



# **School Curriculum**

for all Grades



# GRADE 1 CURRICULUM

CLASS	CONCEPT LEARNING	BUILDING SKILLS
T	<b>BEG-T</b> Block Commands	Introduction to Block based coding using visual drag drop programming Solve structured puzzle using Blocks Customize a maze for block commands
1	<b>Code a story</b> Story based coding : Animate character sprites using actions & behaviors	Intro to Sprite Lab for creation of animation stories Create object sprites for animation and impart them behaviour Simple story animation - Object creation
2	<b>Events Code Story</b> Introduction to events in coding	Understand and implement simple events in coding Trigger actions as result of event occurrence Simple story animation - Animate using events
3	<b>Sequences and Types</b> Flexible and Non-flexible sequences	Creating and applying sequences of blocks to solve problem statement Solving structured puzzle exercises: Critical Thinking
4	<b>Logic Art</b> Sequences to build Art forms	Using Sequences create art forms, shapes and alphabets Simple 2D drawings using line sequences
5	<b>Introductory Loops</b> Introduction to Loops	Pattern recognition and Replace repeating code with Loops to write efficient code Optimized programs using loops
6	<b>Direction Location &amp; Orientation</b> Understand location and orientation of objects on screen using x,y co-ordinates	Manipulate x,y co-ordinates in apps to move and orient objects Fun programs to move animal sprites on grid, change their look and behaviours on the fly
7	<b>User Interaction using Keypress Events</b> Process User inputs using Key events	Code animation stories where object sprites respond to user key events Story animations with key press functionality
8	<b>SpaceTech: Lost Astronaut</b> Capstone Class	Independent implementation of concepts from C1 to C8 to create animation game story with SpaceTech theme Independent implementation : SpaceTech themed story game app
9	<b>Code Debugging</b> Debug and fix program code	Understand debugging Structured activities in artist and sprite lab Debugging: Persistence
10	<b>Module checkpoint - 1 : Capstone Class</b> Checkpoint Class 1	<b>Build game app in Sprite Lab</b> Independent implementation : Build dodge game app
11	<b>Algorithms and Programs</b> Creating and applying algorithms in program code	Analyze and decompose puzzle structures Build animation stories thru logical decomposition of problem statement
12	<b>Custom behaviors for sprites</b> Custom behavior	Create custom behaviors to animate and control sprite objects Generic custom behaviours applied across custom created sprites
13	<b>Water Cycle</b> Custom behavior	Create Custom behaviors specific to app requirement Custom behaviors for STEM outcomes
14	<b>Generic Custom behaviors</b> Custom behaviors	Generic Custom behaviors to apply across sprite objects Code custom behaviors for custom sprites in app
15	<b>Deep Programming</b> Deep Programming Practice	Practice exercises: for fundamental coding concepts of sprite & artist lab. Program with goal directed actions: Logical Thinking
16	<b>Hour Of Code: Bounce Game</b> IPO - Input Processing Outputs	Introduction to IPO How computers process information Single player : Bounce game

