UNIT 2 ACTIVITY

DEBUG IT!

SUGGESTED TIME
15-30 MINUTES

OBJECTIVES

By completing this activity, students will:

+ investigate the problem and find a solution to five debugging challenges
+ explore a range of concepts (including sequence and loops) through the practices of testing and debugging
+ develop a list of strategies for debugging projects

ACTIVITY DESCRIPTION

- ❑ Optionally, have the Unit 2 Debug It! handout available to guide students during the activity.
- ❑ Help students open the Debug It! programs from the Unit 2 Debug It! studio or by following the project links listed on the Unit 2 Debug It! handout. Encourage students to click on the "Look Inside" button to investigate the buggy program, tinker with problematic code, and test possible solutions.
- ❑ Give students time to test and debug each Debug It! challenge. Optionally, have students use the remix function in Scratch to fix the bugs and save corrected programs.
- ❑ Ask students to reflect back on their testing and debugging experiences by responding to the reflection prompts in their design journals or in a group discussion.
- ❑ Create a class list of debugging strategies by collecting students' problem finding and problem solving approaches.

RESOURCES

- ❑ Unit 2 Debug It! handout
- ❑ Unit 2 Debug It! studio
  http://scratch.mit.edu/studios/475539

REFLECTION PROMPTS

+ What was the problem?
+ How did you identify the problem?
+ How did you fix the problem?
+ Did others have alternative approaches to fixing the problem?

REVIEWING STUDENT WORK

+ Were students able to solve all five bugs? If not, how might you clarify the concepts expressed in the unsolved programs?
+ What different testing and debugging strategies did students employ?

NOTES

+ Facilitate this activity in a whole group by having students act out the Debug It! programs in a similar way to the Performing Scripts activity, or introduce performing scripts as a new strategy for testing and debugging projects.

NOTES TO SELF

- ❑ _____
- ❑ _____
- ❑ _____
- ❑ _____

DEBUG IT!

HELP! CAN YOU DEBUG THESE FIVE SCRATCH PROGRAMS?

In this activity, you will investigate what is going awry and find a solution for each of the five Debug It! challenges.

START HERE

- ❑ Go to the Unit 2 Debug It! Studio: http://scratch.mit.edu/studios/475539
- ❑ Test and debug each of the five debugging challenges in the studio.
- ❑ Write down your solution or remix the buggy program with your solution.

❑ **DEBUG IT! 2.1** http://scratch.mit.edu/projects/23266426

In this project, Scratch Cat wants to show you a dance. When you click on him, he should do a dance while a drum beat plays along with him. However, as soon as he starts to dance he stops but the drumming continues without him! How do we fix this program?

❑ **DEBUG IT! 2.2** http://scratch.mit.edu/projects/24268476

In this project, when the green flag is clicked Pico should move towards Nano. When Pico reaches Nano, Pico should say "Tag, you're it!" and Nano says "My turn!" But something is wrong! Pico doesn't say anything to Nano. How do we fix the program?

❑ **DEBUG IT! 2.3** http://scratch.mit.edu/projects/24268506

This project is programmed to draw a happy face but something is not quite right! The pen continues to draw from one of the eyes to the smile when it should not be doing so. How do we fix the program?

❑ **DEBUG IT! 2.4** http://scratch.mit.edu/projects/23267140

In this project, when the green flag is clicked an animation of a flower growing begins and stops once it has fully bloomed. But something is not quite right! Instead of stopping when all the petals have bloomed, the animation starts all over. How do we fix this program?

❑ **DEBUG IT! 2.5** http://scratch.mit.edu/projects/23267245

In this project, the Happy Birthday song starts playing when the green flag is clicked. Once the song finishes, instructions should appear telling us to "click on me to blow out the candles!" But something is not working! The instructions to blow out the candles are shown while the birthday song is playing rather than after it finishes. How do we fix this program?

FEELING STUCK?

THAT'S OKAY! TRY THESE THINGS...

- ❑ Make a list of possible bugs in the program.
- ❑ Keep track of your work! This can be a useful reminder of what you have already tried and point you toward what to try next.
- ❑ Share and compare your problem finding and problem solving approaches with a neighbor until you find something that works for you!

FINISHED?

- + Add code commentary by right clicking on blocks in your scripts. This can help others understand different parts of your program!
- + Discuss your testing and debugging practices with a partner – make notes of the similarities and differences in your strategies.
- + Help a neighbor!