

Unit of Inquiry Name: Robots to the Rescue	Lesson # 10
Lesson Objective: Explore the design thinking process while designing an Ozobot track.	
Computer Science Standards K-2.AP.17 Describe the steps taken and choices made during the iterative process of program development. K-2.AP.14 Develop plans that describe a program's sequence of events, goals, and expected outcomes. K-2.AP.16 Debug errors in an algorithm or program that includes sequences and simple loops.	
Anchor Phenomenon: Robots can be programmed to deliver food to people. (Starship Robot Video) Question to Investigate: How can the design thinking process help us?	
ELD Language Target: Participate in collaborative conversations and demonstrate active listening in whole group, small group, and partnership settings with peers and adults. Follow turn-taking rules. Combine clauses in an increasing variety of ways to make connections between and join ideas	
Key Vocabulary: design thinking process	
Habit of Mind #15: Thinking Interdependently (Teamwork): Sensitive to the needs of others. Understanding that when people work together they are more powerful. Negotiates conflict constructively. (I can work with a team and learn from others!)	

Materials Needed	Prepare
<ul style="list-style-type: none"> • Unit 3 Resource Slides • LEGO (optional) • Chart paper cut in half for Ozobot tracks or use a printable track • Ozobot Markers • Ozobots • Students' design challenge plans from Lesson 9 	<ul style="list-style-type: none"> • Prepare a space to keep the LEGO structures and Ozobot tracks. • Make sure Ozobots have been properly charged • Cut chart paper in half. You will need one piece for each triad. • Be prepared to collect photo documentation/artifacts from the design challenge for use on the various pages of your class eBook. • Assign Seesaw Design Process Reflection Activity with your class (optional). • Seesaw option for Lessons 9-10 Ozobot Design Challenge Seesaw Activity

Stage	Teacher Does Learning Experience... Strategies/activities	Student Does
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Lesson 10 Launch/ Engage 20 min.	<p>Note: This lesson suggests the use of LEGO. If you do not have access to LEGO here are some alternatives: Have students draw their location on a piece of paper or have them build with recycled materials. Students can also use the Ozobot Design Challenge Seesaw Activity to create their tracks digitally or use a printable track.</p> <p>Seat students on the rug in a circle next to their triad partners.</p> <p><i>As we create today, we’re going to use the design thinking process. Our question to investigate today is: How can the design thinking process help us with our challenge?</i> Show Design Thinking Process image or slide. <i>We can use these steps in any order to help guide our work. Take a minute to think about where you are in this process. Turn and talk to your partners to share your thoughts. Partner B will start.</i></p> <p>Listen in on partnerships to determine which groups may need additional support with language of design thinking process.</p> <p><i>Today we are going to continue our design challenge and begin to create! We are going to use LEGO to create structures to place on our track. You have 15 minutes to create the school, the store, and Hugo’s house. Partner A will build the school. Partner B will build the store. Partner C will build Hugo’s house.</i></p> <p><i>It’s ok if you do not finish all the structures, you will have time to work on these structures later.</i></p> <p>Review LEGO expectations as needed.</p>	<p>Students discuss with their triads where they are in the design thinking process. (3 minutes)</p> <table><tr><th>Expected Student Responses (ESR)</th></tr><tr><td><ul style="list-style-type: none">• We are in the ____ step of the design process.• We still need to work on ____.</td></tr></table> <p>Students use LEGO to build the school, the store, and Hugo’s house. (15 minutes)</p>	Expected Student Responses (ESR)	<ul style="list-style-type: none">• We are in the ____ step of the design process.• We still need to work on ____.
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Lesson 10 Explore/ Explain 25 min.	<p><i>Engineers and designers, your LEGO structures look amazing! Now that we have our structures built we are going to work on our Ozobot track. Remember your design should have a pause code at each location. Take a look at your plan from our last lesson, point to your location’s pause code and give me a thumbs up. Each path between each location should have another Ozobot code. Point to your code and give</i></p>	<p>Students count their codes and use fingers to display amount of codes used on their track. (1 minute)</p>		

me a thumbs up. Take a look at your plan with your partners and count your codes. Show me with your fingers how many codes your track has.

Allow for student responses.

Great, you should all have at least 6 codes in your plan. Now take a minute to think about why you used these codes. Turn and talk with your triad partners about why you are using why you are using that specific code. Partner C will start.

Allow time for partner talk. Listen in and support partnerships as needed.

Wow, we are not only hard working engineers and designers but we are coders too! Today you will be drawing your tracks with our special Ozobot markers. Remember we need to be extra careful with these markers and make sure we put the caps on tightly when we are finished.

Revisit ebook page on markers as needed.

As you work together with your partners, you are growing our habit of mind of Thinking Interdependently (Teamwork). You will be sharing your markers with a small group, so remember to ask nicely when you need a marker and wait patiently if the color you need is being used.

Show HOM #15 or use Resource Slides

Remember to talk with your partners and make sure you understand your plan and your codes before you draw your track.

Distribute chart paper (or copies of the [printable track](#)) and Ozobot markers to triad groups. Depending on the amount of markers in your kit, two triad groups may need to share one set of markers.

If students make errors, encourage them to problem solve. A small piece of paper can be taped over errors in track or correction tape. Students may also want to use pencil to draw their tracks before using the Ozobot markers.

Listen in on triads, using facilitator questions and providing support as needed.

Students take a minute to think and then talk with their triad about why they are using specific codes. (5 minutes)

Expected Student Responses (ESR)

- We are using the ____ code because ____.

Students work with their triads to draw the Ozobot track on chart paper. (15 minutes)

	<div>Facilitator Questions</div> <ul style="list-style-type: none"> • What is your robot's mission? • Where does your path need to go? • What codes will you use on your track? • Why are you using that specific code? <p>As students complete their tracks, distribute Ozobots to groups to test and fix any mistakes with the codes on their tracks.</p> <p>Ok! Let's get ready to clean up! Make sure that all of our markers are capped tightly and the Ozobot is turned off. Both the marker and the Ozobot should be placed on the desk. Now let's practice our Pause, Breath, Finish Up chant.</p>	<p>Students use Ozobots to test and fix the codes on their tracks. (7 minutes)</p>
<p>Lesson 10</p> <p>Reflect/ Evaluate</p> <p>15 min.</p>	<p>Reflection can be done as a whole group discussion, in triads, and/or individually using Seesaw Design Process Reflection Activity.</p> <p>Roboticians and coders you did an excellent job of creating your tracks and working together today. Tomorrow we will have a chance to continue our design challenge and we work on improving our track designs. For today's reflection, let's revisit our question to investigate: How can the design thinking process help us?</p> <div> <div>Guided Reflection / Discussion Prompts</div> <ul style="list-style-type: none"> • What steps of the design process did you go through today? • What do you still need to work on? • Explain where you found a mistakes in your code. </div> <p>Guide students through Phenomena Wall Reflection</p> <p>Our question to investigate today was, "How can robots help people affected by extreme weather"</p> <p>Let's review what we did and what we figured out.</p> <p>Add student thinking to the Phenomena Wall.</p>	<p>Students share their tracks and reflect on the design thinking process in Seesaw using Seesaw Activity. (10 minutes)</p> <div> <div>Expected Student Responses (ESR)</div> <ul style="list-style-type: none"> • We were in the ____ step of the design process today. • We still need to work on ____. • There was a mistake in ____. • We fixed the mistake by ____. </div> <p>Students reflect and add to phenomena wall. (5 min)</p>

Please join the Unit 3 Curriculum Discussion at <https://forms.gle/pPYEBvxdTFbSKPNo9> to provide feedback on this lesson.