CLASS	CONCEPT & LEARNING	BUILDING SKILLS
17	<b>Variables</b> Variables	Intro to Sprite Lab for creation of animation stories Create object sprites for animation and impart them behaviour Solving structured puzzle exercises: Critical Thinking
18	<b>Extended Variables</b> Variables	<b>Manipulating variables in code</b> Game app using variable values
19	<b>The Flappy Bird Challenge</b> User interactions and Keypress events	Use keypress events to develop the popular flappy bird game Single player : Tap game with score
20	<b>Module checkpoint - 2/ Capstone Class</b> Checkpoint Class 2	<b>Build story app in Sprite Lab using variables</b> Independent Implementation : Build Story app
21	<b>Conditionals</b> If - then Conditions and decision making	<b>Use of Conditional Statements to evaluate and predict outcomes.</b> Structured Puzzles : Logical Thinking
22	<b>Making Decisions in Code</b> Conditional Programming	Conditional constructs in Apps using directions Build decision making logic in apps Structured Puzzles : Logical Thinking
23	<b>Making Decisions in Code</b> Conditional Programming	Conditional constructs in Apps to evaluate outcomes Decision making capability in game apps Never Ending Game
24	<b>Programming App To Make Decisions</b> IF-ELSE Conditional Statement	STEM: States of Water app
25	<b>Programming App To Make Decisions</b> Conditional Statements with Boolean values	<b>Game rules using conditionals to determine win/lose</b> Car Racing game : NFS (Need for Speed)
26	<b>Nested Loops</b> Nested Loop : recognize patterns to create optimized code	Advanced programming: Write optimized Structured Activities : Logical Thinking for efficient coding
27	<b>While Loop</b> Programming construct of "WHILE" Loop	Understand and Implement While Loops Structured Activities : Logical Thinking
28	<b>Binary Strings</b> Convert simple code of 0s and 1s into machine-level binary	Write short computer programs in Binary 8x8 bitmap images from binary strings
29	<b>Binary Math</b> Binary Math and Number system	Convert 4 bit binary into Decimal value system 8x8 bitmap images from binary strings
30	<b>Module Checkpoint class - 3/Capstone Class</b> Checkpoint Class 3	Independent app development : from Algorithm to final code. Revision of concepts A fun Witch - Wizard spells and bolts game
31	<b>Build your own mobile app</b> Intro to App Lab using standard UI elements : Buttons & Texts.	Create apps using text, label, button & use images, sound Understand event handlers for UI elements Build first interactive mobile app
32	<b>Mobile App - Greeting Card</b> Build App using UI elements	Change properties of user elements at design and run time. Add event handlers to listen for and respond to user events Interactive app for Birthday Card / Happy New Year

CLASS	CONCEPT & LEARNING	BUILDING SKILLS
33	<b>Conditionals in Mobile App</b> IF - ELSE Conditional statement	Conditional statements & its evaluation based on different input values. Learn condition evaluation using comparison operations. Season App, Password Checker app that performs conditional analysis on user feedback
34	<b>Logic Gates</b> Boolean outcomes from logical AND and OR of conditional statements	Conditional evaluation using logical operations Use logical operators (&& ,   ) to implement decision logic Logic Gates app for Boolean And, Or Operations
35	<b>Multiscreen App - Multiscreen Navigation</b> Event driven programming with multiple screens and switching between them	Navigation in an app by switching context between multiple screens STEM: Scientific Animal Classification app
36	<b>Clicker Game : Keeping Score</b> Develop a clicker game	Build a clicker game app using detailed UI properties in design. Learn the concepts of random number & variable manipulation for score Clicker game with score card
37	<b>Multiscreen clicker chaser game</b> Develop a multi screen chaser catch game	Game design concepts of lives used, number of tries, total score & implement in clicker catcher game Structured Activities : Logical Thinking with game design rules
38	<b>While Loop - Mobile App</b> Implement While Loop in App Lab	While loops with an evaluating condition and a correct terminating condition Fun creative activity exercises: Apps using while loops to perform repetitive tasks defining boundary conditions for exit
39	<b>WHILE Loops with CANVAS UI elements</b> While Loop using Canvas elements	While Loop for Creative art Concept of RGB color manipulation Fun creative exercises : Drawing with code using loops
40	<b>ARTIST PATTERNS</b> Use text commands, angles, loops and complex logic for creative outcomes	Use the Artist environment to explore loops and text commands that draw complex patterns Structured Activities : Logical Thinking
41	<b>Intro to Turtle programming</b> Turtle graphics to create visual output	Program the turtle pointer to move on the screen using coordinate location system and complex designs. Fun creative exercises : Develop programs for creative expression using Turtle Code
42	<b>Control Statements - FOR Loop</b> For Loops using Turtle Programming	Use loops with embedded counters having predetermined start and stop values Structured Puzzles : Logical Thinking exercises
43	<b>Recreate Frozen Patterns in Turtle Code</b> Recreate frozen patterns in Turtle Code	Revision practice for While and For Loops Structured Puzzles : Logical Thinking exercises for creative outcomes
44	<b>Control Statements - Timed Loops</b> Use Timed Loops to create deterministic iterations	Learn to use timed loops to implement delays and run loops at precise time intervals Apps with Countdowns and delays
45	<b>Advanced UI Controls - Part 1</b> Rich GUI for Apps using multiple controls	Extended UI : Slider, checkbox radiobutton and dropdown controls in app Rich GUI and well designed apps
46	<b>Advanced UI Controls - Part 2</b> Rich GUI for Apps using multiple controls	String functions with Extended UI components in apps Rich GUI and well designed apps
47	<b>Deep Debugging</b> Identifying and Fixing bugs in programs	Debug sequential & event-driven programs using debug console, speed slider, & breakpoints Learn best practices for debugging programs Debugging: Persistence and Best Practices
48	<b>Capstone Checkpoint Project</b> Demonstrate independent implementation skill through start to end self written programs	Independent implementation of concepts taught in 48 classes Options to exhibit skill in various types of programs Capstone Assessment Project (Any 1): Quiz / Treasure Hunt, Pop the Bubble OR Get a 10, Turtle Scenario, Clicker Catcher Chaser App: Catch the Burglar



