

Weekend Enrichment Program
2019-2020 Academic Year Course Syllabus
Intro to Java, Grades 4-5

Course Description

Learn about the Java programming language and object orientation through the use of Greenfoot, a complete, interactive Java-based development environment. As you build your own games, explore basic programming concepts and learn to write in real code. Enhance your games with images and sounds.

Essential Questions

- What is the value of a common coding language?
- What aspects of the Java programming language make it understandable to computers?
- What aspects of the Java programming language make it understandable to humans?

Learning Outcomes

Upon successful completion of this course, students will be able to:

- a. Apply Java programming to create games, simulations, and applications.
- b. Identify class, fields and methods in a class definition.
- c. Collaborate with a peer to program together and solve challenging coding tasks.
- d. Integrate technical information expressed in words with a version of that information expressed visually.

Student-Centered Instructional Approach

During Weekend Enrichment Program technology courses, older and younger students may explore topics through demonstrations, building, using manipulatives, programming, and drawing, as well as during conversations with classmates. Young students investigate concepts in robotics and coding through stories, play and additional hands-on tasks such as using manipulatives. All students explore topics in ways that challenge their thinking, deepen understanding and encourage critical thinking. Students work as a whole class, in small groups, and independently. The level of course content is generally one and a half to two grade levels higher than is typical for the students' age, though class work is differentiated to the background knowledge interests, and abilities of the class and each student.

Student Evaluation

Weekend Enrichment Program courses are for enrichment only, so students do not receive grades. Instead, students and families receive written feedback 4-6 weeks after the session ends. Feedback is provided on students' level of engagement and the amount of growth shown in their understanding about the topic. Instructors gather samples of students' work at different stages of completion, such as drawings, writing, and hands-on projects. Instructors also take note of students' participation in conversations and collaborative work. Feedback is also provided on non-cognitive aspects of student

performance including response to challenging tasks, working effectively with others and managing personal behavior.

Family Discussion Questions to Extend Critical Thinking

1. What is Java? What is Greenfoot? How does Greenfoot “use” Java?
2. Why do we need special languages for humans and computers to talk to each other?
3. What do you like best about Java programming with Greenfoot?
4. What kind of project have you worked on in class with Greenfoot?
5. Why do we have so many computer languages? Why not just one?
6. If you could create any kind of program, what would it do? How would it be built and programmed?
7. Do you think we will have more or fewer programming languages in the future? Why?
8. Can code be beautiful? Why or why not?

Resources

- *Creative Greenfoot* by Michael Haungs
- *Introduction to Java Programming with Greenfoot* by Michael Kolling
- <http://www.greenfoot.org/doc> - Website for the official Greenfoot educational guide, including helpful Java tutorials and Joy of Code (JoC) videos.
- <http://codingbat.com/java> - A practice site with leveled Java tutorials
- <https://www.oracle.com/java/newtojava/young-developers.html> - Listing of websites and other teaching tools for students learning Java programming

CTD Statement on Third-Party Web Sites Instructors are required to thoroughly review any third-party web sites they intend to use in their courses for inappropriate content. However, because web content continuously changes, CTD disclaims any responsibility for any of the content contained on third-party web sites used in course materials. If you become aware of anything that may be inappropriate, please notify CTD staff immediately.

About CTD Pathways

At CTD, the Pathways approach focuses on each student’s academic potential. In this approach, academic ability isn’t seen as a trait, like eye color. Instead a student’s ability is a starting point, and it provides an opportunity to develop the student’s interests and strengths, leading eventually to achievement and expertise.

General Stages Along the CTD Pathway

