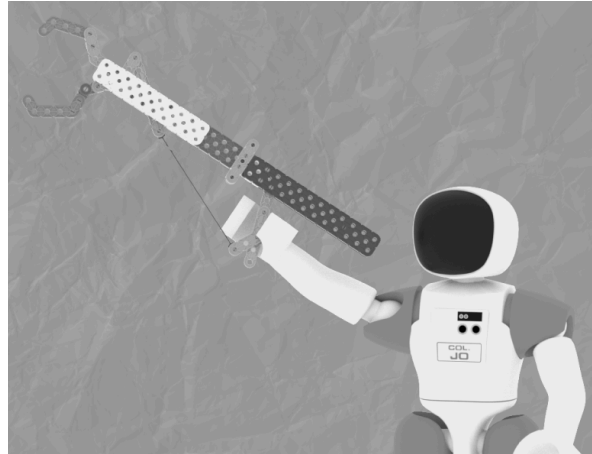


# Helping Hand Letter Home

## Introduction

In this Unit, students will explore how mechanisms can solve real-world problems. Students will build an Adaptation Claw using the VEX GO Kit. They will test the functions of the Adaptation Claw and adapt their build to successfully pick up other objects. Throughout the Unit, students will be asked to brainstorm how the Adaptation Claw can be used to help people with limited mobility.



Please keep this letter for your reference as your student works through the Helping Hand Unit. It contains information that you can use to keep up to date on what students are learning and to spark discussions about STEM at home.

## Look Inside the VEX GO STEM Lab Unit

In **Lab 1: Speed Stacker**, students will work in small groups to build an Adaptation Claw using build instructions and the VEX GO Kit. After, groups will explore the Adaptation Claw by investigating and filling out a list of questions to test and learn about the Adaptation Claw. Lastly, groups will create a strategy together to build a tower using the Adaptation Claw to stack as many plastic cups as possible in one minute, with the constraint of having limited mobility.

In **Lab 2: Adapt the Claw**, students will make connections with how mechanisms, such as the Adaptation Claw, can be used to help humans complete tasks that they may not be able to do on their own. After, groups will test the Adaptation Claw's abilities by picking up five different items that vary in shape, size, and weight to determine which types of objects the claw is capable of picking up efficiently. Then, the students will make adaptations to their claw in order to pick up an object they found difficult to pick up initially.

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## Vocabulary

### General notes on encouraging vocabulary usage with young children:

The vocabulary words offered are not meant for students to memorize terminology, but to give them language to use to talk about the activities and learning they are doing throughout the Unit. Work these terms into conversations naturally, and positively reinforce this for students as well.

- **Mechanism** - A mechanical device to make a task easier.
- **Adapt** - To make something better suited for its purpose.
- **Pin** - Connects two or more pieces so that they lay flush with one another.
- **Standoff** - Connects two pieces and leaves a space in between.
- **Shaft** - Square rod used to allow other pieces in a build to spin or rotate.
- **Beam** - The flat parts of the VEX GO Kit with either a one-hole width or two-hole width.
- **Angle Beams** - Beams that create angles of 45 or 90 degrees.

## Connection to Daily Life

Students will be able to make connections between the Adaptation Claw as a mechanism and other mechanisms they use in their daily lives. Many students are familiar with a pencil sharpener. This is a great example of a device that helps students in their daily lives. Students could look at a mop as a mechanism to help clean the floors so that they do not have to get on their hands and knees to clean. The Adaptation Claw can also be connected to grabbers or other claws used by people with limited mobility. Students will be challenged to simulate limited mobility in Lab 1 and see how the Adaptation Claw helps them to complete a task. Mechanisms are always being adapted and improved upon. Students will be able to be part of that process while modifying their Adaptation Claw during Lab 2. Students will first brainstorm, design, sketch, then build their adaptation for the claw in order to pick up an object successfully that they were not able to before.

## Follow-up questions to ask at home

Use these questions to discuss the activities that your student is participating in with their group. Included here are questions that address the trial and error that is an essential part of building and investigating. It will likely take several tries for your student

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to create their VEX GO Builds and complete activities effectively. Asking process-oriented questions and celebrating mistakes can encourage learners to embrace making mistakes and help them build resilience and confidence to persist when confronted with challenges.

1. What part of the build or activity was the most fun for you and your group? Why?
2. What other objects would you want to try and pick up with the Adaptation Claw?
3. How many mechanisms can you find at home?
4. What part of the build or investigation was challenging? How were you a problem solver with your group?
5. What is something you learned about building and adaptive tools that you didn't know before this STEM Lab?
6. What is something that you want to find out more about?