# GRADE 2 & 3 CURRICULUM

CLASS	CONCEPT LEARNING	BUILDING SKILLS
T	<b>Command</b> Block Based Commands	<b>Photo frame</b> Code Studio   Sprite Lab
1	<b>Events + Sequences</b> Enable Click Event to trigger change in the game/story Understand the basics of Game Development: Player & Playground, Enable Continuous Movement of the Player	<b>Soccer Activity</b> Code Studio   Sprite Lab
2	<b>Events + Sequences</b> Enable Arrowkey Events & Collision Events + Sprite Animation	<b>Space Game: Fly me to the Space</b> Code Studio   Sprite Lab
3	<b>Spatial Reasoning: Pixels</b> Enable controlled movement of game sprites/players on user-input	<b>Space Game: Fly me to the Space - Dodge the Enemy</b> Code Studio   Sprite Lab
4	<b>Spatial Reasoning: Location (x,y) + Directions</b> Understand the unit of length/distance in Game-development Enable controlled movement in the required cardinal directions	<b>Constellation + Angry Bird Puzzle</b> Code Studio   Sprite Lab
5	<b>Spatial Reasoning: Inter-cardinal Directions</b> Enable controlled Movement in intercardinal directions	<b>Score a Goal + Angry Bird Puzzle</b> Code Studio   Sprite Lab
6	<b>Loops + Randomisation</b> Use loops and random location to create multiple sprites at random locations	<b>Spot the Boy + Create the Night Sky</b> Code Studio   Sprite Lab
7	<b>Student-led Checkpoint: Events</b> Apply user interaction and collision events to build the first part of the game	<b>Ping-pong/ Bouncing Ball Game</b> Code Studio   Sprite Lab
8	<b>Student-led Checkpoint: Spatial Reasoning</b> Apply spatial reasoning to build the movement of the ball in intercardinal directions	<b>Ping-pong/ Bouncing Ball Game</b> Code Studio   Sprite Lab
9	<b>Student-led Revision Class</b> Revision Class: User interaction & Collision Events, Directions, Location (x,y)	<b>Ping-pong/ Bouncing Ball Game</b> Code Studio   Sprite Lab
10	<b>Numerical Variables</b> Declare and Initialise Numerical Variables	<b>Zoom-in   Zoom-out Let's Water the Flower</b> Code Studio   Sprite Lab
11	<b>String Manipulation</b> String Variable Declaration & Initialisation Concatenation	<b>Compound Words Countries &amp; Currencies</b> Code Studio   Sprite Lab
12	<b>Cartesian Coordinate System</b> Generate a Random Number to randomise events in the story/game Correlate movement with change in cartesian coordinates	<b>Follow the Red Dot! Park the Black Car!</b> Code Studio   Sprite Lab
13	<b>Introduction to Conditionals</b> Apply If conditionals, and perform math operations on variables	<b>Roll your Own Dice!</b> Code Studio   Sprite Lab
14	<b>Conditionals, Variable Assignment &amp; Operation</b> Apply conditionals on x-coordinate of sprites to build dynamic playground/background	<b>Fix the Satellite Drive to the Gas Station</b> Code Studio   Sprite Lab
15	<b>Function with parameters</b> Create your own functions for movement of sprites	Code Studio   Sprite Lab
16	<b>Student-led Checkpoint: Randomisation using numbers</b> Randomisation using numbers, Math Operations & String Manipulation	<b>Happy Wheels: Car Racing Game</b> Code Studio   Sprite Lab

