

# WORKSHOP EXTENSION ACTIVITY

Built by The Home Depot Kids Workshop

## August 2022: Summer Camper

Ages 5-12

### CONNECT.

Have you ever been in a car during bad weather? While you probably haven't yet been in the driver's seat, you've likely experienced hazardous weather as a passenger!

What kinds of weather conditions make driving more difficult? *Why* do these conditions make driving trickier? Think about the different types of weather that affect where you live such as rain, snow, or hail.

### INVESTIGATE.

It's not just the weather that can make driving harder... Road surfaces play a role too! There are many different kinds of road surfaces and conditions that you can experience as a driver. Let's experiment to see how your Summer Camper fare in a few of them.

#### You'll need:

- Large piece of cardboard, foam board, or plywood (the bigger the better, but hopefully at least 3 x 4 feet long)
- Sandpaper
- Carpet samples
- Aluminum foil
- Play dough or clay
- Tape
- Glue
- Timer
- Ruler

- First, convert your board into a road with separate lanes. To do this, place your Summer Camper along the longest edge of the board so you can tell how wide each lane should be. Then use the ruler to divide the board into lanes, creating as many as possible. If you can't create at least three lanes, try to find a second board.
- Next, give each lane a different surface. Use the glue to cover one lane with sandpaper, one with carpet samples, and one with aluminum foil. If you still have lanes left, be creative: What other kind(s) of surface could you test?
- Once each lane is secure and the glue is dry, it's time to set up your incline. Figure out where you can prop the board so it looks like a ramp. Don't make it too steep. Your car should be able to roll down without falling off!
- Then prepare to start your experiment. Hold your Summer Camper at the top of one lane. Start your timer and release your car at the same time. As it rolls down the lane, observe how it travels and see how long it takes to get to the bottom. Record your results in the chart below.
- Review your results once your experiment is complete. On which road surface did your summer camper do best? On which road surface did it have more trouble?

Road Surface	Driving Experience	Time: Start to Finish
Sandpaper		
Carpet		
Aluminum Foil		

### INNOVATE.

Brainstorm: How could you optimize your Summer Camper to help it travel more safely on one or more of these tricky roads?

Choose one surface that was difficult to drive on and consider whether the wheels need more **friction** or less **friction** in order to drive more safely.

Once you know whether you want to create more or less friction, brainstorm how to use the materials from the **INVESTIGATE** section to modify the tires and enhance the Summer Camper's performance on the road.

Then optimize the tires and take the Summer Camper out for another spin on the road surface you selected! Does it drive more smoothly and/or more safely than before?

When an object wants to move in one direction, **friction** is the force that acts in the opposite direction and slows or even stops the object from moving. When a car slides, there is not enough friction... and when a car wheels get stuck, there may be too much friction.



You investigated how different road conditions can affect driving and how to safely change your approach. This is just like how a handyperson's skills help them spot and fix repairs in homes or buildings. A **handyperson** is responsible for installing or repairing appliances, basic plumbing, and maintenance or renovation tasks.

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