The Great Desert Adventure

It's time for another great adventure. Help the team reach the pyramids!

🕐 45–90 min.   📦 Beginner   🎓 Grades 1–2

Teacher Support

Key objectives

Students will:
- Apply computational thinking skills to solve the given problem
- Identify the main characters and their problem in the story
- Participate in collaborative conversations to solve the problem

Things you will need

(one for every two students)
- LEGO® Education SPIKE™ Essential Set
- Device with the LEGO® Education SPIKE™ App installed
- OPTIONAL: Additional materials for brainstorming (e.g., notebook paper, science notebook, etc.)

Additional resources

Meet the Team: Minifigure Bios
Assessment Rubric

Educational standards

- All previously-listed
  ISTE 1.5a, 1.5c, 1.5d
  Language Arts Extension
- CCSS.ELA-LITERACY.W.1.3

Prepare

(NOTE: This lesson will extend over two 45-minute class sessions.)

- Review the *Great Desert Adventure* lesson in the LEGO® Education SPIKE™ App.
- If necessary, pre-teach these related vocabulary words: *brainstorm, desert, pyramid, imagine,* and *wonder*.
- 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.

PART A (45 Minutes)

Engage

(Whole Class, 10 Minutes)

- Facilitate a quick discussion about brainstorming and decision-making.
  - Talk with your students about ways of finding a variety of solutions to solve a problem in your classroom.
  - Ask questions, like: *Why should you come up with a lot of ideas when trying to solve a problem? Why should you try different ideas?*
- Introduce your students to the team and the challenge: brainstorming how the team will get to the pyramids.
- Distribute a brick set, any additional brainstorming materials, and a device to each group.

Explore

(Small Groups, 25 Minutes)

- Have your students use the LEGO® Education SPIKE™ App to guide them through their first challenge:

- ○ Create a way for the team to get to the pyramids. Use at least one motor or sensor (i.e., Color Sensor or Light).
- ○ Your students can use the LEGO bricks supplemented with additional materials to brainstorm. Encourage them to come up with multiple solutions.

Explain

(Whole Class, 10 Minutes)

- ○ Gather your students together and facilitate a sharing session where they present their initial ideas and provide feedback and suggestions to their peers.

PART B (45 minutes)

Elaborate

(Small Groups, 30 Minutes)

- ○ Have your students build, program, and test the prototypes and ideas they came up with during the brainstorming session in Part A of this lesson.
- ○ Remind them to use at least one motor or sensor.
- ○ Encourage them to test and refine their models and programs over 2–3 iterations.
- ○ You can find coding and building support in the *Tips* section below.

Evaluate

(Whole Class, 15 Minutes)

- 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.
- Have your students clean up their workstations.

Observation Checklist

- Measure your students' proficiency in applying their computational thinking skills to complete the given task.
- 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 design, build, and program a solution.
    - Blue: I can design, build, and program a solution.
    - Green: I can design, build, and program a solution, 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

- There are no coding instructions or Inspiration Coding Blocks for this lesson.
    - Encourage your students to experiment and find their own solutions.

Model Tip

- There are no building instructions or Inspiration Images for this lesson.

- Encourage your students to create their own models.
    - If they need additional guidance, refer them to the building instructions for previous lessons in this unit.
  - There's no right or wrong model for this lesson.
    - Your students can create entirely new models, find inspiration in the models from previous lessons, or simply recreate models from earlier lessons.

Differentiation

Simplify this lesson by:

- Reading the *Great Desert Adventure* story from the LEGO® Education SPIKE™ App aloud to your students
- Giving your students the building instructions from previous lessons to use as inspiration for their new way of getting to the pyramids

Increase the difficulty by:

- Using two motors or sensors
- Creating two unique programs, resulting in two different travel experiences using the same model

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Extension

- Have your students write a story about why the team decided to visit the pyramids, how they got there, and what they saw when they arrived.

If facilitated, this will extend beyond the 90-minute lesson.

Language Arts: CCSS.ELA-LITERACY.W.1.3