CLASS	CONCEPT & LEARNING	BUILDING SKILLS
17	<b>Sprite Animation</b> Events, Variable and Loops	<b>Happy Wheels: Car Racing Game</b> Code Studio   Sprite Lab
18	<b>Conditionals</b> While - Do conditions, Nested Loops	<b>Fighter Jet Game</b> Code Studio   Sprite Lab
19	<b>Functions</b> Create function Repeat Loop	<b>Fighter Jet Game</b> Code Studio   Sprite Lab
20	<b>Extended Functions</b> Loops, Nested Functions	<b>Fighter Jet Game</b> Code Studio   Sprite Lab
21	<b>4-Step App Development Framework</b> Introduction to Design Elements & their Properties such as Color, Element Id, Text & other properties setProperty()	<b>Flashlight Applications</b> Code Studio   Sprite Lab
22	<b>Design Discipline: Introduction to Colour Themes</b> Understand Colour themes in an application Read colour palettes	<b>Colour Palette</b> Code Studio   Sprite Lab
23	<b>Introduction to I/O UI Elements &amp; Design Balance</b> Input UI Elements: text_input Output UI Element: label getText()	<b>Greeting Card Designer App/ Birthday Card</b> Code Studio   Sprite Lab
24	<b>Math Operations on Variables</b> Initialisation, Assignment & Math Operations	<b>Pocket Money Manager</b> Code Studio   Sprite Lab
25	<b>Scope of Variables</b> Understand Global and Local Variable Scopes	<b>Capitals Application</b> Code Studio   Sprite Lab
26	<b>Introduction to Debugging</b> Debug at various steps of app development Read and interpret error to debug the code at different steps of app development	<b>Debugging Apps</b> Code Studio   Sprite Lab
27	<b>String Manipulation I</b> Declaring, Assigning & Manipulating String Variables UI Element: Checkbox	<b>Typing Practice Application</b> Code Studio   Sprite Lab
28	<b>String Manipulation II</b> Concatenation	<b>Typing Text Application</b> Code Studio   Sprite Lab
29	<b>Student-led CheckPoint: Variables &amp; Debugging</b> Perform String Comparison using If-conditionals Read and interpret error to debug the code at different steps of app development	<b>Typing Practice Application</b> Code Studio   Sprite Lab
30	<b>Student-led CheckPoint: UI Elements &amp; Navigation</b> Showcase the applications developed so far by applying the UI knowledge thus far	<b>Professional Portfolio Application</b> Code Studio   Sprite Lab
31	<b>Introduction to Boolean Variables &amp; Logic Gates</b> Apply If-Else conditional UI Element: Radio Buttons Enforce algorithmic thinking thro	<b>Character Builder Application</b> Code Studio   Sprite Lab
32	<b>Branched Conditionals</b> If-Else conditional to build logic - gate based apps	<b>Game of Gates!</b> Code Studio   Sprite Lab

