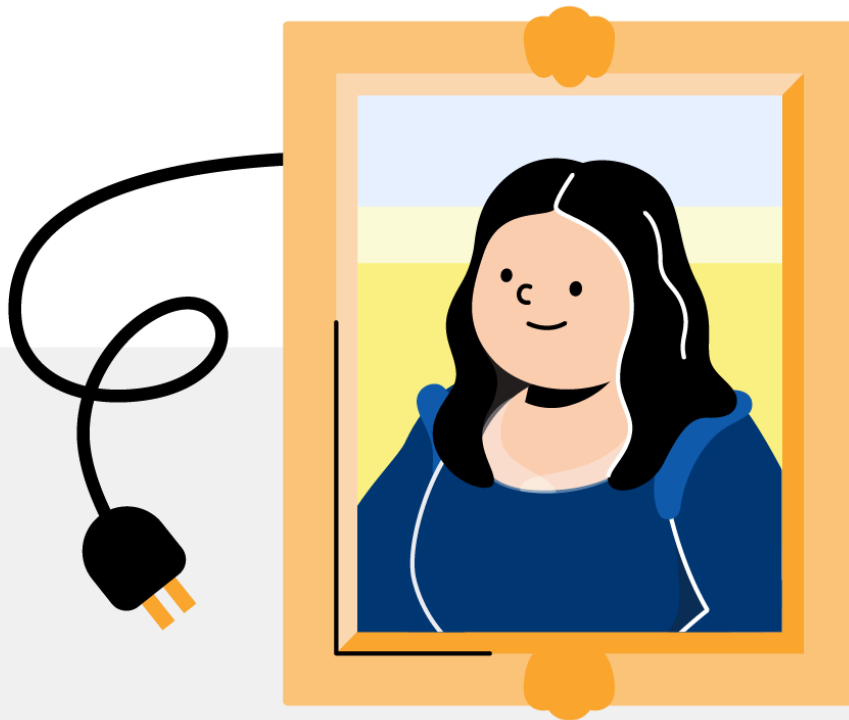


Technology in Our Lives

Textbook

Technology in Our Lives



Computers and digital systems have changed how we share information, access entertainment, and learn. These systems make it possible to connect with people globally, access media on demand, and engage with educational content. This chapter will explore how computers enable these functions, with a focus on **digital models** and **simulations**.

Computer Simulations

A **computer simulation** is a type of digital model. It is a program that represents a real-world system or event, following a set of predefined rules. Simulations are used to demonstrate concepts and solve problems.

- **Demonstrating Concepts:** Simulations can show how a system works. For example, a traffic simulation can model how more cars affect road congestion. A space simulation can show the movement of planets over time. These models make complex processes easier to visualize.
- **Problem-Solving:** Simulations allow for the testing of ideas in a controlled, virtual environment. Engineers use them to test new bridge or airplane designs. City planners can use them to find the most efficient location for a new building. By running simulations, designers can evaluate hundreds of options to find the most effective solution before building anything in the real world.

Build a Digital Model

Creating a digital model requires representing the most important parts of a real-world system and showing how they connect or move. This process involves using mathematical concepts to represent a real-world problem or idea.

Let's model the growth of a plant:

1. **Select Components:** Choose a visual representation for the plant (a sprite or a drawing).
2. **Define Stages:** Identify the key stages of the plant's growth, such as **seed, sprout, young plant, and plant with flower.**
3. **Represent Time:** Use programming logic, such as a "wait" function, to represent the passage of time between each stage of growth.
4. **Investigate and Redesign:** Adjust the time interval to see how it affects the model's speed. To make the model more accurate, you would adjust the time intervals to better match real-world plant growth.
5. **Explain the Model:** Describe what your model demonstrates about the system. For the plant model, you would explain how it represents the stages of growth from a seed to a flowering plant.

Functions of Technology

Computers serve multiple functions in our daily lives:

- **Communication:** Technology enables global communication through various digital tools, including email, video calls, text messages, and social media. Digital models like animations and presentations can also be used to communicate ideas visually.



- **Entertainment:** Computers are used to create and deliver entertainment. This includes music, movies, and video games. Many of these forms of entertainment rely on digital models and simulations to create characters and environments.
- **Learning:** Computers provide access to vast amounts of information and educational software. Digital models are often used to illustrate scientific concepts, mathematical problems, and historical events, making them easier to understand.



Responsible Technology Use

Maintaining an effective routine involves allocating time to a variety of tasks. It is important to structure a routine that includes both screen-based activities and non-screen-based activities.

- **Vary Activities:** A balanced routine includes a mix of activities. Non-screen activities can include physical exercises, reading, or creative projects.
- **Time Management:** Schedule regular breaks during screen time. A structured schedule helps to ensure that time is distributed across different types of activities.

Digital Balance Plan

A Digital Balance Plan is a scheduling tool used to organize your weekly routine. This plan helps to visually represent the allocation of time to different activities.

1. **Create a Chart:** Use a sheet of paper to create a chart or a list.
2. **Identify Activities:** List all activities you engage in during a week. Categorize these activities as either **screen-based** (e.g., computer use, video games) or **non-screen-based** (e.g., physical activities, reading, creative work).
3. **Distribute Time:** Review the list to ensure there is a distribution of activities from both categories. A diverse mix of activities is a key component of an effective routine.
4. **Display the Plan:** Place the completed plan in a visible location to serve as a reference for your weekly schedule.

Critical Thinking Questions

1. How are digital models used to test ideas before they are implemented in the real world?
2. What is the difference between a real-world experiment and a computer simulation?

