

Motions

Textbook

Motions



Jake and John's Coding Moves

It was a fun afternoon, and Jake and John were in the computer lab, ready to learn about coding. Their teacher, Mr. George, was showing them how to use motion blocks to make their character move.

"Today, we're going to use motion blocks to make our character move around the screen!" Mr. George said with a smile.

John raised her hand. "What's a motion block?"

"Great question!" Mr. Parker replied. "A motion block tells your character where to go. You can make it move left, move right, move up, or move down."

Jake nodded. "So, if I want my character to go right, I just use the move right block?"

"Exactly!" said Mr. George. "You can also use hop to make the character jump, or go home to send it back to where it started."

John asked, "What if we want our character to spin around?"

"Use the rotate left or rotate right blocks to turn your character," Mr. George explained. "This way, you can control exactly how your character moves and turns."

Jake tried it out. "Look, I made my character hop, turn, and then move right!"

Mr. George smiled. "Now you can make your character do anything you want, just by combining these blocks!"

Let's Learn About Motion Blocks



Motion blocks make the sprite move:

- **Move right, move left, move up, move down:** Controls what direction the sprite moves
- **Rotate left or rotate right:** Turns the sprite that direction
- **Hop:** Makes the sprite jump
- **Go home:** Sends the sprite back to the start

You can combine event and motion blocks to make your sprite move when something happens! Remember from Introduction to Coding: Algorithms lesson, that algorithms are step-by-step instructions. Motion blocks help you create movement algorithms for your sprites.

Critical Thinking Questions

1. What happens when you change the order of the motion blocks in your program?
2. How do motion blocks help you control the movement of a character?
3. If you wanted to make your character jump, which block would you use?

Sentence Stems

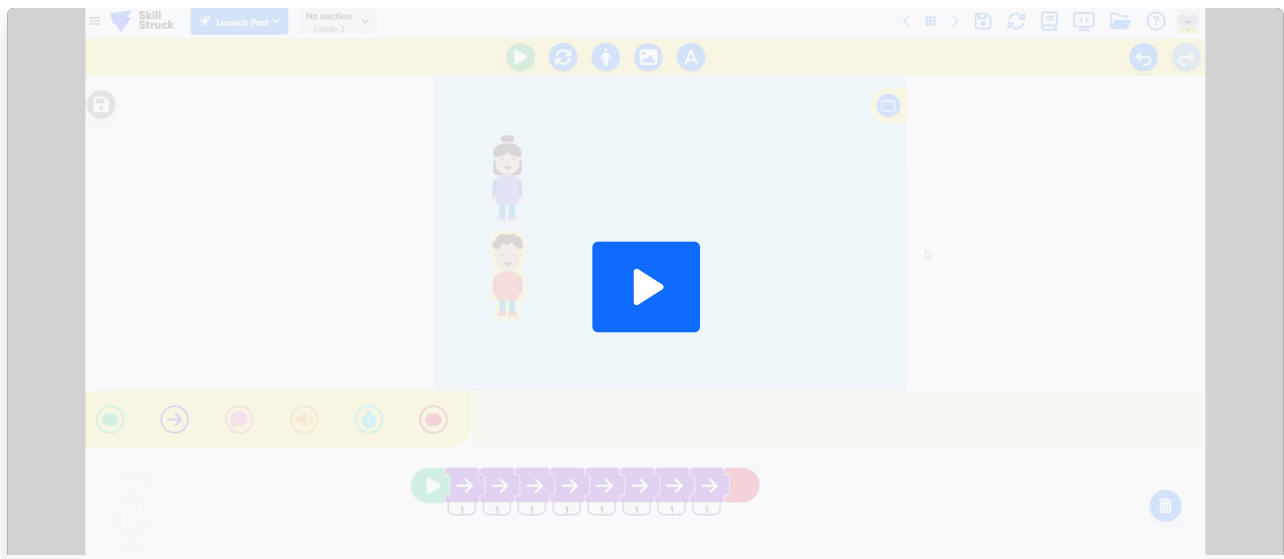
When you read or listen to the word, (blank), think of a word or an example that you can use to fill that space. For instance, if you see a sentence that says "My favorite color is (blank)," you should fill that (blank) space with your favorite color.

These sentence starters help us talk about motion and practice academic language:

1. **"Motion blocks make the sprite (blank) by (blank)."**
2. **"When I use (blank) block, my sprite moves (blank)."**
3. **"The order of motion blocks is important because (blank)."**

Using One Motion Block to Move More Steps

Watch the video to learn how to use one motion block to move your sprite more steps.



Questions (5)

1. What does the "move right" block do?

MULTIPLE CHOICE

Choose the correct answer:

- A. Makes the character jump
- B. Makes the character turn left
- C. Makes the character go home
- D. Makes the character move to the right

2. What is the "hop" block used for?

MULTIPLE CHOICE

Choose the correct answer:

- A. Move the character down
- B. Make the character jump
- C. Rotate the character
- D. Move the character up

3. What happens when you use the go home block?

MULTIPLE CHOICE

Choose the correct answer:

- A. The character jumps
- B. The character moves up
- C. The character rotates
- D. The character returns to its starting position

MULTIPLE CHOICE

- A. Makes the character move right
- B. Makes the character turn to the left
- C. Makes the character go down
- D. Makes the character hop









