Class 6

Answer Key

Information Technology (Ver. 5.0)

1. Fundamentals of Computer

Tech Trivia

Section A (Objective)

A. 1. c 2. c 3. b 4. b 5. a 6. c
7. c 8. c

B. 1. Printer 2. Primary, Secondary 3. Cloud Storage 4. Brain
5. IPO Cycle 6. Booting 7. Projector 8. Bluetooth

C. 1. iii. 2. i. 3. v. 4. ii. 5. iv.

D. 1. F 2. T 3. T 4. F 5. F 6. F
7. F 8. F

Answer Arcade

Section B (Subjective)

A. 1. Secondary storage has larger storage capacities compared to primary storage. You can save your important files, pictures, and games on secondary storage, and they will stay there until you decide to delete them.

2. Process: The computer processes the input data using CPU, performing calculations and running programs.

3. Control Unit (CU): It tells other parts of the computer what to do. It controls the flow of data and ensures everything works together.

4. A computer is an electronic device that can process data, perform calculations, store information, and execute tasks based on instructions provided by users.

5. A printer is an output device that makes an exact copy of what you see on the screen on the paper.

6. Arithmetic Logic Unit (ALU): It performs calculations and logical operations like adding numbers or comparing data.

7.

Device	Category
Printer	Output Device
Plotter	Output Device
Hard Disk	Storage Device
Microphone	Input Device
Speakers	Output Device

8.

RAM	ROM
Data is lost when the power is turned off.	Data remains intact even when the power is off.
Data can be easily changed, added, or deleted.	Data cannot be modified or erased easily.

9. Shutting down a computer means turning it off properly so that all your programs and files are saved, and the computer powers down safely. Before shutting down, make sure to save any open files, documents, or work to avoid losing any changes.

10. The measuring unit helps us understand how much space is available or used in storage devices like hard drives, USB flash drives, or cloud storage. Just like we measure distance in meters or weight in kilograms, memory is measured in bytes.

B. 1.

Sleep	Shut Down
It is a power-saving feature that allows your computer to enter a low-energy state while keeping your work easily accessible. This helps you resume your work quickly without losing any unsaved work.	It will close all open programs and safely turn off your computer. It completely powers off the system. When you shut down, the operating system closes all running applications in an orderly manner, reducing the risk of losing unsaved changes.

2. The process of starting a computer means Booting. It involves the process of turning on the machine and allowing it to load the operating system so that you can begin working. Follow the given steps to start a computer:

   Step 1: Press the main power switch.

   Step 2: Press the power button of the Uninterruptible Power Supply (UPS) if connected.

   Step 3: Press the power button on your computer or laptop.

Step 4: You will see a start-up screen. The computer checks its hardware components (like CPU, RAM, and keyboard) to ensure they are functioning properly. This is a quick check, and if everything is good, the process continues. This is known as POST (Power On Self-Test). After the hardware check, the computer loads the operating system (like Windows or macOS). This is where you might see a loading screen with a logo or spinning circle.

Step 5: Once the operating system is loaded, you will see the login screen where you enter your user name and password. After logging in, your computer will load the desktop, and now you are ready to start using your computer.

3. Secondary storage refers to external storage devices that retain data permanently, even when the computer is powered off. They have larger storage capacities compared to primary storage. You can save your important files, pictures, and games on secondary storage, and they will stay there until you decide to delete them.

   Some of the commonly used secondary storage devices are as follows:

   Hard Disk Drive (HDD): A hard drive or hard disk drive (HDD) is a traditional storage device that is used in laptops and desktop computers.

   Solid State Disk (SSD): A Solid-State Drive (SSD) is a type of storage device that uses flash memory to store data.

   Compact Disc (CDs): It is a small, round storage medium used to store data. There are different types of CDs, such as CD-ROM (for data), CD-R (recordable), and CD-RW (rewritable), allowing users to write or erase data.

   USB Flash Drive: It is a small, portable storage device used to store and transfer data. It connects to computers, laptops, or other devices using a USB (Universal Serial Bus) port.

   Cloud Storage: It is a type of storage that allows you to save data, like files, photos, and videos, on the Internet instead of using any physical devices like hard drives or USB flash drives. With cloud storage, you can access your data from any device (phone, tablet, or computer) as long as you have an Internet connection.

4. Follow the given steps to shut down the computer:

   Step 1: Click the Start button at bottom-left corner of the screen. A Start menu appears.

