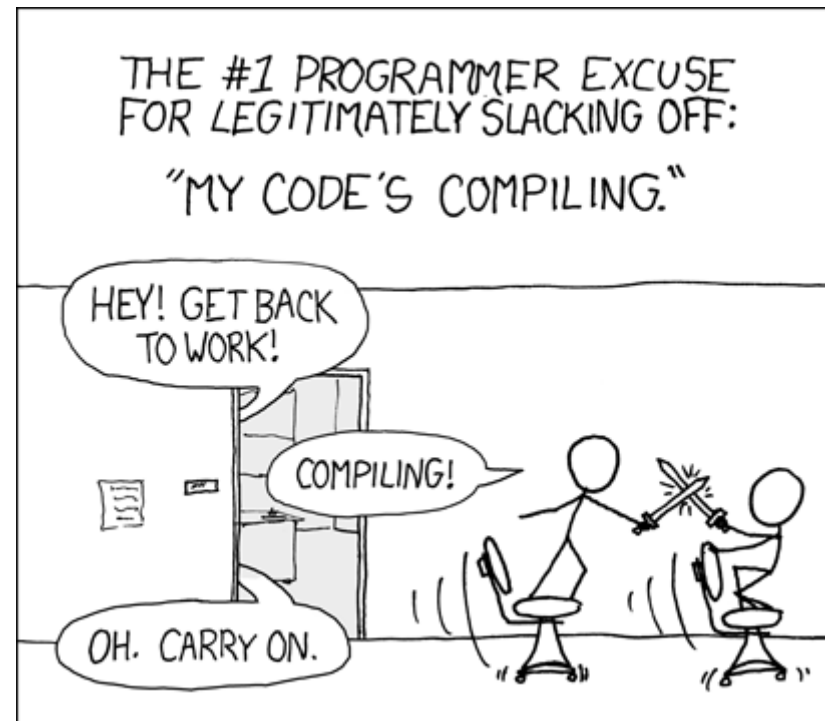
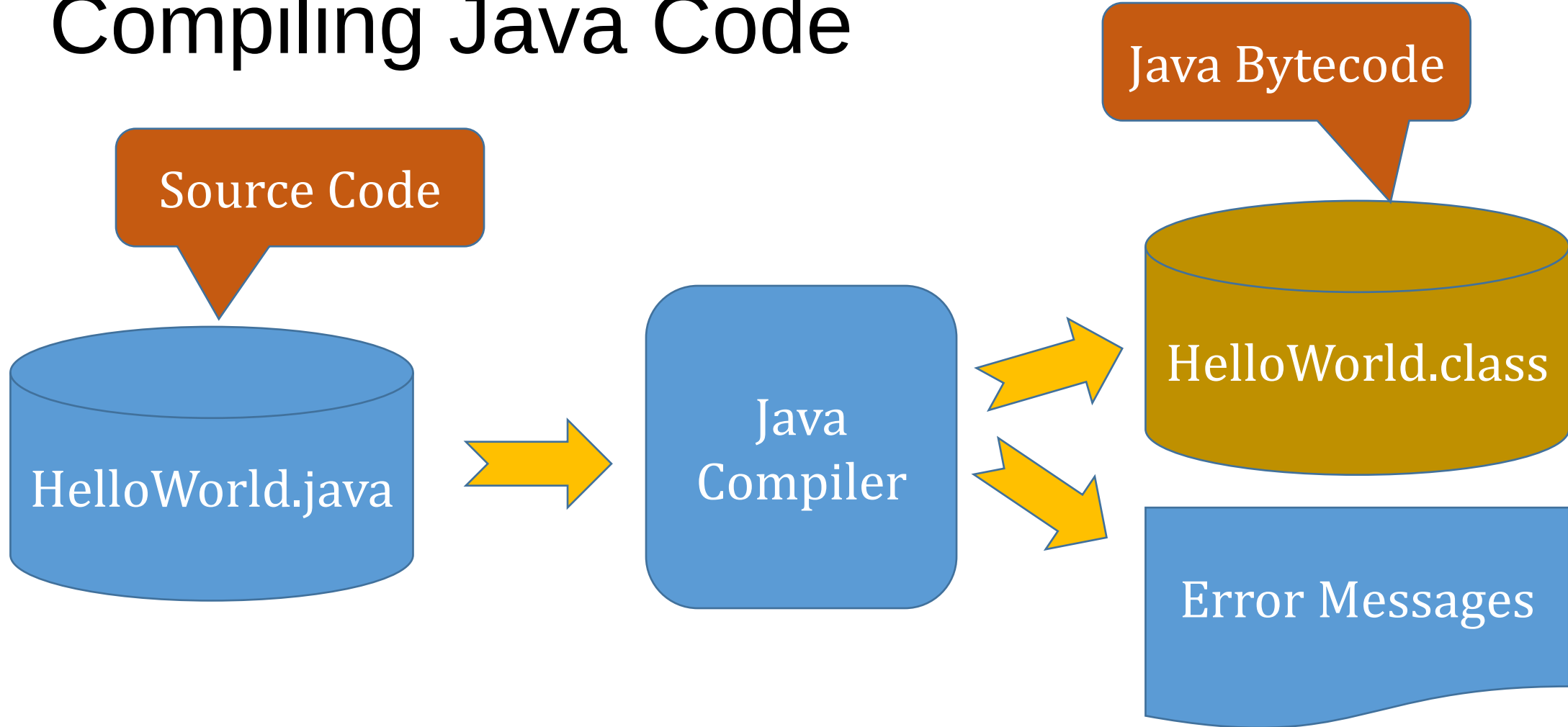


