

Twirling Teacups

Round and round! Sofie and Leo are excited to try this new spinning ride today.

🕒 30–45 min. 📦 Beginner 🎓 Grades 1–2



Teacher Support

Key objectives

Students will:

- Modify a solution while considering a specific goal or outcome
- Refine and improve the prototype
- Practice helping a story character
- Describe key ideas or details from a text

Things you will need

(one for every two students)

- LEGO® Education SPIKE™ Essential Set
- Device with the LEGO® Education SPIKE™ App installed

Additional resources

[Building instructions](#)

[Meet the Team: Minifigure Bios](#)

[Assessment Rubric](#)

Educational standards

- CSTA 1A-AP-08
- NGSS K-2 ETS 1-1
- ISTE 1.4d
- CCSS.ELA-LITERACY.SL.2.2

Language Arts Extension

- CCSS.ELA-LITERACY.W.2.7

Prepare

- Review the *Twirling Teacups* lesson in the LEGO® Education SPIKE™ App.
 - Consider the abilities and backgrounds of all your students. Differentiate the lesson to make it accessible to everyone. See the *Differentiation* section below for suggestions.
 - If time allows, plan and facilitate the language arts extension. See the *Extension* section below for more information.
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Engage

(Whole Class, 5 Minutes)

- Facilitate a quick discussion about how to consider a specific goal or outcome when refining and improving an existing object.
 - Talk with your students about how a spinning amusement park ride works.
 - Ask questions, like: *If you were adding new seats to a spinning ride, what would those new seats have to be able to do? What would you have to think about as you added the new seats?*
 - Introduce your students to the story's main characters and the first challenge: starting the teacup ride.
 - Distribute a brick set and a device to each group.
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Explore

(Small Groups, 30 Minutes)

- Have your students use the LEGO® Education SPIKE™ App to guide them through their first challenge:
 - Create and test the program that starts the teacup ride.
 - Have your students iterate and test their models to complete the next two challenges in the app:
 - Change the program to improve the teacup ride.
 - Upgrade the teacup ride to fit more friends. Make sure that all of the seats can move or spin!
 - You can find coding and building support in the *Tips* section below.
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Explain

(Whole Class, 5 Minutes)

- Gather your students together to reflect on their completed challenges.
 - Ask questions, like: *How did you upgrade the teacup ride? How did you make sure that the new seats moved when the ride was spinning?*
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Elaborate

(Whole Class, 5 Minutes)

- Prompt your students to discuss and reflect on why it's important to keep the desired outcome or goal in mind when modifying a prototype.
 - Ask questions, like: *Why is it important to know why you're modifying your prototype, and what your goal is? How do you keep that goal in mind when you're improving or upgrading a prototype?*
 - Have your students clean up their workstations.
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Evaluate

(Ongoing Throughout the Lesson)

- Ask guiding questions to encourage your students to "think aloud" and explain their thought processes and reasoning in the decisions they've made while building and programming.

Observation Checklist

- Measure your students' proficiency in refining and improving potential prototypes with a specific goal or outcome in mind.
- Create a scale that matches your needs. For example:
 1. Needs additional support
 2. Can work independently
 3. Can teach others

Self-Assessment

- Have each student choose the brick that they feel best represents their performance.
 - Yellow: I think I can refine and improve prototypes with a specific goal or outcome in mind.
 - Blue: I can refine and improve prototypes with a specific goal or outcome in mind.
 - Green: I can refine and improve prototypes with a specific goal or outcome in mind, and I can help a friend do it too.

Peer-Feedback

- In their small groups, have your students discuss their experiences working together.
- Encourage them to use statements like these:
 - I liked it when you...

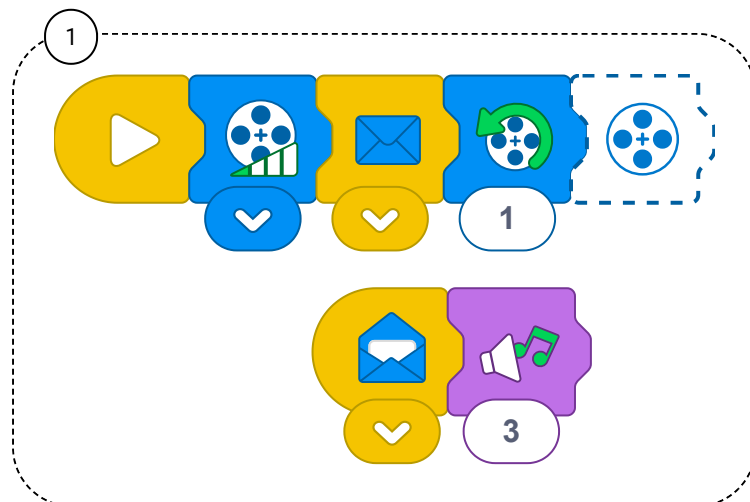
- I'd like to hear more about how you...

Tips

Coding Tip

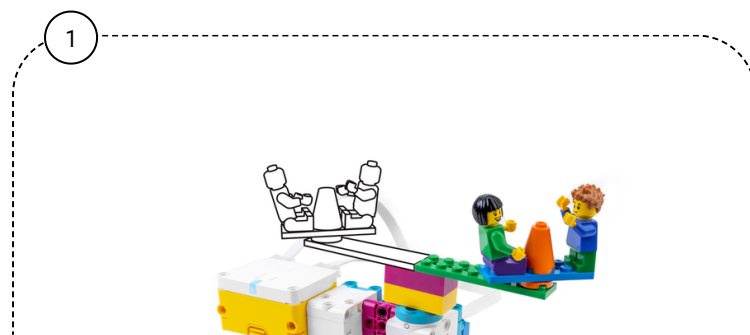
Your students will use a Message Block when completing their first challenge.

- The Message Blocks allow your students to run multiple blocks in parallel.
- Whenever a Send Message Block (closed envelope icon) is used, the Received Message Block (same-colored open envelope icon) is activated.
- After your students complete their first challenge, they'll be provided with three Inspiration Coding Blocks to help them modify their programs.
- The Inspiration Coding Blocks are intended to spark their imaginations as they experiment to find their own solutions.



Model Tip

- After your students complete their second challenge, they'll be provided with three Inspiration Images and an open-ended prompt for improving their models.
- The Inspiration Images are to help spark their imaginations as they experiment and change their models.





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There aren't any building instructions for this challenge.

Differentiation

Simplify this lesson by:

- Shortening the lesson to only include the first challenge
- Selecting one Inspiration Image to help your students change their models

Increase the difficulty by:

- Exploring new and different Coding Blocks in the program
- Investigating how to make the seats spin in different directions

Extension

- Have your students research different rides in an amusement park, select their favorite, and write a persuasive paragraph about why it's the best ride.

If facilitated, this will extend beyond the 45-minute lesson.

Language Arts: CCSS.ELA-LITERACY.W.2.7