   Step 2: Click on Power button. The Power menu appears in which you will typically find the following options:

   a. Lock: It allows you to quickly secure your computer without shutting it down or logging out. This option is useful when you need to step away for a moment but don't want to shut it down.

   b. Sleep: It is a power-saving feature that allows your computer to enter a low-energy state while keeping your work easily accessible. This helps you resume your work quickly without losing any unsaved work.

c. Shut Down: It will close all open programs and safely turn off your computer. It completely powers off the system. When you shut down, the operating system closes all running applications in an orderly manner, reducing the risk of losing unsaved changes.

d. Restart: It closes all programs, powers off the computer, and then immediately turns it back on. It helps refresh the system and apply any changes made.

5. The Central Processing Unit (CPU) is often called the "brain" of the computer. It's the part of the computer that carries out most of the instructions, does the calculations, and makes sure that everything runs smoothly.

   Main parts of a CPU are as follows:

   a. Control Unit (CU): It tells other parts of the computer what to do. It controls the flow of data and ensures everything works together.

   b. Arithmetic Logic Unit (ALU): It performs calculations and logical operations like adding numbers or comparing data.

   c. Memory Unit (MU): It stores temporary information that the CPU might need while working. It acts like a small storage area inside the CPU.

6. A computer is made up of two main parts: hardware and software.

   Hardware

   Hardware includes all the physical parts of a computer that you can see and touch. These components are also known as hardware devices. These devices are categorised into input, processing, output and storage devices. For example: Keyboard, CPU, Monitor and Hard disk.

   Software

   Software is made up of programs and apps that make the computer useful. A program is a set of instructions. You cannot touch the software, but it tells the hardware what to do. Software is divided into two main categories: system software and application software. For example: Windows 10, macOS, Microsoft Word, Microsoft Excel.

7. Software is divided into two main categories: system software and application software.

   System Software: It is a type of computer program which is necessary for the computer because it forms the backbone of the computer. It enables other programs to run and helps the hardware and software communicate for smooth functioning of the computer. Types of the system software are as follows:

   a. Operating System (OS): The operating system is like a manager of the computer that manages all the hardware and software. Some of the commonly used OS are Windows, macOS, Linux, and Android.

   b. Device Drivers: It is a special type of software that helps the operating system communicate with hardware devices.

c. Utility Software: It is a type of software that helps you manage and take care of your computer. Some of the commonly used utility software are Antivirus Software, Disk Cleanup Tools, Backup Software, and Defragmentation Tools.

Application Software: It is a type of computer program designed to help you perform specific tasks or activities. It is built for specific purposes, like writing, drawing, or managing data. It runs on top of the operating system and uses the computer's resources to help you accomplish your tasks. Examples of application software are as follows:

Word Processors: Programs like Microsoft Word or Google Docs that allow you create and edit text documents.

Spreadsheets: Software like Microsoft Excel or Google Sheets that helps you work with numbers and data in tables.

Web Browsers: Applications like Google Chrome or Mozilla Firefox that allow you to browse the Internet.

Games: Software designed for entertainment, like Minecraft or Candy Crush.

8. Output devices are used to display output processed by the computer. When you use a computer, you might want to see a picture, listen to music, or print a document. Output devices help you achieve all this. Some of the commonly used output devices are as follows:

Monitor (Visual Display Unit): It is the main output device of the computer. When you use a computer, it processes data and sends that information to the monitor. The monitor then displays this information in the form of text, images, and videos, allowing you to see what the computer is doing.

Printer: It is an output device that makes an exact copy of what you see on the screen on the paper.

Plotter: It is a special type of printer used to create large and detailed images, drawings, and graphics on paper.

Speaker: A speaker is an output device that produces sounds from videos, or any other audio content played through your computer or device.

Headphones: They are small speakers that you wear on or over your ears. They allow you to listen to audio from a computer, smartphone, or other devices without disturbing others around you.

Projector: A projector is an output device that takes images or videos from a computer and displays them on a larger screen or wall.

