

Classic Carousel

Create a new spinning ride for Sofie to try!

🕒 30–45 min. 📦 Beginner 🎓 Grades 1–2



Teacher Support

Key objectives

Students will:

- Improve and refine a prototype as part of the design process
- 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-12
- NGSS K-2 ETS 1-1
- ISTE 1.4c
- CCSS.ELA-LITERACY.SL.2.2

Language Arts Extension

- CCSS.ELA-LITERACY.W.2.3

Prepare

- Review the *Classic Carousel* lesson in the LEGO® Education SPIKE™ App.
 - If necessary, pre-teach these related vocabulary words: *design*, *improve*, *prototype*, *refine*, and *test*.
 - 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 making improvements.
 - Talk with your students about going to an amusement park and wanting to make a fun ride even better.
 - Ask questions, like: *What would you do if you had the chance to change a ride? How could you change it?*
 - Introduce your students to the story's main characters and the first challenge: making the carousel spin.
 - 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 makes the carousel spin.
 - Have your students iterate and test their models to complete the next two challenges in the app:
 - Change the program to improve the carousel.
 - Upgrade the carousel for Sofie.
 - 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 make the carousel spin? How did you upgrade the carousel?*
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Elaborate

(Whole Class, 5 Minutes)

- Prompt your students to discuss and reflect on the process of making improvements and refinements.
 - Ask questions, like: *What were you thinking about when you decided to improve the carousel? How did you know when you'd made enough improvements?*
 - 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 improving a prototype.
- 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 improve a prototype.
 - Blue: I can improve a prototype.
 - Green: I can improve a prototype, and I can help a friend do it too.

Peer-Feedback

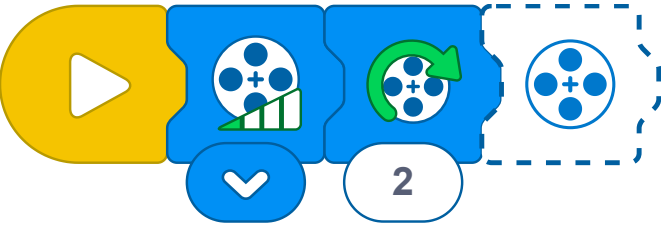
- In their small groups, have your students discuss their experiences working together.
 - Encourage them to use statements like these:
 - I liked it when you...
 - I'd like to hear more about when you...
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Tips

Coding Tip

- 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.

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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
 - Adding the Color Sensor or Light to the model
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Extension

- Have your students write a story about Sofie's experience at the amusement park. Ask them to include temporal words to indicate the order of events.

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

Language Arts: CCSS.ELA-LITERACY.W.2.3