CLASS	CONCEPT & LEARNING	BUILDING SKILLS
33	<b>Introduction to Iterative Loops</b> Apply For loop and understand counter variable & each iteration	<b>UnStructured - Bullet unstructure sentences!</b> Code Studio   Sprite Lab
34	<b>Iterative loops to scan through index components</b> Read each character of a string using a For Loop	<b>Word &amp; Character Counter Application</b> Code Studio   Sprite Lab
35	<b>Introduction to timed loop</b> Start and stop timedloop to build a timed jumbled word game	<b>Timed Jumbled Tester</b> Code Studio   Sprite Lab
36	<b>Student Led Checkpoint: Loops &amp; Conditionals</b> Build a Digital clock by applying string concatenation, if-else conditional & time-based loop	<b>Digital Clock Application</b> Code Studio   Sprite Lab
37	<b>Student Led Checkpoint: UI Elements + Conditionals</b> Design the basic UI of Rock-Paper-Scissors	<b>Rock-Paper-Scissors I</b> Code Studio   Sprite Lab
38	<b>Introduction to Functions + Delay Block</b> Build the scorekeeping functionality using functions to display Bot's choice	<b>Rock-Paper-Scissors II</b> Code Studio   Sprite Lab
39	<b>Introduction to Persistence of Vision</b> Create animations through an understanding of the concept of persistence of vision, framerate & framecount	<b>Virtual Flipbook Animation</b> Code Studio   Sprite Lab
40	<b>Co-ordinate System in Game Lab (p5.js)</b> Understand the World & Screen of the Game Lab (p5.js)	<b>Drone Delivery to the Pin!</b> Code Studio   Sprite Lab
41	<b>Sprite Navigation in p5.js</b> Build user-trigger event & resulting change in the state-based simulations	<b>State-based Simulation Game I</b> Code Studio   Sprite Lab
42	<b>Sprite Navigation in p5.js</b> Build sprite interactions using collide and touch events in JS	<b>State-based Simulation Game II</b> Code Studio   Sprite Lab
43	<b>Rotational Motion in p5.js</b> Understand the science of rotation & build rotational animations/simulations using change in direction and speed	<b>State-based Simulation Game III</b> Code Studio   Sprite Lab
44	<b>Set up Draggability in p5.js + Cursor-tracking</b> Understand the rationale behind waste segregation Build the logic to trigger event to open the trash-cans	<b>Trash Sorter Game I</b> Code Studio   Sprite Lab
45	<b>Checkpoint: Coordinate + Conditionals + sprite properties</b> Build the scorekeeping & result logic by setting up conditions for the sameRead and interpret errors in Game Lab to debug the code	<b>Trash Sorter Game II</b> Code Studio   Sprite Lab
46	<b>Sequential Conditional Logic</b> Position the sequence of rocket assembly in the correct location	<b>Lunar Launch Mission - Rocket Assembly</b> Code Studio   Sprite Lab
47	<b>Vertical Animation/ Navigation in Game Lab</b> Build the launch logic using timedloop and counter	<b>Lunar Launch Mission - Countdown to Launch</b> Code Studio   Sprite Lab
48	<b>Student-led Checkpoint: Kinematics in Game Lab</b> Build the final stages of the mission using kinematics in Game Lab	<b>Lunar Launch Mission - Landing the Rover</b> Code Studio   Sprite Lab



# GRADE 4, 5 & 6 CURRICULUM

CLASS	CONCEPT LEARNING	BUILDING SKILLS
T	Mobile App Basics App Design and Code	Mobile App Design and Code
1	Sequence Procedural Programming Paradigm	Solving Maze Critical Thinking Skill
2	Algorithm Creating & Applying Algorithms	Sketch Art Algorithmic Thinking Skill
3	Program Algorithms to Program	Pixel Art Pattern Logical Thinking Skill
4	App Design GUI Design and Code	Create Mobile App Design and Code
5	Data Variables Manipulate Variable Values	Double Player Game Abstract Thinking Skill
6	OnClick Event Trigger an Event on Click	Double Player Game Parallel Thinking Skill
7	Story Animation Animate Sprites with Code	Story Board Creative Thinking Skill
8	GUI Design and Code GUI Design and Code	Create Arcade Game Design and Code
9	While Loop Iterative Conditional Loop	Solve Puzzle Recursive Thinking Skill
10	Start Event Trigger an Event at Start	Complex Game Structured Thinking Skill
11	Repeat Loop Iterative Conditional Loop	Snow Art Recursive Thinking Skill
12	App Design GUI Design and Code	Create Complex Mobile App Design and Code
13	Stop Event Trigger an Event at Stop	Complex Game Structured Thinking Skill
14	Until Loop Iterative Conditional Loop	Fractal Design Recursive Thinking Skill
15	For Loop Iterative Conditional Loop	Shapes Critical Thinking Skill
16	Game Design GUI Design and Code	Create Complex Arcade Game Design and Code

