

## Java Fundamentals

### 3-9: Abstraction

### Practice Activities

#### Lesson Objectives:

- Define abstraction and provide an example of when it is used
- Define Casting

#### Vocabulary:

Identify the vocabulary word for each definition below.

	A technique used to command newly-created instances to perform different actions.
	A technique used to tell java that a class is to be considered as another class

#### Try It/Solve It:

You are going to modify the Barrel class so that we can set the maximum time a barrel will stay afloat when we create a new instance of it.

1. In the **Barrel** class add a parameter to the constructor called maxtime, which is an integer. Update all calls to new Barrel() so that they say new Barrel(250).
2. Modify the **Barrel** constructor so that the maxtime class variable is set to the maxtime parameter.
3. Modify the line above so that we subtract a random number between 0-49 from the maxtime.
4. Add private class variables called score and lives to the **BarrelWorld** class. Set lives to 3 and score to 0.
5. Create a method called updateScore() in **BarrelWorld** that will add one to the score when called.
6. Use the showText() method to display the score at the bottom left in the updateScore() method.
7. Create a method called removeLife() in **BarrelWorld** that will remove a life.
8. Use the showText() method to display the number of lives at the bottom left in the removeLife() method.
9. In the removeLife() method do a test so that when the number of lives is zero then the game stops.
10. In the **Plane** class call the updateScore() and removeLife() in the relevant methods.