

Weekend Enrichment Program

Course: Java Programming

Grades: 6-8

Session: Fall 2016

Instructor: TJ Leone

Course Description

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

Course Essential Questions

- What is the value of a common coding language?
- What are the advantages and disadvantages of using Java and Greenfoot to create games, simulations, and applications?
- What aspects of the Java programming language make it understandable to computers?
- What aspects of the Java programming language make it understandable to humans?

Course Learning Outcomes

During the course, students will:

1. Apply Java programming to create games, simulations, and applications.
2. Identify class, fields and methods in a class definition.
3. Integrate technical information expressed in words with a version of that information expressed visually.

Weekend Enrichment Program Instruction & Assessment

During Saturday and Sunday enrichment courses, students spend the majority of in-class time interacting with peers and engaging in hands-on learning activities that teach concepts and communication skills. Instructors use a variety of formative assessment practices to ensure student growth and understanding. Activities and student products are differentiated to the needs and interests of the class and each child. Students will have choice in projects and ways they demonstrate their growth to the instructor. At the end of the session, each course will host a short, 15-minute Expo where families are invited into the classroom for their own active learning.

At-home Discussions and Extensions for Families

As your child moves through the session, they might enjoy sharing some of the things they are learning with you. If your child is hesitant to talk with you about the course, providing guiding questions that do not have a single answer will help them open up. During the dialogue with your child, allow time for their ideas to develop naturally, and know that they may not fully grasp certain concepts until mid-way through the session, or later.

To talk about course content more broadly, you might ask...

1. What is Java? What is Greenfoot?
2. Why do we need special languages for humans and computers to talk to each other?
3. Why do we have so many computer languages? Why not just one?

To talk about your child's interest in computer science and technology, we recommend questions like...

4. What do you like best about Java programming with Greenfoot?
5. What are you looking forward to doing in class next week?

To support your child as they utilize critical thinking skills, try framing your discussion around these open-ended themes...

6. If you could create any kind of program, what would it do? How would it be built and programmed?
7. Can code be beautiful? Why or why not?

Additional Resources for Families to Explore Together at Home

a. Books

Kolling, Michael. *Introduction to Java Programming with Greenfoot*. ISBN 9780134054483. (optional)

Haungs, Michael. *Creative Greenfoot*. ISBN 9781783980390. (optional)

b. Websites

<http://www.greenfoot.org/doc> This link includes helpful Java tutorials. The Joy of Code (JoC) videos are accessed from this page.

<http://codingbat.com/java> A code practice site

<http://tjleone.com/greenfoot.html> This is the class web page, which includes information on learning objectives and class activities.

Instructor Biography and Contact Information: TJ Leone has taught math and computer science courses to students in grades 4-12 at CTD since 2002. He has also worked as a teacher at Chiaravalle Montessori School and an educational software developer at Northwestern University. He has a BA in Math, an MS in Computer Science from the City College of New York, an M.Ed. in Montessori Elementary Education from Loyola College in Maryland, and two years of graduate work in Computer Science and Learning Sciences at Northwestern. He holds Montessori teacher certification from the Association Montessori Internationale and is a Sun certified Java programmer. TJ's web site is tjleone.com and his email address is tj@tjleone.com.

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