CLASS	CONCEPT & LEARNING	BUILDING SKILLS
17	Times Loop Iterative Conditional Loop	Patterns Recursive Thinking Skill
18	Count Loop Iterative Conditional Loop	Solve Puzzle Recursive Thinking Skill
19	Nested Loops Recursive Looping	Complex Patterns Recursive Thinking Skill
20	Game Design GUI Design and Code	Create Advanced Mobile Game with UI Design
21	App Design GUI Design and Code	Basic Native App Design Thinking Skill
22	App Design GUI Design and Code	Basic Native App Design Thinking Skill
23	App Design GUI Design and Code	Basic Native App Design Thinking Skill
24	Publishing App	Google Play App Store
25	Touch Event Trigger code on Touch	Mobile App Creative Thinking Skill
26	While-do Conditional Programming	Solve Maze Logical Thinking Skill
27	If-do Conditional Programming	Solve Puzzle Logical Thinking Skill
28	App Design GUI Design and Code	Create Commercial-Ready Mobile App
29	If-else Conditional Programming	Solve Puzzle Logical Thinking Skill
30	Costume Property Control Object Appearance	Sprites Creative Thinking Skill
31	Color Property Control Object Appearance	Sprites Creative Thinking Skill
32	Game Design GUI Design and Code	Create Commercial-Ready Mobile Game

CLASS	CONCEPT & LEARNING	BUILDING SKILLS
33	Repeat do Repeat do Conditionals	Solve Puzzle Logical Thinking Skill
34	OnEvent Function Interactive Design Components	Mobile App Critical Thinking Skill
35	Parallel Functions Interactive Design Components	Mobile App Parallel Thinking Skill
36	App Design GUI Design and Code	App Entrepreneur
37	Chatbot Development Small Talk Services	AI Chatbot Critical Thinking Skills
38	Chatbot Development Chatbot Intents	AI Chatbot Abstract Thinking Skills
39	Chatbot Development Chatbot Knowledgebase	AI Chatbot Critical Thinking Skills
40	Chatbot App Native Chatbot App	AI Chatbot Abstract Thinking Skill
41	Advanced Chat App Algorithm Design	Communication Apps Algorithmic Thinking Skill
42	Advanced Chat App Chat App Prototype	Communication Apps Critical Thinking Skill
43	Advanced Chat App Cloud Integration	Communication Apps Algorithmic Thinking Skill
44	Advanced Chat App Database Integration	Communication Apps Analytical Thinking Skill
45	Advanced Logic Game Rules	Cloud Based Game Critical Thinking Skill
46	Advanced Logic Game Rules	Cloud Based Game Critical Thinking Skill
47	Advanced Logic Database Integration	Cloud Based Game Analytical Thinking Skill
48	Advanced Logic Database Integration	Cloud Based Game Analytical Thinking Skill



