

CH-5: INTRODUCTION TO MAKECODE ARCADE

Section 1: Multiple Choice Questions (MCQs)

1. What is the primary objective of the MakeCode platform?
 - a) To replace text-based coding languages like Python
 - b) To make coding more approachable and enjoyable for beginners
 - c) To act as a physical hardware simulator for advanced engineers
 - d) To build professional websites
2. Who wrote the first code in 1843 for Charles Babbage's Analytical Engine?
 - a) Ada Lovelace
 - b) Charles Babbage
 - c) Daniel Bernoulli
 - d) Bill Gates
3. Which real-life example is used to explain how coding works in everyday objects?
 - a) A digital microwave
 - b) An elevator
 - c) A traffic light
 - d) A digital watch
4. Which block category is used to add background music and audio cues to your game?
 - a) Game Blocks
 - b) Scene Blocks
 - c) Music Blocks
 - d) Info Blocks
5. What does the Simulator do in MakeCode Arcade?
 - a) It exports your game project as a file to be stored locally.
 - b) It allows you to test your game directly in the browser without needing additional hardware.
 - c) It creates a special URL to share with friends.
 - d) It fixes errors in your code automatically.
6. Which blocks allow you to react to button presses and joystick movements?
 - a) Controller Blocks
 - b) Logic Blocks
 - c) Game Blocks
 - d) Sprites Blocks
7. What kind of blocks manage and display game-related information such as scores, lives, and levels?
 - a) Scene Blocks
 - b) Variable Blocks
 - c) Math Blocks
 - d) Info Blocks
8. According to the naming rules, a variable name must start with what?
 - a) A number or a letter
 - b) A letter or an underscore
 - c) A capital letter only
 - d) A reserved keyword
9. What is the purpose of the 'splash' block?
 - a) To add a water visual effect to the game
 - b) To delete all sprites instantly
 - c) To show a brief message on the screen for a short period
 - d) To save the game progress
10. How many data values can a single variable store at one time?
 - a) Only one
 - b) Up to two
 - c) An unlimited array of values
 - d) Depends on the variable name

Section 2: Fill in the Blanks

1. Coding, also known as programming, produces _____ that a computer can comprehend and carry out.
2. In the early days of coding, _____ were physically inserted into computers.
3. MakeCode makes use of the _____ programming model, which makes it simple for people unfamiliar with programming to learn.
4. The _____ option allows you to export your game project as a file that can be stored locally on your computer.
5. A _____ serves as a graphical element, representing objects, characters, or other entities in your game.
6. _____ blocks are essential for storing and changing data in your game.
7. The concept of block _____ determines the visibility of a variable, meaning you can only see it in the code block where you built it.
8. Variable names are _____-sensitive, meaning "score" and "Score" are treated as completely different variables.
9. _____ are used in your code to do various comparisons and calculations to create game logic.
10. _____ structures let you repeat tasks, efficiently organize your code, and run several code blocks according to criteria.

Section 3: Match the Following

Match the component or block category in **Column A** with its correct description in **Column B**.

Column A	Column B
1. Toolbox	A. Create and manipulate strings, including slicing and joining.
2. Extensions	B. Reusable code snippets that the program can call multiple times.
3. Scene Blocks	C. Log values and messages for debugging purposes.
4. Math Blocks	D. Add additional features and functionality not in the core block set.
5. Console Blocks	E. Include chance, computation, and reasoning in your games.

Column A	Column B
6. Array Blocks	F. Contains every block that you may need to develop code.
7. Function Blocks	G. Establish the visual style, background, and screen layout.
8. Text Blocks	H. Create complex behaviours using conditional statements and loops.
9. Sprites Blocks	I. Regulate the formation, motion, and behaviour of characters.
10. Logic Blocks	J. Create and manipulate lists to store and retrieve multiple values.

Section 4: True or False

1. MakeCode Arcade focuses specifically on game development, whereas Scratch is mostly for learning basic coding concepts. -
2. The MakeCode Arcade offline app is only available for Windows operating systems. -
3. MakeCode Arcade provides a JavaScript code editor for advanced users who prefer text-based editing. -
4. You cannot create your own sprite; you must use a pre-built one from the gallery. -
5. A variable name can begin with a number (e.g., 1stPlayer). -
6. When you enter a new value into a variable, it erases the old value. -
7. You must use a physical gamepad to test how your MakeCode Arcade game behaves. -
8. The "If... Then" structure allows you to run a block of code if a condition is true. -
9. You can set the game's background to either a solid colour or an image. -
10. The 'set mySprite to' block is typically placed inside the 'on start' block when adding a new sprite. -

Section 5: Short answer type questions

1. What is a variable in MakeCode Arcade? Name any two types of data it can store.
2. Explain the term 'scope of a variable' with reference to block scoping.
3. List any four rules that must be followed while naming variables.
4. Define what a "Sprite" is in game programming.
5. Briefly differentiate between 'Scene' blocks and 'Info' blocks.

Answer Key

Section 1: MCQs

1. **b**
2. **a**
3. **c**
4. **c**
5. **b**
6. **a**
7. **d**
8. **b**
9. **c**
10. **a**

Section 2: Fill in the Blanks

1. instructions
2. punch cards
3. blocks
4. Download
5. sprite
6. Variable
7. scoping
8. case
9. Operators
10. Control

Section 3: Match the Following

1. **F**
2. **D**
3. **G**
4. **E**
5. **C**
6. **J**
7. **B**
8. **A**
9. **I**
10. **H**

Section 4: True or False

1. **True**
2. **False** (It is available for Windows and Mac OS)
3. **True**
4. **False** (You can create a sprite using the pixel editor)
5. **False** (Variable names must begin with a letter or underscore)
6. **True**
7. **False** (The Simulator allows you to test the game without hardware)
8. **True**
9. **True**
10. **True**

Section 5: Short answer type questions

1. A variable is a named "container" or placeholder used to store information that can be changed and reused throughout your program.
Two types of data it can store:
Number: Values like scores, coordinates, or health points.
String: Text data, such as a player's name or a message.
2. The scope of a variable refers to the specific part of the program where that variable is "visible" or accessible.
Block Scoping: In block-based coding, if a variable is created inside a specific block (like a function or a loop), it usually only exists within that block. Once the program moves outside those boundaries, the variable can no longer be used.
3. When naming variables, you should follow these general coding rules:
 1. **Be Descriptive:** Use names that explain what the variable does (e.g., `playerScore` instead of `x`).
 2. **No Spaces:** Variable names cannot contain spaces. Use camelCase (e.g., `itemCount`) or underscores (e.g., `item_count`) instead.
 3. **Start with a Letter:** Names should begin with a letter, not a number or special symbol.
 4. **Unique Names:** Each variable must have a unique name within its scope.
4. A sprite is a graphical element that represents objects, characters, or other entities in a game.
5. Scene blocks are used to establish the visual style of your game by managing the game screen layout, item placement, and background elements like colour or images. Info blocks, on the other hand, are specifically used to manage and display game-related statistics, such as the player's score, lives, and current level.