Compiling and Running Simple Java Code



Compiling Java Code



```
javac HelloWorld.java
```

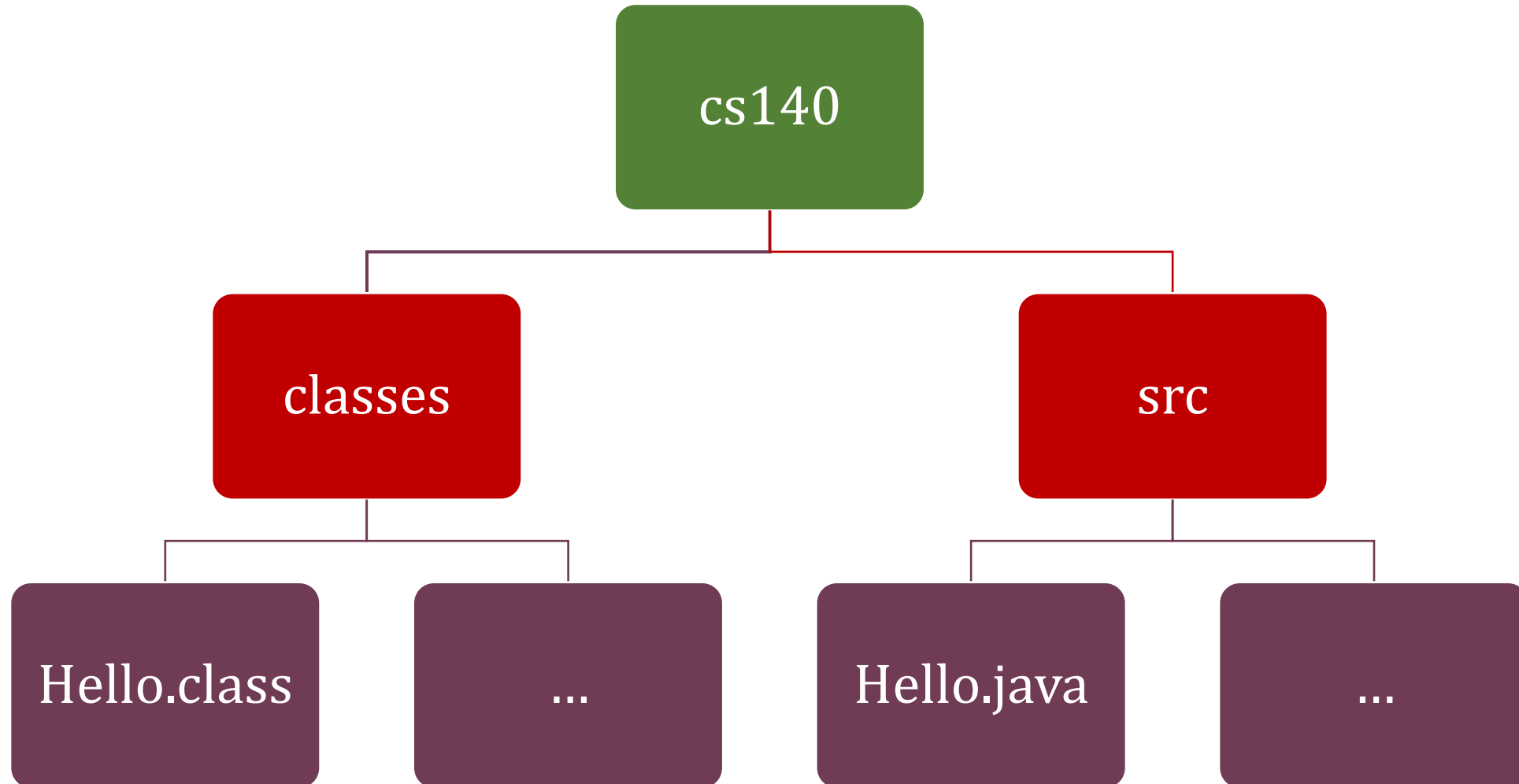
Compiler Options

- Online: `man javac` or `javac -help`
- Web site: JDK reference material
- We will use `-d` and `-cp`
 - `-d ...` where to put `.class` files
 - `-cp ...` where to find `.class` files we need to reference

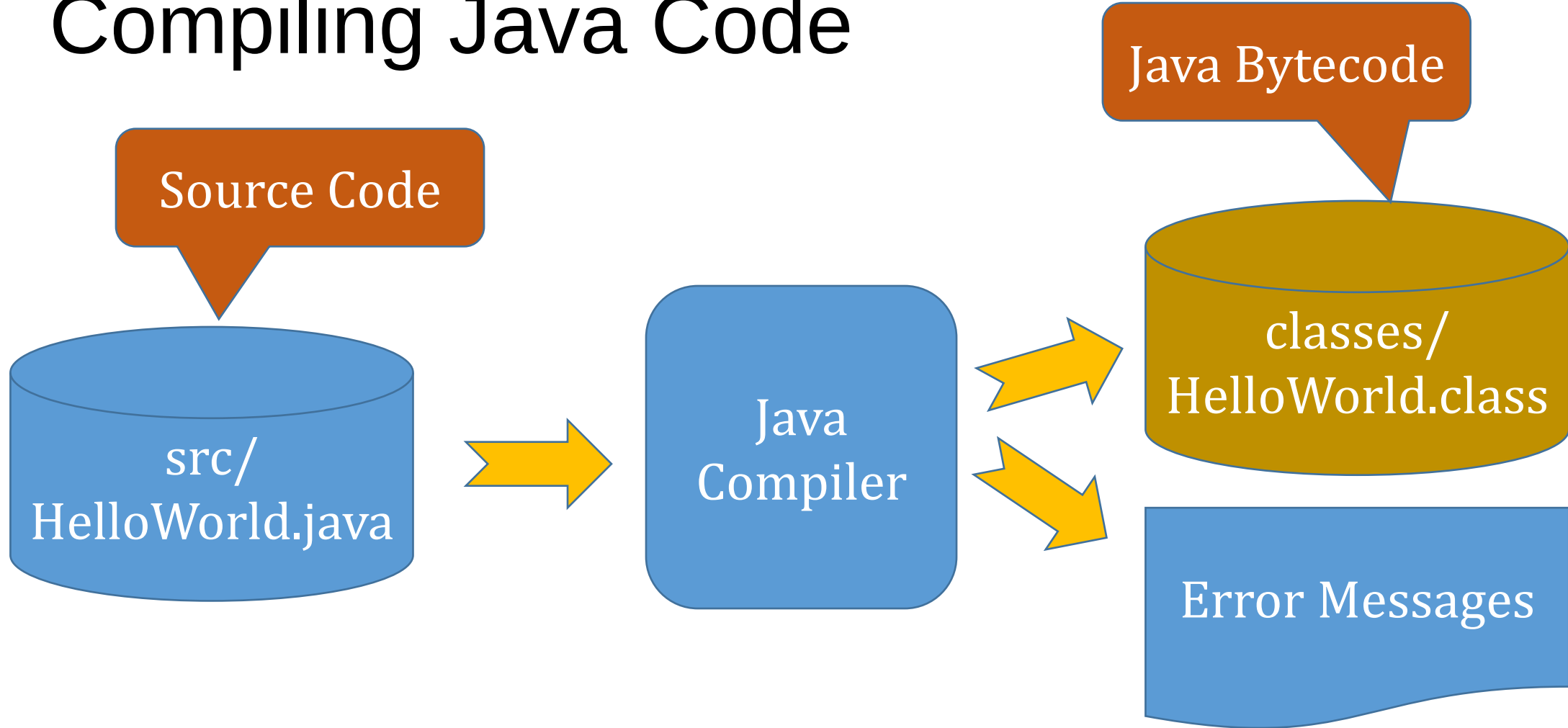
CS-140 Directory Conventions

Make cs140 subdir of your home directory	<code>mkdir cs140; cd cs140</code>
Make “src” and “classes” subdirs of cs140	<code>mkdir src</code> <code>mkdir classes</code>
Edit .java files in the src directory	<code>gedit src/HelloWorld.java&</code>
Compile using -d	<code>javac -d ../classes HelloWorld.java</code>
Run specifying -cp	<code>java -cp classes HelloWorld</code>