# GRADE 7, 8 & 9 CURRICULUM

CLASS	CONCEPT LEARNING	BUILDING SKILLS
T	<b>Game Design Basics</b> Game Design and Code	<b>Arcade Game</b> Design and code
1	<b>Custom Functions</b> Creating Functions	<b>Creating Animation</b> Abstraction
2	<b>Sprites</b> Creating Sprites	<b>Moving object</b> Pattern recognition
3	<b>If Conditionals</b> Conditional Programming	<b>Character Control</b> Logical Thinking
4	<b>Game Design</b> Game Design and code	<b>AI based Game</b>
5	<b>Loops</b> Looping	<b>Obstacles in Game</b> Recursive thinking
6	<b>Variables</b> Manipulating variables	<b>Game States</b> Abstraction
7	<b>Pre-defined Functions</b> Calling function to perform pre-defined tasks	<b>Sound effects</b> Abstract Thinking
8	<b>Single Player Game</b> Game design and code	<b>Maze Runner Game</b>
9	<b>Variable scope</b> Understanding life of variables	<b>Gravity effect</b> Algorithm
10	<b>Graphics</b> Loading images	<b>Running Animation</b> Abstract Thinking
11	<b>Algorithm</b> Illusion for moving backgrounds	<b>Parallax Background</b> Algorithm Design
12	<b>Random Number Generation</b> Generating random values	<b>Spawn Game Objects</b>
13	<b>Algorithm</b> Algorithm to detect collision	<b>Collision Detection</b> Algorithm Design
14	<b>If-else conditional</b> Conditional Programming	<b>Scoring System</b> Logical Thinking
15	<b>Code Readability</b> Writing readable code	<b>Refactoring code</b> Abstraction
16	<b>Game Design</b> Game Design and Code	<b>Endless Runner Game</b>

CLASS	CONCEPT & LEARNING	BUILDING SKILLS
17	<b>Iterator</b> Iterating over data	<b>Blocks Generator</b> Recursive thinking
18	<b>Return Values</b> Returning values from functions	<b>Rotation and Drop Speeds</b> Abstraction
19	<b>Flags</b> Storing levels as flags	<b>Game Levels</b> Algorithm Design
20	<b>Game Design</b> Game Design and Code	<b>Puzzle Game</b>
21	<b>OOPS</b> Using object oriented style	<b>Cannon shooter</b> Abstraction
22	<b>Recursion</b> Function calling itself	<b>Moving targets</b> Recursive Thinking
23	<b>Graphics</b> Creating graphic effects	<b>Explosion effects</b> Creativity
24	<b>Game Design</b> Game Design and Code	<b>Single Shooter Game</b>
25	<b>Object types</b> Different data types	<b>Ammunition Storage</b> Decomposition
26	<b>Events</b> Detecting events	<b>Two player control</b> Parallel thinking
27	<b>Booleans</b> True/False data type	<b>Ammunition Control</b> Logical Thinking
28	<b>Game Design</b> Game Design and Code	<b>Multi Shooter Game</b>
29	<b>Classes</b> Designing classes	<b>Characters in Game</b> Abstraction
30	<b>Asynchronous calls</b> Parallel instructions	<b>Chracter animation</b> Parallel thinking
31	<b>OOPS</b> Using object oriented style	<b>Game World</b> Decomposition
32	<b>Game Design</b> Game Design and Code	<b>RPG Game</b>

CLASS	CONCEPT & LEARNING	BUILDING SKILLS
33	<b>Nested Loops</b> Recursive looping	<b>Traps</b> Recursive Thinking
34	<b>Logical Operators</b> Stating conditions for rewards	<b>Rewards</b> Logical Thinking
35	<b>Algorithm</b> Programming for adaptive difficulty	<b>Game Difficulty</b> Algorithm Design
36	<b>Game Design</b> Game Design and Code	<b>Adventure Game</b>
37	<b>Debugging</b> Correct Errors in code	<b>Game Narrative</b> Problem Solving
38	<b>Flow Control</b> Flow control between player actions	<b>Player Controls</b> Logical Thinking
39	<b>Callback</b> Issuing callback instructions	<b>Feedback</b> Parallel thinking
40	<b>Game Design</b> Game Design and Code	<b>Education Game</b>
41	<b>Game Story</b> Design a story	<b>Self-designed Game</b>
42	<b>Game Characters</b> Design Game Characters	<b>Self-designed Game</b>
43	<b>Game World</b> Create Game Objects	<b>Self-designed Game</b>
44	<b>Game Mechanics</b> Create Rule Play	<b>Self-designed Game</b>
45	<b>Game Algorithm</b> Algorithm to implement Game rules	<b>Self-designed Game</b>
46	<b>Game Debugging</b> Checking for errors	<b>Self-designed Game</b>
47	<b>Game Testing</b> Testing the game	<b>Self-designed Game</b>
48	<b>Publishing a game</b> Publishing the game on a platform	<b>Self-designed Game</b>



