. At least one lesson to ask and answer questions will be needed before starting the Penguin Jokes activity.

Additional, shorter videos will be tailor made to help students who need additional, specific help understanding the topic.