Resulting Directory Structure



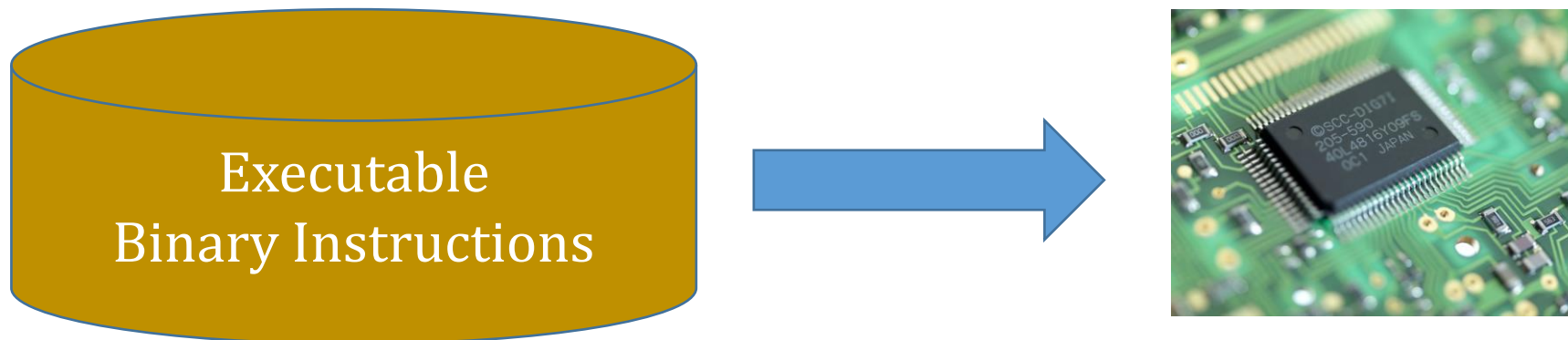
Compiling Java Code



```
javac -d ../classes HelloWorld.java
```

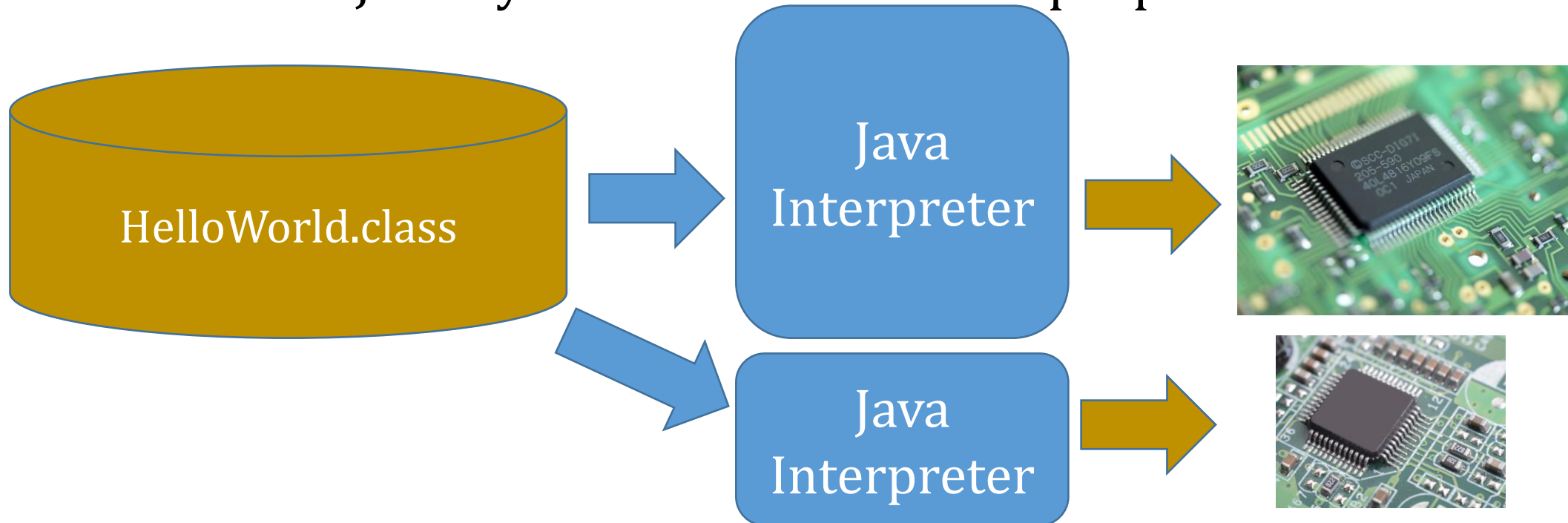
Machine Code (aka Object Code)

