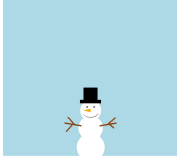

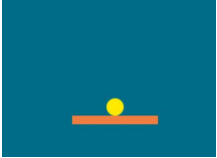


# Introduction to Java Course Outline

Day	What they Learn	What they develop	Visual Output
1	<ul style="list-style-type: none"><li>• What is a Programming Language?</li><li>• Basics of Java</li><li>• Method calls</li></ul>	Using Windows shape methods, draw circles, a house, animals and finally a masterpiece of choice	
2	<ul style="list-style-type: none"><li>• Variables</li><li>• Blocks (If then else)</li><li>• Loops</li><li>• Getting Mouse Input</li></ul>	Using variables and loops, animate scenes such as traffic lights that blink and use mouse position to paint on the screen.	
3	<ul style="list-style-type: none"><li>• If-Then-Else</li><li>• Booleans</li><li>• Basic Physics: Distance, Velocity</li></ul>	Use physics principles and conditions to create a mini golf game and/or paddle ball game.	
4	<ul style="list-style-type: none"><li>• Defining functions</li></ul>	Paddle Ball contd.	
5	<ul style="list-style-type: none"><li>• Put it all together in a longer program with function calls</li></ul>	Use functions to develop a more complex 2 player game of Pong	Game of Pong

# Intermediate Java Course Silver & Gold Outline

What they Learn	What they develop	Visual Output
<ul style="list-style-type: none"><li>• Structure of a java program</li><li>• Variables, methods</li><li>• Branching, iterations</li><li>• basic physics needed for animations</li></ul>	Use functions to develop a complex 2 player game of Pong OR Lunar Lander	
<ul style="list-style-type: none"><li>• Intro to Arrays, ArrayLists</li><li>• Intro to Strings</li><li>• Basics of Classes &amp; objects</li></ul>	Use string manipulation to sort and create speed reading software.	
<ul style="list-style-type: none"><li>• Intro to object oriented programming; classes &amp; structure</li></ul>	Use object-oriented programming to create ripples, snake, minigolf , ocean with different fish game	
<ul style="list-style-type: none"><li>• Relationships: one to one and many to one (Intro to inheritance &amp; polymorphism)</li></ul>	Try your hand at a different game creation from above list	
<ul style="list-style-type: none"><li>• Put it all together in a more complex game with strong conditional logic</li></ul>	Develop one (or all) of several projects	GameofLife, Connect 4, frogger

# Advanced Java Coursework

- **Recap:** OOP, Arrays, Strings
- **Images:** Develop an Image editor
- **Data Structures:** LinkedLists and Array lists, Stack: Develop Calculator
- Data Structures cont'd: Queues, Heaps, HashTable
- **Algorithms:** Searching, Sorting, Binary Sort
- Algorithms cont'd.: Recursion - Fibonacci, factorial; Develop Towers of Hanoi
- **Final Project:** Game of Solitaire