C. 1. A Printer is useful to do so.

2. When Anuj clicks Restart, the computer does these steps:

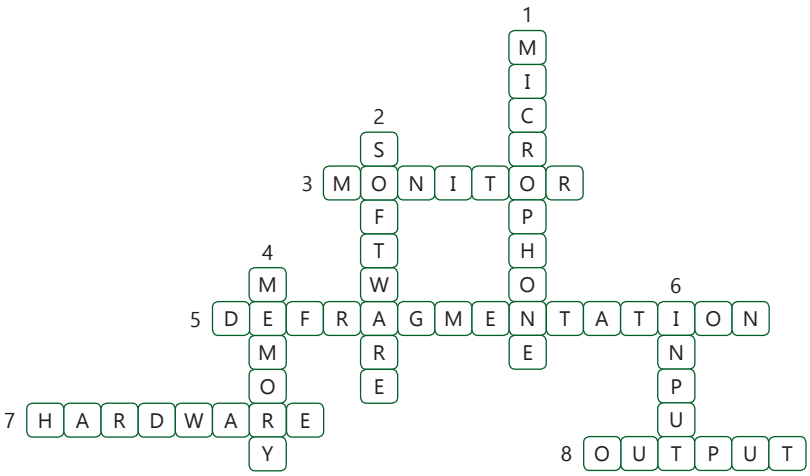
a. Closes all the programs that were running.

b. Turns off the computer for a few seconds.

c. Starts it up again fresh.

This helps because sometimes the computer gets confused or overloaded when too many things are happening at once. Restarting clears out temporary problems and gives the computer a fresh start, like how we feel better after a short rest.

Code Clues Page 29



Digital Drills Page 30

Do it yourself.

2. Algorithm and Flowchart

Problem 3 Page 32

Step 1: Start

Step 2: Input the length of the rectangle

Step 3: Input the width of the rectangle

Step 4: Multiply the length by 2

Step 5: Multiply the width by 2

Step 6: Add the results of Step 4 and Step 5

Step 7: Display the result as the perimeter

Step 8: Stop

Problem 4 Page 33

Step 1: Start

Step 2: Input the number of hours

Step 3: Multiply the number of hours by 60

Step 4: Store the result as minutes

Step 5: Display the number of minutes

Step 6: Stop

Problem 7 Page 34

Step 1: Start

Step 2: Pick up the watering can

Step 3: Go to Plant 1

Step 4: Water Plant 1

Step 5: Go to Plant 2

Step 6: Water Plant 2

Step 7: Go to Plant 3

Step 8: Water Plant 3

Step 9: Go to Plant 4

Step 10: Water Plant 4

Step 11: Go to Plant 5

Step 12: Water Plant 5

Step 13: Keep the watering can back

Step 14: Stop

Tech Trivia

Section A (Objective)

A. 1. b 2. c 3. d 4. b 5. d

B. 1. instructions 2. Start 3. understand 4. sequential 5. algorithm

C. 1. F 2. F 3. T 4. T 5. F 6. T 7. F 8. F

A. 1. Flowcharts are used in analysing, designing, documenting, or managing a process or program in various fields.

2. The "Start" and "Stop" keywords in an algorithm indicate where the algorithm begins and ends. They help clearly define the boundaries of the process, making it easier to understand and follow the steps in order.

3. There are three main control structures: sequential, selection, and repetition.

4. Some reasons to use repetition are as follows:

- **Saves time:** Instead of writing the same instructions over and over, you can write them once and repeat them as needed.
- **Makes the algorithm shorter:** This makes your algorithm easier to read and understand.
- **Handles large amounts of data:** Repetition is helpful when you need to process many items, like counting or calculating.

B. 1. When we write an algorithm, we often need to control the flow of how the steps happen. This is done using control structures. These are like "rules" that tell the algorithm what to do next based on certain conditions. There are three main control structures: sequential, selection, and repetition.

2. Using an algorithm can help make tasks easier and more organised. Some reasons to use algorithms are as follows:

- It helps you deal with the problem in a simple way.
- It helps you find the quickest way to finish a task, like solving a maths problem or organising your study materials.
- It gives clear steps to follow, you are less likely to make mistakes.
- It shows you the right way to do something so you can be more accurate.
- It is a prerequisite for writing a computer program.
- It simplifies the work of generating a program for the computer.

3. A decision-making structure in an algorithm helps the computer choose what to do based on different situations. It's like asking a question and then deciding what to do next based on the answer. The algorithm will follow one path if a condition is true and a different path if the condition is false. In simple terms, it helps the algorithm make decisions. For example, checking if you need to charge your phone:

- If the phone battery is below 20%, charge the phone.
- Else, continue using the phone.

4. Some of the basic points that we can follow for writing a good algorithm are as follows:
   - It begins with a keyword "Start".
   - It is written using simple English-like statements.
   - It is not case sensitive i.e. it can be written in uppercase, lowercase or mixed case.
   - The steps should be simple and easy to understand.
   - The steps should be in the correct order so that the task can be completed properly.
   - It must terminate after a finite number of steps.
   - It ends with a keyword "Stop".

