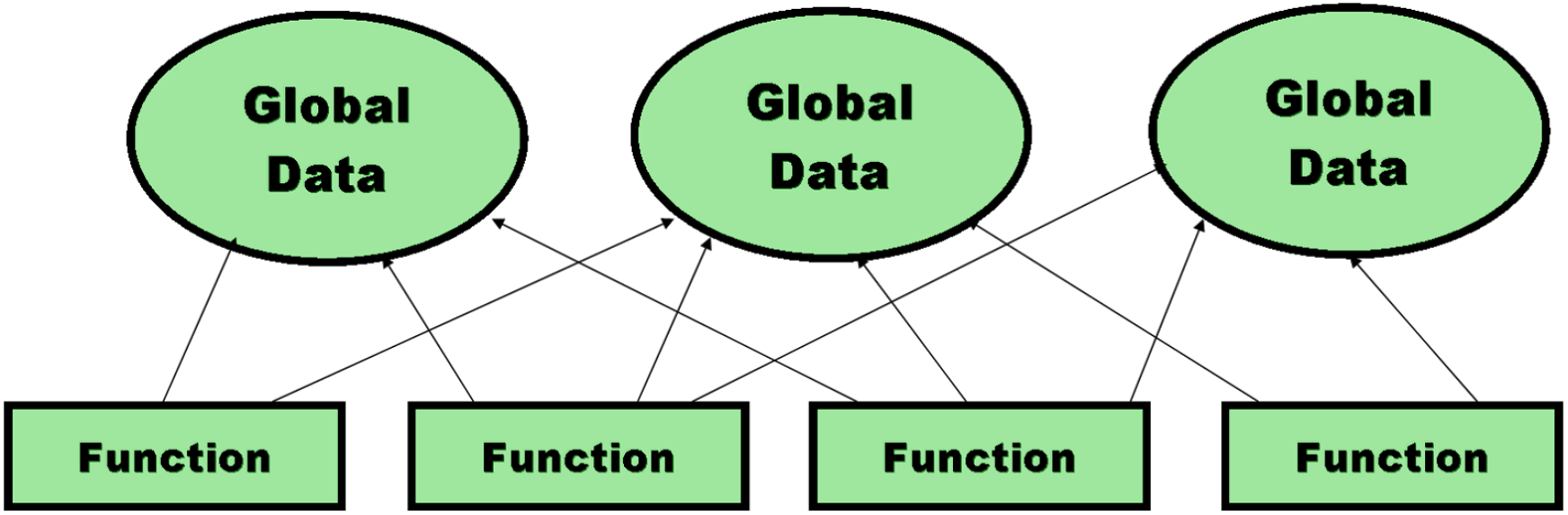
Introduction to Object Oriented Programming

Procedural Programming

Data and the code (functions) that perform operations on it are separate.



