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| **Date Assigned: 10/21/15** | **Date Due: 10/23/15** |
| **Unit:** Methodology | **Turn In List:** **1. Terms 2. Cars pde** |
| *“I will harness the power of object oriented design in programming with a simple example of a car.”* | |

**Classes and Objects**

**Content Objectives:** Students will begin to explore classes and objects in Processing.

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| **Starter Activity** |
| This entire assignment is based on the Processing tutorial on objects: <http://processing.org/tutorials/objects/> -  Code the example from the car class demo from lecture on a 2nd tab in a new project. |

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| **Key Terms:** | |
| OOP | Object-oriented programming (OOP) is a programming language model organized around objects rather than "actions" and data rather than logic. Historically, a program has been viewed as a logical procedure that takes input data, processes it, and produces output data. |
| Class | a set or category of things having some property or attribute in common and differentiated from others by kind, type, or quality. |
| Objects | A material thing that can be seen and touched. |
| Properties | a thing or things belonging to someone; possessions collectively. |
| Constructor | A constructor is a special method of a class or structure in object-oriented programming that initializes an object of that type. A constructor is an instance method that usually has the same name as the class, and can be used to set the values of the members of an object, either to default or to user-defined values |
| Functions | an activity or purpose natural to or intended for a person or thing. |

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| **Assignment:** |
| Create a new “Tab” in a Processing project and name it Car (yes with a capital C.) Write the Car class as described in the Objects article under “Writing the Cookie Cutter” with comments naming the four code blocks. Once your car class is created, add 3-5 elements to the look of the car (visible tires, body parts etc…) Your car is now a Data Type of its own!  Challenge #1: the example code at the conclusion of the article has two cars (see : <http://processing.org/tutorials/objects/>)  Challenge #2: can you use random strategically to assign car colors, speed, or even size?  Challenge #3: can you make the cars go in both directions on the screen?  Challenge #4: Can you use an array of the Car object and create 100 of them?  Challenge #5: Add two or more details to the appearance of the car (i.e. windows, tires, antenna etc…)  Paste code below for a real world class you created with the following:   1. Name 2. Member variables 3. Constructor 4. Visibility Method 5. Behavior Method |

Notes (Points of interest, mistakes, lessons learned, web resources, and thoughts):

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