Coding Concept: Algorithms & Sequence

Objectives:
- Students will be able to (SWBAT) explain to a partner what an algorithm is.
- SWBAT code practice algorithm activities in Code.org.
- SWBAT work independently during the lab hour to either start or remix their own app in play lab.

Supplies:
- Student login cards
- Worksheet for Paper Planes Activity (1 per participant)
  - Scissors
  - Glue
  - Blank Paper to practice making planes
- Worksheets for Graph Paper Activity (3 sheets, 1 set for each child (possibly work in pairs depending on number of children))
  - Pens/Markers
- Graph Paper Programming - Assessment worksheets (1 per participant)
- Laptop/slides ready
- Speaker for video sound
- Snack
- Whiteboard & Markers

(5 min) Introduce Program and People, Ice breaker
- Program
  - *"What is App Authors? Well, the world needs more diverse coders, starting with younger people like you. App Authors offers technology, tools, and skills, so that young people like you guys can create apps that represent yourselves, and learn to create the apps that you want to use and the games you want to play."*
  - *Summarize research script and have kids sign forms*
- Icebreaker: Name + One Cool Thing

(5 min) What is an algorithm?
- *"Has anyone heard the word "algorithm" before? What do you think it means?"*
- *"The first thing we're going to learn about coding is: What in the world is an algorithm?*
  - ***A list of steps to complete a task/solve a problem."***
- *"Tell me about an algorithm you used this morning"*
  - Getting ready for school
  - Making a sandwich

(45 min) Unplugged Lesson:
- Paper Planes
  - Hand out worksheets, blank paper, scissors glue sticks
- Graph paper
  - Do one together as a group (explain commands (arrows, fill in square) use picture on slide and whiteboard to write code and test it), then have them partner up to complete worksheets

(60 min) Code.org
(10 min) Introduce Code.org, Hand out login cards, Get logged in

(50 min)   Practice on Code.org:
- "Mandatory"
  - Course 2, Stage 3 & 4
- Optional for faster-paced participants:
  - Course 3, Stage 2 & 3

(5-10 min) Break/Snack Time

(60 min) Lab time:
(2.5 min) Video: Intro to Play Lab: https://code.org/hourofcode/playlab

(15 min) Group Learning
- Add an actor; Set background; When actor clicked, say "hi" or something similar; Arrow keys; Show them how to run the app to make sure it works

(35 min) Independent work on Play Lab
- If they are confident, have them start creating
- If they want more guided practice, have them start working through the tutorial https://studio.code.org/s/playlab/

Before They Leave:
- Reminder to bring back Login Cards
- Send home parental consent forms.
- Extra practice worksheets if they want (Graph Paper Programming - Assessment. Found in Graph Paper Programming Code.org Unplugged lesson)