Lesson 8: Find that Bug!

Powerful Ideas of Computer Science	Design Process, Debugging
Powerful Ideas of Literacy	Writing Process, Editing and Audience Awareness
PTD	Collaboration, Community Building
Palette of Virtues	Forgiveness, Perseverance, Open-Mindedness, Patience
Children will be able to…	● Locate errors or "bugs" in ScratchJr code. ● Troubleshoot bugs in ScratchJr. ● Discuss ScratchJr projects with peers.
Vocabulary	
Teacher Preparation	● Read lesson plan. ● Print Lesson 8 Design Journal for each child or refer to Full Design Journal. ● Have a tab open for the Design Process Anchor Chart slideshow ready to be projected. ● Print the Strategy List Anchor Chart slideshow or be ready to project it. ● Have *Grace Hopper: Queen of Computer Code* by Laurie Wallmark (ISBN-13: 9781338784343) available.

Warm Up

- ***I Spy* - ScratchJr Edition** *(Suggested Time: 5 minutes)*
  - Have children think about the ScratchJr interface and all of the blocks, tools, etc.
  - Play a game of *I Spy* with the teacher providing the first example using the interface.
    - Example - "I spy something that is orange, has whiskers, and is smiling."
    - Response - "It's Cat on ScratchJr."
  - For the child who guesses what you saw correctly, it is their turn to spy something on ScratchJr for other classmates to guess.

Opening Tech Circle

- **Re-read *Grace Hopper: Queen of Computer Code*** *(Suggested Time: 15 minutes)*

- Highlight Grace's debugging process with the moth and the strategies (checking the program) she tried to figure out what was wrong with Mark II.

ScratchJr Time

Expressive Exploration:

- **Finalize Projects (***Suggested Time: 5 minutes)*
  - Children will finalize their buggy bug program and prepare to share with another child.
- ***Debugging Game*** *(Suggested Time: 10 minutes)*
  - In pairs, children take turns to share their programs and explain what they intend to do. Then, they find the bug(s) in the partner's code.
  - This might be a good opportunity to introduce the "I am a CODER" pneumonic for frustrating moments during the debugging game if children have difficulty identifying any bugs. Teachers can remind students to use the pneumonic when they encounter challenges in the coding process.
  - Have children celebrate the process of debugging by clapping/cheering/saying 'Bye Bye Bug!' when the bug is found in each program.

Word Time

- **Documenting Bugs** *(Suggested Time: 5 minutes)*
  - Log the bugs they found in their partner's game in Lesson 8 Design Journal.
    - This is similar to how both Grace Hopper and programmers today document the bugs they find in their programs.

Closing Tech Circle

- **Debugging Reflection (***Suggested Time: 5 minutes)*
  - Children verbally share the bugs they found in each other's programs and the strategies they used to find them.
  - Guide them using these questions:
    - What did you notice in the program that made you think of a bug?
    - How did you realize your partner's program had a bug?
    - Where did you look for the bug?
    - How would you debug your partner's code?
  - Add any new strategies used to the Strategy List Anchor Chart.

Opportunities for Differentiation

- **Read Aloud Link**
  - Refer to *Grace Hopper: Queen of Computer Code* Read Aloud, if the physical book cannot be accessed or if teaching in a virtual format.