MULTIPLE CHOICE









- A. Move right
- B. Rotate right
- C. Hop
- D. Move up









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







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






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










































































































































































































2. Motion Matching

Match the motion block to its correct descriptor

Full Screen

Audio

Instructions

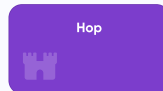
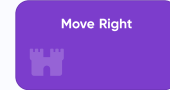
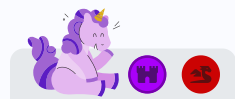
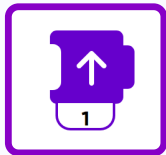
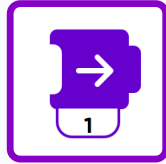
Answer Key

Pause

Clear All

Check Matches

Attempts: 0



Blocks Challenges (5)

1. Dog Walk



Dog Walk

Your dog has been waiting for you to get home from school to go for his afternoon walk! Using the dog sprite and the different types of motion blocks, show the dogs excitement for the walk!

1 6 1



Submit ↑



2. Dance Off!



Dance Off!

You decided to be a part of the school talent show to show off your dancing skills. Program your sprite to practice their dance spin (Think about using the rotating or hop motions as part of the dance).

1 3 1



Submit ↑



3. Beach Monkey

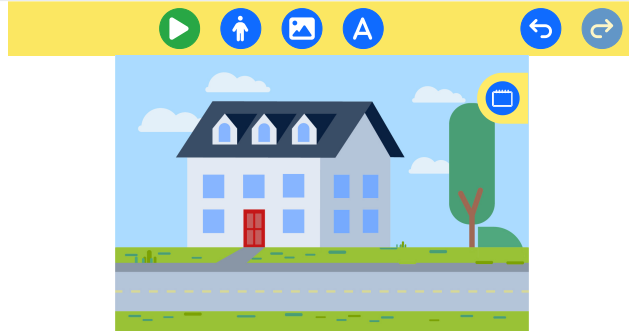


Beach Monkey

There's a monkey on the beach having fun in the sun! program the monkey going up and back down one of the trees using the beach background, monkey sprite, and only 2 motion blocks! (Hint: change the number on the motion blocks to have the monkey move more than one space up and down!)

1 8 1

Submit ↑



4. Soaring in the Sky

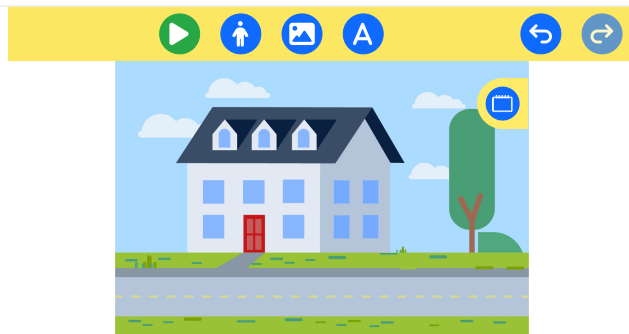


Soaring in the Sky

Did you know birds can fly long distances? Some species fly thousands of miles for food and weather. Program the bird sprite to fly around the scene.

1 6 1

Submit ↑



5. Rainy Day



Rainy Day

It's going to be a rainy day! Using the motion blocks and the water drop sprite, program the water drop to move down the scene.

1 6 1



Submit ↑



Answer Keys & Solutions

Questions

1. What does the "move right" block do?

MULTIPLE CHOICE

Correct Answer:

- A. Makes the character jump ✗ Incorrect
- B. Makes the character turn left ✗ Incorrect
- C. Makes the character go home ✗ Incorrect
- D. Makes the character move to the right ✓ Correct

Explanation:

Think about the direction the character moves.

2. What is the "hop" block used for?

MULTIPLE CHOICE

Correct Answer:

- A. Move the character down ✗ Incorrect
- B. Make the character jump ✓ Correct
- C. Rotate the character ✗ Incorrect
- D. Move the character up ✗ Incorrect

Explanation:

This block makes the character jump in the air.

3. What happens when you use the go home block?

MULTIPLE CHOICE

Correct Answer:

- A. The character jumps ✗ Incorrect

B. The character moves up

✗ Incorrect

C. The character rotates

✗ Incorrect

D. The character returns to its starting position

✓ Correct

Explanation:

This block resets the character's position.

4. What does the rotate left block do?

MULTIPLE CHOICE

Correct Answer:

A. Makes the character move right

✗ Incorrect

B. Makes the character turn to the left

✓ Correct

C. Makes the character go down

✗ Incorrect

D. Makes the character hop

✗ Incorrect

Explanation:

This block helps the character change direction

5. Which block would you use to make the character move up?

MULTIPLE CHOICE

Correct Answer:

A. Move right

✗ Incorrect

B. Rotate right

✗ Incorrect

C. Hop

✗ Incorrect

D. Move up




✓ Correct

Explanation:

This block makes the character go up on the screen

1. Algorithms Matching





Matching Game Solutions:

1.  Algorithm 2 right motion blocks, 1 down motion block, 3 hops →
2.  Algorithm is 2 right motions and 6 up motions →
3.  Algorithm is 2 right motions and 1 hop motion →

Students must drag items from the left to match with corresponding items on the right.

2. Motion Matching

Matching Game Solutions:

1.  Hop motion block →
2.  Go home motion block →
3.  Move right motion block →
4.  Move up motion block →

Students must drag items from the left to match with corresponding items on the right.