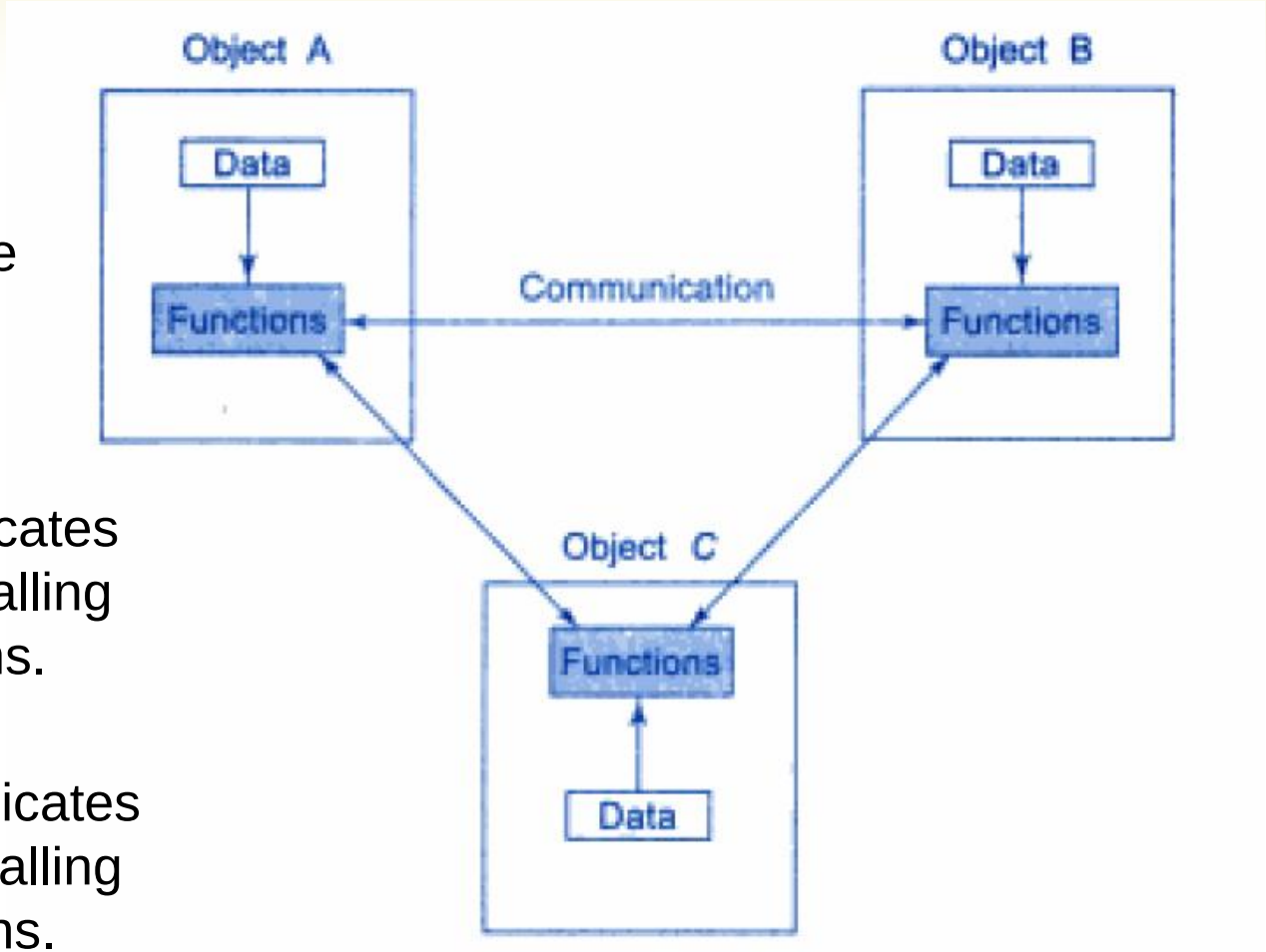
The Procedural Paradigm

Object Oriented Programming

Data and the code that performs operations on it are combined into a single object.

Object A communicates with Object B by calling Object B's functions.

