The Three Easy Pieces of Beginning Computer Programming

What do you think they are?

Write your own 3 on a piece of paper and compare your choices with two neighboring classmates.

In 5 min we will poll and record YOUR choices, and hear about the Profs.
Reported class choices filled in after the lecture.

link to a web page for the choices made by the current class (under const)
C's 3 Pieces of Programming

1. Pick
2. Position
3. Parametrize
1. Pick

Pick an available operation, method call or pattern (like making a Java App or calling forward on a Turtle).

Use a cheat sheet to remind you of what's available and of correct spellings.

2. Position

Position where you type your pick.

Figure out the spot in your written program where you want the computer to do the thing you picked.

DON'T CHEAT by asking someone else to think it through for you.
3. Parametrize

**Parametrize**: Figure out and type in parameters or arguments or other things to specify details, like your program's name and how far the *Turtle* should go forward.

Use a cheat sheet to remind you of what the parameters might be.

DON'T CHEAT by asking someone else to think for you of what values to type, like 150 versus 100.
Cheat sheet for a Java App

```java
public class 
{
    public static void main(String[] a) 
    {
        Directions, written in good Java syntax, for what the computer will do when it runs your App.
    }
} 
```
Cheat sheet for printing something

System.out.println();

Expression that expresses what the computer will print.
Cheat sheet for printing something

System.out.println();

Expression that expresses what the computer will print.

(What's expressed) is an example of a parameter value.
Cheat sheet for printing something

```java
System.out.println();
```

The same method (named `println`) can print **A HUGE VARIETY** of messages, depending on what value you program here.

`parameter value`
Cheat sheet making a World with one Turtle in it.

```java
World wref =
    new World();
Turtle tref =
    new Turtle( wref );
```

The bookClasses must be downloaded, unzipped, and DrJava's extra classpath resource preference MUST be set to the bookClasses folder for this to work.
Cheat sheet making a World of the Width and Height YOU CHOOSE with one Turtle in it.

World wref = new World( , );
Turtle tref = new Turtle( wref );

The bookClasses must be downloaded, unzipped, and DrJava's extra classpath resource preference MUST be set to the bookClasses folder for this to work.
World wref = 
    new World(   ,   ,   );
Turtle tref = 
    new Turtle( wref );
tref.forward(   );
tref.turn(   );
tref.forward(   );

6 spots where you type in parameter values Each value controls a detail about what a method call makes the computer do.
tref.forward();
tref.turn();
tref.forward();

3 method calls: 3 computer instructions coded one after the other.

3 spots where you type in *parameter* values. Each value controls a detail about what a method call makes the computer do.
What is a method call?

- A kind of computer instruction that tells the computer to RUN OTHER INSTRUCTIONS already written SOMEWHERE ELSE, and then RETURN back to the instruction after the method call.
Tale of 3 professors..

- Professors Guzdial and Erikson wrote those other instructions (for the benefit of you and I) to make Turtles go forward drawing lines, and turn.

- In Lab, Prof. Chaiken began to write the instructions to make Turtles draw hooks whenever your (or his) programs run the method call instruction:

  \[
  \text{tref.hook( } \quad ) ;
  \]