C. 1. Nisha is following the algorithmic strategy. She is using a detailed, step-by-step process to solve the problem, ensuring each action is performed in the correct order for the desired result.

2. Anshu should use Flow Line to show the direction in which the process flows in her flowchart.

Arrow	Flow Line	It shows the direction in which the process flows.

Code Clues Page 43

1. Algorithm
2. Flowchart
3. Start symbol
4. Process symbol (Rectangle)
5. Repetition
6. Decision symbol (Diamond)

Digital Drills Page 43

1. Algorithm:

   Step 1: Start

   Step 2: Accept the length of the rectangle (Length)

   Step 3: Accept the breadth of the rectangle (Breadth)

   Step 4: Calculate the area using the formula: Area = Length * Breadth

   Step 5: Calculate the perimeter using the formula: Perimeter = 2 * (Length + Breadth)

   Step 6: Display the area and perimeter

   Step 7: Stop

2. Algorithm:

Step 1: Start

Step 2: Accept the age of the first person (Age1)

Step 3: Accept the age of the second person (Age2)

Step 4: Accept the age of the third person (Age3)

Step 5: Find the oldest by comparing the ages:

- If Age1 > Age2 and Age1 > Age3, then Age1 is the oldest.
- If Age2 > Age1 and Age2 > Age3, then Age2 is the oldest.
- If Age3 > Age1 and Age3 > Age2, then Age3 is the oldest.

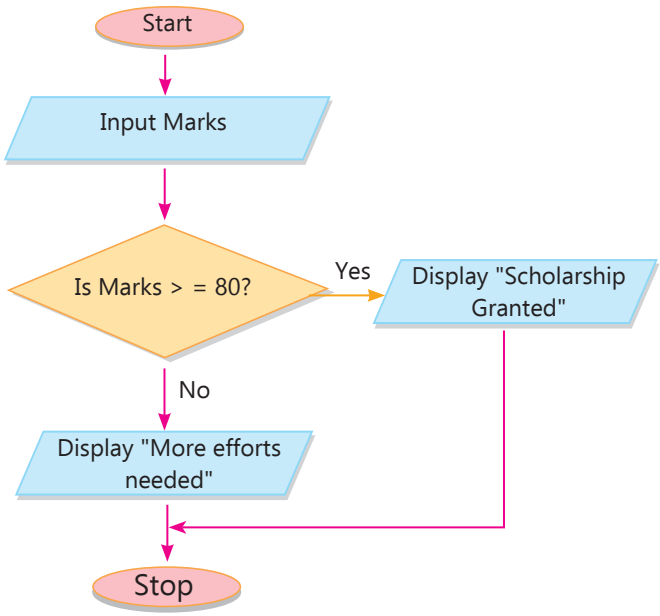
Step 6: Find the youngest by comparing the ages:

- If Age1 < Age2 and Age1 < Age3, then Age1 is the youngest.
- If Age2 < Age1 and Age2 < Age3, then Age2 is the youngest.
- If Age3 < Age1 and Age3 < Age2, then Age3 is the youngest.

Step 7: Display the oldest and youngest ages

Step 8: Stop

3.



4. Algorithm:

Step 1: Start

Step 2: Set the number to 2

Step 3: While the number is less than or equal to 10, do the following:

- Display the number
- Increase the number by 2

Step 4: Stop

Test Sheet 1

(Based on units 1 & 2)

A. 1. c 2. c 3. b 4. d

B. 1. IPO Cycle 2. Booting 3. Start 4. Understand

C. 1. Secondary storage has larger storage capacities compared to primary storage. You can save your important files, pictures, and games on secondary storage, and they will stay there until you decide to delete them.

2. The three control structures used in an algorithm are:
   - Sequential
   - Selection
   - Repetition

D. 1. Starting a computer means booting. It involves turning on the machine and allowing it to load the operating system. During booting, the computer performs POST (Power On Self-Test), checks hardware components, and then loads the OS, showing the desktop to the user.

2. When we write an algorithm, we often need to control the flow of how the steps happen. This is done using control structures. These are like "rules" that tell the algorithm what to do next based on certain conditions. There are three main control structures: sequential, selection, and repetition.

