

## Session 3

### Coding Concept: Functions

#### Objectives:

Students will be able to explain functions in terms of coding and songwriting.

SWBAT use functions to complete Code.org lessons.

SWBAT use function in App Lab or Play Lab to create apps.

#### Supplies:

- Suncatcher/Jingle Bell materials (small beads, larger beads, bells, twine)
- Function Assessment worksheets (can be found at <https://studio.code.org/s/course3/stage/4/puzzle/1>)
- Snacks
- Pencils
- Whiteboard and Markers

#### Icebreaker/Introductions

Introduce self, the program, the research aspect, hand out forms to sign.

- *“App Authors is a program that provides technology, tools, and skills so that young people can learn to code apps that represent yourselves... Because the world needs more diverse coders, starting with younger people like you guys!”*

Game Time:

- Tell us your name and if you have anything exciting going on this summer

#### 1 hr: Unplugged

- Songwriting
  - I’m a Nut
    - *One way we can think about functions is by using a song. Have you noticed that most songs have a chorus that repeats throughout the song?*
    - Teach kids the chorus (Write the Chorus on a whiteboard)
      - **Chorus: I’m a nut. I’m a nut. I’m a nut, I’m a nut, I’m a nut.**
    - Put lyrics on slide with the word “Chorus” between verses
      - *Now, are we going to sing “Chorus” when we get to this part?*
        - *No, we’re going to call our function!*
- Functional Suncatchers - Jingle Bells
  - Show Jingle Bell, explain how I made it
    - *“So I put on a bead, and tied a knot. Then I put on a bead, and tied a knot. Then I put on a spacer, and tied a knot.”*

- Make it easier: *“Bead, knot, bead, knot, spacer, knot. Bead, knot, bead, knot, spacer, knot. Jingle bell, knot.”*
- *“Can you guys help me write a program for this Jingle Bell?”*
  - Work through creating the function together. On whiteboard draw 6 lines; one command per line.
- *“Okay... Bead. Knot. Bead. Knot. Spacer. Oh no, we’re running out of room! Is there a way we can break the program down into chunks?”*
  - Write “Skill 1” and “Skill 2” on board
- *“With functions, we can teach the computer a list of steps, and then use one command to call them all. For instance, we could do “bead, knot, bead, knot” as Skill 1, and then when we write our program, we just say “Skill 1””*
  - Let them give suggestions, and test them out
- Hand out supplies and have them make their own Jingle Bells

### **1 hr: Practice on Code.org**

- Course 3, Lesson 5 & 6
- For faster-paced participants:
  - Course 4, Lesson 12 & 15

### **1 hr: Play Lab**

- Show how to write a short function (or send them through Course 4, Lesson 15: Functions in Play Lab)