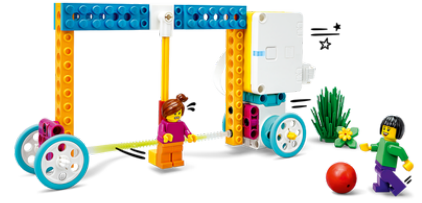


Winning Goal

How can Maria's soccer game be more like a computer game?

🕒 30–45 min. 📦 Beginner 🎓 Grades 3–5



Teacher Support

Key objectives

Students will:

- Identify the failure points of a model or program
- Consider failure points in order to make improvements
- Engage effectively in a range of collaborative discussions

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 1B-AP-11
- NGSS 3-5 ETS1-3
- ISTE 1.4d
- CCSS.ELA-LITERACY.SL.5.1

Language Arts Extension

- CCSS.ELA-LITERACY.W.5.4

Prepare

- Review the *Winning Goal* lesson in the LEGO® Education SPIKE™ App.
 - If necessary, pre-teach these related vocabulary words: *compare*, *contrast*, and *failure*.
 - 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 failure.
 - Talk with your students about a time when they tried to complete a task or an activity but couldn't (e.g., not being able to save a goal in soccer).
 - Ask questions, like: *How did it feel to fail? How did you change your approach so that you would succeed the next time?*
 - Introduce your students to the story's main characters and the first challenge: moving the goal.
 - 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 moves the goal.
 - Have your students iterate and test their models to complete the next two challenges in the app:
 - Modify the program to make the goal move in a different way.
 - Design your own upgraded moving goal.
 - 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 modify the program to make the goal move in a different way? What did you consider when you designed your own moving goal?*
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Elaborate

(Whole Class, 5 Minutes)

- Prompt your students to discuss and reflect on the process of identifying the failure points of a model or program.
 - Ask questions, like: *How could you determine when the goal failed? What did you observe? How could you use these observations to make it successful in the future?*
 - 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 identifying the failure points of a model or program.
- 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 identify failure points of a model or program.
 - Blue: I can identify failure points of a model or program.
 - Green: I can identify failure points of a model or program, and I can help a friend do it too.

Peer-Feedback

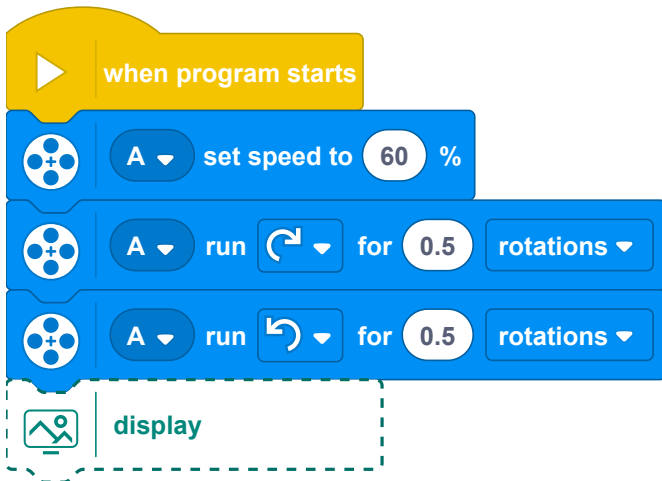
- In their small groups, have your students discuss their experiences working together.
 - Encourage them to use statements like these:
 - I liked it when you...
 - I'd like to hear more about how you...
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Tips

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 personalize their models.

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There aren't any building instructions for this challenge.

Differentiation

Simplify this lesson by:

- Selecting one Inspiration Image to help your students personalize their models
- Experimenting with either the coding or the building

Increase the difficulty by:

- Creating a program for another group and having them try to score
 - Adding the Light to the goal, then programming it to act as a countdown clock
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Extension

- Have your students write a sports commentary for Maria and Sofie's soccer game. Make sure that they use correct sports terminology and directional vocabulary.

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

Language Arts: CCSS.ELA-LITERACY.W.5.4