Questions (4)

1. What is one way computers have impacted communication?

MULTIPLE CHOICE

Choose the correct answer:

- A. By making it so you can only communicate with a few countries around the world
- B. By slowing down communication
- C. By making communication faster and easier

2. What is one way computers have impacted learning?

MULTIPLE CHOICE

Choose the correct answer:

- A. By limiting the information you can read
- B. By providing education programs
- C. By getting rid of the need to learn

3. What aspect of entertainment has been impacted by computers?

MULTIPLE CHOICE

Choose the correct answer:

- A. Playing outdoor sports
- B. Listening to music and watching movies
- C. Gardening and farming
- D. Writing poetry and novels

4. Which of the following is an example of how computers are used in education?

MULTIPLE CHOICE

Choose the correct answer:

- A. Playing sports in physical education class
- B. Reading a book in the library
- C. Singing in a school choir
- D. Using educational software to practice math

Games (2)

1. Technology in Our Lives Typing Game

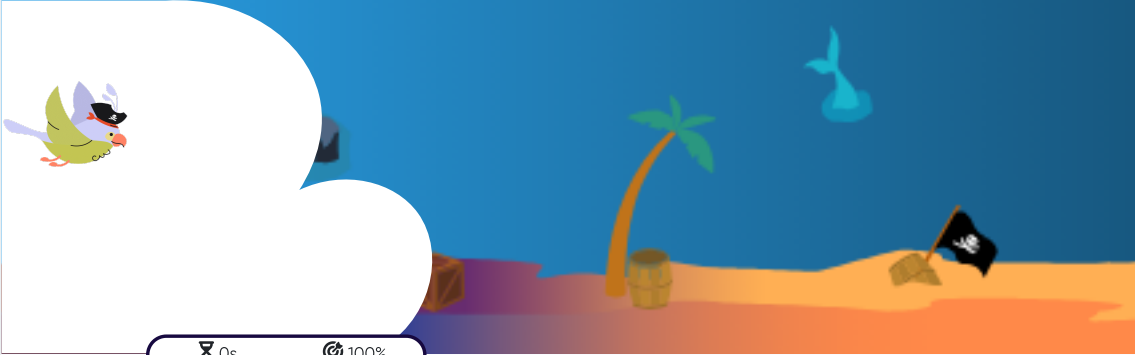
Full Screen

Audio

Instructions

Restart

Pause



0s 100%

Technology has had a hu

2. Technology in Our Lives Category

Full Screen

Audio

Instructions

Answer Key

Pause

Clear All

Check Order

Attempts: 0

online learning	watch movies online	play computer games
text messages	video calls	email
learning software	online research	listen to music online

Ways Computers Affect Communication

Ways Computers Affect Entertainment

Ways Computers Affect Learning

Blocks Pro Challenges (1)

1. Technology in Our Lives

Technology in Our Lives

Create a presentation with 3 sprites. Each sprite should share one of the following:

1. How computers have changed the way we communicate
2. How computers are used for entertainment
3. How computers are used to help us learn

Use the broadcast message blocks so each sprite presents one at a time.

Requirements

0/2

3 Looks

5 Event

Blocks must be connected to an Event block in order to pass the requirements

The image shows the Scratch code editor interface. The 'Code' tab is selected, and the 'Motion' category is chosen from the left sidebar. The script for 'Sprite1' is as follows:

```
1. move 10 steps
2. turn 15 degrees
3. turn 15 degrees
4. go to random position
5. go to x: 0 y: 0
6. glide 1 secs to random position
7. glide 1 secs to x: 0 y: 0
8. point in direction 90
9. point towards mouse-pointer
10. change x by 10
11. set x to 0
12. change y by 10
13. set y to 0
14. if on edge, bounce
15. set rotation style left-right
```

The right sidebar shows the 'Sprite' panel with 'Sprite1' selected, and the 'Stage' panel with 'Backdrops' listed.

Answer Keys & Solutions

Questions

1. What is one way computers have impacted communication?

MULTIPLE CHOICE

Correct Answer:

- A. By making it so you can only communicate with a few countries around the world ✗ Incorrect
- B. By slowing down communication ✗ Incorrect
- C. By making communication faster and easier ✓ Correct

Explanation:

Computers have quickened communication and made it possible to communicate everywhere!

2. What is one way computers have impacted learning?

MULTIPLE CHOICE

Correct Answer:

- A. By limiting the information you can read ✗ Incorrect
- B. By providing education programs ✓ Correct
- C. By getting rid of the need to learn ✗ Incorrect

Explanation:

Computers help us learn by providing great resources

3. What aspect of entertainment has been impacted by computers?

MULTIPLE CHOICE

Correct Answer:

- A. Playing outdoor sports ✗ Incorrect
- B. Listening to music and watching movies ✓ Correct
- C. Gardening and farming ✗ Incorrect

D. Writing poetry and novels

✗ Incorrect

Explanation:

Consider how computers have made certain activities more accessible.

4. Which of the following is an example of how computers are used in education?

MULTIPLE CHOICE

Correct Answer:

A. Playing sports in physical education class

✗ Incorrect

B. Reading a book in the library

✗ Incorrect

C. Singing in a school choir

✗ Incorrect

D. Using educational software to practice math

✓ Correct

Explanation:

Consider the specific example given about educational software programs.

Games

1. Technology in Our Lives Typing Game

Typing game - no answer key needed. Students practice typing the provided content.

2. Technology in Our Lives Category

Category Solutions:

Category 1: Ways Computers Affect Communication

- email
- text messages
- video calls

Category 2: Ways Computers Affect Entertainment

- listen to music online
- play computer games
- watch movies online

Category 3: Ways Computers Affect Learning

- online learning

- learning software
- online research

Scoring:

- Gold: 1 attempts or fewer
- Silver: 2 attempts or fewer
- Bronze: 3 attempts or fewer

Students must sort items into their correct categories.