

In the real world an **object** simply exists, but within a programming language each **object** has a unique handle by which it can be referenced. Languages implement the handle in various ways, such as an address, array index, or artificial number. Such **object** references are uniform and independent of the contents of the objects, permitting mixed collections of objects to be created, such as a file system directory that contains both files and subdirectories.

In the real world, an operation is simply an abstraction of analogous behavior across different kinds of objects. Each **object** “knows how” to perform its own operations. In an OO programming language, however, the language automatically selects the correct method to

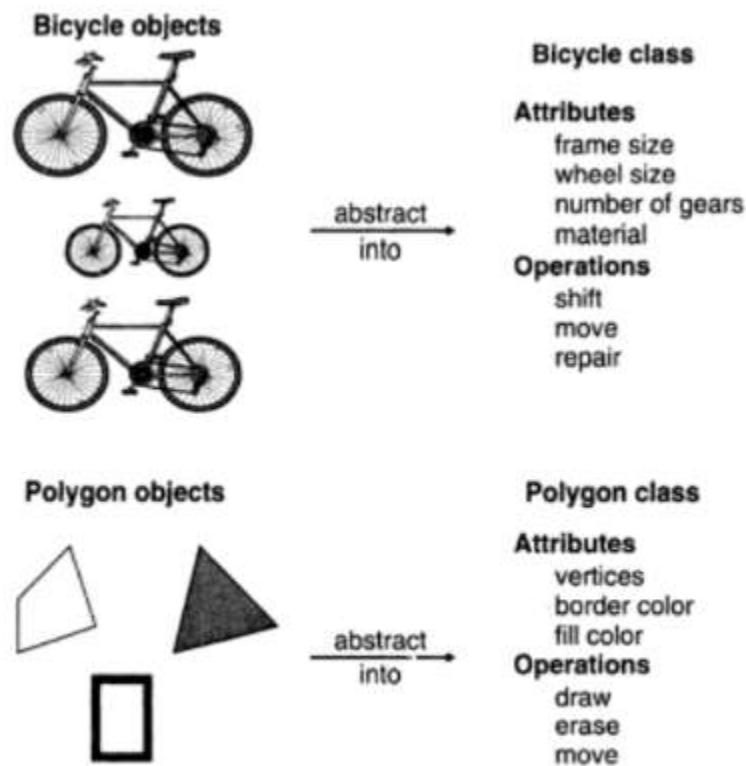


Figure 1.2 Objects and classes. Each class describes a possibly infinite set of individual objects.

implement an operation based on the name of the operation and the class of the **object** being operated on. The user of an operation need not be aware of how many methods exist to implement a given polymorphic operation. Developers can add new classes without changing existing code, as long as they provide methods for each applicable operation.