CodeHS

Hour of Code: Teacher Guide

Before the Hour of Code:

- Make sure student computers have an up-to-date browser (Chrome, Safari, or Firefox).
- Read through teacher notes in this document. Download notes to have exercise solutions ready.

During the Hour of Code:

1. Direct students to **codehs.com/hoc_karel**
2. Allow students to work through Hour of Code at their own pace, providing encouragement and support when needed. See tips below for handling student questions.
3. Tweet pictures or stories at @CodeHS #ReadWriteCode #HourOfCode!
4. If time allows at the end of the period, facilitate a discussion around the Hour of Code using the following guiding questions:
   - Before today, what did you think about programming or coding?
   - Did any of these ideas change during the Hour of Code?
   - What was your favorite part of the Hour of Code?
   - Did any parts of the Hour of Code challenge you? How?

Hour of Code Tips:

If students get stuck or have questions, it is okay if you don't have the answer! Ask questions to activate their problem-solving skills such as:

- What can we try differently?
- What do you want the program to do? What are you telling the program to do?
- How can we break this problem into smaller steps?

Thank you for your dedication to Computer Science Education!

Interested in going beyond the Hour of Code?
Reach out to us at hello@codehs.com.

Programming with Karel Teacher Notes

In this Hour of Code, students are introduced to basic programming concepts. They learn how Karel the Dog can be given a set of instructions to perform a simple task.

Objective

Students will be able to …

- Write commands to instruct Karel to solve different problems
- Write basic functions for Karel

Link to Activity: codehs.com/hoc_karel

Discussion Questions

- What is programming?
- What is the difference between a computer and computing?
- How are instructions used to execute simple tasks?

Exercise Solutions

Your First Karel Program	
Description	Write a program to have Karel move to the tennis ball and pick it up.
Motivation	Students practice writing the basic Karel commands.
Solution	```move();``` ```move();``` ```move();``` ```move();``` ```takeBall();```

Short Stack	
Description	Write a program to have Karel create a short stack of tennis balls. Karel should move one spot, put down two tennis balls, and then move again.
Motivation	Students practice writing the basic Karel commands.

Programming with Karel Teacher Notes

| Solution | ```
move();
putBall();
putBall();
move();
``` |
|----------|-------------|

Make a Tower	
Description	Write a program to have Karel build a tower of tennis balls. Karel should end up on top of the tower.
Motivation	Students will realize that they need to turn right, but there is no turnRight(); command. The goal is to problem solve and realize that turning left 3 times accomplishes the same as turning right.
| **Solution** | ```
move();
putBall();
turnLeft();
move();
putBall();
move();
putBall();
move();
turnLeft();
turnLeft();
turnLeft();
``` |


Pyramid of Karel	
Description	Write a program to have Karel build a pyramid. There should be three balls on the first row, two in the second row, and one in the third row.
Motivation	This program is designed to get students to think visually and in steps. Building the pyramid requires a lot of commands--most likely too many for the student to write without running the program to test it. The best tactic to employ is to write a few commands, run the program, see where Karel ends up and what needs to come next, and repeat.

Programming with Karel Teacher Notes

| **Solution** | ```
putBall();
move();
putBall();
move();
putBall();
turnLeft();
move();
putBall();
turnLeft();
move();
putBall();
turnLeft();
turnLeft();
turnLeft();
move();
turnLeft();
turnLeft();
turnLeft();
move();
putBall();
``` |