

# Exploring Concepts of Force and Motion

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Madden and Bear,

This morning, I noticed you both building ramps with 2x4s. Madden said, "Can we have cars?" Bear said, "The cars are inside, you need to get them Madden." I remember we had our black flexible ramp in the shed and offered it to you both. I was excited to observe what you did next. Together you unrolled the ramp and placed the starting point on a wooden spool held down by a piece of wood. The first car didn't roll at all. The second car rolled a little then fell off the side. I explained if we gave them a little push, a small amount of force that could change how far the cars rolled. Then we talked about how far they went and what would happen if we added more force when we pushed them. After we guessed what would happen you took turns using different amounts of force to test if our predictions were correct. Bear, you expressed that you wanted the cars to roll to the end of the ramp without falling off or stopping. I reminded you both to look around our outdoor classroom and you could use anything to help guide and manipulate the ramp however you want. Madden you started collecting milk crates and Bear placed them under the black ramp. You guys did a great job communicating and testing your ideas together. We also tested and made observations about cars of different sizes and weights.



When the other children joined, they were all very interested in testing the ramp and cars too! At first, this frustrated you both. I helped navigate how to communicate so you all could play together respectfully without destroying the ramp structure. With some



guidance, the other children asked you both if they could play too. You both agreed if they followed your rules. The first rule is one car down the ramp at a time. The second rule is no adding or removing parts of the ramp. Madden you did a great job enforcing rules and keeping the peace. You were both very pleased that the other children followed the rules then decided it was time to walk away and play something new. Madden and Bear, together you created a great ramp! Thank you for sharing your thoughts and ideas with me!

Love, Ms. Missy



### What learning is happening here?

While working with cars and ramps, Madden and Bear learn about concepts like force, motion, gravity, and friction. They also learn how to ask questions, solve problems, and make observations.

#### Habits of Mind (2000)

Sticking to task at hand.

Follow through to completion.

Take time to consider options.

Thoughtful and considerate of others.

Pay attention to and do not dismiss another person's thoughts, feeling and ideas.

Consider the input of others.

Weigh options.

Check for errors.

Consider prior knowledge and experience.

Welcome new information on all subjects.

#### DRDP Preschool Fundamental View (2015)

Uses comparative words to show size

Explores how objects differ by properties

Explores in specific ways

Explores new ways to use familiar things