

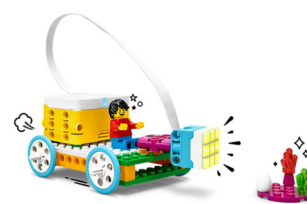
Cave Car

Daniel wonders what lives inside a dark cave. What do you think is hiding in the dark?

🕒 30–45
min.

📦 Beginner

🎓 Grades
1–2



Teacher Support

Key objectives

Students will:

- Describe a program's sequence of events, goals, and expected outcome
- Explore objects that can be seen if light is available
- Practice helping a story character
- Participate in collaborative conversations

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 1-PS4-2
- ISTE 1.5d
- CCSS.ELA-LITERACY.SL.1.1

Language Arts Extension

- CCSS.ELA-LITERACY.W.1.2

Prepare

- Review the *Cave Car* lesson in the LEGO® Education SPIKE™ App.
- If necessary, pre-teach these related vocabulary words: *cave*, *dark*, *light*, *sequence*, and *try*.

- 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 helping a friend when they have a problem.
 - Talk with your students about what they could do for a friend who needs help seeing in the dark.
 - Ask questions, like: *What could you do to help a friend see something in the dark? How would you describe what you're doing to help?*
 - Introduce your students to the story's main characters and the first challenge: turning on the cave car's light.
 - 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:
 - Make and try the program that turns on the cave car's light.
 - Have your students iterate and test their models to complete the next challenge in the app:
 - Change the program for Daniel's next trip.
 - You can find coding 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's Daniel's goal in the story? What happened to the light after you made a program for it?*
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Elaborate

(Whole Class, 5 Minutes)

- Prompt your students to discuss and reflect as they describe the process of creating a program to solve a problem.
 - Ask questions, like: *What did you expect would happen when you changed the program for the light? Did your light do what you expected? How would you describe what you did to change the light?*
 - 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 describing a program's sequence of events and its outcome.

- 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 describe a program's sequence of events and its outcome.
 - Blue: I can describe a program's sequence of events and its outcome.
 - Green: I can describe a program's sequence of events and its outcome, and I can help a friend do it too.

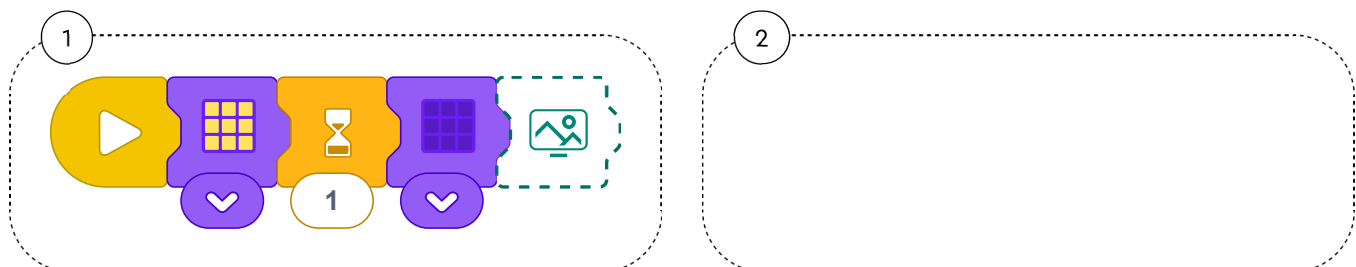
Peer-Feedback

- 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

- 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.





Differentiation

Simplify this lesson by:

- Reading the *Cave Car* story and instructions from the LEGO® Education SPIKE™ App aloud to your students
- Shortening the lesson to only include the first challenge

Increase the difficulty by:

- Creating a new version of the cave car
- Building what Daniel meets after he lights up the cave

Extension

- Have your students write an informational paragraph about the fictional creatures that live in the cave. Ask them to describe what they look like, what they eat, and what they do for playtime.

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

Language Arts: CCSS.ELA-LITERACY.W.1.2