Draw with Dash

Participant Name:	**Meagan McGrath**
District:	**Edwards-Knox Central School District**
Grade Level:	**K-1**
Subject/Course:	**Computer Science**
Cross-curricular Link:	**Math**
Approximate Time (IN MINUTES):	**80m (2 40 min lessons)**

CONTENT AND SKILLS

Learning Objectives:
- SW Break a problem into smaller steps by working in a group.
- SW try to order the steps to accomplish the task.
- SW draw a shape with a robot using a program.

Essential Questions (optional):
- How do I put the steps in order?
- Is there more than one way to do this correctly?

Students' I can statements . . .
- I can work with a partner to try to order steps.
- I can try again if it doesn't work the first time.

How will you meet the needs of SWD and ELL/MLL students?
- Blank block codes allows the teacher to fill in the words/pictures that best support students abilities.
- Translations can be used as needed.
- Students working in partners can help support each other.

NYS COMPUTER SCIENCE AND DIGITAL FLUENCY STANDARDS
List all standards that authentically align (e.g., K-1.CT.4)

- K-1.CT.6 Follow an algorithm to complete a task.
- K-1.CT.8 Identify a task consisting of steps that are repeated, and recognize which steps are repeated.
- K-1.CT.10 Collaboratively create a plan that outlines the steps needed to complete a task.

OTHER SPECIFIC STANDARDS (e.g., Content, SEL Benchmarks)
List all standards that authentically align
https://www.p12.nysed.gov/sss/documents/SELBenchmarks2022.pdf

- NY-K.G.2 Name shapes regardless of their orientation or overall size.

INSTRUCTIONAL PLAN

List the steps of the lesson, including instructions for the students.
Add and highlight Standard Indicator next to activity that aligns

Lesson 1: Students will be introduced to Dash the drawing robot. However, Dash doesn't know any shapes, they have to be taught step by step. The students' job will be to work with partners to give the robot directions to draw a rectangle.

The teacher will print and cut out block printed codes that matches the codes on the ipad apps (the labels added by the teacher will match their ability). They will be given limited options based on their ability. The students in partners will be instructed to break down the steps with the teacher modeling an example of breaking down steps to a similar shape (square). The teacher will go step by step with help from the class and show them how to order steps, break it down, and test it. The teacher will put the slideshow up and before turning to the next slide ask the students to guess the next direction.

The partners will work while the teacher checks in on them and prompts them to recognize potential issues with the order of steps they set up with the paper block codes.

Lesson 2: Once the students feel confident with their paper 'program' they can put it into the computer program app and test their program with the robot. The robot draws the program, so the students can see visually how their program went, and look back on it to make adjustments to the program. The students will take their drawn program back to their seats to redo their program if they want to, or keep it if they're happy with it. Students must change marker colors between 'tests'.

If students are doing well, the partners can each take a color and try to add to a 'class' picture where each pair of partners adds a shape of their choice to the same paper.

SPECIFIC NEEDS: MATERIALS / RESOURCES / TECHNOLOGY

Add additional resources needed for this lesson such as instructional technology templates, images, videos, etc.

- Printed Block code sheets (cut out and labeled appropriately for students)
- Device with Blockly app installed
- Store MakeWonder.com the Dash Robot)
- Sketch kit extension
- Space to work in groups, pencils and extra paper if students do better writing notes.
- Blank paper
- Slidedeck with square steps