3. Learning Scratch

Tech Trivia

Section A (Objective)

A. 1. b 2. c 3. c 4. c 5. c 6. b
7. b 8. a

B. 1. blocks 2. Choose a Sprite 3. Motion 4. Backdrop
5. Trash 6. Variables 7. Paint 8. Operators

C. 1. v. 2. iii. 3. i. 4. ii. 5. iv.

D. 1. F 2. T 3. F 4. F 5. T 6. T
7. F 8. F

Answer Arcade

Section B (Subjective)

A. 1. Sprite is the main character of your project that performs actions. It is any image of a person, place, animal or thing. The default sprite is a Cat in Scratch.

2. Go Button (Green Flag): It is the button to start your program or run your script. Click the green flag above the stage to start your project.

   Stop Button: It is the red button to stop your project.

3. Follow the given steps to change the size of a sprite:

   Step 1: Click on the Sprite in the Sprites Pane.

   Step 2: Change the size in the Size textbox. The size will change accordingly.

4. Select Tool: It allows you to pick and move parts of your drawing.

   Reshape Tool: It allows you to resize or rotate shapes and pictures.

5. Events blocks are used to trigger actions when certain conditions happen. It starts running scripts (or code) based on things like clicking the green flag, pressing a key, or clicking on a sprite. These blocks are important for making interactive projects like games, animations, or stories.

B. 1. a. Blocks Palette: It contains all the blocks that are used to control your sprites and tell them what to do. Blocks are grouped into categories like Motion, Looks, Sound, Events, Control, and more.

   b. Script Area: It is the area where you create the code for your sprites. It's like a canvas where you drag and drop blocks from the Blocks Palette to make your sprites move, turn, or interact.

   c. Go Button (Green Flag): It is the button to start your program or run your script. Click the green flag above the stage to start your project.

   d. Stop Button: It is the red button to stop your project.

2. Step 1: Open Scratch and select a sprite (or use the default cat sprite).

   Step 2: Go to the Events category and drag the block: "when green flag clicked".

   Step 3: Go to the Motion category and drag the block: "move 10 steps".
   Change 10 to 50 so it becomes: "move 50 steps".

   Step 4: Connect the "move 50 steps" block below the "when green flag clicked" block.

   Step 5: Click the green flag above the stage.
   Your sprite will move 50 steps forward.

3. There are four options to add a sprite to your Scratch project:
   a. Choosing a Sprite from Library: This option allows you to choose a sprite from the Sprite Library.
   b. Painting a New Sprite: The Paint option helps you draw your own sprite using a costume editor window.
   c. Getting a Surprise Sprite: The Surprise option adds a random sprite to your project from the built-in sprite library. Instead of browsing and selecting a sprite yourself, Scratch will randomly pick one for you from its vast library of sprites. This could be anything from animals, people, objects, or even abstract designs.
   d. Uploading a Sprite: This option allows you to upload an image file from your computer to use as a sprite in your Scratch project. You can upload images in formats like PNG, JPG, or GIF.

C. 1. Amita should use the 'turn ↻ 45 degrees' block from the Motion blocks category to do so.

2. To draw a square, Mukul can use the following blocks:
   - When Green Flag clicked (from the Events block category, to start the script)
   - pen down (from the Pen category, to start drawing)
   - repeat 4 (from the Control category, to repeat the steps 4 times)
   - Inside the repeat block:
     - move 100 steps (from Motion, to draw one side)
     - turn ↻ 90 degrees (from Motion, to turn the sprite at a right angle)

   These blocks will help Mukul draw a perfect square on the stage.

Code Clues Page 71

A. 1. The loop repeats 360 times, and in each iteration, the sprite moves 10 steps and turns 30 degrees. This will result in the sprite making multiple overlapping circles.

2. The sprite will keep turning 15 degrees clockwise forever.

B. Do it yourself.

Digital Drills Page 72

Do it yourself.

4. Cyber Security

Tech Trivia

Section A (Objective)

A. 1. c 2. b 3. b 4. c 5. b

B. 1. VPN 2. Firewall 3. URL 4. Phishing 5. Cyberstalking

C. 1. F 2. F 3. T 4. F 5. T

Answer Arcade

Section B (Subjective)

A. 1. A network is a group of devices connected to share resources and communicate with each other.

2. Trojan and Virus.

3. Phishing is a type of scam where cybercriminals send fraudulent messages, often appearing to be from a trusted source, to trick people into revealing sensitive information, like passwords or bank details.

4. A firewall is a security system that monitors and controls incoming and outgoing network traffic. It acts as a barrier between a trusted internal network and untrusted external networks, like the Internet.

