



WETEACH_AP[®]CSA

Lesson Plan – Unit 1 – Primitive Types

Topic 1.1 – Why Programming? Why Java?

TOPIC	AP ESSENTIAL KNOWLEDGE	TITLE	SUGGESTED CLASS PERIODS	TIME
1.1	EU: MOD-1 LO: MOD-1.A EK: MOD-1.A.1 EK: MOD-1.A.2 EU: VAR-1 LO: VAR-1.A EK: VAR-1.A.1	Why Programming? Why Java?	2	90 minutes

AP ESSENTIAL KNOWLEDGE (EU_LO_EK)

- **EU (Enduring Understanding): MOD-1** - Some objects or concepts are so frequently represented that programmers can draw upon existing code that has already been tested, enabling them to write solutions more quickly and with a greater degree of confidence.
- **LO (Learning Objective): MOD-1.A** - Call **System** class methods to generate output to the console.
- **EK (Essential Knowledge): MOD-1.A.1** - **System.out.print** and **System.out.println** display information on the computer monitor.
- **EK: MOD-1.A.2** - **System.out.println** moves the cursor to a new line after the information has been displayed, while **System.out.print** does not.
- **EU: VAR-1** - To find specific solutions to generalizable problems, programmers include variables in their code so that the same algorithm runs using different input values.
- **LO: VAR-1.A** - Create string literals.
- **EK: VAR-1.A.1** - A string literal is enclosed in double quotes.

LEARNING OBJECTIVES

Students will be able to...

- Understand what a computer program is. (not assessed)
- Understand what a programming language is. (not assessed)
- Recognize comments within a code segment. (not assessed)
- Describe the difference between the behaviors of the **System.out.print** and **System.out.println** methods.
- Explain what a string literal is.
- Predict the output of a code segment that contains the **System.out.print** and **System.out.println** methods using string literals.
- Write a Java program that will produce simple text output.
- Identify and correct errors within code segments.

LESSON OUTLINE

RESOURCE	TOPIC	ACTIVITY
E-LESSON	1.1 Why Programming? Why Java? Unit 1 Intro (video) <ol style="list-style-type: none"> 1. BIPS 2. Programming and Java 3. Basic Parts of the "Hello World" Program 4. Hello World! (video) 5. The Mystery of PVSM (video) 6. Comments 7. Output Statement 8. print vs println (video) 9. Debugging (video) 10. Practice Questions 10. Practice Labs 	Have students work through E-Lesson 1.1, including the videos, the labs, and the practice quiz.
VIDEOS	Unit 1 Intro Hello World The Mystery of PVSM Printing Strings Debugging	
GUIDED PRACTICE LABS	HelloWorld.java PrintingStrings.java Debugging.java	Either present the guided practice to the class as a demonstration or have the students follow along with the videos provided in the E-Lesson.
LABS	Creating a class with a main method and printing specified output to the console.	Have students code the practice programming labs for this topic and assess appropriately. <ul style="list-style-type: none"> • 1.1.1 NameAndSchool • 1.1.2 TimeAndDate • 1.1.3 Sentence • 1.1.4 Sentence2
OFFICIAL QUIZ	Topic 1.1	Administer quiz to students upon completion of topic.



LESSON DESCRIPTION

CLASSROOM ACTIVITIES

Choose between

- presenting to the class as a whole or
- having the students view individually the lessons from the E-Lesson
 - 1.1.2 - *Programming and Java* and
 - 1.1.3 - *Basic Parts of the "Hello World" Program*.

After viewing *Programming and Java*

- Discuss the importance of programming to our everyday lives.
- Ask the students to form a list of "things" that are programmed.
- Briefly review the advantages of Java and point out that there are numerous other languages used to write programs.

Start the IDE you have chosen for your class, either the pre-defined labs in the Repl.it class, or another IDE of your choice, like jGRASP.

- Guide the students or allow them to work independently through the
 - 1.1.4 - *HelloWorld video lesson (practice lab "Hello World!")*
 - 1.1.5 - *Comments lesson*
 - 1.1.6 - *Output Statement lesson*
 - 1.1.7 - *Print vs println video lesson (practice lab "PrintingStrings")*
 - 1.1.9 - *Debugging lesson (practice lab "Debugging")*

As you review the lesson, be sure to emphasize the following:

- Class name - Point out that the class name must match the file name. (If you are using the online IDE Repl.it, be sure to point out that Repl.it always has the class named Main and that this is not a requirement in other IDEs.)
- **main** method – must be present to run a program.
- String literals
- Difference between `print` and `println`.
- Nature of a syntax error (compiler error), as well as some examples presented in the lesson or encountered on their own

PROGRAMMING PRACTICE LABS

Have students complete the programming problems and submit for a lab grade using the customized Repl.it class with labs predefined, or whatever other IDE and submission system the teacher decides to use.

OFFICIAL QUIZ FOR TOPIC 1.1

Administer the official lesson quiz at the completion of the lesson.

Note: *Since the advanced placement test is taken by hand, we encourage you to administer each quiz as a paper/pencil test, giving the students the experience in testing as they will be doing it officially. We realize this puts more work on you the teacher grading the quizzes by hand, but please rest assured the students will be much better prepared by doing it this way.*