

# The Perfect Swing

Maria doesn't want a ride that goes too fast. Do you think the swing will be a perfect fit?



🕒 30–45 min.

📦 Beginner

🎓 Grades 1–2

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## Teacher Support

Key objectives

Students will:

- Gather information about the needs or wants of others
- Change a solution to meet the needs or wants of others
- 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-10
- NGSS K-2 ETS 1-2
- ISTE 1.4c
- CCSS.ELA-LITERACY.SL.2.2

### Language Arts Extension

- CCSS.ELA-LITERACY.L.2.1

## Prepare

- Review the *Perfect Swing* lesson in the LEGO® Education SPIKE™ App.
- If necessary, pre-teach these related vocabulary words: *change*, *need*, *rotate*, *solution*, and *want*.

- 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 changes to include things that others need or want.
    - Talk with your students about two friends who want to go on the same ride at an amusement park. One wants to go fast, but the other doesn't.
    - Ask questions, like: *How could it be possible that they both like going on the same ride? What would happen if they rode the ride at the same time?*
  - Introduce your students to the story's main characters and the first challenge: making the swing move.
  - 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 swing move.
  - Have your students iterate and test their models to complete the next two challenges in the app:
    - Change the program to make the swing better for a friend who wants a more exciting ride.
    - Upgrade the swing for Maria and her friend.
  - 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: *What did you change to make the swing perfect for Maria and her friend? How did changing the program make the ride different?*
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## Elaborate

(Whole Class, 5 Minutes)

- Prompt your students to discuss and reflect on the importance of making changes to include things that others need or want.
  - Ask questions, like: *Why do you think it's important to include things that other people need or want when you're creating something new? How do you feel when something that you need or want is included?*
  - 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 changing a solution to meet the needs or wants of others.
- 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 make changes to include things that others need or want.
  - Blue: I can make changes to include things that others need or want.
  - Green: I can make changes to include things that others need or want, and I can help a friend do it too.

## Peer-Feedback

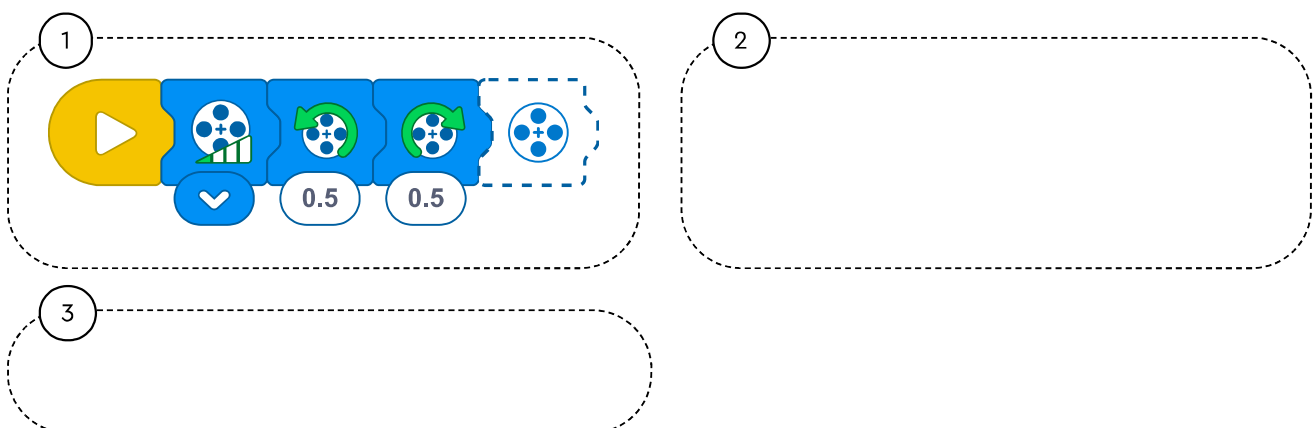
- In their small groups, have your students discuss their experiences working together.
- Encourage them to use statements like these:
  - I liked it when you...
  - I'd like to hear more about how you...

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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.



### 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.



( 1 )



( 2 )

( 3 )

*There aren't any building instructions for this challenge.*

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## 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:

- Adding the Color Sensor and including it in the program that starts the swing
  - Adding more friends to the ride and changing the program to meet their needs and wants
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## Extension

- Have your students interview their classmates to find out what they like and don't like about different amusement park rides.

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

**Language Arts:** CCSS.ELA-LITERACY.L.2.1