5. Netiquette refers to the accepted social behaviours and guidelines for interacting with others on the Internet.

B. 1. There are various types of networks, each designed to suit different purposes, depending on the size, location, and scope of connectivity required.

Local Area Network (LAN): A LAN connects devices within a small area, such as a home, office, or school. It allows devices to share files and resources like printers. LANs typically use wired connections, though wireless LANs (Wi-Fi) are also common.

Wide Area Network (WAN): A WAN connects multiple LANs over a large geographical area, such as a city, country, or even across continents. The Internet is the most well-known example of a WAN.

Metropolitan Area Network (MAN): A MAN covers a larger area than a LAN but is smaller than a WAN. It typically connects networks within a city or a large campus.

Personal Area Network (PAN): A PAN is a small network used for personal devices like smartphones, laptops, and tablets. It usually covers a very small area, such as the range of a Bluetooth connection or Wi-Fi network.

Virtual Private Network (VPN): A VPN creates a secure connection over a less secure network, like the Internet. It is often used to allow remote workers to access a company's internal network securely.

2. Malware is a type of software designed to harm or exploit devices, networks, or systems. Malware can take many forms, such as viruses, worms, and trojans, all of which perform malicious actions. These actions might include stealing personal information, corrupting data, or causing system failures.

   Trojan: A Trojan horse, or Trojan, is a type of malware that pretends to be a legitimate program or file. Once opened, it can cause harm by stealing data, damaging files, or giving hackers access to your device.

   Virus: A virus is a type of malware that attaches itself to a program or file and can spread to other systems when the infected file is shared.

   Worm: A worm is a self-replicating piece of malware that spreads across networks without needing to attach itself to other programs. Worms can multiply quickly and spread across devices, using network connections to infect other systems.

3. Cyber security refers to the practice of protecting systems, networks, and data from digital attacks. These attacks could be in the form of malware, hacking, or other malicious activities. Cyber security is essential for ensuring the safety of personal information, as well as the integrity of business and government data.

   Cyber Trolling: Cyber trolling involves posting inflammatory, offensive, or deliberately provocative messages online with the intention of upsetting others. Trolls seek to provoke emotional reactions or disrupt online communities.

   Cyber Bullying: Cyber bullying is the use of digital platforms to harass, intimidate, or hurt someone. It can occur through social media, emails, or other online communications and can have serious emotional and psychological effects on the victim.

   Phishing: Phishing is a type of scam where cybercriminals send fraudulent messages, often appearing to be from a trusted source, to trick people into revealing sensitive information, like passwords or bank details.

C. 1. Riya should use a LAN (Local Area Network) because it allows multiple devices within a small area like a home to be connected and share files easily and quickly.

2. The type of malware is a Trojan horse. A good precaution to avoid such threats is to download software only from trusted sources and use updated antivirus software.

Code Clues Page 84

Do it yourself.

Digital Drills

Page 85

Do it yourself.

Test Sheet 2

(Based on units 3 & 4)

A. 1. c 2. c 3. c 4. b

B. 1. Backdrop 2. Trash 3. URL 4. Phishing

C. 1. Go Button (Green Flag): It is the button to start your program or run your script. Click the green flag above the stage to start your project.

Stop Button: It is the red button to stop your project.

2. A firewall is a security system that monitors and controls incoming and outgoing network traffic. It acts as a barrier between a trusted internal network and untrusted external networks, like the Internet.

D. 1. Step 1: Open Scratch and select a sprite (or use the default cat sprite).

Step 2: Go to the Events category and drag the block: "when green flag clicked".

Step 3: Go to the Motion category and drag the block: "move 10 steps".

Change 10 to 50 so it becomes: "move 50 steps".

Step 4: Connect the "move 50 steps" block below the "when green flag clicked" block.

Step 5: Click the green flag above the stage.

Your sprite will move 50 steps forward.

2. Malware is a type of software designed to harm or exploit devices, networks, or systems. Malware can take many forms, such as viruses, worms, and trojans, all of which perform malicious actions. These actions might include stealing personal information, corrupting data, or causing system failures.

Trojan: A Trojan horse, or Trojan, is a type of malware that pretends to be a legitimate program or file. Once opened, it can cause harm by stealing data, damaging files, or giving hackers access to your device.

Virus: A virus is a type of malware that attaches itself to a program or file and can spread to other systems when the infected file is shared.

Worm: A worm is a self-replicating piece of malware that spreads across networks without needing to attach itself to other programs. Worms can multiply quickly and spread across devices, using network connections to infect other systems.