Step It Out!

Teach the Robot

When you need to solve a problem or complete a task, it can help to **step it out**—that means thinking about the steps you need to do, and then doing them in order. This **computational thinking skill** is a creative way of thinking that can help children solve problems in more organized ways. Try the ideas below to practice this skill with your child.

Total time needed: 15–20 minutes

1

Watch the Video

Playing Around with a Robot

Think it's easy to teach a robot how to make a sandwich? It's harder than you might think! Watch the kids **step it out** and give the robot directions.

2

Do the Activity

Teach the Robot

Now it's your child's turn to teach a robot (that's you)! Follow the directions on the next page to do the activity. You'll need:

- An adult-size jacket or button-up shirt
- Robot mask (printed and cut; see last page) Optional: photocopy mask on colored construction paper
- String or pipe cleaners to attach the mask

3

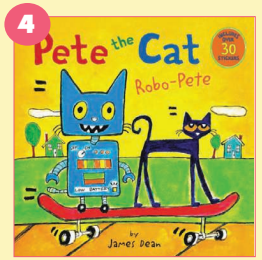
Watch the Story

To Win the Prize, Be Wise

Ask your child:

- *What happened the first two times the monkeys tried to win Ellie the elephant?*
- *What did Mr. Many Hats mean when he said, "sometimes order matters"? How did that hint help the monkeys?*

4



Read a Book (Optional)

Pete the Cat: Robo-Pete

by James Dean

Ask your child:

- *Why does Pete the Cat decide to build a robot?*
- *Why isn't Robo-Pete as much fun as Pete's real friends?*
- *If you had a robot, what games would you teach it to play?*

For AHA! Island videos and activities, visit: ahaisland.org → Username: aha → Password: island

Do the Activity

Teach the Robot

How do you teach a "robot" how to put on a jacket? Your child will need to **step it out:** think about the steps it takes to put on a jacket and teach them to the robot in the right order. You can **step it out** to solve all kinds of problems and do all kinds of tasks!

Introduce the Activity

(see materials on first page)

1. Cut out the robot mask and the eye openings. Use a pencil to punch a hole in the half-circles on each side of the mask. Tie a piece of string in each hole so you can wear the mask.
2. Show your child the jacket and say:
   - *You're going to teach a robot how to put on a jacket!*
   - *I'll pretend to be the robot while you tell me what to do.*
3. Help your child think it through. Ask:
   - *What do you need to do to put on a jacket?*
   - *What do you do first, second, third, fourth?*

Step It Out!

1. When your child is ready, put on the robot mask and say, in a robotic voice:
   - *I am a robot. I can only do one step at a time. Tell me the steps I must do to put on a jacket.*
2. Have your child **step it out.** Follow her instructions, pretending you don't already know how to put on a jacket. (For example, if she says, "Put the jacket on," you could put the jacket on your head.) If she misses a step or combines multiple steps, respond as a robot would. You can say:
   - *I need more steps.*
   - *I do not understand—too many steps!*
   - *Tell me what to do next.*
3. When you're finished, remind your child of what she did:
   - *You **stepped it out** by thinking about each step and putting them in order. You can solve lots of problems by **stepping it out!***

TIP: Programming robots

Robots may seem smart, but computer programmers are the brains behind the robots. Computer programmers write code that follows steps, in order. It's the code that tells the robots what to do. By thinking like a programmer, your child is learning valuable problem-solving skills that will prepare her for many different careers.

TIP: More ways to practice

Have your child teach the robot other household tasks. Can she teach the robot to feed the dog or serve a cookie on a plate? Help your child break down the task into smaller steps as she **steps it out**.

AHA! Island is produced by:

Funding for AHA! Island (wt) is provided by the National Science Foundation and the Heising-Simons Foundation.

This material is based upon work supported by the National Science Foundation under Grant No. DRL-1612642. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the National Science Foundation.

Robot Mask

Cut out the robot mask and the eye openings. Use a pencil to punch a hole in the half-circles on each side of the mask. Tie a piece of string in each hole so you can wear the mask.