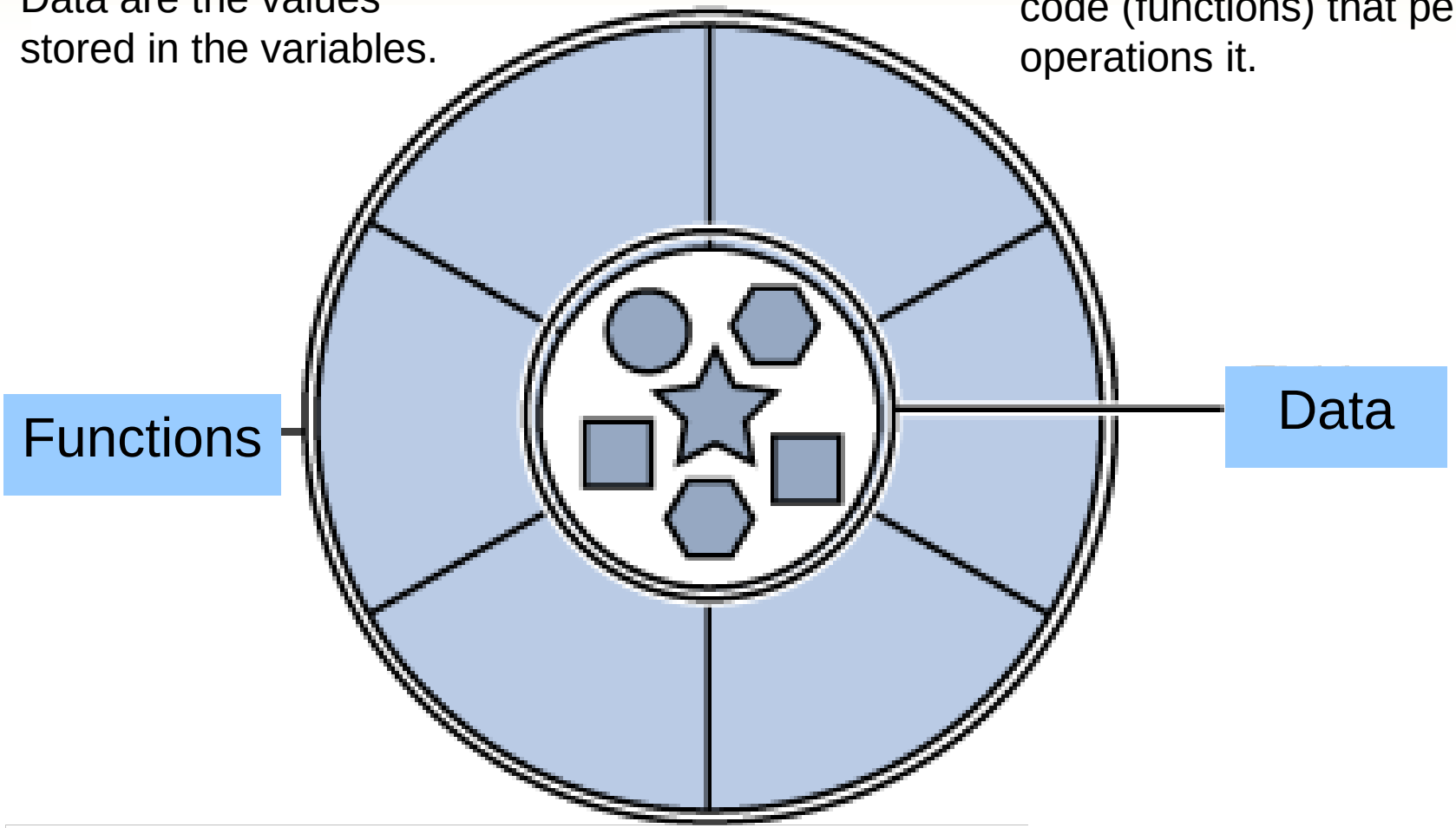
Object B communicates with Object A by calling Object A's functions.



