

Pack and Play; ORA Style

Name: _____

Lesson 11

Date: _____

Packaging Center - a location where products are packed and shipped for customers

Packaging Material- materials used to protect, store, transport, and display goods

Shipping Tube - a cylindrical container used to transport and protect items that do not fit well in traditional packaging (like a box)

Parcel Sorting - refers to the methods by which postal systems determine how and where to transfer packages

Job Outlook - the likelihood that the selected occupation will be available and hiring in the future

Engage

If you order something online, how does your package get to you?

Answers may vary based on students' prior knowledge

How can robotic arms be used in the process of getting your package?

Answers may vary based on students' prior knowledge, but students may recall back to the ORA Essentials course and think about how robotic arms are useful in moving items quickly and efficiently.

Explore

While robotic arms have a key role in today's lesson, we will explore the related career of a Packaging Technician. After watching the video, find the following information about Packaging Technicians:

Education needed to be a Packaging Technician	A high school diploma is the minimum. However, some employers may prefer candidates with additional qualifications
Skills Needed to be a Packaging Technician	Technical skills, attention to detail, and communication skills.
Duties of a Packaging Technician	A packaging technician is responsible for the design and manufacture of product packaging.
What kind of work environment does a Packaging Technician work in?	The work environment is often in a manufacturing or factory facility in 8-hour shifts. Packaging and design duties may occur in an office environment.
Average Salary in your state	Varies by location. The average salary is around \$39,198
What is the job outlook for this career?	The packaging industry is expected to grow in the coming years, which may lead to a good job outlook for packaging technicians

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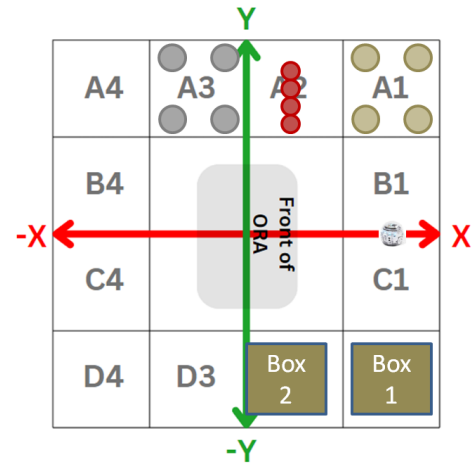
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Elaborate

In this challenge, students program ORA to package 4 wooden cylinders in the shipping tubes. Then, students will park ORA in the Initial Position to allow a human coworker to attach and secure the caps with tape. Then, ORA will use Evo to scan the packages. ORA will use a logic statement to determine if the shipping tube will get sent to Box 1 or Box 2. Students will also program Evo to concurrently notify the human worker when it is safe to enter the workspace to attach the cap.



Task Requirements:

1. ORA must start in the initial position.
2. ORA must use the vacuum grippers to pick the cylinders and place them in the shipping tubes in A1.
3. ORA must then pick up and place the caps on the shipping tubes
4. ORA will return to the initial position while the human coworker attaches the shipping tube caps and secures them with tape.
5. ORA must wait at least 60 seconds for the human coworker to attach the caps and move to safety.
6. Evo must illuminate green when humans may enter the ORA workspace.
7. After the caps are installed and the human coworker is out of the way, ORA will pick up Evo and use Evo to scan (light up) each shipping tube. Evo will be replaced back in its starting position.
8. ORA will then pick up each shipping tube and, using a logic statement, determine which box the package will go into.
9. ORA must finish in the Initial Position.

Pseudocode	Code Blocks
Answers may vary	Example Solution Code

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Evaluate

Please answer the following prompts.

Remember to include your **name** and **date** on this paper!

1. Before this lesson did you know about the use of robotic arms in the packaging industry? From the lesson, which use of robotic arms in the packaging industry seems most interesting? Why?

Answers may vary based on the student's prior knowledge and particular interest. An example could be that students found the sorting aspect interesting because of the use of machine learning.

2. After testing your code in the Elaborate section, what was the most difficult part? What about that process made it most difficult?

Answers may vary based on student experience. In testing, the most difficult part was ensuring proper Z-height as the shipping tube height changed.

3. Does the career of packaging technician interest you? Why or why not?

Answers may vary based on student interest. This is a growing field, but the pay is fairly low compared to other careers. The Packaging Engineer job does have a much higher salary and may have been investigated by the student in the Explore section.