

Multiple Sprites

Textbook

Multiple Sprites



Making Programs with Multiple Characters

In Mr. Davis's computer lab, students were creating a race game. "I want two cars racing," said Aiden.

"You'll need multiple sprites," Mr. Davis explained. "Each sprite gets its own code."

Aiden selected the car sprite and placed it on the left. Then he added another car sprite on the right. He clicked on the first car and added move right blocks. Then he clicked on the second car and added different move right blocks with a faster speed.

"Now they race at different speeds!" Aiden observed.

Maria was making a cat chase a mouse. "My cat sprite has move right blocks, and my mouse sprite has hop blocks. They each do their own thing."

Mr. Davis showed them something important. "Click on each sprite to see its code. Each sprite remembers its own instructions."

What Are Multiple Sprites?

A sprite is a character or object in your program. When you use multiple sprites:

- Each sprite has its own code blocks
- Each sprite can move independently
- Sprites can interact with each other
- You control them separately

How to Code Multiple Sprites

Steps for adding sprites:

1. **Add your first sprite**
2. **Click on the sprite** to select it
3. **Add code blocks** for that sprite
4. **Add another sprite**
5. **Click the new sprite** and add different code

Remember: The code you add only affects the selected sprite.

Making Sprites Work Together

Program ideas:

- Dog chasing ball: Dog moves right, ball hops away
- Rocket going to moon: Rocket moves up, moon stays in place
- Fish swimming: Multiple fish moving at different speeds

Independent Sprite Control

Using control blocks with multiple sprites:

- **Different speeds:** One sprite uses fast speed, another uses slow speed
- **Different waits:** Add wait blocks to make sprites take turns
- **Different loops:** One sprite repeats 3 times, another repeats 5 times
- **Different motions:** One uses move blocks, another uses rotate blocks

Debugging Multiple Sprites

Common problems and solutions:

- **Wrong sprite moving:** Make sure you clicked the right sprite before adding blocks
- **Sprites bumping:** Use wait blocks to time movements
- **Can't see a sprite:** Check if it's hidden behind another sprite
- **Code not working:** Verify each sprite has an On Play Event block

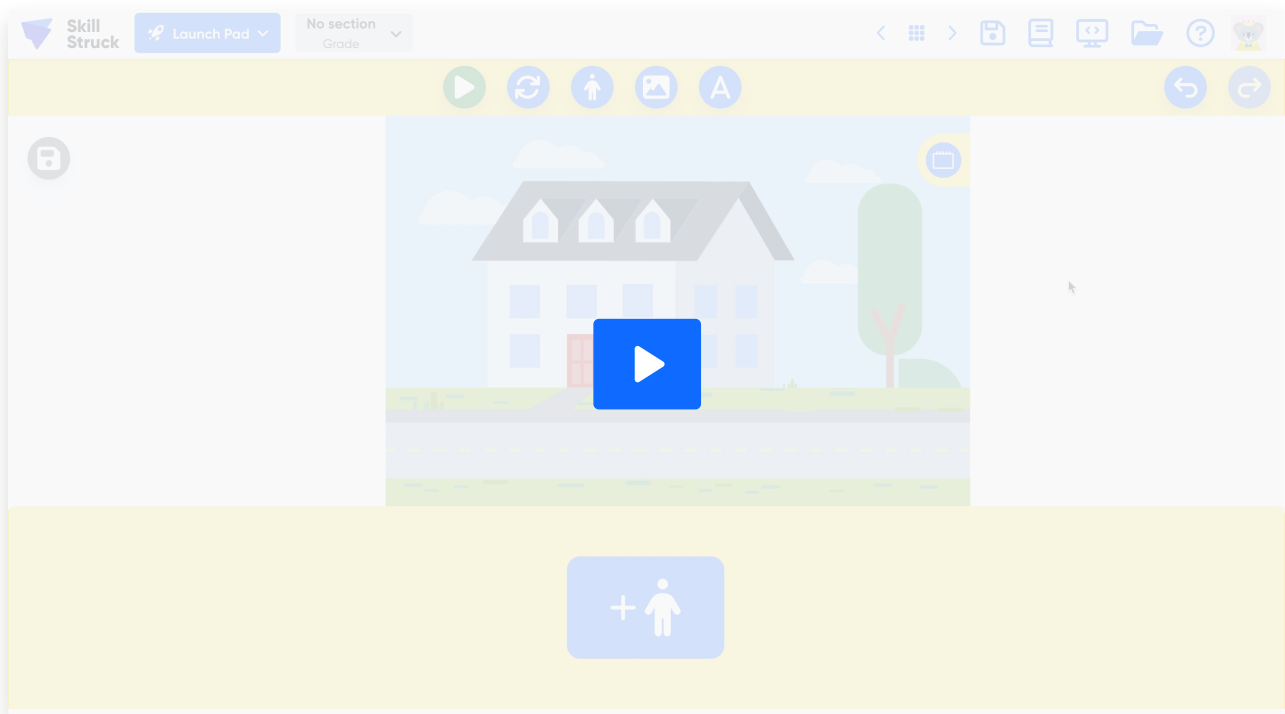
Critical Thinking Questions

1. How do you make sure code only affects one sprite and not another?
2. What happens when two sprites need to move at the same time?
3. Why is it important to click on each sprite before adding its code?