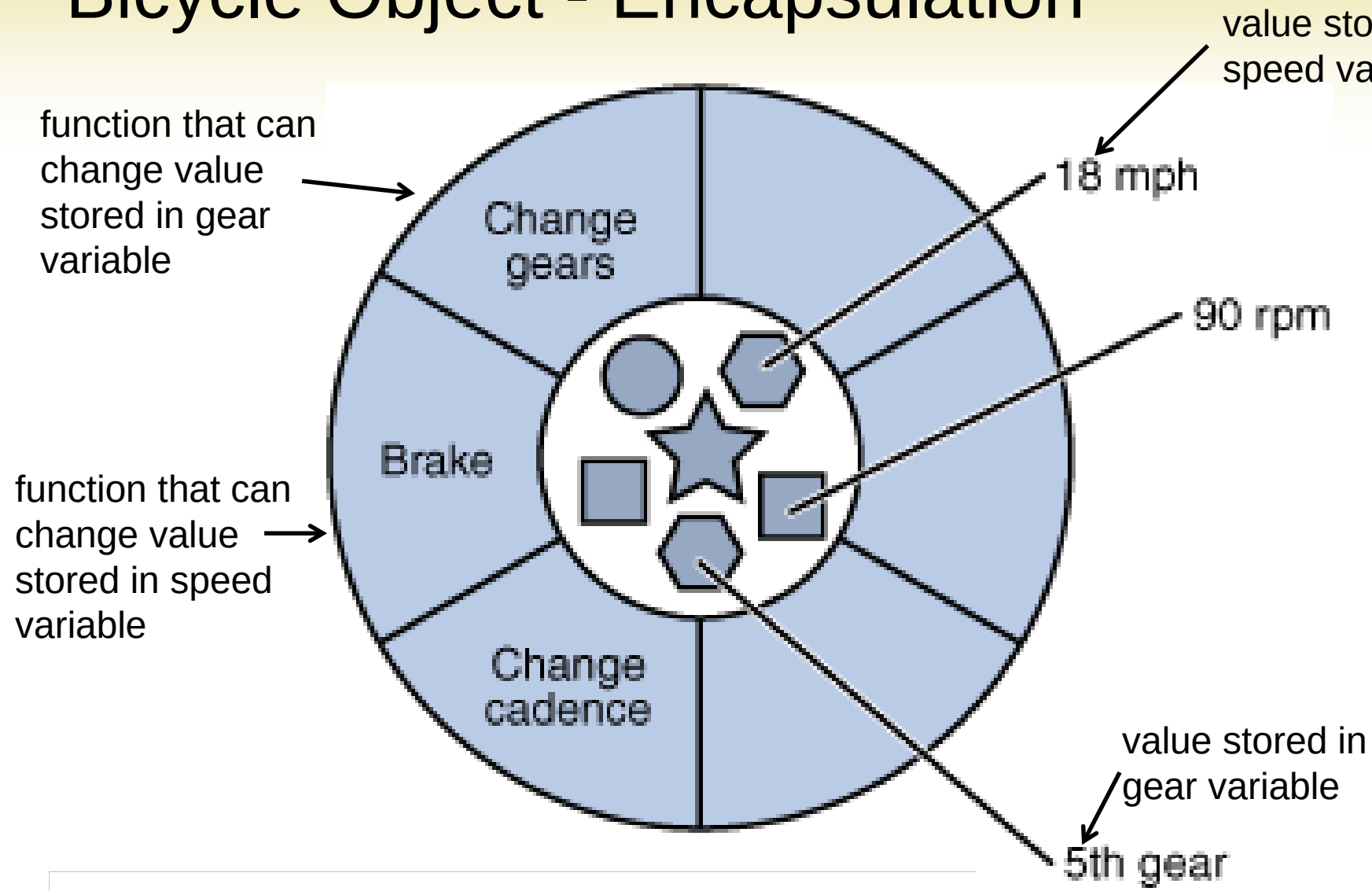
Object - Encapsulation

Data are the values stored in the variables.

