Comprehensive Lesson Plan

# Lesson Title

Getting Started with Java Programming

# Subject Area

Computer Science

# Grade Level

9-12 (High School)

# Duration

50 minutes

# Learning Objectives

* Students will identify and correct syntax and runtime errors in Java code.
* Students will explain the difference between the print() and println() methods.
* Students will use escape sequences in Java output statements.
* Students will write and debug basic Java programs that include class declarations and the main method.

# Lesson Activities

* 1. Introduction & Engagement (5 min)  
   - Overview of Java and its versatility (desktop, web, mobile apps).  
   - Quick discussion: “Why do we learn Java?”
* 2. Direct Instruction (10 min)  
   - Explore structure of a Java program.  
   - Discuss the role of the main method, statements, and block syntax.
* 3. Guided Practice (15 min)  
   - Use provided buggy code in an interactive editor.  
   - Identify and correct compiler and runtime errors together.  
   - Discuss error messages and Java syntax rules.
* 4. Independent Practice (15 min)  
   - Students complete the “It’s Your Turn” exercise:  
   - Use both print() and println() methods.  
   - Include at least three escape sequences.  
   - Recreate a “Smile!” ASCII image using Java output statements.
* 5. Closure and Reflection (5 min)  
   - Review differences between print types and types of errors.  
   - Students reflect in their Computer Science Notebook: What did they learn about Java structure and debugging?

# Required Materials

* Computer with internet access
* Interactive Java Code Editor (PLTW Java Beta Editor)
* Computer Science Notebook
* Printable handout or digital copy of Activity 1.1.1

# Lesson Topics

* Java syntax and structure
* Compiler vs runtime errors
* main method
* System.out.print() vs System.out.println()
* Escape sequences (\n, \" , \\)
* Debugging and error handling

# Standards Alignment

* AP Computer Science A:  
   - VAR-1.A: Determine the value of variables after assignment  
   - VAR-1.B: Determine the result of expressions
* CSTA K-12 CS Standards:  
   - 3A-AP-13: Create prototypes that use algorithms  
   - 3A-AP-14: Use lists to simplify solutions  
   - 3A-AP-16: Design and iteratively develop computational artifacts for practical intent

# Estimated Student Count

25 students