

Facilitation Notes

Engage ⌚ 5 min.

Ask students what they know about golf. Introduce the story of a mini-golf course opening a new hole with a gadget that can putt the ball.

LEGO education

I can describe an object's motion.

I can identify motion patterns.

I can use patterns to predict future motion.

Golfing Over the Edge

Students will make observations of an object's motion to provide evidence that a pattern can be predicted.

LEGO education

Golfing Over the Edge

How can you hit the perfect putt?

The mini-golf course wants to add a new challenge! They have an idea for a golf gadget that can hit the ball instead of using a club. They want to know how well it works. Can you help them test it?



0 | Goals and Objectives

You can introduce the students to the objective and learning targets of this lesson.

1 | Introduction

Ask students what they know about golf.

- *What equipment do players use?* (sticks called *clubs* to hit the ball)
- *What are two main ways that they hit the ball?* (A *putt* is when you hit the ball lightly to knock it into the hole. Players also hit the ball hard to try to make the ball go as far as possible.)

You can differentiate between putts and hard hits.


2 | Context

You can use questions to check students' understanding about mini-golf courses. Build their background knowledge as needed.

- *What do you know about mini-golf courses?*
- *What kind of golf hits do people make there?* (putts or small hits to try to get the ball into a hole)
- *How are the holes at a mini-golf course different from each other?* (Often each hole has a theme, like a water feature or bridge. Sometimes there are obstacles to get through or fun features to interact with on the way to the hole.)

Explore ⌚ 10 min.

In groups of 4, students will build the golf gadget and a ball. They will explore hitting the ball from different heights.



3 | Groups and Roles

Divide the students into groups of 4. Use the blue, red, green and yellow LEGO® minifigures to assign student roles and help each student find which part of the collaborative model they will build. They can find the corresponding blue, red, green and yellow LEGO minifigure icons in the building instructions.

4 | Build and Explore

Emphasize that students are testing the gadget to see how it works to hit the ball from each height. They need not try to putt the ball into a hole.

If students are ready, they can use these steps to identify patterns in the ball's motion as it is hit from different heights. They should try hitting the ball from each height a few times.

1. *Measure how far the ball goes each time you raise the arm from the first height.*
2. *Record this data on paper or in a notebook.*
3. *Repeat the steps from the second height.*

Building Instruction for use during Explore

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