

Use a fun shuffleboard game to predict how the forces acting on an object can change its motion. In this lesson, your pupils will predict how the force of friction that is acting on an object will affect its motion.



🕒 30–45 Minutes

📦 Beginner

🎓 Key Stage 3

### Engage (Whole Class, 5 Minutes)

- Facilitate a quick discussion about shuffleboard.
- Ask questions to start your pupils thinking. Here are some suggestions:
  - What must shuffleboard players consider when making a shot? (*The two most important considerations are the strength of the push and the friction of the playing surface.*)
  - Which type of force is needed to move the disc? (*Players use a push force with their cues to generate forward momentum to move the disc. The harder they push, the farther the disc will go.*)
- Transition your pupils to the building challenge.

### Explore (Individual Work, 20 Minutes)

- Have your pupils work independently to build the Shuffleboard Game model.
- The Student Worksheet explains the building steps. There are no specific building instructions.
- Your pupils can refer to the pictures on the Student Worksheet for inspiration, or rely on their imaginations.

### Explain (Whole Class, 10 Minutes)

- Prompt your pupils to explain how and why the disc's motion was different on each of the surfaces they've tried.
- Ask questions like these:
  - Which force made the disc move less on the sheet of paper? (*The surface of the paper generated more friction, which slowed the disc's movement.*)

### Elaborate (Individual Work, 10 Minutes)

- Encourage your pupils to build a scoring tool and come up with some fun game rules.

### Evaluate (Individual Work)

- Ask each pupil to give an example of how the forces acting on the disc affected its motion.

### Let's play shuffleboard!

Build:

A cue (pusher)

A disc

2 distance markers

Use the pictures for inspiration, or use your imagination.

Place the disc on the mark below and use the cue to push it. (Use a pencil to mark three trials, and use the distance marker to mark the average.)

Now place the disc on a smooth surface beside this worksheet and push it with the cue. (Use a pencil to mark three more trials, and use the second distance marker to mark the average.)

Why does the disc move differently on a smooth surface compared to on this sheet of paper?

Bonus: Build a second cue, invent some game rules and play against someone at home.

What kind of surface will you play on? Why? What strategy will you use? Why?