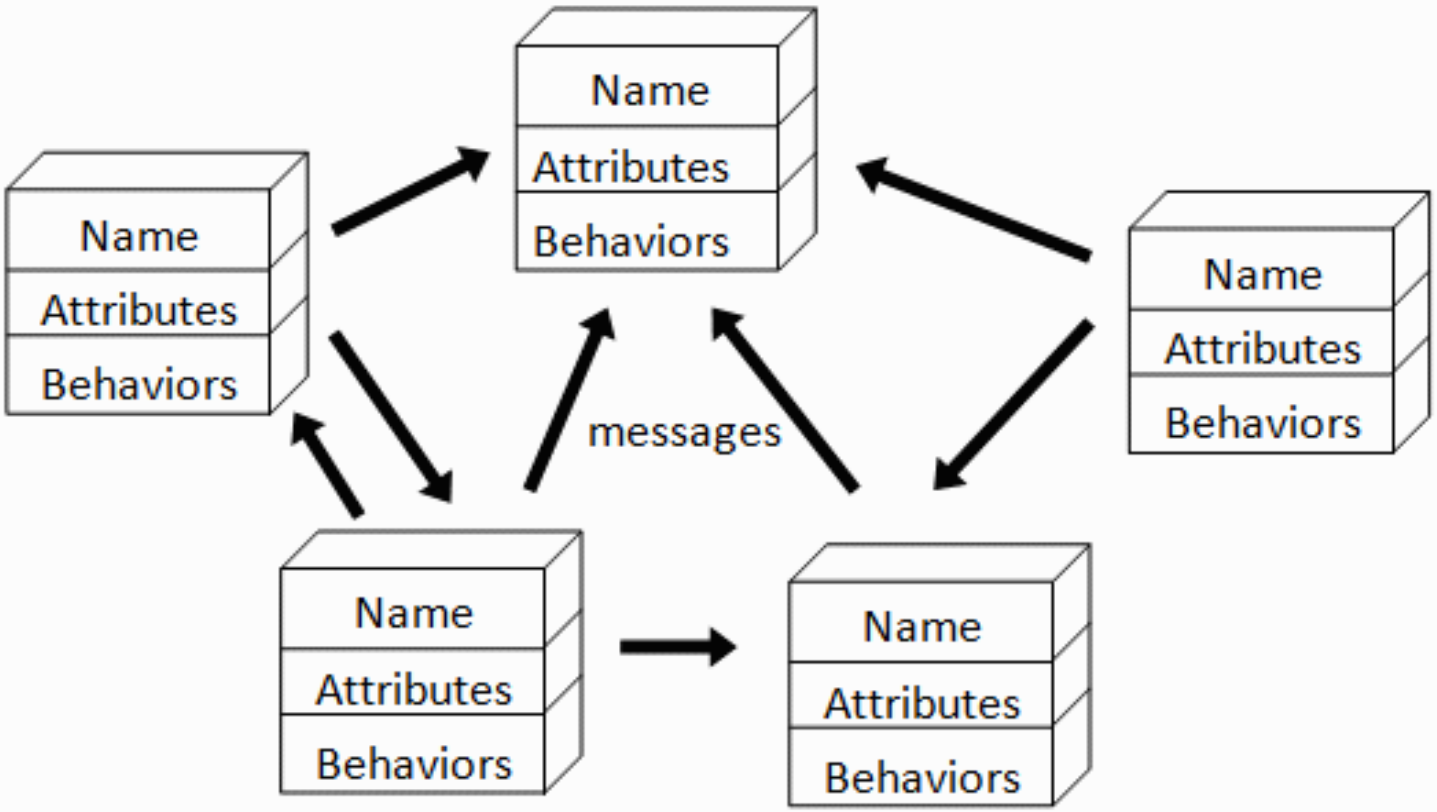
Data is encapsulated by the code (functions) that perform operations it.