# GRADE 10, 11 & 12 CURRICULUM

CLASS	CONCEPT LEARNING	BUILDING SKILLS
T	Python Basics Data Types & Variables	Python Programming
1	Python Basics Operations on Variables	Python Programming
2	Python Basics Loops	Python Programming
3	Python Basics Conditional Statements	Python Programming
4	Python Basics Functions	Python Programming
5	Python Operations on String	Python Programming
6	Python String Formatting	Python Programming
7	Python Lists List Creation	Python Programming
8	Python Lists List Operations	Python Programming
9	Python Lists List Comprehensions	Python Programming
10	NumPy Arrays Array Creation	Python For Machine Learning & Deep Learning
11	NumPy Arrays Operations on NumPy arrays	Python For Machine Learning & Deep Learning
12	Descriptive Statistics Mean, Median, Mode, Min & Max Values	Statistics
13	Pandas Series Series Creation	Python For Machine Learning & Deep Learning
14	Pandas Series Operations on Pandas Series	Python For Machine Learning & Deep Learning
15	Pandas DataFrames DataFrame Inspection	Python For Machine Learning & Deep Learning
16	Pandas DataFrames DataFrame Slicing	Python For Machine Learning & Deep Learning

CLASS	CONCEPT & LEARNING	BUILDING SKILLS
17	Pandas DataFrames Operations on DataFrame	Python For Machine Learning & Deep Learning
18	Pandas DataFrames Merging & Joins	Python For Machine Learning & Deep Learning
19	Univariate Analysis Continuous Data (Matplotlib Plots)	Exploratory Data Analysis
20	Univariate Analysis Continuous Data (Seaborn Plots)	Exploratory Data Analysis
21	Univariate Analysis Categorical Data (Matplotlib Plots)	Exploratory Data Analysis
22	Univariate Analysis Categorical Data (Seaborn Plots)	Exploratory Data Analysis
23	Bivariate Analysis Continuous Data (Matplotlib Plots)	Exploratory Data Analysis
24	Bivariate Analysis Continuous Data (Seaborn Plots)	Exploratory Data Analysis
25	Bivariate Analysis Categorical Data (Matplotlib Plots)	Exploratory Data Analysis
26	Bivariate Analysis Categorical Data (Seaborn Plots)	Exploratory Data Analysis
27	Bivariate Analysis Time-Series Data Introduction	Exploratory Data Analysis
28	Bivariate Analysis Time-Series Data (Date Formatting)	Exploratory Data Analysis
29	Bivariate Analysis Pivot Tables	Exploratory Data Analysis
30	Cartograms Cartograms - Follum Maps	Exploratory Data Analysis
31	Binary Classification	Machine Learning Classification
32	Decision Tree & Random Forest Introduction	Machine Learning Classification

CLASS	CONCEPT & LEARNING	BUILDING SKILLS
33	Random Forest Classifier Data Cleaning	Machine Learning Classification
34	Random Forest Classifier Data Normalisation	Machine Learning Classification
35	Random Forest Classifier Model Deployment	Machine Learning Classification
36	Random Forest Classifier Cross Validation	Machine Learning Classification
37	Random Forest Classifier Confusion Matrix	Machine Learning Classification
38	Random Forest Classifier Classification Report	Machine Learning Classification
39	Random Forest Classifier Feature Engineering	Machine Learning Classification
40	Random Forest Classifier Feature Encoding	Machine Learning Classification
41	Random Forest Classifier Feature Scaling	Machine Learning Classification
42	Random Forest Classifier Bagging	Machine Learning Classification
43	Game Mechanics Create Rule Play	Machine Learning Classification
44	Oversampling	Machine Learning Classification
45	XGBoost Classifier Model Deployment	Machine Learning Classification
46	XGBoost Classifier Cross Validation	Machine Learning Classification
47	Game Testing Confusion Matrix	Machine Learning Classification
48	Publishing a game Classification Report	Machine Learning Classification