

Dog Obstacle Course

Build an obstacle course for dogs! Describe the push and pull forces that are at work. This lesson will help familiarize your students with the contents of the LEGO® Education BricQ Motion Essential Set. We recommend taking some time before the lesson to show your students what's beneath the white tray, and to explain that the bricks are sorted by color. Students will find the building instructions books under the tray. They'll only need book "A" for this unit.



⌚ 30–45 min.

📦 Beginner

🎓 K–2

💻 Hybrid

Teacher Support

Key objectives

Students will:

- Become familiar with using this set to build models
- Explore how pushing and pulling affects an object's motion

Things you will need

- LEGO® Education BricQ Motion Essential Sets (one for every two students)

Additional resources

[Building instructions book "A," pages 2-3](#)

[Assessment Rubric](#)

Educational standards

- NGSS K-PS2-2
- NGSS K-2-ETS1-1
- ISTE 7C
- CCSS.ELA-LITERACY.SL.1.2

Lesson extension

- CCSS.ELA-LITERACY.W.1.2

Hybrid learning resources

[Personal Learning Kit lesson plan](#)

Prepare

- Review the online student material. Use a projector to share this material with your students during the lesson.

- Make sure that you've covered the relevant concepts (*i.e., push and pull*) in an earlier lesson.
 - Consider the abilities and backgrounds of all of your students. Differentiate the lesson to make it accessible to everyone. See the *Differentiation* section below for suggestions.
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Engage

(Whole Class, 10 Minutes)

- Watch the student video [here](#) or access it via the online student material.
 - Facilitate a quick discussion about dogs.
 - Ask questions, like:
 - How do you train a dog?
 - What types of training obstacles did you see in the video?
 - How did the dogs react to them?
 - Tell the students that they'll be building an obstacle course for dogs. Explain that they won't be given building instructions but should instead use the picture on page 1 in their building instructions books as guidance. Tell them that each group:
 - Can copy the models in the picture on page 1 of building instructions book "A," embellish them, or invent their own designs.
 - Should aim to make at least 3 different types of obstacles for dogs to run through, over, under, or around.
 - Conclude the discussion by distributing a LEGO® Education BricQ Motion Essential Set to each group.
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Explore

(Small Groups, 20 Minutes)

- Have the students work in pairs to design and build an obstacle course for dogs.
- There aren't specific building instructions for this lesson. However, students can refer to the picture on page 2 of building instructions book "A" for inspiration. They're also welcome to design their own models.
 - Note: There aren't enough elements to build all the models in the inspiration

picture at the same time.

- You can find support for building in the *Tips* section below.
 - Once the students have finished building, encourage them to line up their obstacles and run their dogs through the course.
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Explain

(Whole Class, 5 Minutes)

- Gather your students together to share what they've built.
 - Ask questions, like:
 - How does the dog move through your obstacle course? (*e.g., push/pull, up/down, over/under, through, across, around.*)
 - Which obstacles require a push? (*e.g., In the "fetch" obstacle, you pull back the spring to push and launch the ball.*)
 - Which obstacles require pulling? (*e.g., In the "dog sled" obstacle, where the dogs pull the sled along.*)
 - Have you seen any other push and pull forces today?
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Elaborate

(Whole Class, 10 Minutes)

- Have your students continue to invent and build more obstacles.
 - If time allows, have the groups combine all of their models to create a bigger obstacle course.
 - Ask the students to disassemble their models, sort the bricks back into the trays, and clean up their workstations.
 - Remind the students to check the floor for dropped elements and to put them back where they belong.
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Evaluate

(Ongoing Throughout the Lesson)

- Encourage the students to explore their models' movement as they build. Ask them to explain which parts are pushing others.
- Ask guiding questions to encourage your students to "think aloud" and explain their thought processes and reasoning in the problem-solving decisions they've made when building their models.

Observation Checklist

- Measure your students' proficiency in describing the push and pull forces that are at work in an obstacle course.
- 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:
 - Green: I think I can explain what "push" and "pull" mean.
 - Blue: I know I can explain what "push" and "pull" mean.
 - Purple: I can explain what "push" and "pull" mean, and I can help a friend understand, too.

Peer-Feedback

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

Model Tips

- The inspiration picture on page 2 of building instructions book "A" shows 7 agility training models and 2 decorative models.
 - Show your students how to use the Brick Separator to remove stuck bricks.
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Differentiation

Simplify this lesson by:

- Assigning each group specific obstacles to build; the seesaw and round treadmill are great models to start with because these mechanisms emphasize pushing and pulling

Increase the difficulty by:

- Challenging the students to design even more training obstacles, including parts that move, spin, tilt, or roll
 - For advanced builders, pull out a random element and ask them to find a way to use it in a model
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Extensions

Language Arts Extension (Note: This will require additional time)

To incorporate language arts skills development, have the students write an announcer's script narrating their dog's run through the obstacle course.

CCSS.ELA-LITERACY.W.1.2

1:1 Hybrid Learning

Download the Personal Learning Kit lesson plan from the hybrid learning resources.