Bicycle Object - Encapsulation



Object Oriented Programming



An object-oriented program consists of many well-encapsulated objects and interacting with each other by sending messages

Sending messages is another way of saying objects call each other's functions.

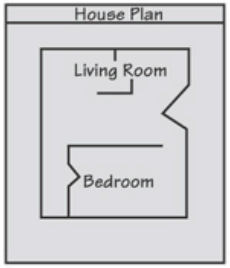
Class

- Objects are created from classes
- Classes are templates for creating objects
- Object creation is called **instantiation**
- An object is an **instance** of a class
- Objects cannot be instantiated without a class

Classes and Objects

- A Class is like a blueprint and objects are like houses built from the blueprint

Blueprint that describes a house.



Instances of the house described by the blueprint.

Class/Object Relationship

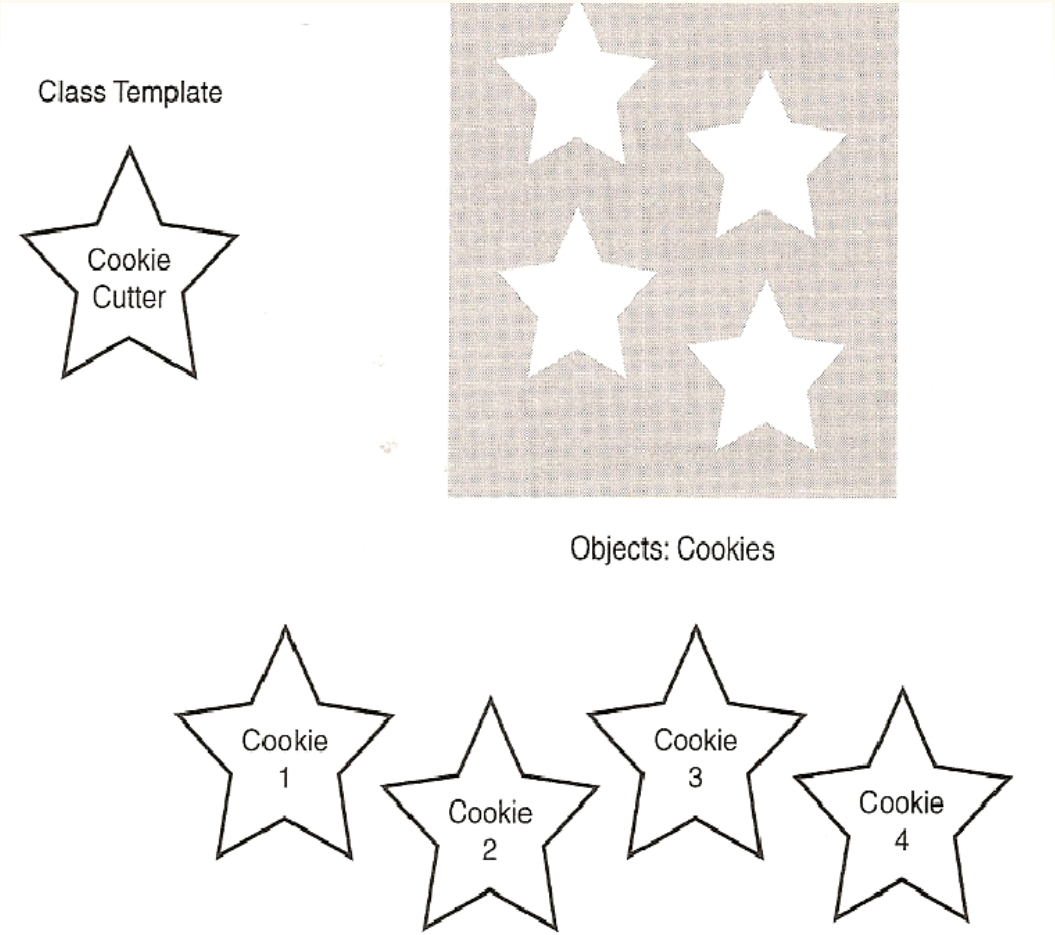
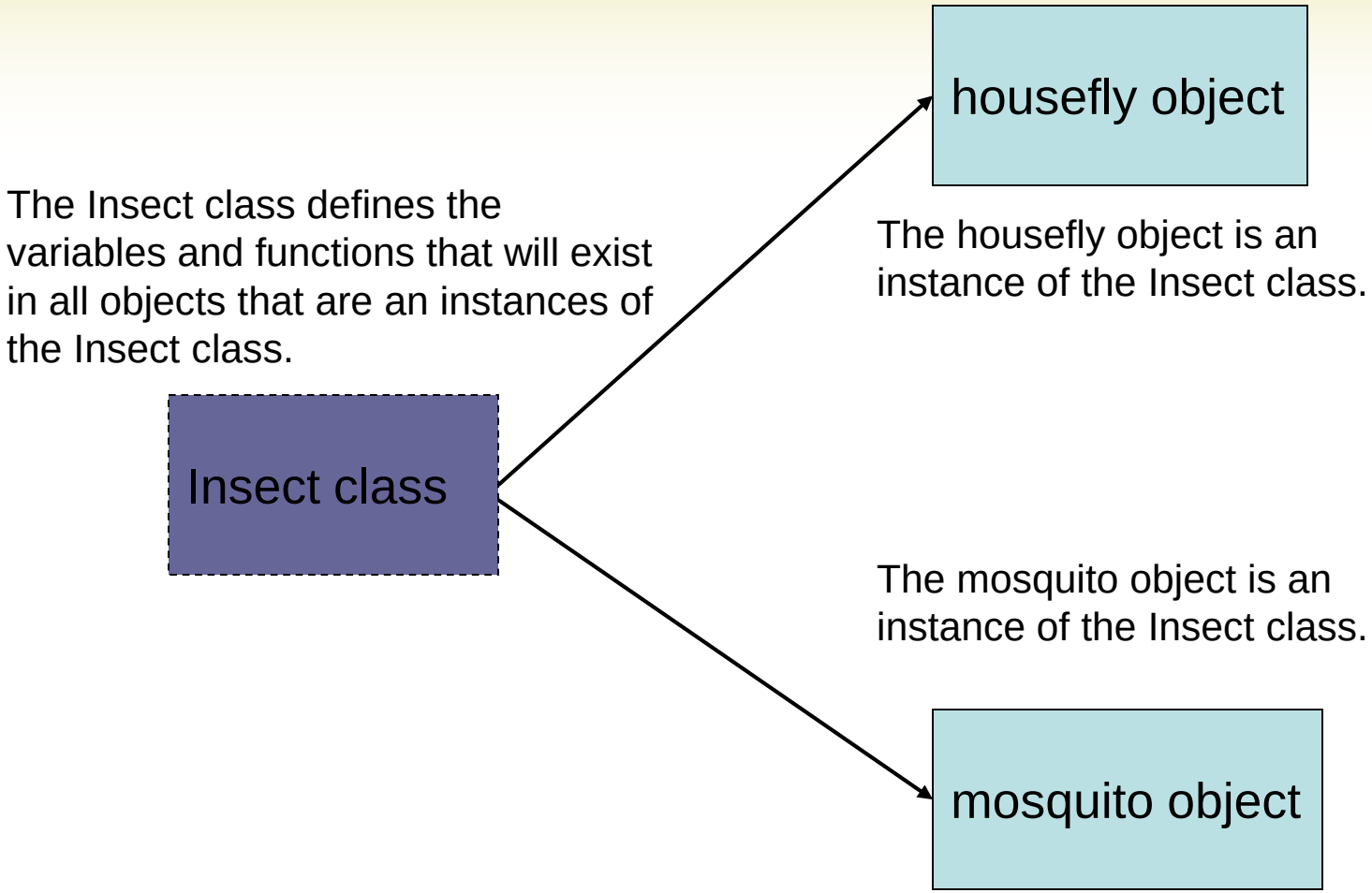
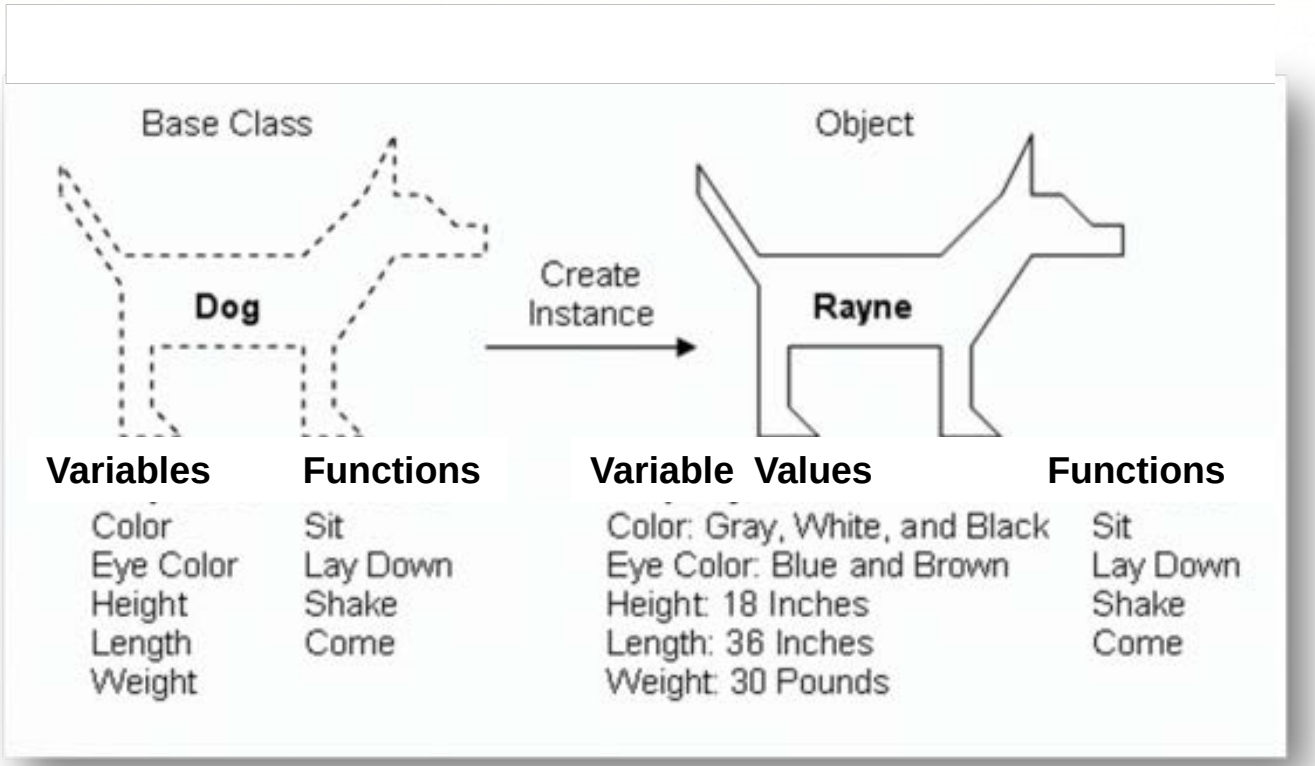


Figure 1.10 Class template.

Classes and Objects



Classes and Objects



Class or Object?

- Superhero, Superman
- Justin, Person
- Rover, Pet
- Magazine, People
- Christmas, Holiday