Sentence Stems

- "Each sprite has its own (blank) that controls (blank)."
- "When sprites interact, they (blank)."
- "I can control multiple sprites by (blank)."

Watch the video below to learn how to code more than one sprite.



Questions (5)

1. What is a sprite in an animation?

MULTIPLE CHOICE

Choose the correct answer:

- A. A type of game controller
- B. A character or object you can see and control
- C. A background picture
- D. The sound in a game

2. What can sprites do in a game?

MULTIPLE CHOICE

Choose the correct answer:

- A. They can move, change, and interact with each other.
- B. They only make sound.
- C. They cannot do anything.
- D. They just stay still all the time.

3. How can you make a sprite move in an animation?

Choose the correct answer:

- A. By clicking the sprite with your mouse.
- B. By telling the sprite to move with code or commands.
- C. By shouting at the sprite.
- D. By pressing the "pause" button.

4. Which of these is an example of a sprite?

Choose the correct answer:

- A. The background of a game
- B. The music in a game
- C. The computer screen
- D. A character or object in the game

5. What is one thing you can do with multiple sprites in a game?

Choose the correct answer:

- A. They can all move and change at the same time.
- B. They just watch the game without doing anything.
- C. They only stay in one spot.
- D. They cannot be controlled.

Games (2)

1. Multiple Sprites Categories

Categorize each action into one sprite or multiple sprites.

Full Screen

Audio

Instructions

Answer Key

Pause

Clear All

Check Order

Attempts: 0

Uses One Sprite

Uses Multiple Sprites

The cat sprite jumps every 5 seconds




The mouse sprite hides when the cat sprite comes near

The basketball sprite bounces when the player sprite touches it

The fish sprite says, "Hi" when the diver sprite bumps into it

The penguin sprite waddles back and forth

The cloud sprite floats across the screen slowly



2. Multiple Sprites Typing Race


Full Screen

Audio

Instructions

Restart

Pause



0s 100%

multiple sprites are more

Blocks Challenges (5)

1. Talk Time



Talk Time

Create an algorithm that has 3 sprites talking.

3 3 3 3



Submit ↑



2. Race Day



Race Day

Build an algorithm that has at least 3 sprites racing across the scene.

3 12 3



Submit ↑



3. Get Over



Get Over

Build an algorithm where a ball hits your sprite. When your sprite is hit, the sprite will go up and over the ball.

1 8 2



Submit ↑



4. Stargazing



Stargazing

You will use telescope, moon, and star sprites, along with a student sprite for this activity.

Put stars and the moon in the sky, with a student looking at them next to a telescope. Then, code the moon and stars to move around and the student saying their thoughts about them!

4 10 1



Submit ↑



5. Action!



Action!

It's time for the school play! You've been working hard to get ready. Create a play using the stage background and at least 3 sprites. Build an algorithm that shows your sprites acting it all out.

3 12 3 3



Submit ↑



Answer Keys & Solutions

Questions

1. What is a sprite in an animation?

MULTIPLE CHOICE

Correct Answer:

- A. A type of game controller ✗ Incorrect
- B. A character or object you can see and control ✓ Correct
- C. A background picture ✗ Incorrect
- D. The sound in a game ✗ Incorrect

Explanation:

A sprite is something that moves and you can interact with

2. What can sprites do in a game?

MULTIPLE CHOICE

Correct Answer:

- A. They can move, change, and interact with each other. ✓ Correct
- B. They only make sound. ✗ Incorrect
- C. They cannot do anything. ✗ Incorrect
- D. They just stay still all the time. ✗ Incorrect

Explanation:

Sprites can do more than just stand still in a game.

3. How can you make a sprite move in an animation?

MULTIPLE CHOICE

Correct Answer:

- A. By clicking the sprite with your mouse. ✗ Incorrect

B. By telling the sprite to move with code or commands.

✓ Correct

C. By shouting at the sprite.

✗ Incorrect

D. By pressing the "pause" button.

✗ Incorrect

Explanation:

To make sprites move, you need to use special instructions.

4. Which of these is an example of a sprite?

MULTIPLE CHOICE

Correct Answer:

A. The background of a game

✗ Incorrect

B. The music in a game

✗ Incorrect

C. The computer screen

✗ Incorrect

D. A character or object in the game

✓ Correct

Explanation:

A sprite is something you can see and interact with in the game.

5. What is one thing you can do with multiple sprites in a game?

MULTIPLE CHOICE

Correct Answer:

A. They can all move and change at the same time.

✓ Correct

B. They just watch the game without doing anything.

✗ Incorrect

C. They only stay in one spot.

✗ Incorrect

D. They cannot be controlled.

✗ Incorrect

Explanation:

Multiple sprites can work together in a game or animation.

1. Multiple Sprites Categories

Category Solutions:

Category 1: Uses One Sprite

- The cat sprite jumps every 5 seconds
- The penguin sprite waddles back and forth
- The cloud sprite floats across the screen slowly

Category 2: Uses Multiple Sprites

- The fish sprite says, "Hi" when the diver sprite bumps into it
- The basketball sprite bounces when the player sprite touches it
- The mouse sprite hides when the cat sprite comes near

Scoring:

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

Students must sort items into their correct categories.

2. Multiple Sprites Typing Race

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