- Binary instructions for the computer
 - strings of ones and zeroes
 - Tells the computer what to do (add, subtract, multiply, etc.)
 - Tells the computer where to get the input data (operands)
 - Tells the computer where to put the output data (results)
- Each computer supports its own machine code
 - Some agreements on “architecture” – e.g. x86, RISC, etc.



Java “Virtual Machine” (JVM)

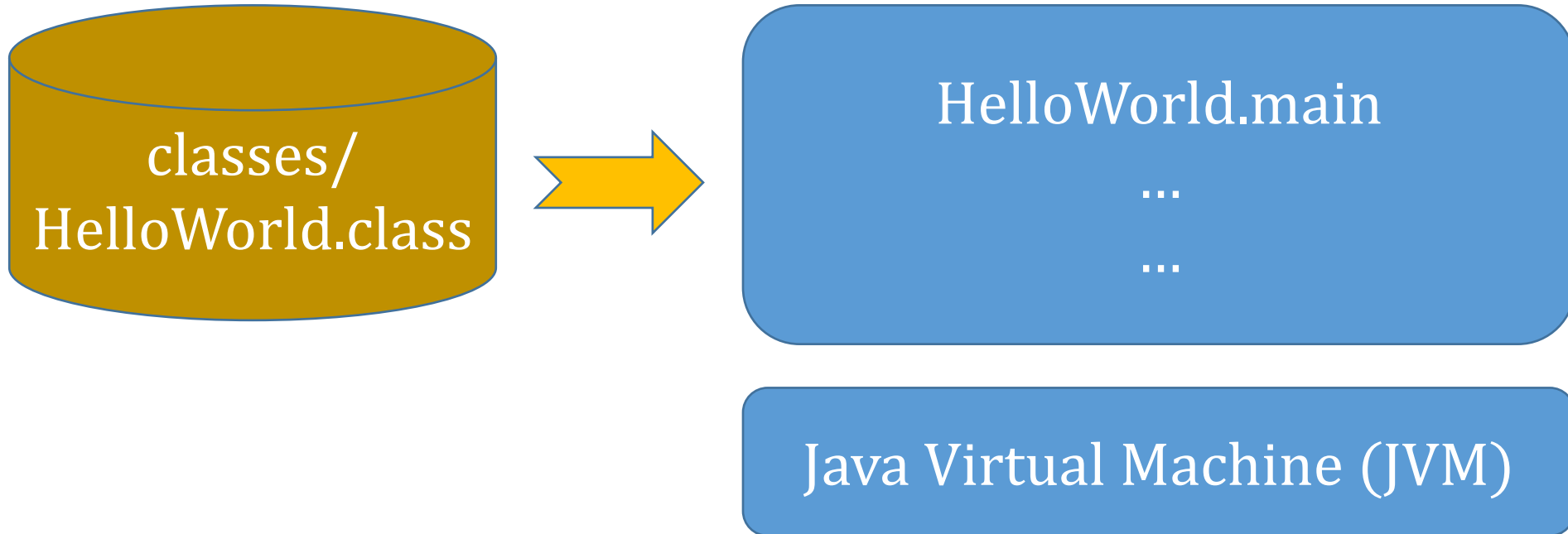
- Reads “Java bytecode” from .class files
- Converts to local machine code, and sends to CPU
- Enables same Java Bytecode to run on multiple platforms!



Java Run-Time

- The java command
 - Loads the java interpreter
 - Loads the class file associated with the argument specified
 - Interprets the bytecode for the “main” method in that class
- Help
 - Command line: `man java` or `java -help`
 - Online: java tools
- Often you will see:
Error: Could not find or load main class HelloWorld
 - Either Java couldn't find the HelloWorld.class file
 - Or it couldn't find the “main” method in HelloWorld.class

Running Java Code



```
java -cp ../classes HelloWorld
```